

Oracle® Enterprise Manager

Cloud Administration Guide

12c Release 5 (12.1.0.5)

E28814-19

December 2015

Copyright © 2011, 2015, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT RIGHTS Programs, software, databases, and related documentation and technical data delivered to U.S. Government customers are "commercial computer software" or "commercial technical data" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, the use, duplication, disclosure, modification, and adaptation shall be subject to the restrictions and license terms set forth in the applicable Government contract, and, to the extent applicable by the terms of the Government contract, the additional rights set forth in FAR 52.227-19, Commercial Computer Software License (December 2007). Oracle America, Inc., 500 Oracle Parkway, Redwood City, CA 94065.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle..

Contents

Preface	xliii
Audience	xliii
Supported Plug-ins	xliii
Documentation Accessibility	xliv
Related Documents	xliv
Conventions	xliv

1 What's New in This Guide?

Part I Cloud Management Overview

2 Cloud Management - An Overview

2.1	Introduction to Cloud Management	2-1
2.2	Managing the Cloud Management Lifecycle With Enterprise Manager	2-2
2.2.1	Planning	2-2
2.2.2	Setting Up the Cloud	2-3
2.2.3	Building the Cloud	2-4
2.2.4	Testing and Deploying a Service	2-4
2.2.5	Monitoring and Managing the Cloud	2-4
2.2.6	Metering, Charging, and Optimization	2-5
2.3	Understanding the Oracle Cloud Service Models	2-5
2.3.1	Oracle Cloud Service Models	2-5
2.3.2	Oracle Cloud Anatomy	2-7
2.3.3	IaaS Components	2-8
2.3.4	DBaaS and MWaaS Components	2-9
2.3.5	TaaS Components	2-9
2.4	Accessing Oracle Cloud Features	2-10
2.4.1	Enterprise Manager Cloud Control Console	2-10
2.4.2	Self Service Portal	2-10

Part II Setting Up and Enabling Cloud

3 Setting Up the Cloud Management Infrastructure

3.1	Setting Up Self Update	3-1
3.1.1	Setting Up Enterprise Manager Self Update Mode	3-2

3.1.2	Assigning Self Update Privileges to Users.....	3-2
3.1.3	Setting Up the EM CLI Utility (Optional)	3-3
3.2	Deploying the Required Plug-ins	3-3
3.3	Defining Roles and Assigning Users.....	3-5
3.3.1	Creating Custom Roles for Self Service Application Administrators and Users	3-7
3.3.1.1	Creating a Custom Role Based on the EM_SSA_ADMINISTRATOR Role	3-7
3.3.1.2	Creating a Custom Role Based on the EM_SSA_USER Role	3-8
3.3.1.3	Creating a Custom Role Based on the EM_SSA_USER_BASE Role	3-9
3.3.2	Creating a User and Assigning Roles	3-9
3.3.3	Granting Roles and Privileges for Managing Storage Servers for Snap Clone.....	3-10
3.3.3.1	Granting General Privileges.....	3-10
3.3.3.2	Granting Target Privileges	3-10
3.3.3.3	Granting Roles	3-11
3.3.3.4	Granting Privileges for Provisioning.....	3-11
3.4	Configuring LDAP Authentication	3-11
3.5	Configuring Privilege Delegation Settings.....	3-12
3.6	Customizing the Self Service Login Page.....	3-12
3.6.1	Configuring the Self Service Login Page.....	3-12
3.6.2	Switching Back to the Enterprise Manager Login Page	3-14
3.6.3	Routing SSA Requests to a Specific OMS Pool.....	3-15

4 How to Enable Cloud

4.1	Enterprise Manager Cloud Deployment Models	4-1
4.2	Enabling Infrastructure as a Service (IaaS).....	4-2
4.2.1	Infrastructure as a Service (IaaS): Super Administrator Tasks	4-2
4.2.2	Infrastructure as a Service (IaaS): Cloud Administrator Tasks.....	4-2
4.2.3	Infrastructure as a Service (IaaS): Self Service Administrator Tasks	4-3
4.2.4	Infrastructure as a Service (IaaS): Self Service User Tasks.....	4-3
4.3	Enabling Platform as a Service (PaaS).....	4-3
4.3.1	Platform as a Service (PaaS): Super Administrator Tasks	4-4
4.3.2	Platform as a Service (PaaS): Cloud Administrator Tasks.....	4-4
4.3.3	Platform as a Service (PaaS): Storage Administrator Tasks	4-4
4.3.4	Platform as a Service (PaaS): Self Service Administrator Tasks	4-4
4.4	Enabling Database as a Service	4-5
4.4.1	Provisioning Database Artifacts	4-5
4.4.1.1	Creating Databases Using Database Template	4-5
4.4.1.2	Creating Schemas	4-5
4.4.1.3	Provisioning Pluggable Databases.....	4-6
4.4.2	Cloning Databases	4-6
4.4.2.1	Creating Full Clones.....	4-7
4.4.2.1.1	Creating Full Clones Using RMAN Backup.....	4-7
4.4.2.1.2	Creating Full Clones Using RMAN Duplicate.....	4-7
4.4.2.2	Creating Snap Clones.....	4-7
4.4.2.2.1	Creating Snap Clones from the Cloning Dashboard.....	4-8
4.4.2.2.2	Creating Snap Clones from an In-Sync Test Master.....	4-8
4.4.2.2.3	Creating Snap Clones from a Discretely Synchronized Test Master	4-8
4.4.2.2.4	Ongoing Refresh of the Test Master and the Database Instance	4-9

4.4.2.2.5	Creating CloneDB Databases.....	4-9
4.4.2.3	Creating Snap Clones for Pluggable Databases	4-9
4.5	Enabling Middleware as a Service (MWaaS)	4-10
4.5.1	Middleware as a Service (MWaaS): Cloud Administrator Tasks	4-10
4.5.2	Middleware as a Service (MWaaS): Self Service Administrator Tasks	4-10
4.5.3	Middleware as a Service (MWaaS): Self Service User Tasks	4-10
4.6	Enabling Testing as a Service (TaaS)	4-11
4.6.1	Testing as a Service (TaaS): Cloud Administrator Tasks	4-11
4.6.2	Testing as a Service (TaaS): Self Service Administrator Tasks	4-11
4.6.3	Testing as a Service (TaaS): Self Service User Tasks	4-11

Part III Setting Up and Using Infrastructure as a Service

5 Setting Up Cloud for IaaS

5.1	Getting Started.....	5-1
5.2	Cloud Infrastructure Privileges	5-3
5.3	Registering the Oracle VM Manager.....	5-7
5.3.1	Port Requirements for Oracle VM Manager Setup.....	5-10
5.3.2	Updating the Oracle VM Manager URL	5-10
5.3.3	Importing the Oracle VM Manager WebLogic Certificate	5-11
5.3.4	Discovering and Promoting the Oracle VM Manager (Optional)	5-11
5.3.5	Monitoring Configuration (OVM Manager).....	5-13
5.3.6	Upgrading the Oracle VM Manager	5-14
5.4	Synchronizing the Oracle VM Manager Targets	5-14
5.4.1	Automatic Synchronization	5-15
5.4.2	Manual Synchronization.....	5-15
5.5	Discovering a Virtual Server	5-16
5.6	Rediscovering a Virtual Server	5-16
5.7	Setting Up Networks	5-17
5.7.1	Generating MAC Addresses	5-17
5.7.2	Configuring a VLAN Group for Oracle VM Manager 3.2 or Earlier Versions.....	5-18
5.7.3	Creating a VLAN Interface for Oracle VM Manager 3.3	5-19
5.7.3.1	Viewing the VLAN Interfaces.....	5-21
5.7.3.2	Editing a VLAN Interface.....	5-21
5.7.3.3	Deleting a VLAN Interface.....	5-21
5.7.4	Creating Networks	5-22
5.8	Creating a Network Profile	5-25
5.9	Registering Storage Servers	5-26
5.9.1	Registering the File Server.....	5-27
5.9.2	Registering the Storage Array	5-28
5.9.3	File Server Details	5-30
5.9.4	Storage Array Details	5-31
5.9.5	Local File Server Details.....	5-31
5.10	Creating a Storage Repository	5-31
5.10.1	Performing Administrative Operations on a Storage Repository	5-32
5.11	Presenting the Storage Repository	5-33

5.12	Importing Assemblies, Templates, and Virtual Disks into the Storage Repository	5-34
5.12.1	Creating a Repository Export (Optional)	5-36
5.13	Using Self Update to Download Oracle VM Templates and Virtual Assemblies	5-37
5.14	Creating a Virtual Server Pool	5-38
5.14.1	Editing a Virtual Server Pool	5-41
5.15	Creating a Zone	5-42
5.16	Setting Up the Storage Quality of Service (QoS)	5-43
5.16.1	Setting Up the Network Type	5-43
5.16.2	Setting Up the Machine Sizes	5-44
5.16.3	Configuring the Software Library User	5-44
5.16.4	Configuring the Software Library User with External Management Agent	5-44
5.16.5	Defining the Request Purging Policy	5-45
5.17	Patching the Oracle VM Server	5-45
5.17.1	Configuring the YUM Repository	5-46
5.17.2	Upgrading the Virtual Server	5-46
5.18	Acknowledging OVM Events	5-46
5.19	Managing the NTP Configuration	5-47
5.20	Importing Virtual Machines	5-48
5.21	Acknowledging the Repository Events	5-50

6 Defining and Managing Cloud Policies

6.1	Managing Cloud Policies	6-1
6.2	Viewing Cloud Policies	6-2
6.3	Viewing Policies for a Target	6-3
6.4	Defining a Performance Policy	6-4
6.5	Defining a Schedule-Based Policy	6-6
6.6	Activating and Deactivating Policies	6-7
6.7	Viewing Policy Groups	6-7
6.8	Creating a Policy Group	6-9
6.8.1	Example 1	6-9
6.8.1.1	Policy for Shutting Down Guest Virtual Machine	6-10
6.8.1.2	Policy for Starting Up Guest Virtual Machine	6-10
6.8.1.3	Creating a Policy Group (Start Up and Shut Down)	6-11
6.8.2	Example 2	6-11
6.8.2.1	Policy to Scale Down a Tier Instance	6-11
6.8.2.2	Policy to Scale Up a Tier Instance	6-12
6.8.2.3	Creating a Policy Group (Scale Up and Scale Down)	6-13
6.9	DRS and DPM Policies	6-13
6.9.1	Creating Automated DRS and DPM Policies	6-15

7 Setting Up the IaaS Self Service Portal

7.1	Setting Up the Self Service Portal	7-1
7.2	Uploading Large Files on the Self Service Portal	7-7
7.2.1	Setting the OMS Property Using emctl	7-7
7.2.2	Modifying the web.xml Configuration File	7-7

8 Using the IaaS Self Service Portal

8.1	Using the Self Service Portal to Request Server Resources.....	8-1
8.2	Requesting Servers.....	8-2
8.3	Viewing Requests.....	8-6
8.4	Viewing Servers	8-7
8.4.1	Zone Details Page	8-7
8.4.2	Assembly Operations	8-8
8.4.2.1	Assembly Details Page.....	8-8
8.4.3	Tier Operations	8-9
8.4.3.1	Scaling Up a Tier Instance	8-9
8.4.3.2	Scaling Down a Tier Instance.....	8-10
8.4.3.3	Tier Details Page	8-10
8.4.4	Server Operations	8-11
8.4.4.1	Modifying the Server Configuration	8-12
8.4.4.2	Cloning the Server	8-12
8.4.4.3	Server Details Page.....	8-12
8.5	Viewing Storage	8-13
8.6	Viewing Chargeback Details	8-14
8.7	Viewing Library	8-14
8.8	Viewing Policies	8-14
8.9	Viewing Preferences	8-15

9 Administering and Monitoring an IaaS Cloud

9.1	Viewing the Infrastructure Cloud Home Page.....	9-1
9.2	Viewing the OVM Manager Home Page.....	9-3
9.3	Viewing and Managing Members	9-5
9.4	Managing Zones.....	9-5
9.4.1	Viewing the Zone Home Page	9-5
9.4.2	Creating or Editing a Zone	9-6
9.4.3	Deleting a Zone	9-7
9.4.4	Deleting a Zone from Enterprise Manager	9-7
9.5	Viewing the Virtual Server Pool Home Page.....	9-8
9.6	Managing Virtual Servers	9-8
9.6.1	Virtual Server Home Page.....	9-9
9.6.2	Editing a Virtual Server	9-10
9.6.3	Upgrading a Virtual Server	9-10
9.6.4	Starting and Stopping a Virtual Server.....	9-10
9.6.5	Performing Maintenance on the Virtual Server	9-11
9.7	Managing Guest Virtual Machines.....	9-11
9.7.1	Creating a Guest Virtual Machine.....	9-12
9.7.2	Guest Virtual Machine Home Page.....	9-12
9.7.3	Migrating a Guest Virtual Machine	9-12
9.7.4	Starting and Shutting Down a Guest Virtual Machine	9-13
9.7.4.1	Starting a Guest Virtual Machine	9-13
9.7.4.2	Restarting a Guest Virtual Machine.....	9-13
9.7.4.3	Stopping a Guest Virtual Machine.....	9-14

9.7.4.4	Killing a Guest Virtual Machine.....	9-14
9.7.5	Cloning a Guest Virtual Machine.....	9-14
9.7.6	Editing a Guest Virtual Machine.....	9-16
9.7.7	Saving a Guest Virtual Machine as a Template.....	9-18
9.7.8	Deleting a Guest Virtual Machine.....	9-19
9.7.9	Deleting a Guest Virtual Machine Only From Enterprise Manager	9-20
9.8	Deploying Guest Virtual Machines.....	9-20
9.8.1	Getting Started	9-20
9.8.2	Deployment Options.....	9-21
9.8.3	Prerequisites	9-21
9.8.3.1	Creating and Storing Virtualization Components in the Software Library.....	9-22
9.8.3.1.1	Creating an Assembly Component.....	9-22
9.8.3.1.2	Creating a Template Component.....	9-24
9.8.3.1.3	Creating an ISO Component.....	9-25
9.8.3.1.4	Creating a Virtual Disk.....	9-27
9.8.4	Provisioning Guest Virtual Machines Using Oracle Virtual Assemblies (OVA)	9-29
9.8.5	Provisioning a Guest Virtual Machine Using Oracle VM Templates	9-38
9.8.6	Provisioning a Guest Virtual Machine Using an ISO Image.....	9-42
9.8.7	Creating PXE Bootable Guest Virtual Machines	9-44
9.9	Viewing the Infrastructure Request Dashboard.....	9-46
9.9.1	Viewing Request Details.....	9-47
9.9.2	Viewing the Assembly / Tier Instance Page	9-47

Part IV Direct Monitoring

10 Direct Monitoring of Xen Based Systems

10.1	Direct Monitoring Overview	10-1
10.2	Discovering the Hypervisor Target.....	10-2
10.2.1	Deleting the Targets	10-4
10.2.2	Setting the Credential Properties.....	10-5
10.3	Viewing the Oracle Server Home Page	10-6
10.4	Viewing the Oracle Virtual Platform Home Page.....	10-6
10.5	Viewing the Oracle VM Instance Home Page	10-7

Part V Setting Up and Using Platform as a Service

11 Setting Up the PaaS Infrastructure

11.1	About Service Families	11-1
11.2	Common Setup Tasks.....	11-1
11.2.1	Adding Hosts	11-2
11.2.2	Creating the Resource Providers	11-2
11.2.2.1	Creating a PaaS Infrastructure Zone.....	11-3
11.2.2.1.1	Editing a PaaS Infrastructure Zone.....	11-6
11.2.2.1.2	Deleting a PaaS Infrastructure Zone.....	11-6
11.2.2.2	Creating a PaaS Pool	11-6
11.2.2.2.1	Creating a Database Pool	11-7

11.2.2.2.2	Creating a Middleware Pool.....	11-7
11.2.3	Configuring Request Settings	11-7
11.2.4	Setting Up Quotas.....	11-9

12 Enabling the DBaaS Cloud

12.1	Getting Started.....	12-1
12.2	Setting Up Credentials for Provisioning	12-2
12.3	Provisioning Database Software for Database as a Service	12-2
12.4	Provision the Database for Schema as a Service.....	12-3
12.5	Provision a Container Database for PDB as a Service	12-3
12.6	Configuring the Oracle Listener	12-4
12.7	Registering and Managing Storage Servers	12-5
12.7.1	Overview of Registering Storage Servers.....	12-5
12.7.2	Before You Begin.....	12-5
12.7.3	Prerequisites for Registering Storage Servers.....	12-6
12.7.3.1	Configuring Storage Servers	12-6
12.7.3.2	Customizing Storage Proxy Agents	12-21
12.7.4	Registering Storage Servers.....	12-23
12.7.4.1	Registering a NetApp or a Sun ZFS Storage Server	12-24
12.7.4.2	Registering a Solaris File System (ZFS) Storage Server	12-26
12.7.4.3	Registering an EMC Storage Server	12-28
12.7.5	Administering the Storage Server	12-30
12.7.5.1	Synchronizing Storage Servers.....	12-30
12.7.5.2	Deregistering Storage Servers.....	12-31
12.7.6	Managing Storage Servers.....	12-32
12.7.6.1	Managing Storage Allocation	12-32
12.7.6.2	Managing Storage Access Privileges	12-41
12.7.6.3	Viewing Storage Registration Overview and Hierarchy	12-42
12.7.6.4	Editing Storage Servers.....	12-43

13 Setting Up an MWaaS Cloud

13.1	About Middleware as a Service	13-1
13.2	New Features and Enhancements in this Release.....	13-2
13.3	Getting Started with Middleware as a Service	13-2
13.3.1	Creating Provisioning Profiles.....	13-3
13.3.1.1	Creating a WebLogic Domain Provisioning Profile	13-3
13.3.2	Provisioning a Middleware Home	13-4
13.3.2.1	Provision from Oracle Middleware Home Gold Image Deployment Procedure	13-5

Part VI Provisioning New Database Artifacts

14 Getting Started with Database as a Service

14.1	Supported DBaaS Use Cases	14-1
14.2	Getting Started with DBaaS.....	14-2

15 Creating Databases Using Database Template

15.1	Creating Databases Using Database Template.....	15-1
15.1.1	Creating Resource Providers.....	15-2
15.1.1.1	Creating a Database Pool for Database as a Service.....	15-2
15.1.2	Creating a Database Provisioning Profile Using Database Template.....	15-3
15.1.3	Configuring Request Settings	15-5
15.1.4	Defining Quotas	15-5
15.1.5	Creating a Service Template Using Database Template Profile	15-6
15.1.6	Configuring Chargeback	15-9
15.1.7	Requesting a Database	15-9
15.2	Provisioning Standby Databases	15-9
15.2.1	Defining Database Pools for Provisioning Standby Databases.....	15-10
15.2.1.1	Associating a Standby Database Pool with a Primary Database Pool.....	15-10
15.2.2	Creating a Service Template.....	15-11

16 Creating Schemas

16.1	Getting Started.....	16-1
16.2	Creating Resource Providers.....	16-2
16.2.1	Creating a Database Pool for Schema as a Service.....	16-2
16.3	Creating a Database Provisioning Profile Using Export Schema Objects	16-4
16.4	Configuring Request Settings.....	16-8
16.5	Defining Quotas	16-8
16.6	Creating a Service Template for Schema Based on Profile	16-8
16.7	Creating a Service Template with Empty Schema	16-11
16.8	Configuring Chargeback.....	16-13
16.9	Requesting a Schema	16-13

17 Provisioning Pluggable Databases

17.1	Getting Started.....	17-1
17.2	Creating Resource Providers.....	17-2
17.2.1	Creating a Database Pool for PDB as a Service	17-2
17.3	Creating a Database Provisioning Profile Using Export Schema Objects	17-4
17.4	Configuring Request Settings.....	17-8
17.5	Defining Quotas	17-9
17.6	Creating a Service Template for PDB Based on Profile.....	17-9
17.7	Creating a Service Template for an Empty PDB	17-12
17.8	Configuring Chargeback.....	17-14
17.9	Requesting a Pluggable Database.....	17-14

Part VII Cloning Databases

18 Supported Cloning Options

18.1	About Data Lifecycle Management	18-1
18.2	Supported Cloning Options	18-1

19 Creating Full Clones

19.1	Creating a Full Database Clone Using RMAN Backup from the Self Service Portal.....	19-1
19.1.1	Creating Resource Providers.....	19-2
19.1.1.1	Creating a Database Pool for Database as a Service.....	19-2
19.1.2	Creating a Database Provisioning Profile	19-3
19.1.2.1	Creating a Database Provisioning Profile Using RMAN Backup	19-3
19.1.2.2	Creating a Database Provisioning Profile Using Existing RMAN Backup	19-7
19.1.3	Configuring Request Settings	19-11
19.1.4	Defining Quotas	19-11
19.1.5	Create Service Template Using RMAN Backup Profile.....	19-11
19.1.6	Configuring Chargeback	19-15
19.1.7	Requesting a Database	19-15
19.2	Creating a Full Database Clone Using RMAN Duplicate from the Self Service Portal.....	19-15
19.2.1	Creating a Service Template Using RMAN Duplicate.....	19-16

20 Creating Snap Clones for Databases

20.1	About Snap Clones	20-1
20.2	Cloning and Refreshing Databases	20-2
20.3	Creating Snap Clones from the Cloning Dashboard	20-2
20.3.1	Creating a Snap Clone Database	20-2
20.3.2	Creating an Exadata Test Master Database	20-7
20.3.3	Creating a Snapshot Clone of an Exadata Test Master Database	20-10
20.3.4	Enabling a Test Master Database.....	20-14
20.3.5	Disabling a Test Master Database	20-15
20.3.6	Creating a CloneDB Database.....	20-15
20.3.7	Managing Clone Databases.....	20-19
20.3.8	Refreshing Clone Databases.....	20-20
20.4	Creating Snap Clones from an In-Sync Test Master	20-21
20.4.1	Getting Started	20-21
20.4.2	Registering Storage Servers.....	20-21
20.4.3	Creating Resource Providers.....	20-22
20.4.3.1	Creating a Database Pool for Database as a Service.....	20-22
20.4.4	Configuring Request Settings	20-23
20.4.5	Defining Quotas	20-23
20.4.6	Using a Physical Standby Database as a Test Master.....	20-23
20.4.7	Enabling the Test Master for Snap Clone.....	20-24
20.4.8	Creating a Database Provisioning Profile Using Snapshots.....	20-24
20.4.8.1	Creating and Refreshing Snapshots of the Test Master	20-28
20.4.8.1.1	20-28
20.4.9	Creating Service Template Using Snap Clone Profile.....	20-29
20.4.10	Configuring Chargeback	20-33
20.4.11	Requesting a Database	20-33
20.4.12	Example: Creating Snap Clones from an In-Sync Test Master	20-33
20.4.13	Creating a Service Template for EMC Snap Clone	20-34
20.5	Creating Snap Clones from a Discretely Synchronized Test Master.....	20-37

20.5.1	Getting Started	20-38
20.5.2	Registering Storage Servers.....	20-38
20.5.3	Creating Resource Providers.....	20-38
20.5.4	Configuring Request Settings	20-38
20.5.5	Defining Quotas	20-38
20.5.6	Creating a Discretely Synchronized Test Master	20-39
20.5.7	Creating a Service Template Using Snap Clone Profile	20-42
20.5.8	Configuring Chargeback	20-42
20.5.9	Requesting a Database	20-42
20.5.10	Refreshing the Test Master Database.....	20-42
20.5.11	Refreshing the Snap Shot Profile	20-44
20.5.12	Example: Creating Snap Clones from Discretely Synchronized Test Master	20-45
20.6	Creating a CloneDB Database	20-46
20.6.1	Creating a Database Provisioning Profile Using RMAN Database Image.....	20-46
20.6.2	Creating a Service Template Using RMAN Image Profile	20-49

21 Creating Snap Clones for Pluggable Databases

21.1	Creating Test Master Pluggable Databases.....	21-1
21.1.1	Creating a Test Master Pluggable Database	21-1
21.1.2	Creating an Exadata Test Master Pluggable Database.....	21-4
21.1.3	Creating an ACFS Test Master Pluggable Database.....	21-6
21.2	Creating Snapshot Clones of Test Master Pluggable Databases.....	21-8
21.2.1	Creating a Snapshot Clone of an Exadata Test Master PDB	21-9
21.2.2	Creating a Snapshot Clone of an ACFS Test Master PDB	21-11
21.3	Enabling a Test Master Pluggable Database	21-14
21.4	Disabling a Test Master Pluggable Database.....	21-15

22 Using the DBaaS Self Service Portal

22.1	Using the Database Cloud Self Service Portal	22-1
22.2	Requesting a Database	22-3
22.2.1	Requesting a Schema.....	22-5
22.2.2	Requesting a Pluggable Database	22-6
22.3	Refreshing a Database	22-7
22.4	Viewing the History of a Request.....	22-8
22.5	Viewing the Database Service Home Page	22-9
22.6	Viewing the Database Instance Home Page	22-9
22.7	Viewing the Standby Database Home Page.....	22-11
22.8	Viewing the Cluster Database Home Page	22-11
22.9	Viewing the Pluggable Database Home Page	22-15

Part VIII Maintaining and Customizing Databases

23 Maintaining the Database Pool

23.1	About Database Pool Maintenance	23-1
23.2	Creating a Database Gold Image	23-3
23.3	Subscribing to an Image.....	23-4

23.4	Deploying the Image	23-6
23.4.1	Deploying the Oracle Home	23-6
23.4.2	Activating the New Oracle Home	23-7
23.4.3	Updating the Database.....	23-7
23.5	Performing Ongoing Image Updates.....	23-8
23.5.1	Creating a New Version of the Image	23-8

24 Customizing Database as a Service

24.1	Pre and Post Request Creation / Deletion Scripts	24-1
24.1.1	Post SQL Script.....	24-3
24.1.2	Sample Scripts	24-3
24.1.3	Input Parameters for Pre and Post Database Scripts	24-4
24.1.3.1	Input Parameters for DBaaS Pre and Post Request Creation Scripts.....	24-4
24.1.3.2	Input Parameters for DBaaS Pre and Post Request Deletion Scripts	24-7
24.1.3.3	Input Parameters for SchaaS Pre and Post Request Creation Scripts	24-7
24.1.3.4	Input Parameters for SchaaS Pre and Post Request Deletion Scripts	24-8
24.1.3.5	Input Parameters for PDBaaS Pre and Post Request Creation Scripts	24-9
24.1.3.6	Input Parameters for PDBaaS Pre and Post Request Deletion Scripts.....	24-11
24.1.3.7	Sample Input Files	24-12
24.1.3.8	Sample PDBaaS Post Scripts	24-14

Part IX Setting Up Middleware as a Service

25 Setting Up the WebLogic Self Service Portal

25.1	Setting Up the WebLogic Self Service Portal	25-1
25.2	Creating a Middleware Pool	25-2
25.3	Creating a Load Balancer Configuration.....	25-4
25.3.1	Creating a Custom Script.....	25-7
25.3.1.1	Sample Script (Oracle Cloud Application 12.1.0.8 or Earlier).....	25-8
25.3.1.2	Sample Script (Oracle Fusion Middleware 12.1.0.7 or Later).....	25-9
25.3.2	Adding the Third Party LBR Configuration to the Software Library	25-10
25.4	Configuring Request Settings	25-11
25.5	Setting Up Quotas.....	25-12
25.6	Creating a WebLogic Service Template.....	25-13
25.6.1	Sample Postscript.....	25-18
25.6.1.1	Sample Properties File	25-18
25.6.1.2	Sample Script.....	25-18
25.6.1.3	Sample Script Output.....	25-20
25.6.2	Resource Management Script	25-20
25.6.2.1	Create Operation	25-20
25.6.2.2	Scaleup Operation	25-21
25.6.2.3	Scaledown Operation.....	25-21
25.6.2.4	Delete Operation.....	25-21
25.7	Configuring Chargeback.....	25-22

26 Setting Up the SOAaaS or the OSBaaS Self Service Portal

26.1	Getting Started with SOAaaS and OSBaaS	26-1
26.2	Setting Up DBaaS used to Clone a SOA Repository	26-1
26.2.1	Creating a Database Service Template for SOA Profile	26-2
26.2.2	Creating a Database Service Template for OSB Profile.....	26-3
26.3	Prerequisites for Creating a SOA or an OSB Provisioning Profile	26-5
26.4	Setting Up the SOA and OSB Cloud Self Service Portal	26-5
26.4.1	Creating a SOAaaS and OSBaaS Pool	26-6
26.4.2	Creating SOA and OSB Service Templates	26-7
26.4.3	Sample Postscript.....	26-11
26.4.3.1	Sample Properties File	26-11
26.4.3.2	Sample Script.....	26-11
26.4.3.3	Sample Script Output.....	26-13
26.4.4	Resource Management Script	26-14
26.4.4.1	Create Operation	26-14
26.4.4.2	Scaleup Operation	26-14
26.4.4.3	Delete Operation.....	26-15

27 Setting Up the JVMaaS Self Service Portal

27.1	Setting Up the Java Application Service Self Service Portal	27-1
27.2	Creating a Customized Middleware Profile	27-1
27.3	Uploading the Middleware Profile to Software Library	27-5
27.4	Creating a Service Template Based on Java Applications Profile.....	27-5

28 Using the MWaaS Self Service Portal

28.1	Using the MWaaS Self Service Portal.....	28-1
28.1.1	Setting the Preferences	28-3
28.1.2	Defining Dynamic Elasticity Policies for Middleware Services.....	28-3
28.1.2.1	Creating a MWaaS Schedule Policy	28-4
28.1.2.2	Defining a MWaaS Performance Policy	28-4
28.2	Requesting a Middleware Service	28-5
28.2.1	Requesting a WebLogic Service.....	28-5
28.2.2	Requesting an Oracle Service Bus or SOA Infrastructure Service	28-7
28.3	Viewing the Middleware Service Home Page	28-9
28.3.1	Deploying and Redeploying an Application.....	28-12
28.3.1.1	Redeploying an Application	28-12
28.3.1.2	Deleting an Application.....	28-13
28.3.2	Scaling Up and Scaling Down a Service.....	28-13
28.3.3	Creating a Data Source.....	28-13
28.3.3.1	Editing a Data Source.....	28-14
28.4	Viewing SOA/OSB Service Home Page.....	28-14
28.5	Viewing the Java Application Service Instance Home Page	28-16
28.6	Uploading a Java EE Component to the Software Library	28-16
28.7	Viewing the Application Home Page	28-17

Part X Monitoring the PaaS Cloud

29 Administering and Monitoring a PaaS Cloud

29.1	Viewing the Cloud Home Page	29-1
29.1.1	Viewing the Resource Provider Utilization Heat Map	29-3
29.2	Viewing the List of Resource Providers	29-4
29.3	Viewing the List of Service Templates	29-5
29.3.1	Granting, Revoking, and Reassigning Service Template Privileges	29-6
29.4	Viewing the List of Service Instances	29-6
29.4.1	Granting, Revoking, and Reassigning Privileges to Service Instances	29-7
29.5	Viewing the Cloud Request Dashboard	29-8
29.6	Viewing All Cloud Requests	29-10
29.7	Viewing the PaaS Infrastructure Zone Home Page	29-10
29.8	Viewing the Database Pool Home Page	29-12
29.9	Viewing the Schema Pool Home Page	29-13
29.10	Viewing the Pluggable Database Pool Home Page	29-14
29.11	Viewing the Middleware Pool Home Page	29-15
29.12	Viewing the Cloud Services Reports	29-17
29.12.1	Most Requested Service Types	29-17
29.12.2	Service Request Status	29-18
29.12.3	Service Request Type	29-18
29.12.4	Cloud Service Instance Duration Trend	29-19

Part XI Oracle Compute

30 Getting Started With Oracle Compute

30.1	About Oracle Compute	30-1
30.2	Oracle Compute Terminology	30-1
30.3	Getting Started	30-2
30.4	Discovering the Oracle Compute Site	30-3
30.4.1	Discovering the Oracle Compute Site and Its Associated Targets	30-3
30.4.2	Importing the Site Certificate	30-5

31 Setting Up the Oracle Compute Self Service Portal

31.1	Setting Up the Oracle Compute Site	31-1
31.2	Creating a Tenant	31-2
31.2.1	Editing a Tenant	31-4
31.3	Creating a Shape	31-4
31.4	Defining Quotas	31-4
31.5	Managing Oracle Compute Templates	31-5
31.5.1	Configuring the Management Agent	31-7
31.6	Creating an Orchestration Service Template	31-7
31.6.1	Creating a Launch Plan	31-8
31.7	Mapping Enterprise Manager Roles to Oracle Compute Roles	31-11

32 Using Oracle Compute

32.1	Using the Oracle Compute Self Service Portal	32-1
------	--	------

32.2	Creating a New Orchestration	32-3
32.3	Viewing the Orchestration Details	32-6
32.3.1	Viewing the Oracle VM Instance Home Page	32-6
32.4	Creating Networks.....	32-7
32.4.1	Creating IPoIB Subnets for Tenant Networks	32-8
32.4.2	Viewing the Service Networks	32-9
32.5	Creating Storage Volumes.....	32-9
32.6	Managing the Library.....	32-9
32.6.1	Uploading a Template.....	32-10
32.6.2	Deleting a Template or a Deployment Plan.....	32-11
32.7	Discovering an Orchestration	32-11

33 Managing the Oracle Compute Site and Associated Targets

33.1	Viewing the Oracle Compute Site	33-1
33.2	Managing Networks.....	33-3
33.2.1	Creating a Tenant Network.....	33-4
33.2.1.1	Creating an EoIB Network	33-4
33.2.1.2	Creating an EoIB Subnet.....	33-5
33.2.1.3	Creating an IPoIB Subnet	33-6
33.2.1.3.1	Editing the IPoIB Subnet	33-7
33.2.2	Managing Service Networks	33-8
33.2.2.1	Creating a Service Network	33-8
33.2.2.2	Connecting to an Engineered System.....	33-9
33.2.3	Managing Infrastructure Networks	33-9
33.3	Creating a Storage Volume.....	33-10
33.3.1	Creating a Storage Volume Snapshot	33-11
33.4	Creating a User.....	33-11
33.5	Viewing the Oracle VM Instance Home Page	33-12
33.6	Viewing the Oracle Compute Cluster Home Page	33-13
33.7	Viewing the Oracle Virtual Platform Home Page.....	33-14
33.8	Viewing the Oracle Server Home Page	33-15

Part XII Dynamic Resource Provisioning

34 Dynamic Resource Provisioning with Oracle VM Server for SPARC

[1]	Integration for a PaaS Solution	34-1
[1]	Prerequisites	34-1
–	Overview of the Configuration of PaaS Solution.....	34-3
n	Configure Enterprise Manager Cloud Control	34-3
n	Obtain the Client Kit	34-3
n	Configure Enterprise Manager Ops Center.....	34-4
4.	Configure Resources for vDC	34-4
n	Add Client Kit Contents to the Software Library for Oracle Solaris 11.....	34-4
6.	Prepare Network Resources for the vDC.....	34-5
6.	Identify a Fabric	34-5
6.	Create a Network Domain	34-6

8.	Configure Public Network	34-7
8.	Prepare Storage Resources	34-7
n	Create a NAS Storage Library	34-8
2.	Identify the NAS Share	34-8
5.	Create a NAS Storage Library	34-9
9.	Create SAN Storage Libraries using Fibre Channel LUNs	34-10
9.	What You Will Need	34-10
n	Configure the Storage Server	34-10
n	Create a Static Block Storage SAN Library	34-10
6.	Deploy Control Domains	34-12
n	Create a Provisioning Profile for Oracle VM Server for SPARC	34-12
12.	Create an OS Configuration Profile for Oracle VM Server for SPARC	34-15
n	CPU Resource Allocation	34-15
n	Crypto Units	34-16
n	RAM	34-16
n	NVRAMRC Value	34-16
9.	Create an Install Server Deployment Plan	34-19
6.	Apply the Install Server Deployment Plan	34-19
13.	Create the Server Pool	34-20
13.	Refresh the Library	34-24
3.	Set Up and Configure a Virtual Data Center	34-24
n	Create an Enterprise Manager User	34-24
5.	Create the vDC	34-25
12.	Create the vDC Account for PaaS	34-26
7.	Prepare the vServers	34-27
n	Create a New vServer Type	34-28
5.	Create a Private vNet	34-28
8.	Set Up and Configure a Server Template	34-30
n	Create an OS Update Profile	34-31
5.	Create an OS Provisioning Profile for Guests	34-32
11.	Create an OS Configuration Profile for Guests	34-35
7.	Create a vServer Template	34-37
7.	Create a vServer	34-37
7.	Validate the Integration and PaaS	34-37
7.	Create Volumes for vServer	34-37
6.	Create Test vServers	34-38
12.	Verify Shared Storage and Connectivity	34-38
3.	Diagnosing Problems	34-40

35 Getting Started with Dynamic Resource Provisioning

35.1	About Dynamic Resource Provisioning	35-1
35.2	Configuring the Solaris SPARC Adapter	35-2
35.2.1	Adding the Stage Server	35-2
35.2.2	Creating the Virtual Machine Adapter Instance	35-3
35.2.3	Editing the Virtual Machine Adapter Instance	35-4
35.2.4	Deleting the Virtual Machine Adapter Instance	35-5
35.2.5	Creating the Virtual Machine Service Template	35-5

36 Provisioning Resources in a DBaaS Cloud

36.1	Provisioning Resources	36-1
36.2	De-Provisioning Resources.....	36-3

37 Dynamically Provisioning Resources in an MWaaS Cloud

37.1	Provisioning Resources	37-1
37.2	De-Provisioning Resources.....	37-2
37.3	Enabling Dynamic Resource Provisioning.....	37-3
37.3.1	Disabling Dynamic Provisioning	37-4

Part XIII JVM Diagnostics as a Service

38 Setting Up JVM Diagnostics as a Service

38.1	About JVM Diagnostics as a Service	38-1
38.2	Creating Users and Roles	38-1
38.3	Setting Up JVMDaaS	38-2
38.4	Defining and Allocating Quotas.....	38-3
38.5	Monitoring JVM Diagnostics Agents and Engines	38-3

39 Using the JVM Diagnostics Self Service Portal

39.1	JVM Diagnostics Cloud Self Service Portal.....	39-1
39.2	JVM Home Page.....	39-2

Part XIV Enabling Testing as a Service (TaaS)

40 About Testing as a Service

40.1	TaaS Roles	40-1
40.1.1	Test Administrators.....	40-2
40.1.2	Test Designers	40-2
40.1.3	Testers.....	40-3

41 Setting Up Testing as a Service

41.1	Getting Started.....	41-1
41.2	Creating Test Administrators.....	41-2
41.3	Creating an Assembly Component	41-2
41.4	Creating a Deployment Plan	41-3

42 Using the Testing as a Service Portal

42.1	Prerequisites	42-2
42.2	Test Administrator Tasks.....	42-3
42.2.1	Setting Up Application Types.....	42-4
42.2.2	Setting Up Test Drivers.....	42-5
42.2.3	Setting Up Oracle Load Testing Test Drivers	42-5
42.2.4	Setting Up Oracle Functional Testing Test Drivers	42-6

42.2.5	Setting Up Custom Test Driver Types.....	42-7
42.2.6	Setting Up Quotas.....	42-8
42.2.7	Setting Up Result File Systems	42-9
42.2.8	Publishing Test Environments, Test Assets, and Test Drivers.....	42-9
42.2.9	Setting Up Chargeback Service.....	42-10
42.3	Test Designer Tasks - Creating Test Assets and Test Environments	42-10
42.3.1	Creating Test Assets - General Information.....	42-11
42.3.2	Creating Test Asset - Oracle Load Testing.....	42-11
42.3.3	Creating Test Asset - Oracle Functional Testing	42-12
42.3.4	Creating Test Asset - Custom Test	42-12
42.3.5	Creating Test Environments	42-13
42.4	Tester Tasks - Using the Testing Environment.....	42-14
42.4.1	Verifying Available Test Assets and Environments.....	42-14
42.4.2	Creating Tests.....	42-15
42.4.3	Creating Tests - Oracle Load Testing Tests.....	42-15
42.4.4	Creating Tests - Oracle Functional Testing Tests	42-16
42.4.5	Creating Tests - Custom Tests	42-16
42.4.6	Creating and Running Trials.....	42-17
42.4.7	Creating and Running Oracle Load Testing Trial.....	42-17
42.4.8	Creating and Running Oracle Functional Testing Trial.....	42-18
42.4.9	Monitoring On-Going Trials	42-19
42.4.10	Comparing Trial Results.....	42-20
42.4.11	Sharing Tests	42-20
42.4.12	Viewing Activity and Usage Information.....	42-21
42.4.13	Viewing Deployment Information.....	42-21
42.4.14	Browsing the Testing Home Page	42-22
42.4.15	Trial Page	42-22
42.4.16	Viewing TaaS Reports.....	42-23
42.4.17	Estimating Hardware Needed for Testing.....	42-24

Part XV Using Consolidation Planner and Chargeback

43 Chargeback Administration

43.1	Overview of Chargeback	43-1
43.1.1	Why Implement Chargeback	43-1
43.1.2	Enterprise Manager Chargeback	43-2
43.1.2.1	Chargeback Entities	43-2
43.1.2.2	Charge Plans.....	43-3
43.1.2.3	Cost Centers	43-3
43.1.2.4	Reports	43-3
43.2	Setting Up Chargeback.....	43-4
43.2.1	Chargeback and Metrics	43-5
43.2.2	Self Service Applications and Zones within Chargeback	43-6
43.2.3	Configuring Global Settings for Chargeback	43-8
43.2.4	Working with Charge Plans.....	43-9
43.2.4.1	Charge Plans and Effective Dates	43-10

43.2.4.2	Creating and Revising the Universal Charge Plan.....	43-10
43.2.4.3	Creating an Extended Charge Plan.....	43-11
43.2.4.4	Viewing Charge item Metadata	43-13
43.2.4.5	Using Conditions in Charge Plans	43-14
43.2.4.6	Revising Extended Charge Plans	43-15
43.2.5	Creating Cost Centers	43-15
43.2.5.1	Setting the Cost Center Property for an Enterprise Manager User.....	43-16
43.2.5.2	Setting the Cost Center Property on the Target Home Page.....	43-16
43.2.5.3	Creating High-Level Cost Centers in Chargeback	43-17
43.2.5.4	Importing a Business Hierarchy from an LDAP Server	43-18
43.2.6	Adding Entities to Chargeback.....	43-19
43.2.6.1	Configuring Metric Collection for Enterprise Manager Database Services....	43-20
43.2.6.2	Selecting Entities for Chargeback.....	43-21
43.2.6.3	Making Assignments	43-22
43.2.6.4	Reviewing Entity Setup	43-23
43.2.7	Assigning Cost Centers to Entities	43-23
43.2.8	Assigning Charge Plans to Entities	43-24
43.2.9	Setting Default Charge Plans for Entity Types.....	43-25
43.2.10	Running the Daily Data Collection Job	43-25
43.3	Accessing Chargeback Information	43-26
43.3.1	Following Usage and Charge Trends	43-26
43.3.2	Viewing an Entity's Collected Metric Data.....	43-28
43.3.3	Generating and Distributing Chargeback Reports	43-29
43.3.4	Viewing Chargeback Information in the Self Service Portal	43-31
43.3.5	Sharing Chargeback Data with Other Applications	43-31

44 Using Consolidation Planner

44.1	Overview of Consolidation Planner.....	44-1
44.1.1	Key Concepts.....	44-2
44.1.2	Consolidation Constraints.....	44-3
44.1.2.1	Source Server Constraints	44-3
44.1.2.2	Destination Server Constraints.....	44-4
44.2	Using Consolidation Planner	44-4
44.2.1	Creating a Consolidation Project.....	44-5
44.2.1.1	Declaring the Consolidation Type	44-5
44.2.1.2	Specifying Source Candidates	44-5
44.2.1.3	Specifying Destination Candidates.....	44-6
44.2.1.4	Setting Data Collection Parameters	44-6
44.2.1.5	Choosing a Pre-configured Scenario	44-7
44.2.1.6	Reviewing and Saving the Consolidation Project.....	44-8
44.2.2	Creating a Custom Consolidation Scenario.....	44-8
44.2.2.1	Specifying Scenario Parameters	44-8
44.2.2.2	Defining Consolidation Constraints	44-9
44.2.2.3	Specifying Destination Candidates.....	44-9
44.2.2.4	Mapping Sources to Destinations	44-11
44.2.2.5	Reviewing and Saving the New Scenario	44-11
44.2.3	Other Scenario Creation Options	44-12

44.2.4	Evaluating a Consolidation Scenario	44-12
44.2.5	Analyzing a Consolidation Scenario.....	44-13
44.2.6	Viewing Consolidation Reports.....	44-14
44.2.6.1	Viewing Consolidation Planner Project Reports	44-14
44.2.6.2	Viewing Consolidation Planner Scenario Reports.....	44-15
44.2.7	Considering Oracle Compute Cloud Shapes.....	44-15
44.2.8	Managing Data Collections	44-16

Part XVI Using the Cloud APIs

45 Introduction to Cloud APIs

45.1	Introduction	45-1
45.2	When to Use Cloud REST APIs	45-2
45.3	Change History	45-2
45.4	Common Behaviors	45-4
45.4.1	Transport Protocol	45-4
45.4.2	URI Space	45-4
45.4.3	Media Types	45-4
45.4.4	Request Headers	45-5
45.4.5	Response Headers.....	45-5
45.4.6	HTTP Status Codes.....	45-6
45.4.7	Common Resource Attributes.....	45-7
45.4.7.1	Resource State	45-7
45.4.8	Collection	45-8
45.4.9	Error Response Message	45-8

46 Cloud Resource Models

46.1	Enterprise Manager Cloud Resource Model 10001.....	46-1
46.2	About Cloud Resources	46-2
46.3	Resource Data Models.....	46-3
46.3.1	Cloud [application/oracle.com.cloud.common.Cloud+json]	46-3
46.3.2	ServiceTemplate [application/oracle.com.cloud.common.ServiceTemplate+json]	46-3
46.3.3	Zone [application/oracle.com.cloud.common.Zone+json]	46-5
46.3.4	Service Family Type [application/oracle.com.cloud.common.ServiceFamilyType+json]	46-6
46.3.5	Service Instance Type [application/oracle.com.cloud.common.InstanceType+json]	46-6
46.3.6	Metric [application/oracle.com.cloud.common.Metric+json]	46-7
46.3.7	Service Instance [application/oracle.com.cloud.common.ServiceInstance+json] ..	46-8
46.3.8	Quota Usage [application/oracle.com.cloud.common.QuotaUsage+json]	46-9
46.3.9	Service Template Finds [application/oracle.com.cloud.common.ServiceTemplateFinds+json]	46-10
46.4	Cloud REST API Examples.....	46-10
46.4.1	Cloud Resource	46-10
46.4.2	Service Family Type Resource	46-14
46.4.3	Quota Resource	46-19

46.4.4	Service Instance Type Resource.....	46-20
46.4.5	Zone Resource	46-21
46.4.6	Service Template Resource.....	46-24
46.4.7	Metric Resource.....	46-27
46.5	Service Request REST APIs	46-31
46.6	Service Request Collection.....	46-32

47 EM CLI Verbs for Database as a Service Administrator

47.1	PaaS Zone EM CLI Verbs.....	47-2
47.2	Software Pool EM CLI Verbs.....	47-5
47.3	Database Quota EM CLI Verbs	47-11
47.4	Database Request Settings EM CLI Verbs	47-13
47.5	Database Size EM CLI Verbs	47-14
47.6	Database Profile EM CLI Verbs	47-17
47.6.1	About Database Provisioning Profile Types.....	47-17
47.6.1.1	DBCA Template	47-18
47.6.1.2	RMAN	47-18
47.6.1.3	Snapclone	47-18
47.6.1.4	Schema	47-18
47.6.2	Creating Provisioning Profiles using EM CLI	47-19
47.6.3	Sample EM CLI Property Files.....	47-19
47.6.3.1	DBCA Template.....	47-19
47.6.3.2	New RMAN Backup from the Source Database	47-22
47.6.3.3	Existing RMAN Backup from the Source Database	47-24
47.6.3.4	Existing RMAN Backup on the Stage Location	47-26
47.6.3.5	Snapclone Database.....	47-28
47.6.3.6	Schema Database	47-31
47.6.4	Database Profile EM CLI Verbs	47-32
47.6.5	Creating a Database Profile Using EM CLI Verbs	47-37
47.6.6	Editing a Database Profile Using EM CLI Verbs.....	47-47
47.6.7	Deleting a Database Profile Using EM CLI Verbs.....	47-49
47.6.8	Viewing All the Database Profiles.....	47-51
47.6.9	Refreshing a Database Profile Using EM CLI Verbs	47-52
47.7	Service Template EM CLI Verbs.....	47-53
47.8	Service Template Executable .json Files.....	47-56
47.8.1	DBCA Based Service Template .json File	47-57
47.8.2	Standby DBCA Based Service Template .json File.....	47-59
47.8.3	RMAN Based Single Instance Database Service Template .json File	47-61
47.8.4	RMAN Based Single Instance Database with Single Instance Standby Service Template .json File	47-65
47.8.5	RMAN Based RAC One Node Database Service Template .json File.....	47-69
47.8.6	RMAN Based RAC One Node Database with Standby Service Template .json File	47-72
47.8.7	RMAN Based RAC Database with Single Instance Standby Service Template .json File.	47-75
47.8.8	RAC Database with Standby Using a DBCA Template Service Template .json File	47-78
47.8.9	DNFS Based Database Service Template .json File.....	47-82

47.8.10	Snap Clone Single Instance Database with Archiving Enabled Service Template .json File	47-85
47.8.11	Schema Based Service Template .json File	47-88
47.8.12	Pluggable Database Service Template .json File	47-90
47.8.13	RAC Pluggable Database Using an Empty Pluggable Database Service Template .json File	47-93
47.8.14	RAC Pluggable Database Using a Profile Pluggable Database Service Template .json File	47-98
47.8.15	Clone DB Based Service Template .json File	47-103
47.8.16	Full Clone Using an RMAN Duplicate Service Template .json File	47-105
47.8.17	Snapclone Database Using Live Clone Template on EMC Storage Service Template .json File	47-106
47.9	Creating a Database Clone Using EM CLI Verbs	47-107
47.10	Refreshing a Database Using EM CLI Verbs	47-118
47.11	Deleting a Database Using EM CLI Verbs	47-120
47.12	Database Fleet Maintenance EM CLI Verbs	47-122
47.13	Database Request Handling EM CLI Verbs	47-129
47.14	Cloning a Pluggable Database	47-132
47.14.1	Pluggable Database Full Clone Methods	47-133
47.14.2	Pluggable Database Snapshot Clone Types	47-134
47.15	Creating a Test Master Pluggable Database	47-135
47.16	Transferring Data Between Databases	47-137
47.17	Backing Up Datafiles and Metadata of a Pluggable Database	47-138
47.18	Importing Data from Export Dumps to a Database	47-139
47.19	Invoking a REST API Using EM CLI Verb	47-140

48 Database as a Service Administrator REST APIs

48.1	Summary of Database as a Service Administrator REST APIs	48-1
48.2	Creating a New DBaaS Cloud Setup Using REST APIs	48-2
48.3	Database as a Service Administrator Operations REST APIs	48-4
48.3.1	PaaS Zones and PaaS Zone REST APIs	48-4
48.3.1.1	PaaS Zones REST APIs	48-5
48.3.1.1.1	Supported Request Methods for PaaS Zones	48-5
48.3.1.2	PaaS Zone REST APIs	48-5
48.3.1.2.1	Supported Request Methods for PaaS Zone	48-6
48.3.1.3	PaaS Zones and PaaS Zone REST API Examples	48-6
48.3.1.3.1	Viewing Details of the PaaS Zones Resource	48-6
48.3.1.3.2	Viewing Details of the PaaS Zone Resource	48-8
48.3.1.3.3	Creating a PaaS Zone	48-9
48.3.1.3.4	Updating a PaaS Zone	48-9
48.3.1.3.5	Deleting a PaaS Zone	48-10
48.3.2	Software Pools and Software Pool REST APIs	48-10
48.3.2.1	Software Pools	48-10
48.3.2.1.1	Supported Request Methods for Software Pools	48-11
48.3.2.2	Software Pool	48-11
48.3.2.2.1	Supported Request Methods for Software Pool	48-12
48.3.2.3	Software Pool REST API Examples	48-12

48.3.2.3.1	Viewing Details of the Software Pools Resource	48-12
48.3.2.3.2	Viewing Details of a Software Pool Resource	48-14
48.3.2.3.3	Viewing Details of a Software Pool Capacity.....	48-15
48.3.2.3.4	Creating a Database Pool	48-17
48.3.2.3.5	Updating a Database Pool.....	48-19
48.3.2.3.6	Creating a Schema Pool.....	48-20
48.3.2.3.7	Updating a Schema Pool	48-22
48.3.2.3.8	Creating a Pluggable Database Pool.....	48-23
48.3.2.3.9	Updating a Pluggable Database Pool	48-24
48.3.2.3.10	Deleting a Database / Schema / Pluggable Database Pool	48-25
48.3.3	Database Request Settings REST APIs.....	48-26
48.3.3.1	Database Request Settings Resource Model	48-26
48.3.3.2	DbaaS Request Settings Resource.....	48-26
48.3.3.3	Supported Operations for DbaaS Request Settings	48-27
48.3.3.4	DbaaS Request Settings REST API Examples	48-27
48.3.3.4.1	Viewing Details of the DbaaS Request Settings Resource	48-27
48.3.3.4.2	Creating Database Request Settings	48-27
48.3.4	Database Quota REST APIs.....	48-28
48.3.4.1	Database Quota Resource Model	48-29
48.3.4.2	DbaaS Quota Resource	48-29
48.3.4.3	Supported Operations for DbaaS Quota	48-29
48.3.4.4	Database Quota REST API Examples	48-30
48.3.4.4.1	Viewing Details of the DBaaS Quota Resource	48-30
48.3.4.4.2	Creating DBaaS Quota for a Role.....	48-31
48.3.4.4.3	Updating DBaaS Quota for a Role	48-32
48.3.4.4.4	Deleting DBaaS Quota for a Role	48-32
48.3.5	Service Template REST APIs.....	48-33
48.3.5.1	Service Templates Resource.....	48-33
48.3.5.1.1	Supported Operations for Service Templates	48-34
48.3.5.2	Service Template Resource.....	48-34
48.3.5.2.1	Supported Operations for Service Template	48-35
48.3.5.3	Service Templates and Service Template REST API Examples	48-35
48.3.5.3.1	Viewing Details of the Service Templates Resource	48-36
48.3.5.3.2	Viewing Details of the ServiceTemplate Resource	48-37
48.3.5.3.3	Creating a Service Template for DBCA Based Database.....	48-48
48.3.5.3.4	Creating a Service Template for RMAN Based Single Instance Database.....	48-50
48.3.5.3.5	Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby	48-52
48.3.5.3.6	Creating a Service Template for RMAN Based RAC One Node Database.....	48-54
48.3.5.3.7	Creating a Service Template for RMAN Based RAC One Node Database With Standby	48-56
48.3.5.3.8	Creating a Service Template for RMAN Based RAC Database With Standby	48-58
48.3.5.3.9	Creating a Service Template for RAC Database with Standby Using a DBCA Template	48-60
48.3.5.3.10	Creating a Service Template for DNFS Based Database.....	48-62

48.3.5.3.11	Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled) 48-64
48.3.5.3.12	Creating a Service Template for Snap Clone Single Instance Database (without Archiving Enabled) 48-66
48.3.5.3.13	Creating a Service Template for a Schema 48-66
48.3.5.3.14	Creating a Service Template for a Pluggable Database 48-71
48.3.5.3.15	Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database 48-74
48.3.5.3.16	Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database 48-76
48.3.5.3.17	Deleting a Database / Schema / Pluggable Database Service Template. 48-78

49 Database as a Service SSA User REST APIs

49.1	Summary of Database as a Service SSA User REST APIs 49-1
49.2	Database as a Service 49-2
49.2.1	Database as a Service Resource Model 49-2
49.2.1.1	DB Zone 49-3
49.2.1.2	DB Platform Template 49-4
49.2.1.3	DB Platform Instance 49-6
49.2.2	Supported Operations for Database as a Service Resources 49-7
49.2.3	Database as a Service REST API Examples 49-8
49.2.3.1	Viewing Details of All the Cloud Resources 49-9
49.2.3.2	Filtering Output for Specific Resource Attributes 49-12
49.2.3.3	Viewing Details of the Service Family Type Resource 49-13
49.2.3.4	Viewing Details of the Service Instance Type Resource 49-15
49.2.3.5	Viewing Details of a Service Requests Resource 49-15
49.2.3.6	Viewing Details of the DB Zone 49-16
49.2.3.7	Viewing Details of the DB Platform Template Resource..... 49-17
49.2.3.8	Creating a Database Instance..... 49-22
49.2.3.8.1	Creating a Database by Passing a Request on the DB Zone 49-22
49.2.3.8.2	Creating a Database by Passing a Request on the DB Platform Template 49-24
49.2.3.9	Viewing the Database Creation Details..... 49-26
49.2.3.10	Updating a Database..... 49-30
49.2.3.11	Deleting a Database Instance 49-33
49.2.3.12	Lifecycle operations on a Database Instance 49-35
49.2.3.12.1	Shutting down a Database 49-35
49.2.3.12.2	Starting up a Database..... 49-37
49.2.3.12.3	Scheduling a Backup of the Database 49-39
49.2.3.12.4	Restoring a Database from a Backup..... 49-42
49.2.3.12.5	Adding a Standby Database 49-44
49.2.3.12.6	Removing a Standby Database..... 49-46
49.2.3.12.7	Refreshing a Database 49-47
49.2.3.13	Lifecycle operations on a Snap clone Database Instance 49-49
49.2.3.13.1	Creating a Snapshot 49-49
49.2.3.13.2	Restoring from a Snapshot List 49-53
49.2.3.13.3	Deleting a Snapshot 49-54

49.3	Schema as a Service	49-56
49.3.1	Schema as a Service Resource Model.....	49-57
49.3.1.1	Schema Platform Template	49-57
49.3.1.2	Schema Platform Instance	49-58
49.3.2	Supported Operations for Schema as a Service Resources	49-59
49.3.3	Schema as a Service REST API Examples	49-60
49.3.3.1	Viewing Details of the Schema Platform Template Resource.....	49-60
49.3.3.2	Creating a Schema Service	49-65
49.3.3.2.1	Creating a Schema by Passing a Request on the DB Zone	49-65
49.3.3.2.2	Creating a Schema by Passing a Request on the Schema Platform Template.....	49-67
49.3.3.3	Viewing Details of the Schema Service Creation	49-69
49.3.3.4	Deleting a Schema Service.....	49-70
49.3.3.5	Life Cycle Operations of a Schema Service.....	49-71
49.3.3.5.1	Exporting a Schema.....	49-72
49.3.3.5.2	Restoring a Schema from Exported Schema Dumps	49-74
49.3.3.5.3	Deleting the Exported Schema Dumps	49-74
49.3.3.5.4	Changing Schema Passwords.....	49-75
49.4	Pluggable Database as a Service	49-76
49.4.1	Pluggable Database as a Service Resource Model	49-77
49.4.1.1	Pluggable DB Platform Template.....	49-77
49.4.1.2	Pluggable DB Platform Instance.....	49-79
49.4.2	Supported Operations for Pluggable Database Resources	49-79
49.4.3	Pluggable Database as a Service REST API Examples	49-80
49.4.3.1	Viewing Details of the Pluggable Db Platform Template Resource	49-80
49.4.3.2	Creating a Pluggable Database.....	49-83
49.4.3.2.1	Creating a Pluggable Database by Passing a Request on the DB Zone....	49-83
49.4.3.2.2	Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template	49-85
49.4.3.3	Viewing Details of the Pluggable Database Creation	49-86
49.4.3.4	Deleting a Pluggable Database Instance	49-87
49.4.3.5	Lifecycle operations on a Pluggable Database Instance	49-88
49.4.3.5.1	Shutting Down a Pluggable Database.....	49-89
49.4.3.5.2	Starting up a Pluggable Database	49-90
49.4.3.5.3	Scheduling a Backup for a Pluggable Database.....	49-91
49.4.3.5.4	Restoring a Pluggable Database from a Backup	49-92

50 DBaaS REST APIs and EM CLI Verbs Based Use Cases

50.1	Getting Started with DBaaS With REST APIs and EM CLI Verbs.....	50-1
50.2	Creating Databases Using Database Template With REST APIs and EM CLI Verbs....	50-3
50.2.1	Creating Standby Databases With REST APIs and EM CLI Verbs	50-4
50.3	Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs	50-5
50.4	Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs	50-6
50.5	Migrating/Transferring Data from One Database to Another	50-7
50.6	Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs	50-8
50.6.1	Creating a Snap Clone Using a Profile With REST APIs and EM CLI Verbs	50-8

50.6.2	Creating a Snap Clone Using Live Database With REST APIs and EM CLI Verbs	50-10
50.6.3	Continuous Sync	50-11
50.7	Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs ...	50-11
50.7.1	Creating a Full Database Clone Using RMAN Backup.....	50-11
50.7.2	Creating a Full Database Clone Using RMAN Duplication (Live Cloning)	50-12
50.7.3	Discrete Sync	50-13
50.8	Configuring Custom Database Placement Option Using REST APIs.....	50-14
50.8.1	Custom Database Placement Option for Databases Using REST APIs	50-14
50.8.2	Custom Database Placement Option for Pluggable Databases Using REST APIs	50-14
50.9	Service Catalog of Database as a Service.....	50-15
50.9.1	Multi-Datacenter DBaaS Setup	50-15
50.9.1.1	Administrator Steps for Creating the Multi-Datacenter DBaaS Setup	50-16
50.9.1.2	SSA User REST API Request for Using the Multi-Datacenter DBaaS Setup ..	50-24

51 SSA Administration REST APIs

51.1	Summary of SSA Administration REST APIs for V2.....	51-2
51.2	Summary of SSA Administration REST APIs for V1.....	51-4
51.3	Catalog APIs for V1 and V2.....	51-4
51.3.1	CFW API Catalog REST API Examples.....	51-5
51.3.1.1	Viewing the High Level Catalog APIs for V1 and V2.....	51-5
51.3.1.2	Viewing the V1 Catalog APIs	51-6
51.3.1.3	Viewing the V2 Catalog APIs	51-6
51.3.1.4	Viewing the V1 Catalog APIs for SSA Portal	51-7
51.3.1.5	Viewing the V2 Catalog User APIs	51-8
51.3.1.6	Viewing the V2 Catalog Admin APIs.....	51-12
51.4	Resource Provider for V2.....	51-18
51.4.1	Resource Providers - Collection Resource for V2	51-18
51.4.2	Resource Provider - Singular Resource for V2	51-19
51.4.3	Supported Methods for Resource Provider Resource	51-19
51.4.4	Resource Provider REST API Examples.....	51-22
51.4.4.1	Viewing all the Resource Providers.....	51-22
51.4.4.2	Viewing all the Types of Resource Providers.....	51-24
51.4.4.3	Creating a Resource Provider	51-26
51.4.4.4	Creating a PaaS Infrastructure Zone Resource Provider.....	51-27
51.4.4.5	Creating a Database Schema Pool.....	51-28
51.4.4.6	Creating an Adapter Instance	51-29
51.4.4.7	Filtering Resource Provider Targets	51-30
51.4.4.8	Viewing the Resource Provider Type Metadata	51-31
51.4.4.9	Viewing the Metadata for Creating a PaaS Infrastructure Zone	51-33
51.4.4.10	Viewing the Metadata for Creating a Schema Pool.....	51-34
51.4.4.11	Viewing Details of the Resource Provider	51-36
51.4.4.12	Updating a Resource Provider	51-37
51.4.4.13	Deleting a Resource Provider	51-37
51.4.4.14	Viewing Configuration of a Resource Provider.....	51-38
51.4.4.15	Viewing Metric of a Resource Provider	51-41
51.4.4.16	Provisioning a Resource via a Sample Adapter	51-42

51.4.4.17	De-provisioning a Resource.....	51-43
51.4.4.18	Viewing the Metadata Required to Provision a Resource Provider	51-44
51.5	Service Templates - Collection Resource for V2.....	51-48
51.5.1	Supported Operations.....	51-49
51.5.2	Service Templates REST API Examples for V2	51-52
51.5.2.1	Viewing all the Service Templates	51-53
51.5.2.2	Viewing all the Service Template Types	51-54
51.5.2.3	Viewing the Metadata Required for Creating a Service Template.....	51-55
51.5.2.4	Viewing the Resource Provider Characteristics Required for Creating a Service Template 51-57	
51.5.2.5	Viewing Configurations Required for Creating a Service Template	51-58
51.5.2.6	Creating a Service Template	51-62
51.5.2.7	Updating a Service Template.....	51-64
51.5.2.8	Viewing Details of a Specific Service Template	51-65
51.5.2.9	Viewing Configuration Details of a Specific Service Template	51-68
51.5.2.10	Deleting a Service Template.....	51-72
51.5.3	Creating a Service Template in V2	51-72
51.6	Service Types for V2	51-73
51.6.1	Service Types REST API Examples for V2.....	51-73
51.6.1.1	Viewing Details of the Service Types	51-73
51.7	Service Requests for V2.....	51-74
51.7.1	Supported Operations.....	51-75
51.7.2	Service Requests REST API Examples for V2.....	51-75
51.7.2.1	Viewing Details of all the Service Requests.....	51-76
51.7.2.2	Viewing Details of a Service Request	51-76
51.7.2.3	Rescheduling a Service Request	51-77
51.7.2.4	Clearing a Collection of Service Requests.....	51-77
51.7.2.5	Cancelling a Service Request	51-78
51.7.2.6	Deleting a List of Service Requests	51-78
51.8	Service Instances for V2	51-79
51.8.1	Supported Operations.....	51-79
51.8.2	Service Instance REST API Examples for V2	51-80
51.8.2.1	Viewing Details of all the Service Instances	51-80
51.8.2.2	Viewing Details of a Service Instance.....	51-81
51.8.2.3	Starting a Service Instance.....	51-82
51.8.2.4	Stopping a Service Instance.....	51-82
51.8.2.5	Deleting a Service Instance.....	51-82
51.8.2.6	Starting a list of Service Instances	51-83
51.8.2.7	Stopping a list of Service Instances	51-83
51.8.2.8	Deleting a list of Service Instances	51-84
51.9	Request Settings for V2	51-84
51.9.1	Request Settings Data Model	51-85
51.9.2	Request Settings Composite Attribute Data Model.....	51-85
51.9.3	Request Settings REST API Examples for V2	51-85
51.9.3.1	Viewing Details of the Global Request Settings.....	51-86
51.9.3.2	Updating the Global Request Settings.....	51-87
51.9.3.3	Viewing Details of the Global Request Settings for a Collection of Roles	51-87
51.9.3.4	Creating Global Request Settings for a Role.....	51-88

51.9.3.5	Viewing Details of Global Request Settings for a Specific Role.....	51-89
51.9.3.6	Updating Global Request Settings for a Specific Role	51-90
51.9.3.7	Deleting Global Request Settings for a Specific Role	51-91
51.9.3.8	Viewing Details of the Request Settings for a Service Family	51-91
51.9.3.9	Updating the Request Settings for a Service Family	51-92
51.9.3.10	Viewing Details of the Service Family Settings by Roles.....	51-93
51.9.3.11	Creating Service Family Settings for a Role.....	51-93
51.9.3.12	Viewing Details of the Service Family Request Settings for a Specific Role...	51-94
51.9.3.13	Updating the Service Family Request Settings for a Specific Role.....	51-96
51.9.3.14	Deleting Service Family Request Settings for a Specific Role	51-96
51.9.3.15	Viewing Details of the Request Settings for a Service Type.....	51-96
51.9.3.16	Updating the Request Settings for a Service Type.....	51-98
51.9.3.17	Viewing Details of the Service Type Settings by Roles.....	51-98
51.9.3.18	Creating Service Type Settings for Roles	51-99
51.9.3.19	Viewing Details of the Service Type Request Settings for a Specific Role	51-99
51.9.3.20	Updating the Service Type Request Settings for a Specific Role	51-101
51.9.3.21	Deleting Service Type Request Settings for a Specific Role	51-101
51.10	VM Adapters for V2	51-101
51.10.1	VM Adapters Data Model	51-102
51.10.2	Supported Operations.....	51-102
51.10.3	VM Adapters REST API Examples for V2	51-102
51.10.3.1	Viewing Details of All the Registered VM Adapters	51-102
51.10.3.2	Viewing Details of a Specific Registered VM Adapter	51-103
51.10.3.3	Viewing Details of the Staging Servers	51-104
51.10.3.4	Creating a Staging Server	51-104
51.11	SSA Admin Resources for V1.....	51-104
51.11.1	Viewing Details of the REST API Entry Point Resources	51-105
51.12	PaasZones for V1.....	51-106
51.12.1	PaasZones REST API Examples.....	51-107
51.12.1.1	Viewing PaaS Zones Metadata	51-107
51.12.1.2	Listing PaaS Zones	51-108
51.13	PaasZone for V1	51-109
51.13.1	PaaS Zone REST API Examples.....	51-110
51.13.1.1	Creating a PaaS Zone	51-111
51.13.1.2	Updating a PaaS Zone	51-112
51.13.1.3	Deleting a PaaS Zone	51-113
51.13.1.4	Viewing Details of the PaasZone	51-114
51.13.1.5	Viewing the Expanded form of a PaasZone	51-115
51.14	SoftwarePools for V1	51-116
51.14.1	Software Pools REST API Example.....	51-117
51.14.1.1	Viewing Details of the Software Pools	51-117
51.14.1.2	Filtering Output based on Search Query Parameters	51-118
51.15	SoftwarePool for V1.....	51-119
51.15.1	SoftwarePool REST API Examples.....	51-121
51.15.1.1	Creating a Software Pool	51-121
51.15.1.2	Updating a Software Pool	51-123
51.15.1.3	Deleting a Software Pool	51-123

51.15.1.4	Viewing Details of the Software Pool.....	51-124
51.15.1.5	Expands Query Parameter	51-125
51.15.2	SoftwarePoolMetadata for V1.....	51-125
51.15.2.1	Retrieving Software Pool Metadata REST API Example	51-126
51.15.3	SoftwarePoolFilteredTargets for V1.....	51-128
51.15.3.1	Retrieving Available Filtered Targets - REST API Example	51-129
51.15.4	SoftwarePoolCapacity for V1.....	51-130
51.15.4.1	Retrieving Software Pool Capacity	51-130
51.16	Composite Resource Attributes for V1	51-131
51.16.1	ValueDescriptor for V1	51-132
51.16.2	ValueEntity for V1	51-132
51.16.3	EntityValueHolder for V1.....	51-132
51.16.4	PoolEntityCapacity for V1.....	51-132
51.16.5	ResourceTypeCapacity for V1	51-133
51.17	Service Template Management for V1.....	51-133
51.17.1	Service Templates for V1	51-133
51.17.1.1	Supported Methods on ServiceTemplates Resources	51-134
51.17.1.2	ServiceTemplates REST API Example.....	51-134
51.17.2	Service Template for V1.....	51-135
51.17.2.1	Supported Methods on ServiceTemplate Resources.....	51-135
51.17.3	ServiceTemplateUpdate for V1.....	51-136
51.17.4	ServiceExecutableMetaEntity for V1.....	51-136
51.17.5	Template Configuration Parameters for V1.....	51-137
51.17.6	PayloadDescriptor for V1	51-137
51.17.7	ServiceTemplate Metadata for V1	51-138
51.17.8	PayloadMeta Data for V1	51-138
51.17.9	ServiceTemplate Meta Data for V1	51-138
51.17.10	ServiceTemplates REST API Example	51-139
51.17.10.1	Creating Service Templates.....	51-139
51.17.10.2	Updating a Service Template.....	51-141
51.17.10.3	Deleting a Service Template.....	51-141
51.17.10.4	Viewing Details of a Service Template.....	51-142
51.17.10.5	Viewing Metadata of a Service Template	51-145
51.17.10.6	Creating Configuration Values for Service Templates	51-146
51.18	EM CLI Verbs for Self Service Applications	51-149
51.18.1	Introduction.....	51-149
51.18.2	EM CLI Verbs for SSA Operations for V2.....	51-149
51.18.3	EM CLI Verbs for SSA Operations for V1	51-155

52 SSA Portal Management REST APIs

52.1	Summary of SSA User REST APIs for V2.....	52-2
52.2	Summary of User REST APIs for V1	52-3
52.3	Common REST Entities for V2.....	52-4
52.3.1	Cfw Resource for V2.....	52-4
52.3.2	Cfw Link for V2.....	52-4
52.3.3	Cfw Value Descriptor for V2.....	52-5
52.4	Catalog APIs	52-5

52.4.1	Supported Operations.....	52-5
52.4.2	REST API Catalog Examples for V2.....	52-6
52.4.2.1	Viewing Details of the Available REST API Catalogs.....	52-6
52.4.2.2	Viewing Details of the API Catalog by User Type	52-7
52.4.2.3	Viewing Details of the User API Catalog.....	52-7
52.5	Service Types for V2	52-12
52.5.1	Service Types REST API Example for V2.....	52-12
52.5.1.1	Viewing Details of Service Types.....	52-12
52.6	Services for V2	52-13
52.6.1	Service Collection for V2.....	52-13
52.6.2	Service Offering for V2.....	52-13
52.6.3	Request Metadata for V2	52-14
52.6.4	Supported Operations for Services for V2	52-14
52.6.5	Services REST API Examples for V2.....	52-15
52.6.5.1	Viewing Details of the Services Resource	52-15
52.6.5.2	Viewing Details of the Service Offering Resource.....	52-17
52.6.5.3	Viewing Details of the Request Metadata.....	52-17
52.6.5.4	Creating a Service Instance	52-19
52.6.6	Creating a Service Instance using V2.....	52-20
52.7	Service Requests REST APIs for V1 and V2.....	52-21
52.7.1	Service Requests Resource for V2.....	52-21
52.7.2	Service Request Collection - Collection Resource for V1.....	52-21
52.7.3	Supported Operations for Service Requests	52-22
52.7.4	Service Request REST API Examples for V1 and V2.....	52-24
52.7.4.1	Retrieving Top Level View of Service Requests in V1 and V2	52-25
52.7.4.2	Querying the Service Requests Resource for Status=SUCCESS in V2.....	52-27
52.7.4.3	Querying the Service Requests Resource for Expanded=true and Expanded=false in V2	52-28
52.7.4.4	Querying the Service Requests Resource for status=SUCCESS&expanded=false and status=SUCCESS&expanded=true in V2	52-30
52.7.4.5	Viewing Details of a Service Request in V2.....	52-32
52.7.4.6	Deleting a Service Request in V2.....	52-32
52.7.4.7	Rescheduling a Service Request that is in a Scheduled State in V1 and V2....	52-33
52.7.4.8	Viewing the Logs of a Service Request in V2	52-33
52.7.4.9	Querying the Logs of a Service Request in V2	52-34
52.7.4.10	Retrieving Top Level View of Service Requests for a Specific Service Family in V1 .	52-35
52.7.4.11	Retrieving Top Level View of Service Requests for a Specific Status in V1 ...	52-36
52.7.4.12	Rescheduling a Service Request that is in a Cancelled State (or in a state other than Scheduled) in V1	52-37
52.7.4.13	Deleting a Service Request that is in a Scheduled State in V1	52-37
52.7.4.14	Deleting a Service Request that is in a Canceled State (or in a state other than scheduled) in V1	52-37
52.8	Service Instances for V2	52-38
52.8.1	Supported Methods for Service Instance in V2.....	52-39
52.8.2	Service Instances REST API Examples for V2	52-41
52.8.2.1	Viewing Details of the Service Instance Resource in V2.....	52-41
52.8.2.2	Querying the Service Instance Resource in V2.....	52-42

52.8.2.3	Viewing Details of a Service Instance in V2	52-43
52.8.2.4	Viewing Details of the Attributes of a Service Instance in V2	52-44
52.8.2.5	Viewing Details of the Available Actions on a Service Instance in V2.....	52-44
52.8.2.6	Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2	52-45
52.8.2.7	Executing an Action on a Service Instance in V2	52-48
52.8.3	Executing Actions on a Service Instance in V2.....	52-49
52.9	Quota Usage for V2	52-49
52.9.1	Supported Operations for Quota Usage for V2.....	52-49
52.9.2	Quota Usage REST API Examples for V2.....	52-49
52.9.2.1	Viewing Details of Quota Usage	52-50
52.9.2.2	Viewing Details of Quota Usage by Service Family	52-51
52.10	User Preferences for V2.....	52-52
52.10.1	Supported Request Methods for User Preference Resource in V2	52-52
52.10.2	User Preferences for V2 REST API Examples.....	52-53
52.10.2.1	Viewing Details of the User Preferences Resource for V2.....	52-53
52.10.2.2	Viewing Details of the General User Preferences Resource for V2.....	52-54
52.10.2.3	Viewing Metadata of the General User Preferences Resource for V2	52-56
52.10.2.4	Updating the General User Preferences for V2.....	52-60
52.10.2.5	Viewing Details of the Services User Preferences Resource for V2	52-60
52.10.2.6	Viewing Details of the Service Family User Preferences Resource for V2.....	52-62
52.10.2.7	Viewing Metadata of the Service Family User Preferences for V2.....	52-62
52.10.2.8	Updating the Service Family User Preferences for V2.....	52-63
52.10.2.9	Viewing Details of the Service Type User Preferences Resource for V2	52-63
52.10.2.10	Viewing Metadata of the Service Type User Preferences for V2.....	52-64
52.10.2.11	Updating the Service Type User Preferences for V2	52-65
52.11	User Preferences for V1	52-65
52.11.1	My Preferences for V1	52-65
52.11.2	Canonical Link for V1	52-66
52.11.3	General Preferences for V1	52-66
52.12	Composite Resource Attributes for V1	52-67
52.12.1	RequestEntity Data Model for V1	52-67
52.12.2	InstanceExpiryEntity Data Model for V1	52-68
52.12.3	QuotaEntity Data Model for V1.....	52-68
52.13	Supported Methods for General Preferences (for V1).....	52-68
52.13.1	Viewing Details of the General Preferences for an SSA User	52-69
52.13.2	Updating the General Preferences for an SSA User	52-69
52.14	Service Specific User Preferences for V1	52-71
52.14.1	Service Preferences for V1	52-71
52.14.2	Supported Methods for My Preferences (for V1).....	52-71
52.14.3	ServicePreferenceMetadata Data Model for V1	52-71
52.14.4	Composite Resource Attributes for V1	52-72
52.14.4.1	ValueEntity Data Model for V1	52-72
52.14.4.2	EntityValueHolder Data Model for V1	52-72
52.14.4.3	ValueDescriptor Data Model for V1	52-72
52.14.5	Service Preferences REST API Examples for V1	52-73
52.14.5.1	Viewing Details of the Service Preferences Resource	52-73
52.14.6	My Database Preferences REST API Examples for V1	52-73

52.14.6.1	Viewing Details of the DBaaS User Preferences Metadata.....	52-74
52.14.6.2	Updating DBaaS User Preferences.....	52-74
52.14.6.3	Setting a Blank DBaaS User Preference Setting.....	52-75
52.14.6.4	Viewing the DBaaS User Preferences	52-76
52.14.7	My Middleware Preferences REST API Examples for V1	52-76
52.14.7.1	Viewing MWaaS User Preferences Metadata.....	52-76
52.14.7.2	Updating MWaaS User Preferences.....	52-77
52.14.7.3	Setting a Blank MWaaS User Preference Setting	52-77
52.14.7.4	Viewing MWaaS User Preference Settings	52-78
52.14.8	My Tests Preferences for V1.....	52-79
52.14.8.1	Viewing TaaS User Preferences Metadata	52-79
52.14.8.2	Updating TaaS User Preferences	52-79

53 WebLogic as a Service REST APIs

53.1	Summary of WebLogic as a Service REST APIs for V2	53-2
53.2	Summary of WebLogic as a Service REST APIs for V1	53-3
53.3	Resource Providers for V2 - PaaS Infrastructure Zone and Middleware Pool	53-3
53.3.1	Resource Providers - PaaS Infrastructure Zone and Middleware Pool REST API Examples 53-4	
53.3.1.1	Viewing Details of All the Resource Providers.....	53-4
53.3.1.2	Creating a PaaS Infrastructure Zone.....	53-5
53.3.1.3	Creating a Middleware Pool	53-5
53.3.1.4	Updating a PaaS Infrastructure Zone	53-6
53.3.1.5	Updating a Middleware Pool	53-6
53.3.1.6	Deleting a Resource Provider (PaaS Infrastructure Zone or Middleware Pool)	53-7
53.4	Quotas for V2.....	53-7
53.4.1	Quotas REST API Examples.....	53-7
53.4.1.1	Viewing Details of Quota Settings	53-7
53.4.1.2	Creating a Quota for a SSA User Role	53-8
53.4.1.3	Updating a Quota for a SSA User Role	53-9
53.4.1.4	Deleting a Quota for a SSA User Role	53-9
53.5	Service Templates for V2	53-10
53.5.1	Service Templates REST API Examples	53-10
53.5.1.1	Viewing Details of all Service Templates.....	53-10
53.5.1.2	Viewing Details of a Specific Service Template	53-10
53.5.1.3	Deleting a Service Template.....	53-11
53.6	Load Balancer Configurations for V2	53-11
53.6.1	Load Balancer Configuration for V2.....	53-11
53.6.2	Load Balancer Configurations REST API Examples	53-12
53.6.2.1	Viewing all the Load Balancer Configurations	53-12
53.6.2.2	Viewing Details of a Specific Load Balancer Configuration	53-13
53.6.2.3	Creating a Load Balancer Configuration	53-14
53.6.2.4	Updating a Load Balancer Configuration.....	53-15
53.6.2.5	Deleting a Load Balancer Configuration.....	53-15
53.7	Service Instance Action for V2	53-16
53.8	User Operation REST API Examples for V2	53-16

53.8.1	Viewing Details of all Service Templates	53-17
53.8.2	Viewing Details of all Service Instances	53-18
53.8.3	Viewing all Service Instances With UP Status.....	53-18
53.8.4	Creating a Service Instance Request	53-19
53.8.5	Viewing Details of all Possible Actions on a Specific Service Instance.....	53-20
53.8.6	Scaling Up a Service Instance.....	53-21
53.8.7	Scaling Down a Service Instance	53-21
53.8.8	Stopping a Service Instance.....	53-22
53.8.9	Starting a Service Instance.....	53-22
53.8.10	Deleting a Service Instance.....	53-22
53.8.11	Viewing Details of Java EE Applications Components from the Software Library	53-23
53.8.12	Deploying an Application	53-24
53.8.13	Redeploying an Application	53-24
53.8.14	Un-deploying an Application	53-25
53.8.15	Stopping an Application.....	53-26
53.8.16	Starting an Application.....	53-26
53.8.17	Viewing Details of all Applications Deployed in a Domain	53-27
53.8.18	Viewing an Application URL.....	53-27
53.8.19	Viewing Details of the Libraries Deployed in a Domain.....	53-28
53.8.20	Viewing the WebLogic Console URL	53-29
53.8.21	Creating a Data Source.....	53-30
53.8.22	Editing a Data Source.....	53-30
53.8.23	Deleting a Data Source.....	53-31
53.8.24	Viewing Details of all the Data Sources	53-31
53.8.25	Testing a Data Source.....	53-32
53.9	WebLogic as a Service Resource Model for V1.....	53-33
53.9.1	Cloud	53-33
53.9.1.1	Viewing Details of the Cloud Resource	53-34
53.9.2	JaaS Service Family Type	53-37
53.9.2.1	Viewing Detail of the JaaS Service Family Type Resource.....	53-38
53.9.2.2	Creating an Application Instance Component by Passing a POST Request on the Jaas Service Family Type Resource	53-39
53.9.3	Zone	53-41
53.9.3.1	Viewing Details of the Zone Resource	53-41
53.9.4	JavaPlatformTemplate	53-42
53.9.4.1	Viewing Details of the Java Platform Template Resource.....	53-43
53.9.4.2	Creating a Java Platform Instance by Passing POST Request on a Java Platform Template	53-44
53.9.4.3	Viewing Details of the Java Platform Request Resource	53-46
53.9.5	Java Platform Instance	53-48
53.9.5.1	Viewing Details of the Java Platform Instance Resource.....	53-49
53.9.5.2	Deleting a Service Instance by Passing a DELETE Request on a Java Platform Instance	53-50
53.9.5.3	Viewing Status of the DELETE Request.....	53-51
53.9.5.4	Creating an Application Instance Deployment By Passing a POST Request on Java Platform Instance	53-52
53.9.5.5	Viewing Status of the Application Instance Deployment Creation Request .	53-53

53.9.5.6	Creating a Data Source by Passing a POST Request on the Java Platform Instance Resource	53-54
53.9.5.7	Viewing Status of the Data Source Creation Request	53-55
53.9.5.8	Scaling Up/Down the Service Instance	53-57
53.9.6	Application Instance Deployment	53-58
53.9.6.1	Viewing Details of the Application Instance Deployment Resource	53-59
53.9.6.2	Deleting an Application Instance Deployment	53-60
53.9.6.3	Viewing Status of the Application Instance Deployment Deletion Request .	53-61
53.9.6.4	Starting, Stopping and Redeploying an Application Instance Deployment ..	53-61
53.9.7	DataSource	53-63
53.9.7.1	Viewing Details of the Data Source Resource	53-64
53.9.7.2	Deleting a Data Source	53-65
53.9.7.3	Viewing Status of the Data Source Deletion Request	53-66
53.9.7.4	Updating a Data Source	53-67
53.9.7.5	Viewing Status of the Data Source Request	53-68
53.9.8	Application Instance Component	53-70
53.9.8.1	Viewing Details of the Application Instance Component Resource	53-70
53.9.8.2	Deleting an Application Instance Component	53-71
53.10	Application Component Filtering for V1	53-72
53.10.1	Filtering Service Templates	53-72
53.10.2	Filtering Zones	53-73
53.11	Load Balancer Configuration for V1	53-74
53.11.1	Load Balance Configuration REST API Examples	53-75
53.11.1.1	Viewing Details of the Load Balancer Configuration Resource	53-75
53.11.1.2	Viewing Details of the specified Load Balancer Configuration	53-76
53.11.1.3	Editing the Load Balancer Configuration	53-76
53.11.1.4	Adding a Load Balancer Configuration	53-77
53.12	Quotas for V1	53-78
53.12.1	Quotas REST API Examples	53-78
53.12.1.1	Viewing Details of the Quota Settings for All SSA User Roles	53-78
53.12.1.2	Creating Quota Settings for a SSA User Role	53-79
53.12.1.3	Editing Quota Settings for a SSA User Role	53-79
53.12.1.4	Deleting Quota Settings for a SSA User Role	53-80
53.13	Service Templates for V1	53-80
53.13.1	Creating a Service Template	53-80
53.14	User Operation REST API Examples for V1	53-81
53.14.1	Starting/Stopping Service Instances	53-81
53.14.2	Rescheduling Service Instance	53-82
53.14.3	Viewing Details of the Java EE Application Components in Software Library	53-82
53.14.4	Deploying an Application as a Library	53-83
53.14.4.1	Deploying an Application as a Library	53-84
53.14.4.2	Redeploying an Application as a Library	53-84
53.14.4.3	Undeploying an Application as a Library	53-85
53.14.5	User Operations for Scheduling Support	53-85
53.14.5.1	Creating a Service Instance	53-85
53.14.5.2	Scaling Up a Service Instance	53-86
53.14.5.3	Scaling Down a Service Instance	53-86

53.14.5.4	Deleting a Service Instance.....	53-87
53.15	EMCLI Support for Administration Operations	53-87

54 SOAaaS and OSBaaS APIs

54.1	PaaS Infrastructure Zone and Middleware Pool.....	54-1
54.1.1	Viewing Details of All the Resource Providers	54-1
54.1.2	Creating a PaaS Infrastructure Zone for SOA/OSB Domains	54-2
54.1.3	Creating Middleware Pool for SOA/OSB.....	54-2
54.1.4	Updating a PaaS Infrastructure Zone	54-3
54.1.5	Updating a Middleware Pool.....	54-3
54.1.6	Deleting a Resource Provider (PaaS Infrastructure Zone or Middleware Pool)	54-4
54.2	Quotas.....	54-4
54.2.1	Viewing Details of Quota Settings	54-4
54.2.2	Creating a Quota for a SSA User Role	54-5
54.2.3	Updating a Quota for a SSA User Role.....	54-5
54.2.4	Deleting a Quota for a SSA User Role	54-5
54.3	Service Templates	54-6
54.3.1	Viewing Details of all Service Templates	54-6
54.3.2	Viewing Details of a Specific Service Template	54-6
54.3.3	Deleting a Service Template.....	54-7
54.3.4	Creating a Service Template.....	54-7
54.3.4.1	Viewing Service Template Types	54-7
54.3.4.2	Getting Service Template Metadata Details	54-7
54.3.4.3	Getting the Resource Provider Characteristics	54-8
54.3.4.4	Creating the Service Template Configuration.....	54-8
54.3.4.5	Creating Service Templates Using these Responses	54-9
54.4	Load Balance Configuration.....	54-13
54.4.1	Viewing Details of all the Load Balancer Configuration Resource	54-13
54.4.2	Viewing Details of the specified Load Balancer Configuration.....	54-14
54.4.3	Creating the Load Balancer Configuration	54-14
54.4.4	Editing the Load Balancer Configuration	54-15
54.4.5	Deleting a Load Balancer Configuration.....	54-16
54.5	SSA User Operation API Examples.....	54-16
54.5.1	Viewing Details of all Service Templates	54-16
54.5.2	Viewing Details of all Service Instances	54-16
54.5.3	Viewing all Service Instances With UP Status.....	54-17
54.5.4	Viewing the Service Offering Metadata	54-17
54.5.5	Creating a Service Instance Request	54-17
54.5.6	Viewing all the Action IDs for the Service Instances.....	54-20
54.5.7	Stopping a Service Instance.....	54-20
54.5.8	Starting a Service Instance.....	54-21
54.5.9	Deleting a Service Instance.....	54-21
54.5.10	Scaling Up a Service Instance.....	54-21

55 Rapid Start Cloud Setup

55.1	Introduction	55-1
55.2	Installing the Kit.....	55-1

55.2.1	OMS Host.....	55-2
55.2.2	Other Hosts.....	55-2
55.3	Contents of the Kit	55-2
55.4	Prerequisites	55-3
55.4.1	Oracle Management Server	55-3
55.4.2	EMCLI Setup	55-3
55.4.3	Infrastructure Setup.....	55-3
55.4.3.1	Pluggable Database as a Service.....	55-3
55.4.3.1.1	Database as a Service	55-4
55.5	Artifacts Created by the Rapid Start Kit	55-4
55.6	Rapid Kit Modes	55-5
55.6.1	Simple Mode (On Exadata Only)	55-6
55.6.2	Advanced Mode (Exadata and Non Exadata)	55-6
55.7	Cloud Setup Inputs: Simple Mode	55-6
55.7.1	Pluggable Database as a Service: Simple Mode	55-6
55.7.2	Database as a Service: Simple Mode.....	55-6
55.7.3	Input Customization: Simple Mode.....	55-7
55.8	Cloud Setup Inputs: Advanced Mode	55-8
55.8.1	Creating Custom Users	55-9
55.8.2	Pluggable Database as a Service: Advanced Mode	55-9
55.8.3	Database as a Service: Advanced Mode	55-11
55.9	Command Line Interface	55-16
55.9.1	Usage	55-16
55.9.2	Database as a Service (DBaaS)	55-16
55.9.3	Pluggable Database as a Service (PDBaaS)	55-17
55.9.4	Securing the Cloud Setup	55-18
55.9.4.1	Expire Default Passwords	55-18
55.9.5	Set New Passwords	55-18
55.10	Rapid Start Kit Sample Run.....	55-18

56 Chargeback and Metering EMCLI Verbs

56.1	Performing UI Equivalent Chargeback Operations.....	56-1
56.1.1	list_chargeback_entity_types	56-1
56.1.2	list_chargeback_entities	56-2
56.1.3	add_chargeback_entity	56-2
56.1.4	remove_chargeback_entity.....	56-3
56.1.5	list_charge_plans.....	56-3
56.1.6	assign_charge_plan	56-4
56.1.7	unassign_charge_plan.....	56-5
56.1.8	list_cost_centers	56-5
56.1.9	assign_cost_center	56-6
56.1.10	unassign_charge_plan.....	56-7
56.2	Using Custom Charge Items	56-7
56.2.1	list_charge_item_candidates	56-7
56.2.2	create_charge_item	56-8
56.2.3	delete_charge_item.....	56-9
56.3	Examples of Custom Charge Item Verb Use	56-10

56.3.1	Metric Extension (PGA)	56-10
56.3.2	Metric Extension (Application A Orders)	56-12
56.3.3	Configuration Extensions	56-15
56.4	Creating a Generic Entity Type.....	56-18
56.5	Retrieving Metering Data from Enterprise Manager	56-19
56.5.1	get_metering_data	56-19
56.5.2	Data Retrieval Output.....	56-20
56.5.3	get_metering_data Examples.....	56-21

57 Introduction to Blueprints

57.1	Introduction to Blueprints	57-1
57.2	Uses of the Blueprint	57-2
57.3	Enterprise Manager Cloud Concepts.....	57-2
57.4	Blueprint Concepts	57-3
57.5	Deploying a Blueprint.....	57-4
57.6	Blueprint Deployment Processing.....	57-4
57.7	Blueprint Examples.....	57-7
57.7.1	Blueprint Structure and Basics.....	57-7
57.7.1.1	Simple Blueprint.....	57-8
57.7.1.2	Simple Resource: Database Service Instance	57-8
57.7.1.3	Intrinsic Functions	57-9
57.7.1.4	Simple Resource with Parameter	57-9
57.7.1.5	Data Section (Named Literals).....	57-10
57.7.2	Putting It All Together – Multiple Interdependent Resources	57-11
57.7.2.1	Macro Section.....	57-13
57.7.2.2	Attributes of Created Resources (Dependencies)	57-13
57.7.3	Visual Depiction of Blueprint Processing	57-14
57.8	Conclusion	57-17

58 Cloud Blueprints and Blueprint Reference

58.1	Installing the Blueprint Processor	58-1
58.1.1	Linux (Oracle Linux)	58-2
58.1.1.1	Installing Python.....	58-2
58.1.1.2	Installing the Blueprint Processor from Zip File.....	58-2
58.1.1.3	Testing the Installation	58-3
58.1.2	Windows	58-4
58.1.2.1	Installing Python.....	58-4
58.1.2.2	Installing the Blueprint Processor from Zip File.....	58-5
58.1.2.3	Testing the Installation	58-5
58.2	Optional Components for Graphical Summary Report	58-6
58.3	Running the Blueprint Processor.....	58-6
58.4	Blueprint Processing Phases.....	58-7
58.4.1	Initialization.....	58-8
58.4.2	Input Parameter Evaluation.....	58-8
58.4.3	Resource Creation.....	58-8
58.4.4	Outputs.....	58-9
58.5	Language Specifics.....	58-9

58.6	Overview of Blueprint Content	58-9
58.6.1	Inputs Section	58-10
58.6.1.1	Example 1.....	58-10
58.6.1.2	Example 2.....	58-10
58.6.1.3	Example 3.....	58-11
58.6.2	Resources Section.....	58-11
58.6.3	Outputs Section.....	58-12
58.6.4	Data Section	58-13
58.6.5	Macros Section	58-13
58.6.6	Expressions	58-15
58.6.6.1	Path Expressions.....	58-15
58.6.6.2	Operator Summary.....	58-16
58.6.6.3	Example: Viewing all values of Info	58-17
58.6.6.4	Examples: Viewing Blueprint Values	58-18
58.6.6.5	Examples: Browsing Your Cloud	58-19
58.6.6.6	Eval or Blueprint Expressions.....	58-21
58.6.7	Intrinsic Functions	58-22
58.6.7.1	Evaluation Intrinsic	58-22
58.6.7.1.1	f_path(pathExpr)	58-22
58.6.7.1.2	Example - Value from Data Section.....	58-22
58.6.7.1.3	Example 2 - Value from Inputs Section.....	58-22
58.6.7.1.4	Example 3 - Default Input Parameter Value via Cloud Lookup	58-22
58.6.7.1.5	f_eval(blueprintExpr)	58-23
58.6.7.1.6	Example (Contrived).....	58-23
58.6.7.2	Resource Access Intrinsic.....	58-24
58.6.7.2.1	f_getResourceAttr(bpResName, pathExpr)	58-24
58.6.7.2.2	f_getResourceURI(bpResName)	58-24
58.6.7.3	Lookup Intrinsic.....	58-25
58.6.7.3.1	f_getTemplateURI(name, type)	58-25
58.6.7.3.2	f_getZoneURI(name, type)	58-25
58.6.7.3.3	f_getAppCompURI(name, owner, version)	58-25
58.6.7.4	Debugging Intrinsic.....	58-26
58.6.7.4.1	58-26
58.6.7.4.2	f_print(expression, [printpointMessage])	58-26
58.6.7.5	Other Intrinsic	58-26
58.7	Dealing with Errors	58-27
58.7.1	YAML Syntax Errors	58-27
58.7.2	Protocol Version Mismatch	58-27
58.7.3	Expression Evaluation Error	58-28
58.7.4	Cloud Resource Creation Error	58-30
58.8	Simulation Mode.....	58-32
58.9	Debugging with the Blueprint Processor	58-32
58.9.1	Printing Intermediate Results	58-33
58.9.2	Pause Points.....	58-34
58.9.3	Breakpoints	58-35
58.9.4	Debugger Commands	58-35
58.9.4.1	Path Command	58-35

58.9.4.2	Continue Command.....	58-36
58.9.4.3	Exit Command	58-37
58.9.4.4	Eval Command	58-37
58.10	Tips and Hints	58-38
58.10.1	Editing YAML - Notepad ++ Example.....	58-38
58.10.2	YAML Duplicate and Name / Value Pairs.....	58-38
58.10.3	Explicit Dependencies.....	58-38
58.10.4	Hint: Use ‘-T’ Option.....	58-38
58.10.5	Help Forums.....	58-39

59 Infrastructure as a Service REST APIs

59.1	Summary of Infrastructure as a Service REST APIs	59-1
59.2	Infrastructure as a Service Resource Model.....	59-2
59.2.1	Changes for Infrastructure as a Service.....	59-2
59.2.2	IaaS Zone [application/oracle.com.cloud.iaas.Zone].....	59-3
59.2.3	AssemblyInstance [application/oracle.com.cloud.common.AssemblyInstance+json]	59-4
59.2.4	Scalability Group [application/oracle.com.cloud.common.ScalabilityGroup+json]	59-5
59.2.5	VM [application/oracle.com.cloud.common.VM+json].....	59-6
59.2.6	VNet [application/oracle.com.cloud.common.VNet+json]	59-8
59.2.7	NetworkInterface [application/oracle.com.cloud.common.NetworkInterface+json]	59-8
59.2.8	VMTemplate [application/oracle.com.cloud.common.VMTemplate+json]	59-9
59.2.9	AssemblyTemplate [application/oracle.com.cloud.common.AssemblyTemplate+json].	59-10
59.2.10	IaaSServiceFamilyType [application/oracle.com.cloud.iaas.IaaSServiceFamilyType+json]	59-11
59.2.11	IaaS Quota Definition [application/oracle.com.cloud.iaas.Quota+json].....	59-13
59.3	Infrastructure as a Service REST API Examples.....	59-14
59.3.1	Creating a Service Instance.....	59-14
59.3.1.1	Creating a VM	59-14
59.3.1.1.1	POST to the IaaS Zone on which the VM is to reside	59-15
59.3.1.1.2	POST to the VM Template on Which the VM is to be Based on.....	59-16
59.3.1.2	Viewing Details of the VM Creation Status.....	59-18
59.3.1.3	Creating an Assembly Instance	59-20
59.3.2	Updating a VM Service Instance	59-33
59.3.2.1	Changing the VM Status.....	59-33
59.3.2.2	Changing the VM Size	59-36
59.3.2.3	Adding a VM Disk	59-38
59.3.3	Deleting a Service Instance.....	59-39
59.3.4	Listing Service Instances.....	59-40
59.3.5	Searching Service Templates.....	59-42
59.4	Support for Version 1000	59-45

60 Testing as a Service REST APIs

60.1	Summary of Testing as a Service REST APIs.....	60-2
------	--	------

60.2	Introduction to Testing as a Service REST API.....	60-3
60.2.1	How to Use Testing as a Service REST API	60-3
60.2.2	How Resource Models Are Used in TaaS	60-4
60.3	Testing as a Service Resource Model	60-5
60.3.1	Application Resource	60-6
60.3.2	TestDriverType Resource	60-7
60.3.3	TestDriver Resource	60-7
60.3.4	QuotaUsage Resource	60-8
60.3.5	TestAsset	60-9
60.3.6	OltScenario.....	60-10
60.3.7	CustomParameters	60-11
60.3.8	OftAssetScript Resource	60-12
60.3.9	OftAssetScriptCsvDatabanks.....	60-13
60.3.10	OftPlaybackSettings Resource	60-14
60.3.11	OftDatabaseDatabanks	60-14
60.3.12	TestEnvironment.....	60-15
60.3.13	Test.....	60-16
60.3.14	Trial.....	60-17
60.3.15	Metric.....	60-21
60.3.16	MetricValue	60-22
60.3.17	OltSession.....	60-22
60.3.18	OltCounter	60-23
60.3.19	OltCounterValue.....	60-23
60.3.20	OftTrialAssetExecution.....	60-24
60.3.21	TestDriverInstance.....	60-27
60.3.22	TestEnvironmentInstance Resource.....	60-27
60.3.23	Operation	60-28
60.3.24	TestType.....	60-30
60.3.25	Target.....	60-30
60.3.26	OltAgent.....	60-31
60.4	Testing as a Service REST API Examples	60-31
60.4.1	Viewing Details of all Applications	60-32
60.4.2	Querying an Application by Context ID	60-33
60.4.3	Viewing Details of All Test Assets	60-33
60.4.4	Querying a Test Asset by Context ID	60-34
60.4.5	Viewing Details of all Test Environments.....	60-34
60.4.6	Querying a Test Environment by Context ID.....	60-35
60.4.7	Viewing Details of all Test Drivers	60-35
60.4.8	Querying a Test Driver by Context ID	60-36
60.4.9	Querying Test Driver Type by Context ID	60-36
60.4.10	Viewing Details of all Test Environment Instances	60-37
60.4.11	Querying a Test Environment Instance by Context ID	60-37
60.4.12	Creating a Test Environment Instance	60-38
60.4.13	Executing an Operation on Test Environment / Driver Instance	60-39
60.4.14	Deleting a Stopped Test Environment Instance	60-39
60.4.15	Viewing Details of All Test Driver Instances.....	60-40
60.4.16	Querying a Test Driver Instance by Context ID.....	60-40

60.4.17	Creating a Test Driver Instance	60-41
60.4.18	Deleting a Stopped Test Driver Instance.....	60-42
60.4.19	Viewing Details of all Tests	60-42
60.4.20	Querying a Test by Context ID	60-43
60.4.21	Creating a Test.....	60-44
60.4.22	Updating a Test.....	60-45
60.4.23	Deleting a Test.....	60-46
60.4.24	Viewing Details of All Trials.....	60-46
60.4.25	Querying a Trial by Context ID	60-47
60.4.26	Creating a New Trial.....	60-48
60.4.27	Updating a Trial.....	60-48
60.4.28	Deleting a Trial.....	60-49

Part XVII **Appendixes**

A.1	The Challenge of Refreshing Test Data	A-1
A.2	The Enterprise Manager Solution.....	A-1
A.3	Create the Test Master Database.....	A-2
A.4	Mask and Subset Data on the Test Master Database	A-2
A.5	Create Database Clones On-Demand	A-3
A.6	Implementing the Example Scenario	A-3
A.6.1	Assign and Create Roles in Enterprise Manager	A-3
A.6.1.1	Assign Administrator Roles to Administrators	A-3
A.6.1.2	Create Custom Roles for Self Service Users.....	A-3
A.6.1.3	Create Self Service Users	A-4
A.6.2	Create a Backup of the Production Database	A-4
A.6.3	Prepare to Mask and Subset Data	A-4
A.6.3.1	Plan the Masking and Subsetting Strategy	A-4
A.6.3.2	Create the Application Data Model (ADM)	A-4
A.6.3.3	Create the Masking Definition.....	A-5
A.6.4	Configure the Storage Server	A-5
A.6.5	Create the Test Master Database on the Storage Volume	A-5
A.6.6	Enable the Test Master Database to Use Snap Clone	A-5
A.6.7	Mask and Subset the Test Data	A-6
A.6.7.1	Create the Subset Definition	A-6
A.6.7.2	Save and Execute the Subset Script.....	A-6
A.6.8	Configure the Database Cloud Self Service Portal.....	A-6
A.6.8.1	Create the PaaS Infrastructure Zone.....	A-7
A.6.8.2	Create Database Pools.....	A-7
A.6.8.3	Configure Request Settings.....	A-7
A.6.8.4	Set Up User Quotas	A-8
A.6.8.5	Create a Database Provisioning Profile Using Snapshots	A-8
A.6.8.6	Create the Service Template.....	A-8
A.6.9	Create Database Clones to Use in Testing On-Demand	A-9
A.7	Ongoing Refresh of Test Data	A-9

Index

Preface

This book describes how to set up a Private Cloud, manage and deploy virtualization targets with Oracle Enterprise Manager 12c Release 5. The preface covers the following:

- [Audience](#)
- [Supported Plug-ins](#)
- [Documentation Accessibility](#)
- [Related Documents](#)
- [Conventions](#)

Audience

This document is intended for administrators who want to setup and manage the cloud infrastructure. It is also intended for Cloud Administrators, Self Service Administrators and Self Service Users.

Supported Plug-ins

The features in this book pertain to the following plug-ins:

Note: It is recommended that you check the *My Oracle Support Note 1549855.1* for the latest patches.

Plug-in Name (My Oracle Support)	Plug-in Name (Self Update)	Version
Enterprise Manager for Oracle Cloud	Oracle Cloud Application	12.1.0.10
Enterprise Manager for Oracle Consolidation Planning and Chargeback	Oracle Consolidation Planning and Chargeback	12.1.0.7
Note: This is an optional plugin.		
Enterprise Manager for Oracle Virtualization	Oracle Virtualization	12.1.0.7
Enterprise Manager for Oracle Virtualization Infrastructure	Oracle Virtual Infrastructure	12.1.0.2

Note: The Oracle Virtual Infrastructure plugin is required for direct monitoring of Xen based systems. See [Section 10, "Direct Monitoring of Xen Based Systems"](#).

Plug-in Name (My Oracle Support)	Plug-in Name (Self Update)	Version
Enterprise Manager for Oracle Cloud Framework	Oracle Cloud Framework	12.1.0.3
Enterprise Manager for Oracle Database	Oracle Database	12.1.0.8
Enterprise Manager for Storage Management	Oracle Storage Management Framework	12.1.0.6
Note: This is an optional plugin		
Enterprise Manager for Oracle Fusion Middleware	Oracle Fusion Middleware	12.1.0.8

Note: To use the latest updates, you must upgrade all the plugins to the versions listed in the table. For instance, if you upgrade the Oracle Database plugin from 12.1.0.7 to 12.1.0.8, you must upgrade the Oracle Cloud Application plugin from 12.1.0.9 to 12.1.0.10.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at

<http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Related Documents

For more information, see the following documents in the Enterprise Manager documentation set:

- *Oracle Enterprise Manager Cloud Control Introduction*
- *Oracle Enterprise Manager Cloud Control Basic Installation Guide*
- *Oracle Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*
- *Oracle Enterprise Manager Cloud Control Administrator's Guide*

For the latest releases of these and other Oracle documentation, check the Oracle Technology Network at:

<http://www.oracle.com/technetwork/documentation/index.html#em>

Oracle Enterprise Manager also provides extensive Online Help. Click **Help** at the top of any Enterprise Manager page to display the online help window.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, user names, text that appears on the screen, or text that you enter.

What's New in This Guide?

In addition updating the books for an incremental software release or a patch set release, Oracle revises its books regularly to incorporate bug fixes and value-added feedback from customers, product managers, support teams, and other key stakeholders. Every time a book is revised, the revision number of the book is increased by one and then published on Oracle Technology Network (OTN).

This chapter lists the changes incorporated in the latest revision and all the previous revisions of Oracle Enterprise Manager Cloud Administration Guide (this book). Note that the latest revision is the current revision published on OTN, and the latest revision always contains all the changes incorporated in its previous revisions.

Since the last revision, the following changes have been made:

- The Service Template REST APIs have been moved over to the new (V2) framework and have thereby undergone a change. Also there are new additions and updates to the examples. See, [Section 48.3.5.3, "Service Templates and Service Template REST API Examples"](#).
- The PaaS Zones and PaaS Zone resources have moved over to the new (V2) framework. Therefore, there are changes to the Data Models and the REST APIs. See, [Section 48.3.1, "PaaS Zones and PaaS Zone REST APIs"](#).
- The placement of the chapters in the Part XV - Using the Cloud APIs is changed. See, [Part XVI, "Using the Cloud APIs"](#).
- Added new REST APIs for DBaaS Software pool. See, [Section 48.3.2.3, "Software Pool REST API Examples"](#).
- Support for custom database placement option using REST APIs. See, [Section 50.8, "Configuring Custom Database Placement Option Using REST APIs"](#).
- Updated the EM CLI Verbs for Database as a Service Administrator chapter. See, [Chapter 47, "EM CLI Verbs for Database as a Service Administrator"](#).

Part I

Cloud Management Overview

This section provides an introduction to the Oracle Cloud offering and explains the various Cloud service models available.

It contains the following sections:

- [Chapter 2, "Cloud Management - An Overview"](#)

Cloud Management - An Overview

This chapter introduces Cloud Management and provides an overview of the various service offerings and components available with the Oracle Cloud platform. It also describes the Consolidation Planner, which is useful in planning your Cloud requirements, as well as various life cycle management capabilities of Oracle Enterprise Manager including resource management, metering and chargeback support.

This chapter contains the following sections:

- [Introduction to Cloud Management](#)
- [Managing the Cloud Management Lifecycle With Enterprise Manager](#)
- [Understanding the Oracle Cloud Service Models](#)
- [Accessing Oracle Cloud Features](#)

2.1 Introduction to Cloud Management

Enterprises and Cloud service providers can use Oracle Enterprise Manager to build and operate their Cloud services. The functionality provided by Enterprise Manager spans the entire Cloud lifecycle and allows you to setup and manage any type of Cloud service.

Enterprises must support hundreds or even thousands of applications to meet growing business demands. This growth has driven up the cost of acquiring and managing servers and storage. Clouds enable customers to consolidate servers, storage, and database workloads onto a shared hardware and software infrastructure.

By providing on-demand access to servers and storage in a self-service, elastically scalable and metered manner, Enterprise Manager offers the following benefits.

- **Increasing Quality of Service:** IT organizations are not only trying to drive down costs, they are also looking at solutions that will simultaneously improve quality of service in terms of performance, availability and security. Cloud consumers inherently benefit from the high availability characteristics built into the Cloud.

Organizations can also enforce a unified identity and security infrastructure as part of standardized provisioning. Thus, instead of bolting on security policies, these policies and compliance regulations are part of the provisioning process.

- **Enabling Faster Deployment:** Building the Cloud infrastructure using standard building block components (for example, servers, CPUs, storage, and network), configurations, and tools, enables a streamlined, automated, and simplified deployment process.

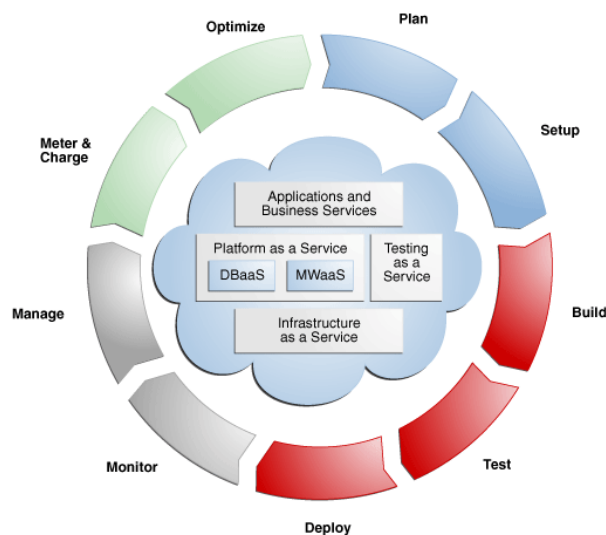
- **Providing Resource Elasticity:** The ability to grow and shrink the capacity of a given database, both in terms of storage size and compute power, allows applications the flexibility to meet the dynamic nature of business workloads.
- **Rapid Provisioning:** Databases in a Cloud can be rapidly provisioned, often by way of a self-service infrastructure, providing agility in application deployment. This reduces overall time in deploying production applications, development platforms, or creating test bed configurations.

2.2 Managing the Cloud Management Lifecycle With Enterprise Manager

Enterprise Manager allows you to manage the entire Cloud lifecycle which includes the following:

- [Planning](#)
- [Setting Up the Cloud](#)
- [Building the Cloud](#)
- [Testing and Deploying a Service](#)
- [Monitoring and Managing the Cloud](#)
- [Metering, Charging, and Optimization](#)

Figure 2–1 Cloud Lifecycle



2.2.1 Planning

Using Enterprise Manager, you can transform existing data centers into a Cloud environment. Before setting up a Cloud, you should map out your infrastructure requirements, such as the physical and virtual networks, storage arrays, applications and so on.

The Enterprise Manager Consolidation Planner is a powerful tool that helps administrators plan the Cloud architecture. It allows you to identify source and destination targets and applicable technical and functional constraints such as where the application can reside, and so on. You can generate consolidation advisories that

may include plans to move from Physical to Virtual (P2V), Physical to Physical (P2P), or Physical to an Exadata solution. The Consolidation Planner can also be used to identify the database consolidation plan which is helpful when setting up Database-as-a-Service (DBaaS). See [Section 44, "Using Consolidation Planner"](#) for details.

2.2.2 Setting Up the Cloud

Enterprise Manager can be used to model Infrastructure-as-a-Service (IaaS), Database-as-a-Service (DBaaS), and Middleware-as-a-Service (MWaaS) clouds. It is important to select the appropriate Cloud Service Model (as discussed in [Section 2.3, "Understanding the Oracle Cloud Service Models"](#)) that suits the needs of your users and organization. To facilitate Cloud setup, Enterprise Manager offers capabilities for both physical and virtual infrastructure.

For physical infrastructure, Enterprise Manager leverages its core automation framework of deployment procedures, job system, and the enterprise software library. It offers out of the box deployment procedures that can be used for provisioning the pre-requisite software for both databases and middleware. The same automation framework is also used to interact with third party storage systems for the purposes of data cloning and storage management.

For virtual infrastructure, it offers bare metal provisioning of hypervisor and setting up server and storage pools. Once completed, you can group all of these into zones based on functional or QoS characteristics. Enterprise Manager leverages the Virtualization Storage Connect technology, where the Cloud setup process is integrated with storage technologies like Netapp, Hitachi, Fujitsu. Administrators can define standardized service templates for databases and middleware platforms, and publish these as services. These services can represent single-tier templates or complex, multi-tier enterprise platforms.

Enterprise Manager uses components called assemblies. These assemblies help package a multi-tier platform into a single metadata which can be deployed by the Enterprise Manager Cloud service. An assembly is essentially a complete multi-tier application stack - including database, application server and other middleware components - packaged as a single downloadable entity. When an assembly is deployed, the result is the creation of a set of related virtual machines representing every tier of the application stack.

Using assemblies, platform architects can model the entire platform topology graphically, define all dependencies, deployment constraints, and deliver the entire stack in the form of an assembly. This assembly can then be published to the centralized Software Library in Enterprise Manager, and be made available to developers as a Cloud service – an entire application development stack, that can be provisioned quickly.

Administrators can create different types of services depending upon the business needs. For example, administrators may offer a database service based on different versions of the Oracle database, but only the ones approved for use within the business.

Enterprise Manager supports role-driven access control. Resource limits, or quotas, are assigned to roles to control access to services. This prevents unauthorized usage of a service while also preventing a few users from using majority of the resources in the Cloud. Integration with LDAP allows Enterprise Manager to inherit enterprise roles.

2.2.3 Building the Cloud

Enterprise Manager allows entire applications or components to be packaged and published to the Cloud as a service. This expedites application development and provisioning processes within an organization.

Developers can publish utility components and applications in the form of assemblies and service templates for reuse within their groups. Similarly, allowing applications to be available as assemblies allows testing teams, business analysts or production teams to deploy pre-built applications in a few clicks.

2.2.4 Testing and Deploying a Service

After an application has been built, it needs to be tested. Enterprise Manager provides a testing portfolio that allows users to test both application changes and changes to the database. The testing solution provides the ability to capture a production load and replay in a test environment, so that the results are predictable. The testing solution also leverages the diagnostic capabilities built into the technology layers and provides prescriptions for remediation.

Enterprise Manager provides a self-service application that lets end-users deploy a service. This self service application can also be customized. End users can choose to provision application assemblies, along with databases and platforms, in an on-demand manner. For each request, users can specify the amount of underlying resources such as CPU, memory, and so on that they require for each component.

Enterprise Manager automatically provisions the requested service and the appropriate resources. The self-service application also lets users define policies to scale out or scale back resources based on schedule or performance metrics. For example, a user could set a policy to elastically scale out a Web server if the processor load on existing Web servers exceeds a certain threshold value.

2.2.5 Monitoring and Managing the Cloud

Enterprise Manager offers a number of inherent monitoring and management features that collectively comprise a full Cloud management system.

For example, Enterprise Manager provides the ability to collate targets into groups for better manageability. The Administration Group feature allows administrators to define monitoring settings, compliance standards and cloud policies through templates and also organize each target in multiple hierarchies, such as Line of Business and Lifecycle status. This allows the monitoring framework to scale to thousands of servers, databases and middleware targets in the Cloud.

Enterprise Manager's built-in Incident Management system allows you to monitor the Cloud for complex operational issues that may affect performance. You can review, suppress, escalate and remediate events that occur as needed, and even integrate incident escalation with existing support ticketing systems. See the Enterprise Manager Cloud Control Administrator's Guide for details.

Contractual Service Level Agreements (SLAs) can be defined to govern the contract between the application owner and the provider of the Cloud. Administrators as well as users can also define management policies that automatically adjust the service resources to ensure that SLAs are met.

The configuration management capabilities of Enterprise Manager are optimized for Cloud environments. For example, Enterprise Manager can monitor vast numbers of configurations continuously to discover changes, measure drifts, pin-point

configuration errors, and offer insight into system topologies - all through a single console.

Enterprise Manager Cloud management capabilities are also integrated with My Oracle Support. This integration delivers facilities such as Patch Advisories, Service Request Management, Knowledge Management right on-premise and in-context of the overall Cloud.

The IaaS, DBaaS, and MWaaS Home pages provided through the Enterprise Manager Cloud Control user interface allow Cloud administrators to get a summary view of the requests, the general state of the service such as zones, pools, servers, service instances, and databases.

2.2.6 Metering, Charging, and Optimization

The Metering and Chargeback features in Enterprise Manager enable enterprises to account for actual usage versus representative usage. Administrators can also extend the pricing models to account for fixed costs, configurations, administrative expenses, people costs, energy utilization or a combination of these.

Cloud Management also entails an ongoing optimization of resources as well as processes to make sure that the service levels are persistent. Enterprise Manager provides administrators and application users with features that help rediscover assets, re-evaluate the performance, rebalance the Cloud, and fine-tune the provisioning process. Chargeback supports basic metrics like CPU, memory, and storage usage. It also offers pricing models based on application usage, database usage, and Middleware-level metrics.

2.3 Understanding the Oracle Cloud Service Models

This section describes the available Oracle Cloud service models available.

- [Oracle Cloud Service Models](#)
- [Oracle Cloud Anatomy](#)
- [IaaS Components](#)
- [DBaaS and MWaaS Components](#)
- [TaaS Components](#)

2.3.1 Oracle Cloud Service Models

Oracle's Cloud service models can be divided into two primary categories: Infrastructure as a Service, which allows users to request the physical infrastructure required to run applications; and Platform as a Service, which provides the database and middleware components required by applications.

- **Infrastructure as a Service (IaaS) Service Model:** In the IaaS model, users request servers that are created as guest virtual machines, or Guest VMs.

The IaaS model allows users to request Guest VMs using the Self Service Portal in Enterprise Manager. It also allows users to specify an assembly or a template that is to be deployed on the requested Guest VMs. Using pre-packaged assemblies consisting of the operating system, database software and middleware software, a platform can be deployed using this service.

Users can monitor the services provided using the Self Service Portal and perform limited management operations as permitted. They can also run chargeback

reports to review resource usage and chargeback amounts calculated for the resources consumed.

IaaS cloud infrastructure can be built out of Oracle hardware and software components such as Oracle VM, Oracle Solaris, Oracle Enterprise Linux, and so on, or it may have 3rd party components.

- **Platform as a Service (PaaS) Service Model:** The PaaS model allows you to create platforms onto which consumers can deploy their own applications. A platform resource is typically comprised of a host, an operating system, an Oracle WebLogic Application server - all of which can be virtualized. It can also include an Oracle database or RAC cluster.

Models available with PaaS include:

- **Database as a Service (DBaaS) Service Model:** In this model, users can request database services (single instance or RAC) through the Self Service Portal. DBaaS is implemented through several options:
 - **Virtual Machine Based:** The database is deployed as a part of a virtual assembly or template, and several virtual machines share the same physical server. This offers the maximum level of isolation (at the operating system level).
 - **Shared Cluster:** The database is deployed on existing clusterware. Typically the grid infrastructure (Oracle Clusterware, ASM) and database software is pre-installed; the Cloud service essentially consists of the deployment of databases on top of that infrastructure.
 - **Shared Installation:** The database is deployed as a single instance database on an existing database installation.
 - **Pluggable Database as a Service:** A pluggable database is deployed. This model provides high consolidation, and minimal administrative and maintenance overhead.
 - **Snap Clone:** You can make a thin-clone using copy on write technology of the database. This model requires minimal space, provides instantaneous cloning, and is ideal for functional testing.
 - **Full Clone:** You can make a full copy of the database. This model is ideal for load testing with significant data updates.
 - **Shared Database (Schema as a Service):** The database service is a schema deployment on an existing database. It is assumed for purposes of metering and chargeback that each of the consumers of the database will use a different service while accessing the database. This service model is also referred to as Schema as a Service.

As in IaaS, users are allowed to perform a few administrative tasks such as start/stop, backup, and recovery of databases. Chargeback reports are also made available for Self Service users.

- **Middleware as a Service (MWaaS):** In this model, users submit requests for middleware domains to be created. Applications can then be deployed into these domains. MWaaS is implemented through the following option:
 - * **Physical Provisioning Based:** The MWaaS platform is built using physical hosts and Fusion Middleware Provisioning.
- **Testing as a Service (TaaS):** In this model, testing can be made faster and simpler through the Cloud Testing Self Service Portal. The applications being tested can be provisioned to the private cloud using assemblies or to an

existing Enterprise Manager target. The TestDrivers need to be provisioned into the private cloud.

2.3.2 Oracle Cloud Anatomy

In the Oracle implementation, Clouds are composed of logical zones. Zones are composed of logical pools and pools are composed of targets on hosts.

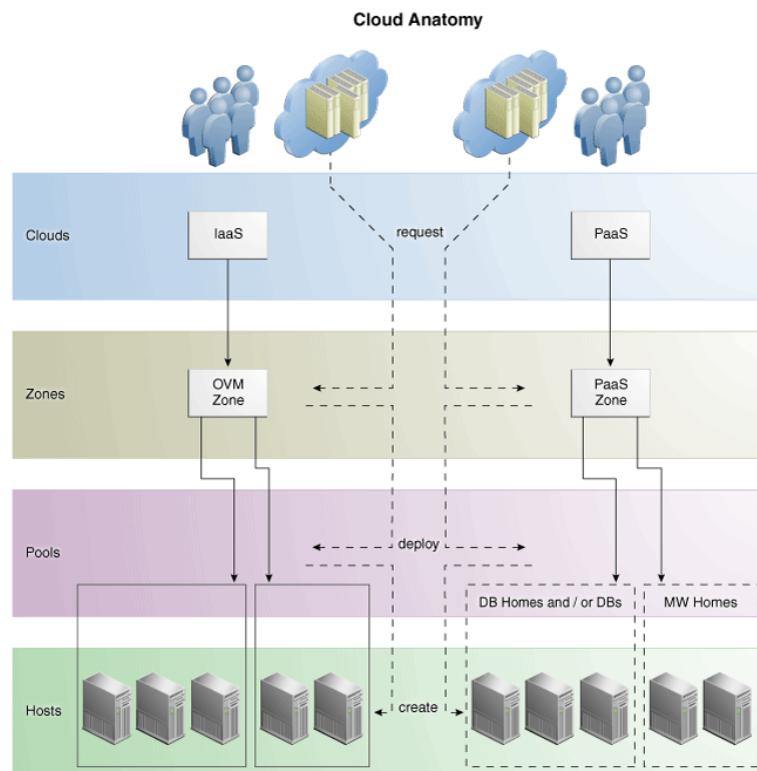
The pools in an IaaS zone are collections of one or more Oracle VM servers and their associated storage resources. The pools in DBaaS zones are collections of one or more Oracle Database homes (used for database requests), or databases (used for schema requests) of the same platform and version (for example, Oracle Database 11.2.0.3 RAC on Oracle Linux 6 x86-64), or Oracle Middleware homes of the same platform and version (for example, Oracle Database 11.2.0.2 on Linux x86-64).

In either IaaS or PaaS, Self Service users will request resources at the zone level from a catalog of templates. Enterprise Manager will then determine which pool in the chosen zone can be used to satisfy the request. The needed Enterprise Manager jobs will be initiated on one or more hosts in the selected pool to create the entities required to fulfill the request.

In an IaaS Cloud, self-service users request that servers be created. These are actually guest virtual machines, or Guest VMs. A single IaaS request may result in one or more virtual machines being created complete with database(s), middleware software and deployed applications.

In the DBaaS view of a PaaS Cloud, a self-service user can request that new databases or schemas in existing databases be created. Databases can be single instance or RAC, depending upon the zones and catalog templates to which the user has access. Similarly, in the MWaaS view of the PaaS Cloud, self-service users request that middleware domains be created.

Figure [Figure 2–2](#) shows the Cloud anatomy.

Figure 2–2 Cloud Anatomy

2.3.3 IaaS Components

The IaaS Cloud model consists of the following components:

- **Cloud:** A *Cloud* is a set of storage pools, server pools and zones under the programmatic control of a Cloud Controller and the administrative control of the Cloud Administrator. The Cloud Administrator works with the Cost Center Administrator who has paid for the cloud to determine a resource allocation and charge back policy that meets their needs.
- **Zone:** A Cloud can consist of one or more *zones*. A zone is a logical grouping of resources - for example, servers and storage entities - that facilitate self-service provisioning and administration. A typical zone may consist of hundreds to thousands of servers.

A zone can be an empty zone or consist of a set of server pools. The second case may be simple to set up and will not require shared storage; however no HA and live migration is permitted within this zone.

Zones are non-overlapping, which means that a resource can only belong to one zone. However, resources within a zone may be accessible from another zone. For example, it is possible for a virtual machine in Zone 1 to interact with a virtual machine in another zone.

- **Server Pool:** A *server pool* is a set of tightly coupled group of servers (typically up to 32 servers) that hosts a set of Guest VMs. The servers are assumed to be largely homogeneous in capabilities and in connectivity. High Availability and Live Migration is permitted within a server pool boundary. Each server pool needs to have access to a shared storage subsystem (which could just be an NFS mount

point) to facilitate live migration. In addition, access to a clustered file system may be required to maintain the HA heartbeat file.

- **Storage Entity:** A *storage entity* is an individual file system or block store. Each storage entity is served by a storage pool. Some entities are free standing and will exist until they are deleted. Other storage entities that are associated with one or more Guest VMs are deleted when those VMs are retired.
- **Storage Pool:** A *storage pool* is an abstract storage system that hosts a set of storage entities. A storage pool is generally implemented using a set of storage devices such as disks, SSDs, and storage servers.

2.3.4 DBaaS and MWaaS Components

The DBaaS and MWaaS Cloud structures consist of the following:

- **PaaS Infrastructure Zone:** A *PaaS infrastructure zone* is a group of hosts. Each resource in a zone represents a location at which a service instance is to be deployed.

Before you enable or setup DBaaS or MWaaS, you must create a PaaS Infrastructure Zone which allows you to define the placement policy constraints for a specified set of targets and the users to whom this zone will be available.

- **Software Pool:** A *software pool* is a set of homogeneous resources. You can create software pools for DBaaS and MWaaS. A Database Pool, which is created in DBaaS, is a collection of database homes, databases, or container databases depending on the type of cloud service model selected. You can create a Middleware Pool, used for MWaaS, which is a collection of middleware homes.

A software pool has the following constraints:

- A target can belong to only one software pool.
- The name of the software pool and the version cannot be modified after it has been created.
- All targets in a software pool must be homogeneous.
- A service template can use multiple zones but only one software pool within each zone.
- **Database Provisioning Profile:** A *database provisioning profile* is an entity that captures source database information for provisioning. A profile can represent a complete database or a set of related schemas that form an application.
- **Middleware Provisioning Profile:** A *middleware provisioning profile* is used to standardize deployments and help reduce errors when deployment procedures are configured.
- **Service Template:** A *service template* is a standardized service definition that is offered to self service users to create databases, schemas, or middleware services.

2.3.5 TaaS Components

The TaaS solution is based on the IaaS platform. Before you set up TaaS, ensure that you have set up Enterprise Manager, and the IaaS components. To use TaaS with the Oracle Load Testing TestDriver, you must download this through the Enterprise Manager self-update.

2.4 Accessing Oracle Cloud Features

Access to the Oracle Cloud features is either through the standard Enterprise Manager console, or the Self Service Portal, which is also part of Enterprise Manager.

Access to the rest of the Enterprise Manager functionality is restricted. This allows enterprises to safely implement Clouds without worrying about exposing the entire infrastructure to the end users.

2.4.1 Enterprise Manager Cloud Control Console

Administrators will use the Enterprise Manager Cloud Control console to set up, monitor, and manage Cloud services. Each service is managed using a page specific to that service. For example, IaaS, DBaaS, MWaaS, and TaaS all have their own pages that can be accessed directly from the Cloud Summary page or from the Enterprise Manager menu.

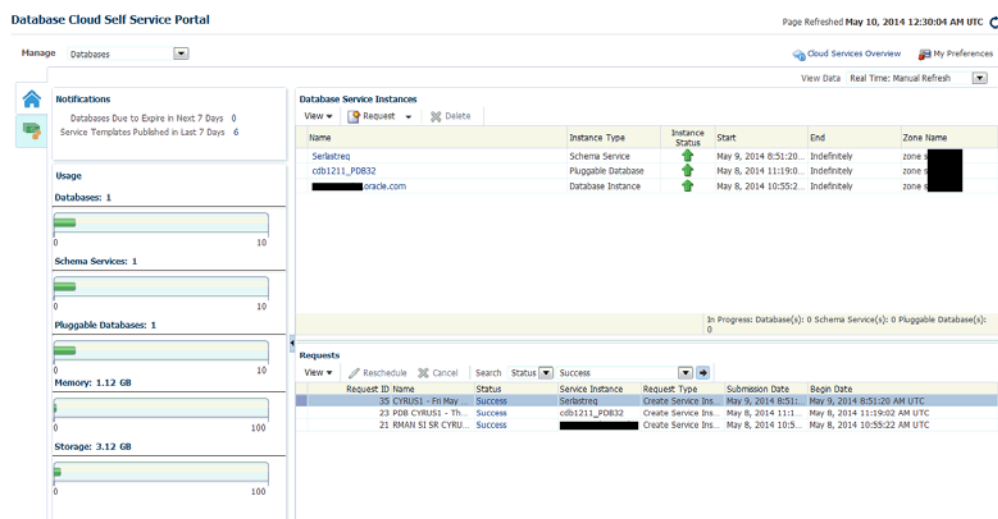
The Enterprise Manager Cloud Summary page is a single pane that contains the summary of all Cloud services. Enterprise Manager enables a layer of abstraction that hides the underlying complexities of the application from the end-user. This abstraction is delivered via a self-service interface, both in Graphical User Interface (GUI) and Application Programming User Interface (API).

2.4.2 Self Service Portal

To directly manage the Cloud infrastructure, Enterprise Manager provides an out-of-the-box Self Service Portal that allows self-service users to access Cloud services (provisioning applications) without IT intervention. It provides several pre-packaged virtual assemblies and templates for on-demand provisioning, tracks usage of services and resources, and allows data to be used for Chargeback reports and capacity planning.

The Self Service Portal is the Home Page for the self service user. Users who have the necessary privileges can navigate between Services pages by clicking the appropriate radio button. How you use the Portal will vary depending on the type of service you are managing.

Figure 2–3 SSA User Portal



Part II

Setting Up and Enabling Cloud

This section provides an introduction to virtualization concepts and describes how to start managing virtualization targets in Enterprise Manager.

It contains the following sections:

- [Chapter 3, "Setting Up the Cloud Management Infrastructure"](#)
- [Chapter 4, "How to Enable Cloud"](#)

Setting Up the Cloud Management Infrastructure

This chapter describes the initial setup needed before you can begin using the Enterprise Manager Cloud Management solution.

The chapter includes the following sections:

- [Setting Up Self Update](#)
- [Deploying the Required Plug-ins](#)
- [Defining Roles and Assigning Users](#)
- [Configuring LDAP Authentication](#)
- [Configuring Privilege Delegation Settings](#)
- [Customizing the Self Service Login Page](#)

Note: From the Enterprise Manager 12.1.0.4 release, the Software Library is configured during the installation of Enterprise Manager. It need not to be separately configured.

3.1 Setting Up Self Update

The Self Update feature allows you to expand Enterprise Manager's capabilities by updating Enterprise Manager components whenever new and updated features become available between official releases. Oracle makes functional updates available between releases by publishing them to the Enterprise Manager Store, an external site that is periodically checked by Enterprise Manager to obtain information about available updates.

The updatable entities for the Oracle Cloud platform include:

- Cloud Plug-ins. See [Section 3.2, "Deploying the Required Plug-ins"](#)
- Oracle VM Templates and Assemblies. See [Section 5.13, "Using Self Update to Download Oracle VM Templates and Virtual Assemblies"](#).
- Database Provisioning Profiles. See [Section 15.1.2, "Creating a Database Provisioning Profile Using Database Template"](#).
- Middleware Provisioning Profiles. See [Section 13.3.1, "Creating Provisioning Profiles"](#).

Before you can use the Self Update feature, you must satisfy these prerequisites:

- If you are applying an update in online mode, ensure that the My Oracle Support credentials have been set up using the SYSMAN user. This is required to enable entities to be downloaded from the My Oracle Support site.
- The Software Library (also known as the local store) has been configured. Updates are downloaded to this local store before being deployed into Enterprise Manager.

Review the following sections for instructions on setting up Self Update:

- [Setting Up Enterprise Manager Self Update Mode](#)
- [Assigning Self Update Privileges to Users](#)
- [Setting Up the EM CLI Utility \(Optional\)](#)

3.1.1 Setting Up Enterprise Manager Self Update Mode

In order to set up or modify the Enterprise Manager Self Update feature, you must have Enterprise Manager Super Administrator privileges.

1. Log in to Enterprise Manager as an administrator with Super Administrator privileges.
2. From the **Setup** menu, select **Extensibility**, then select **Self Update**. The Self Update console appears with the default setup displayed.
3. From the **General** status area, click the **Connection Mode** status to set either offline or online mode. Enterprise Manager takes you to the Patching Setup page to specify online and offline settings.
4. Once the desired connection mode has been selected, return to the Self Update console.

From here you can select entity types and schedule updates from the Enterprise Manager Update Store.

3.1.2 Assigning Self Update Privileges to Users

Enterprise Manager administrators must have the requisite privileges to use the Self Update feature. The Enterprise Manager Super Administrator must assign the following Self Update roles to these administrators:

- **VIEW_SELF_UPDATE**: The user can view the Self Update console and can monitor the status of download and apply jobs.
- **MANAGE_SELF_UPDATE**: The user can schedule download and apply jobs. User can also suppress/unsuppress updates. This privilege implicitly contains **VIEW_SELF_UPDATE**.
- **EM_INFRASTRUCTURE_ADMIN**: The user can perform all self update operations. This privilege implicitly contains **MANAGE_SELF_UPDATE**.

By default, the Super Administrator will be granted **EM_INFRASTRUCTURE_ADMIN** privilege.

To assign Self Update privileges to regular Enterprise Manager administrators:

1. From the **Setup** menu, select **Security**, then select **Administrators**.
2. Select an administrator and click **Edit**.
3. From the Roles page, assign the appropriate Self Update roles.

3.1.3 Setting Up the EM CLI Utility (Optional)

If you plan to apply software updates in offline mode, you will need to use the Enterprise Manager Command Line Utility, or EM CLI, to import entity archives for deployment to Enterprise Manager.

A page is provided in the Enterprise Manager Cloud Control console with instructions on setting up EMCLI. Access the page by appending `/console/emcli/download` to the URL used to access the Cloud Control console:

```
https://emcc_host:emcc_port/em
```

For example:

```
https://emcc_host:emcc_port/em/console/emcli/download
```

3.2 Deploying the Required Plug-ins

Much of the functionality available in Enterprise Manager Cloud Control is made available through *plug-ins*. As its name implies, a plug-in is a component or module that can be plugged into an existing Enterprise Manager installation to extend its management and monitoring capabilities.

The features that collectively comprise the Oracle Cloud Management solution are provided via several plug-ins which must be deployed to your Oracle Management Service (OMS). The plug-ins that must be deployed to enable each Cloud model are listed below.

You can deploy the plug-ins needed to enable Cloud in two ways:

- If you have not yet installed Enterprise Manager Cloud Control, or have not yet upgraded to the latest Enterprise Manager release, you can deploy the plug-ins as part of the installation or upgrade process. You will select the Advanced Install mode and in the Select Plug-ins screen, select the plug-ins that you wish to install.
- If you already have Enterprise Manager Cloud Control 12c installed, you must download the needed plug-ins to the Software Library. You can then deploy the plug-ins to your Oracle Management Service (OMS).

See the Enterprise Manager Cloud Control Administrator's Guide for instructions on downloading and deploying the plug-ins.

Note:

- The default plug-ins are:
 - Enterprise Manager for Oracle Database
 - Enterprise Manager for Oracle Fusion Middleware
 - Enterprise Manager for Oracle Cloud Framework
 - The Enterprise Manager for Oracle Consolidation Planning and Chargeback plugin is an optional plugin for all service families and is required only you are using the chargeback features.
 - For a complete list of all cloud plug-ins along with the version numbers, see [Supported Plug-ins](#). You must check for any plug-ins updates that are available and ensure that the latest version has been downloaded.
-

Plug-ins Required to Enable Infrastructure as a Service (IaaS)

- Enterprise Manager for Oracle Cloud (listed as Oracle Cloud Application in Self Update)
- Enterprise Manager for Oracle Virtualization (listed as Oracle Virtualization in Self Update)
- Enterprise Manager for Oracle Virtualization Infrastructure (listed as Oracle Virtual Infrastructure in Self Update)
- Enterprise Manager for Oracle Cloud Framework (listed as Oracle Cloud Framework in Self Update)
- Enterprise Manager for Oracle Consolidation Planning and Chargeback (listed as Oracle Consolidation Planning and Chargeback in Self Update)

Plug-ins Required to Enable Database as a Service (DBaaS)

- Enterprise Manager for Oracle Cloud (listed as Oracle Cloud Application in Self Update)
- Enterprise Manager for Oracle Virtualization (listed as Oracle Virtualization in Self Update)
- Enterprise Manager for Oracle Consolidation Planning and Chargeback (listed as Oracle Consolidation Planning and Chargeback in Self Update)
- Enterprise Manager for Oracle Database (listed as Oracle Database in Self Update)
- Enterprise Manager for Storage Management (listed as Oracle Storage Management Framework in Self Update)
- Enterprise Manager for Oracle Cloud Framework (listed as Oracle Cloud Framework in Self Update)

Note: When you are upgrading to the latest plugin versions, you must upgrade them in the following sequence:

1. Enterprise Manager for Oracle Cloud Framework
 2. Enterprise Manager for Oracle Database
 3. Enterprise Manager for Oracle Fusion Middleware (Mandatory even if not performing any Fusion Middleware or Middleware as a Service operations).
 4. Enterprise Manager for Oracle Virtualization
 5. Enterprise Manager for Oracle Cloud (This plugin cannot be upgraded unless the Enterprise Manager for Oracle Fusion Middleware plugin has been upgraded).
 6. Enterprise Manager for Storage Management
-

Plug-ins Required to Enable Middleware as a Service (MWaaS)

- Enterprise Manager for Oracle Consolidation Planning and Chargeback (listed as Oracle Consolidation Planning and Chargeback in Self Update)
- Enterprise Manager for Oracle Fusion Middleware (listed as Oracle Fusion Middleware in Self Update)
- Enterprise Manager for Oracle Cloud Framework (listed as Oracle Cloud Framework in Self Update)

Note:

- The Enterprise Manager for Cloud and the Enterprise Manager for Oracle Virtualization plugins are not required if you are using Middleware as a Service for the first time. The features that are part of these plugins have now been bundled with the Enterprise Manager for Oracle Fusion Middleware 12.1.0.7 plugin onwards.
- If you have already deployed the Enterprise Manager for Cloud plugin (12.1.0.8 or earlier), you must upgrade the following plugins to use the new features in this release:
 - Enterprise Manager for Oracle Cloud to 12.1.0.10
 - Enterprise Manager for Oracle Cloud Framework to 12.1.0.3
 - Enterprise Manager for Oracle Virtualization to 12.1.0.8
 - Enterprise Manager for Oracle Fusion Middleware to 12.1.0.8

Plug-ins Required to Enable Testing as a Service (TaaS)

- Enterprise Manager for Oracle Cloud (listed as Oracle Cloud Application in Self Update)
- Enterprise Manager for Oracle Virtualization (listed as Oracle Virtualization in Self Update)
- Enterprise Manager for Oracle Consolidation Planning and Chargeback (listed as Oracle Consolidation Planning and Chargeback in Self Update)
- Enterprise Manager for Oracle Cloud Framework (listed as Oracle Cloud Framework in Self Update)

Plug-ins Required for Direct Monitoring of Xen Based Systems

- Enterprise Manager for Oracle Virtualization Infrastructure (listed as Oracle Virtual Infrastructure in Self Update)

Plug-ins Required to Enable Infrastructure Compute as a Service

- Enterprise Manager for Oracle Cloud (listed as Oracle Cloud Application in Self Update)
- Enterprise Manager for Oracle Cloud Framework (listed as Oracle Cloud Framework in Self Update)
- Enterprise Manager for Oracle Consolidation Planning and Chargeback (listed as Oracle Consolidation Planning and Chargeback in Self Update)

3.3 Defining Roles and Assigning Users

Roles are named groups of related system and object privileges. You can create roles and then assign them to users and to other roles. You can assign any of the existing roles to a new role and the associated privileges. Enterprise Manager contains four out-of-the-box roles for the Cloud Self Service Portal, namely:

- **EM_CLOUD_ADMINISTRATOR:** Users with this role can set up and manage the cloud infrastructure. This role is responsible for deploying the cloud infrastructure (servers, zones, storage, and networks) and infrastructure cloud operations for

performance and configuration management. This user has the following privileges:

- Access to all services and service families.
 - Privileges to manage any service or service family.
 - Privileges to view any target.
- **EM_SSA_ADMINISTRATOR:** Users with this role can define quotas and constraints for the self service users and grant them access privileges. Users with this role also have provisioning and patching designer privileges that allow them to create and save deployment procedures, create and view patch plans, and support the plug-in lifecycle on the Management Agent. These privileges are required for initial setup and on going maintenance of the infrastructure. This user has the following privileges:
 - Access to all services and service families.
 - Privileges to manage any service or service family.
 - Privileges to view any target.

Apart from this default role, you can create custom self service administrator roles with access to specific service families and specific services.

- **EM_SSA_ADMINISTRATOR_BASE:** Users with this role do not have access to any services or service family. This user has **View Any Target** privilege only.
- **EM_SSA_USER:** Users with this role, by default, can only access the Self Service Portal and all the service families. An administrator with the EM_SSA_ADMINISTRATOR role can provide additional privileges that allow users with the EM_SSA_USER role to access other features in Enterprise Manager.
- **EM_SSA_USER_BASE:** Users with this role can access the Self Service Portal but will not have access to any service family. Access to a specific service family (DBaaS, MWaaS, and so on) needs to be explicitly granted to the users with this role. This user has the following privileges:
 - Can submit service requests.
 - Can view PaaS Infrastructure Zone targets.

The table below lists the roles associated with each user.

User Profile	EM_CLOUD_ADMINISTRATOR	EM_SSA_ADMINISTRATOR	EM_SSA_USER	EM_SSA_USER_BASE
Minimum roles required to create a user	<ul style="list-style-type: none"> ■ EM_CLOUD_ADMINISTRATOR ■ PUBLIC ■ EM_USER 	<ul style="list-style-type: none"> ■ EM_SSA_ADMINISTRATOR ■ PUBLIC ■ EM_USER 	EM_SSA_USER EM_SSA_USER_BASE	EM_SSA_USER_BASE
Roles to be removed when creating a user	NONE	NONE	<ul style="list-style-type: none"> ■ PUBLIC ■ EM_USER 	NONE
Additional roles may be added as required				

The Oracle Cloud Self Service Portal is intended for end-users to be able to provision and manage their own cloud services. Since the functions performed by users with the EM_CLOUD_ADMINISTRATOR and EM_SSA_ADMINISTRATOR roles are consistent across Enterprise Manager, these out-of-the-box roles can be used as they are. All you need to create users with the EM_CLOUD_ADMINISTRATOR and EM_SSA_ADMINISTRATOR roles.

If you want to restrict access to certain service families and specific service types, you can create custom self service administrator roles based on the out-of-the-box EM_SSA_ADMINISTRATOR role.

But the EM_SSA_USER and EM_SSA_USER_BASE roles are used for quota assignment, and to limit access to PaaS Infrastructure zones, and service templates. In this case, the pre-defined role cannot be used as it is defined. You must create custom self service user roles based on the standard EM_SSA_ROLE and EM_SSA_USER_BASE roles as described in [Section 3.3.1, "Creating Custom Roles for Self Service Application Administrators and Users"](#). After creating a custom role, you must assign users to this role.

For example, in a DBaaS Cloud setup, you may want to create the following users:

- **CLOUD_ADMIN:** This user will have the EM_CLOUD_ADMINISTRATOR role and is responsible for network, system, storage, and administration activities.
- **SSA_ADMIN_DBAAS:** This user will have the EM_SSA_ADMINISTRATOR role but will have access only to the Database Service Family. Users with this role will be responsible for all database administration activities. You can further restrict access by granting access to only to a certain service type within the Database Service Family.
- **SSA_USER_DBAAS:** In this case, the default EM_SSA_USER role must be customized and a custom role must be created. A user in this role is typically a junior database administrator, developer, or tester.
- **SSA_USER_BASE_DBAAS:** In this case, you need to create a copy of the EM_SSA_USER_BASE role and grant access to the Database Service Family to this role. You can then create the SSA_USER_BASE user who will have access the Database Cloud Self Service Portal.

For more details on Users and Roles, see the Enterprise Manager Cloud Control Security Guide.

3.3.1 Creating Custom Roles for Self Service Application Administrators and Users

This section describes the following:

- [Creating a Custom Role Based on the EM_SSA_ADMINISTRATOR Role](#)
- [Creating a Custom Role Based on the EM_SSA_USER Role](#)
- [Creating a Custom Role Based on the EM_SSA_USER_BASE Role](#)

3.3.1.1 Creating a Custom Role Based on the EM_SSA_ADMINISTRATOR Role

You can create a custom self service administrator role and grant access to the Database Service Family. You can grant privileges to users with this role to access all service types or specific service types and view or manage the services. To create a custom role, follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Roles**.
3. Click **Create** in the Roles page to launch the Create Role wizard.

4. Provide a name and description (SSA_ADMIN_DBAAS) for the role and click **Next**.
5. From the list of Available Roles, select the EM_SSA_ADMINISTRATOR role and move it to the Selected Roles table. Click **Next**.
6. Accept the default target privileges and click **Next**.
7. In the Resource Privileges page, click the **Edit** icon for the Cloud Service Families. In the Resource Privileges page, click **Add** and select DBAAS and click **Continue** to return to the Manage Privileges page.

Note: If you want users with this role to view and manage all the DBaaS service types, click the Manage Resource Privilege Grants icon and select the following privileges:

- View Service Family
 - Manage Service Family
-

8. Click **Continue** to return to the Resource Privileges page. Click the **Edit** icon for the Cloud Service Types. Click **Add** and select the database service type for which the privileges should be granted. You can select one of the following:
 - DB
 - PDB
 - Schema
9. Click the **Manage Resource Privilege Grants** for the Cloud Service Types resource type. Select the following privileges:
 - Manage Service Type
 - View Service Type
10. Click **Continue** to return to the Resource Privileges page.
11. Review the changes and click **Finish** to create the custom SSA user (SSA_ADMIN_DBAAS) role.

3.3.1.2 Creating a Custom Role Based on the EM_SSA_USER Role

Typically, you need to create new SSA User roles either for different functional groups like developers, testers, production DBAs, or for different customer teams like the Siebel DBA team, BRM DBA team, and operations team for hosting custom Java applications, and so on. To create a custom SSA user role who has access only to the Database Service Family and can submit requests, follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Roles**.
3. Click **Create** in the Roles page to launch the Create Role wizard.
4. Provide a name and description (SSA_USER_DBAAS) for the role and click **Next**.
5. From the list of Available Roles, select the EM_SSA_USER role and move it to the Selected Roles table. Click **Next**.
6. Accept the default target privileges and click **Next**.
7. In the Resource Privileges page, remove access to the following resource types
 - Cloud Self Service Portal for JVM Diagnostics

- Cloud Self Service Portal for Test
 - Infrastructure Self Service Portal
8. Click the **Manage Privilege Grants** for the Cloud Service Families resource type. In the Resource Type Privileges region, select the **View Any Service Family** checkbox.
 9. Click **Add** in the Resource Privileges region and select the DBAAS service family and click **Continue**.
 10. Skip the Create Role: Administrators step and click **Next**.
 11. Review the changes and click **Finish** to create the custom SSA user (SSA_USER_DBAAS) role.

3.3.1.3 Creating a Custom Role Based on the EM_SSA_USER_BASE Role

You may want to restrict some self service users from using all service families and allow them to access only certain service types depending on their requirements. In this case, you can create a custom role based on the EM_SSA_USER_BASE role and grant them access to only certain service types.

To create a custom SSA user role, follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Roles**.
3. Click **Create** in the Roles page to launch the Create Role wizard.
4. Provide a name and description (SSA_USER_BASE_DBAAS) for the role and click **Next**.
5. From the list of Available Roles, select the EM_SSA_USER_BASE role and move it to the Selected Roles table. Click **Next**.
6. Select the default target privileges and click **Next**.
7. In the Resource Privileges page, click the **Manage Privilege Grants** icon for the Cloud Requests resource type.
8. In the Resource Privileges page, deselect the **Create Any Cloud Request** checkbox and click **Continue**.
9. Click the **Manage Privilege Grants** icon next to the Cloud Service Families and Cloud Service Types resource types and select the service families and service types for which you need access.
10. Skip the Create Role: Administrators step and click **Next**.
11. Review the changes and click **Finish** to create the custom SSA user (SSA_USER_BASE_DBAAS) role. This user can only access the Database Cloud Self Service Portal.

3.3.2 Creating a User and Assigning Roles

To create a user called SSA_USER1 and grant the custom role created earlier (SSA_USER_DBAAS), follow these steps:

1. Log in to Enterprise Manager as a Super Administrator user.
2. From the **Setup** menu, select **Security**, then select **Administrators**.
3. Click **Create** in the Administrators page to launch the Create Administrator wizard.

4. Enter the name and password for the user (SSA_USER1) and create **Next**.
5. From the list of Available Roles, select the SSA_USER_DBAAS role and move it to the Selected Roles table. Remove the EM_USER and PUBLIC roles from the Selected Roles table. Click **Next**.
6. Accept the default target privileges and click **Next**.
7. Accept the default resource privileges and click **Next**.
8. Review all the changes and click **Finish** to create the SSA_USER1 user.

Tip: To create multiple users with the same role, select the newly created user and click **Create Like**. This will create a new user that will have the same properties as the source. You can then update the name, description, and email address for the new user.

Note: Repeat these steps to create other users. For users with the EM_CLOUD_ADMINISTRATOR and EM_SSA_ADMINISTRATOR roles, the EM_USER and PUBLIC roles must be retained as these users need access to additional features.

3.3.3 Granting Roles and Privileges for Managing Storage Servers for Snap Clone

To perform various storage server activities, you need to grant the following roles and privileges:

- [Granting General Privileges](#)
- [Granting Target Privileges](#)
- [Granting Roles](#)
- [Granting Privileges for Provisioning](#)

3.3.3.1 Granting General Privileges

[Table 3–1](#) displays the general privileges you need to set before you register a storage server.

Table 3–1 General Privileges for Storage Server Registration and Management

Privilege	Description	Scope	Notion	Included Privilege
VIEW_ANY_STORAGE	Ability to view any storage.	class	VIEW	nil
REGISTER_STORAGE	Ability to register storage.	class	CREATE	nil
VIEW_STORAGE	Ability to view storage details.	object	VIEW	nil
MANAGE_STORAGE	Ability to synchronize storage.	object	EDIT	VIEW_STORAGE CREATE_JOB
MANAGE_ANY_STORAGE	Ability to manage any of the registered storage servers.	object	EDIT	VIEW_ANY_STORAGE CREATE_JOB
FULL_STORAGE	Ability to modify or remove storage.	object	FULL	MANAGE_STORAGE

3.3.3.2 Granting Target Privileges

[Table 3–2](#) displays the target privilege you need to set, for enabling or disabling Snap Clone for a target.

Table 3–2 Target Privilege for Enabling or Disabling Snap Clone

Target Privilege	Scope	Notion	Include In Privilege	Included Privilege	Applicable Target Type
SNAP_CLONE_TARGET	object	Manage	FULL_TARGET	VIEW_TARGET	oracle_database rac_database

3.3.3.3 Granting Roles

[Table 3–3](#) displays the roles you need to grant to be able to register a storage server and perform various activities on the registered storage server.

Table 3–3 Roles for Registering and Managing the Storage Server

Role	Description	Security Class	Privilege	Granted To Role
EM_STORAGE_ADMINISTRATOR	Role has privileges to register storage hardware for Snap Clone.	STORAGE	MANAGE_ANY_STORAGE	EM_ALL_ADMINISTRATOR
		STORAGE	REGISTER_STORAGE	
		TARGET	VIEW_ANY_TARGET	
		TARGET	PERFORM_OPERATION_ANYWHERE	
		NAMED_CREDENTIALS	CREATE_CREDENTIAL	
		JOB	CREATE_JOB	
		SWLIB_ENTITY_MGMT	SWLIB_CREATE_ANY_ENTITY	
EM_STORAGE_OPERATOR	Role has privileges to manage storage hardware for Snap Clone.		SWLIB_VIEW_ANY_ENTITY	EM_ALL_OPERATOR
		STORAGE	MANAGE_ANY_STORAGE	
		TARGET	VIEW_ANY_TARGET	
		TARGET	PERFORM_OPERATION_ANYWHERE	
		JOB	CREATE_JOB	
		SWLIB_VIEW_ANY_ENTITY	SWLIB_VIEW_ANY_ENTITY	

3.3.3.4 Granting Privileges for Provisioning

You need the following privileges to be able to use the storage server for provisioning:

- VIEW_STORAGE on the storage server
- GET_CREDENTIAL on the storage server
- GET_CREDENTIAL on all the Management Agent credentials of the storage server
- PERFORM_OPERATION on the storage server Management Agent

Note: Snap Clone supports Sun ZFS storage on HP-UX hosts only if the OS version is B.11.31 or higher. If the OS version is lower than that, the Sun Storage may not function properly thereby Snap Clone gives unexpected results.

3.4 Configuring LDAP Authentication

Oracle Enterprise Manager provides tools and procedures to help you ensure that you are managing your Oracle environment in a secure manner. Enterprise Manager's

authentication framework consists of pluggable authentication schemes that let you use the type of authentication protocol best suited to your environment. The following authentication schemes are available:

- Oracle Access Manager (OAM) SSO
- Repository-Based Authentication
- SSO-Based Authentication
- Enterprise User Security Based Authentication
- Oracle Internet Directory (OID) Based Authentication
- Microsoft Active Directory Based Authentication

Enterprise User Security (EUS) provides automatic authentication to users and roles from the LDAP compliant directory server.

For more details on Enterprise User Security, see the Enterprise Manager Security Guide.

3.5 Configuring Privilege Delegation Settings

Privilege delegation allows a logged-in user to perform an activity with the privileges of another user. Sudo and PowerBroker are privilege delegation tools that allow a logged-in user to be assigned these privileges. These privilege delegation settings will be used for all provisioning and patching activities on these hosts.

For details on how to configure the privilege delegation settings, see the Enterprise Manager Cloud Control Security Guide.

3.6 Customizing the Self Service Login Page

You can configure Enterprise Manager and provide specific access to SSA users. To configure Enterprise Manager for SSA users, you must set some properties on the OMS and copy the required images to a specified directory. This section describes the following:

- [Configuring the Self Service Login Page](#)
- [Switching Back to the Enterprise Manager Login Page](#)
- [Routing SSA Requests to a Specific OMS Pool](#)

3.6.1 Configuring the Self Service Login Page

To launch a separate SSA login page for all SSA users, you must do the following:

- Set the following mandatory property on all OMSes:

```
$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.ssa_oms -value true
```

If this property is not set to *true*, the standard Enterprise Manager login page is displayed.

- Set the following optional OMS properties.

```
- $ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.show_cloud_provider_brand -value true
```

If this property is not set to *true*, the default Oracle Enterprise Manager 12c logo is displayed.

- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.show_cloud_tenant_brand -value true`

If this property is not set to *true*, the tenant logo is not displayed.

- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.cloud_provider_alt_text -value "Cloud Provider"`
- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.cloud_tenant_alt_text -value "Cloud Tenant"`

These properties are optional and if not set, the default values for "Cloud Provider", and "Cloud Tenant" are displayed.

- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.show_disclaimer_text -value true`

If this property is not set to *true*, the default Oracle copyright message is displayed.

- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.disclaimer_text -value "Customer specified Disclaimer text"`

If this property is set to *true*, the specified disclaimer text is displayed instead of the default Oracle copyright message.

- `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.show_em_branding_text -value true`

If this property is not set to *false*, the "Powered by Oracle Enterprise Manager" text will appear on the Self Service Login page.

- Copy the following images to the `$ORACLE_HOME/sysman/config/` directory.

- `cloud_provider_small_brand.png`
- `cloud_tenant_small_brand.png`

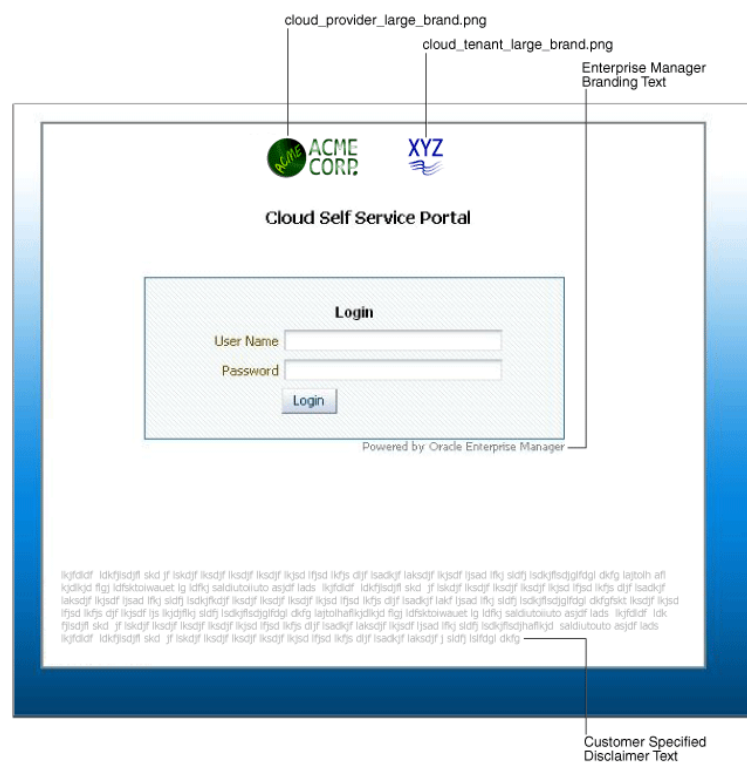
If a single image is used, the maximum recommended size is 500 * 20 px. If 2 images are used, the maximum recommended size is 200 * 20 px per image. After login, these images are displayed instead of the Oracle logo, if the OMS properties `oracle.sysman.ssa.logon.show_cloud_provider_brand` and `oracle.sysman.ssa.logon.show_cloud_tenant_brand` are set. If the OMS property `oracle.sysman.ssa.logon.show_cloud_provider_brand` is not set to *true*, along with the tenant logo, the default Oracle logo appears.

- `cloud_provider_large_brand.png`
- `cloud_tenant_large_brand.png`

If a single image is used, then the maximum recommended size is 525 * 60 px. If 2 images are used, the maximum recommended size is 250 * 50 px per image. These images are displayed on the login page, if the OMS properties `oracle.sysman.ssa.logon.show_cloud_provider_brand` and `oracle.sysman.ssa.logon.show_cloud_tenant_brand` are set.

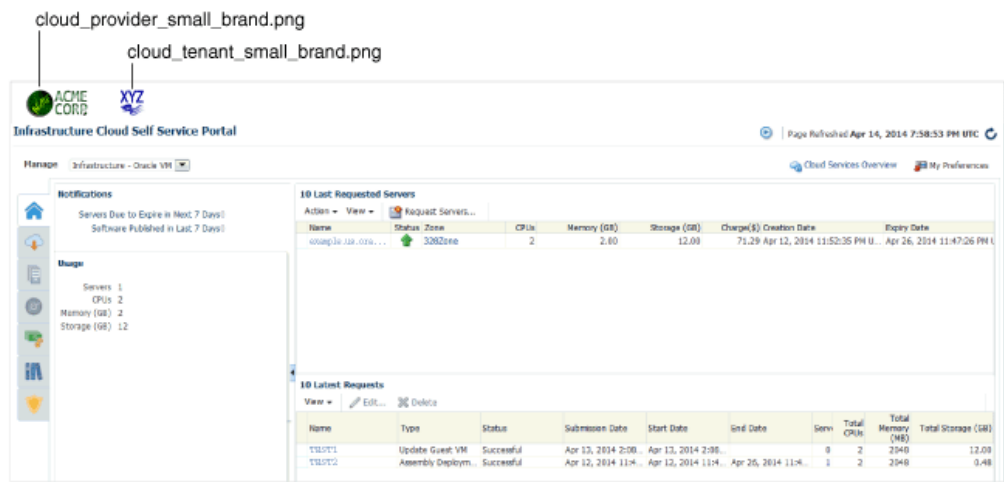
For example, if ACME Corp is the Cloud Service Provider and XYZ is the Cloud Tenant, the customized login page appears as follows:

Figure 3–1 Customized SSA Login Page



After the SSA user has logged in, the customized Infrastructure Self Service Portal is displayed as shown below:

Figure 3–2 Customized Post-Login Page



3.6.2 Switching Back to the Enterprise Manager Login Page

To revert to the default Enterprise Manager login page, set the following property:


```
$ORACLE_HOME/bin/emctl set property -name oracle.sysman.ssa.logon.ssa_oms  
-value false
```

3.6.3 Routing SSA Requests to a Specific OMS Pool

Oracle Management Service (OMS) is one of the core components of Enterprise Manager Cloud Control that works with the Oracle Management Agents (Management Agents) and plug-ins to discover targets, monitor and manage them, and store the collected information in a repository for future reference and analysis.

When you install Enterprise Manager for the very first time, by default, one OMS is installed along with one Management Agent. This default configuration is suitable for small environments. In larger production environments with several SSA users, you may need to install additional OMS instances to reduce the load on a single OMS and improve the efficiency of the data flow. You can then configure the Server Load Balancer (SLB) to redirect all SSA requests to a specific OMS pool. The other OMS pools will then be available for administration usage. To learn more about setting up multiple OMS instances and the SLB, see *Adding Additional Oracle Management Service* section in the *Enterprise Manager Cloud Control Basic Installation Guide*.

To redirect SSA requests, you must specify the following SLB configuration:

```
https://<slb_host_name>:<slb_em_port>/em redirecting to oms for em
```

```
https://<slb_host_name>:<slb_ssa_port>/em redirecting to oms for ssa
```

The SSA and non-SSA OMS pools are differentiated based on the port number. All requests with a particular port number will be redirected to a specific OMS pool (SSA OMS pool) and all the other requests will be redirected to the other pool.

How to Enable Cloud

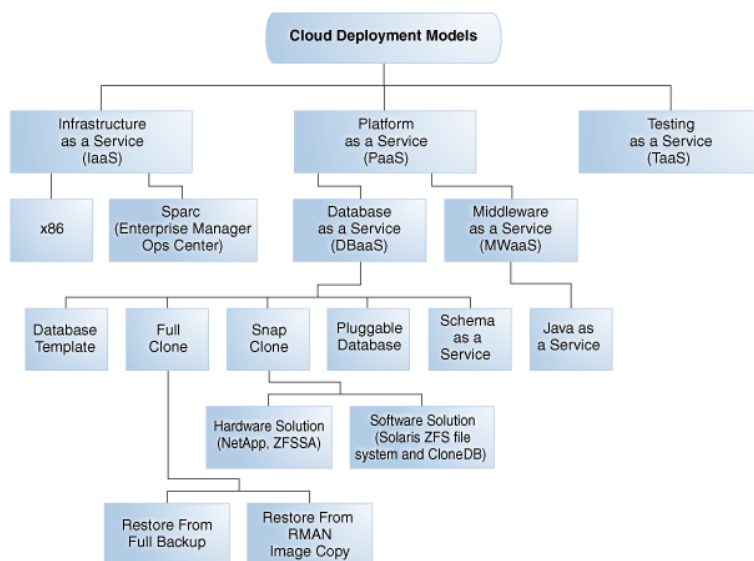
This chapter lists the tasks to be performed to enable your IaaS or PaaS Cloud. It contains the following sections:

- [Enterprise Manager Cloud Deployment Models](#)
- [Enabling Infrastructure as a Service \(IaaS\)](#)
- [Enabling Platform as a Service \(PaaS\)](#)
- [Enabling Middleware as a Service \(MWaaS\)](#)
- [Enabling Testing as a Service \(TaaS\)](#)

4.1 Enterprise Manager Cloud Deployment Models

Figure 4–1 shows the cloud deployment models supported by Enterprise Manager.

Figure 4–1 Cloud Deployment Models



The sections below list the tasks that need to be performed to set up and use the various cloud deployment models. Apart from these tasks, you must also ensure that the correct plugins have been deployed. For more details on the plugins required, see [Supported Plug-ins](#).

4.2 Enabling Infrastructure as a Service (IaaS)

This section describes the tasks that need to be performed by users with the Super Administrator, EM_CLOUD_ADMINISTRATOR, EM_SSA_ADMINISTRATOR, and EM_SSA_USER roles to setup and use IaaS.

4.2.1 Infrastructure as a Service (IaaS): Super Administrator Tasks

This section lists the tasks that can be performed by the Super Administrator.

Table 4–1 Super Administrator User Tasks (IaaS)

Cloud Service Model	Usecase
Infrastructure as a Service (IaaS)	<ul style="list-style-type: none"> Defining Roles and Assigning Users

4.2.2 Infrastructure as a Service (IaaS): Cloud Administrator Tasks

This section lists the tasks that can be performed for IaaS by users with the EM_CLOUD_ADMINISTRATOR role.

Table 4–2 Cloud Administrator Tasks (IaaS)

Cloud Service Model	Usecase
Infrastructure as a Service (IaaS)	<ul style="list-style-type: none"> Registering the Oracle VM Manager Synchronizing the Oracle VM Manager Targets Discovering a Virtual Server Rediscovering a Virtual Server Setting Up Networks Creating a Network Profile Creating a Storage Repository Presenting the Storage Repository Importing Assemblies, Templates, and Virtual Disks into the Storage Repository Creating a Virtual Server Pool Creating a Zone Setting Up the Storage Quality of Service (QoS) Patching the Oracle VM Server Acknowledging OVM Events Managing Cloud Policies Viewing Cloud Policies Viewing Policies for a Target Defining a Performance Policy Defining a Schedule-Based Policy Activating and Deactivating Policies Viewing Policy Groups DRS and DPM Policies

Table 4–2 (Cont.) Cloud Administrator Tasks (IaaS)

Cloud Service Model	Usecase
Chargeback	<ul style="list-style-type: none"> Overview of Chargeback Setting Up Chargeback Accessing Chargeback Information
Consolidation Planner	<ul style="list-style-type: none"> Overview of Consolidation Planner Using Consolidation Planner

4.2.3 Infrastructure as a Service (IaaS): Self Service Administrator Tasks

This section lists the tasks that need to be performed for IaaS by users with the EM_SSA_ADMINISTRATOR role.

Table 4–3 SSA Administrator Tasks (IaaS)

Cloud Service Model	Usecase
Infrastructure as a Service (IaaS)	<ul style="list-style-type: none"> Setting Up the Self Service Portal Viewing the Infrastructure Cloud Home Page Viewing the OVM Manager Home Page Viewing and Managing Members Viewing the Virtual Server Pool Home Page Managing Guest Virtual Machines Deploying Guest Virtual Machines Viewing the Infrastructure Request Dashboard Viewing Request Details

4.2.4 Infrastructure as a Service (IaaS): Self Service User Tasks

This section lists the tasks that can be performed for IaaS by users with the following roles:

- EM_SSA_USER: Users with this role, by default, can only access the Self Service Portal and all the service families.
- EM_SSA_USER_BASE: Users with this role can access the Self Service Portal but will not have access to any service family. Access to a specific IaaS service family must be explicitly granted to the users with this role. See [Section 3.3.1.3, "Creating a Custom Role Based on the EM_SSA_USER_BASE Role"](#) for details.

Table 4–4 SSA User Tasks (IaaS)

Cloud Service Model	Usecase
Infrastructure as a Service (IaaS)	<ul style="list-style-type: none"> Using the Self Service Portal to Request Server Resources Requesting Servers

4.3 Enabling Platform as a Service (PaaS)

This section describes the tasks that need to be performed by users with the Super Administrator, EM_CLOUD_ADMINISTRATOR, EM_SSA_ADMINISTRATOR, and EM_SSA_USER roles to setup and use PaaS.

4.3.1 Platform as a Service (PaaS): Super Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the Super Administrator role.

Table 4–5 Super Administrator User Tasks (PaaS)

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"> ▪ Defining Roles and Assigning Users
<ul style="list-style-type: none"> ▪ Database as a Service (DBaaS) ▪ Middleware as a Service (MWaaS) 	<ul style="list-style-type: none"> ▪ Configuring Privilege Delegation Settings

4.3.2 Platform as a Service (PaaS): Cloud Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the EM_CLOUD_ADMINISTRATOR role.

Table 4–6 Cloud Administrator Tasks (PaaS)

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"> ▪ Adding Hosts ▪ Creating a PaaS Infrastructure Zone

4.3.3 Platform as a Service (PaaS): Storage Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the EM_STORAGE_ADMINISTRATOR role.

Table 4–7 Storage Administrator Tasks (PaaS)

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"> ▪ Registering and Managing Storage Servers

4.3.4 Platform as a Service (PaaS): Self Service Administrator Tasks

This section lists the tasks that need to be performed for PaaS by users with the EM_SSA_ADMINISTRATOR role.

Table 4–8 SSA Administrator Tasks (PaaS)

Cloud Service Model	Usecase
Platform as a Service (PaaS)	<ul style="list-style-type: none"> ▪ Configuring Request Settings ▪ Creating the Resource Providers ▪ Setting Up Quotas ▪ Viewing the Cloud Home Page ▪ Viewing the List of Resource Providers ▪ Viewing the List of Service Templates ▪ Viewing the List of Service Instances ▪ Viewing the Cloud Request Dashboard ▪ Viewing All Cloud Requests ▪ Viewing the PaaS Infrastructure Zone Home Page

4.4 Enabling Database as a Service

Note: Before you enable Database as a Service, you must have performed the tasks listed in [Section 4.3, "Enabling Platform as a Service \(PaaS\)"](#).

This section describes the tasks that need to be performed to enable the different Database as a Service (DBaaS) options:

- [Provisioning Database Artifacts](#)
- [Cloning Databases](#)

4.4.1 Provisioning Database Artifacts

This section describes the following:

- [Creating Databases Using Database Template](#)
- [Creating Schemas](#)
- [Provisioning Pluggable Databases](#)

4.4.1.1 Creating Databases Using Database Template

This section lists the tasks that need to be performed to create new databases using the Database Template.

Table 4–9 SSA Administrator Tasks (Database Template)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> ■ Getting Started ■ Creating Resource Providers ■ Creating a Database Provisioning Profile Using Database Template ■ Configuring Request Settings ■ Defining Quotas ■ Creating a Service Template Using Database Template Profile ■ Configuring Chargeback

Table 4–10 SSA User Tasks (Database Template)

Usr Role	Usecase
EM_SSA_USER	Requesting a Database

4.4.1.2 Creating Schemas

This section lists the tasks that need to be performed to provision new schemas.

Table 4–11 SSA Administrator Tasks (Schema)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> Getting Started Creating Resource Providers Creating a Database Provisioning Profile Using Export Schema Objects (This step is not required if you are creating an empty schema) Configuring Request Settings Defining Quotas Creating a Service Template for Schema Based on Profile Or Creating a Service Template with Empty Schema Configuring Chargeback

Table 4–12 SSA User Tasks (Schema)

Usr Role	Usecase
EM_SSA_USER	Requesting a Schema

4.4.1.3 Provisioning Pluggable Databases

This section lists the tasks that need to be performed to provision pluggable databases

Table 4–13 SSA Administrator Tasks (Pluggable Databases)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> Getting Started Creating Resource Providers Creating a Database Provisioning Profile Using Export Schema Objects (This step is not required if you are creating an empty PDB) Configuring Request Settings Defining Quotas Creating a Service Template for PDB Based on Profile Or Creating a Service Template for an Empty PDB Configuring Chargeback

Table 4–14 SSA User Tasks (Pluggable Databases)

User Role	Usecase
EM_SSA_USER	Requesting a Pluggable Database

4.4.2 Cloning Databases

This section describes the following:

- Creating Full Clones
- Creating Snap Clones
- Creating Snap Clones for Pluggable Databases

4.4.2.1 Creating Full Clones

This section describes the following:

- [Creating Full Clones Using RMAN Backup](#)
- [Creating Full Clones Using RMAN Duplicate](#)

4.4.2.1.1 Creating Full Clones Using RMAN Backup

This section lists the steps that need to be performed to create full clones using RMAN Backup.

Table 4–15 SSA Administrator Tasks (Creating Full Clones Using RMAN Backup)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> ■ Getting Started ■ Creating Resource Providers ■ Creating a Database Provisioning Profile ■ Configuring Request Settings ■ Defining Quotas ■ Create Service Template Using RMAN Backup Profile ■ Configuring Chargeback

Table 4–16 SSA User Tasks (Creating Full Clones Using RMAN Backup)

User Role	Usecase
EM_SSA_USER	Requesting a Database

4.4.2.1.2 Creating Full Clones Using RMAN Duplicate

This section lists the steps that need to be performed to create full clones using RMAN Duplicate.

Table 4–17 SSA Administrator Tasks (Creating Full Clones Using RMAN Duplicate)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> ■ Getting Started ■ Creating Resource Providers ■ Creating a Database Provisioning Profile ■ Configuring Request Settings ■ Defining Quotas ■ Creating a Service Template Using RMAN Duplicate ■ Configuring Chargeback

Table 4–18 SSA User Tasks (Creating Full Clones Using RMAN Duplicate)

User Role	Usecase
EM_SSA_USER	Requesting a Database

4.4.2.2 Creating Snap Clones

This section describes the following:

- [Creating Snap Clones from the Cloning Dashboard](#)
- [Creating Snap Clones from an In-Sync Test Master](#)
- [Creating Snap Clones from a Discretely Synchronized Test Master](#)
- [Creating CloneDB Databases](#)

4.4.2.2.1 Creating Snap Clones from the Cloning Dashboard

This section lists the steps that need to be performed to create and refresh snap clone databases from the Cloning Dashboard. The steps are:

- [Creating a Snap Clone Database](#)
- [Creating an Exadata Test Master Database](#)
- [Creating a Snapshot Clone of an Exadata Test Master Database](#)
- [Enabling a Test Master Database](#)
- [Disabling a Test Master Database](#)
- [Creating a CloneDB Database](#)
- [Managing Clone Databases](#)
- [Refreshing Clone Databases](#)

4.4.2.2.2 Creating Snap Clones from an In-Sync Test Master

This section lists the steps that need to be performed to create snap clones from an in-sync test master.

Table 4–19 SSA Administrator Tasks (Snap Clones from In-Sync Test Master)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> ■ Getting Started ■ Registering Storage Servers ■ Creating Resource Providers ■ Configuring Request Settings ■ Defining Quotas ■ Using a Physical Standby Database as a Test Master ■ Enabling the Test Master for Snap Clone ■ Creating a Database Provisioning Profile Using Snapshots ■ Creating Service Template Using Snap Clone Profile ■ Configuring Chargeback

Table 4–20 SSA User Tasks (Snap Clones from In-Sync Test Master)

User Role	Usecase
EM_SSA_USER	Requesting a Database

4.4.2.2.3 Creating Snap Clones from a Discretely Synchronized Test Master

This section lists the steps that need to be performed to create snap clones from a discretely synchronized test master.

Table 4–21 SSA Administrator Tasks (Snap Clones - Discrete Sync)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> Getting Started Registering Storage Servers Creating Resource Providers Configuring Request Settings Defining Quotas Creating a Discretely Synchronized Test Master Creating a Service Template Using Snap Clone Profile Configuring Chargeback

Table 4–22 SSA User Tasks (Snap Clones - Discrete Sync)

User Role	Usecase
EM_SSA_USER	Requesting a Database

4.4.2.2.4 Ongoing Refresh of the Test Master and the Database Instance

To ensure that the test master has the latest production data and the database instance reflects the latest information, the following steps must be performed:

- Refreshing the Test Master Database
- Refreshing the Snap Shot Profile
- Refreshing a Database

4.4.2.2.5 Creating CloneDB Databases

This section lists the steps that need to be performed to create a CloneDB database.

Table 4–23 SSA Administrator Tasks (Snap Clones - Discrete Sync)

User Role	Usecase
EM_SSA_ADMINISTRATOR	<ul style="list-style-type: none"> Getting Started Creating Resource Providers Configuring Request Settings Defining Quotas Creating a Database Provisioning Profile Using RMAN Database Image Creating a Service Template Using RMAN Image Profile Configuring Chargeback

Table 4–24 SSA User Tasks (Snap Clones - Discrete Sync)

User Role	Usecase
EM_SSA_USER	Requesting a Database

4.4.2.3 Creating Snap Clones for Pluggable Databases

This section lists the different solutions available in creating a test master pluggable database and snapshot clones of pluggable databases.

- [Creating Test Master Pluggable Databases](#)
- [Creating Snapshot Clones of Test Master Pluggable Databases](#)
- [Enabling a Test Master Pluggable Database](#)
- [Disabling a Test Master Pluggable Database](#)

4.5 Enabling Middleware as a Service (MWaaS)

Note: Before you enable Middleware as a Service, you must have performed the tasks listed in [Section 4.3, "Enabling Platform as a Service \(PaaS\)"](#).

This section describes the tasks that need to be performed by users with the EM_CLOUD_ADMINISTRATOR, EM_SSA_ADMINISTRATOR, and EM_SSA_USER roles to setup and use MWaaS.

4.5.1 Middleware as a Service (MWaaS): Cloud Administrator Tasks

This section lists the tasks that need to be performed for MWaaS by users with the EM_CLOUD_ADMINISTRATOR role.

Table 4–25 Cloud Administrator Tasks (MWaaS)

Cloud Service Model	Usecase
Middleware as a Service (MWaaS)	<ul style="list-style-type: none">■ Getting Started with Middleware as a Service■ Uploading a Java EE Component to the Software Library

4.5.2 Middleware as a Service (MWaaS): Self Service Administrator Tasks

This section lists the tasks that need to be performed for MWaaS by users with the EM_SSA_ADMINISTRATOR role.

Table 4–26 SSA Administrator Tasks (MWaaS)

Cloud Service Model	Usecase
Middleware as a Service (MWaaS)	<ul style="list-style-type: none">■ Creating a Middleware Pool■ Configuring Request Settings■ Setting Up Quotas■ Creating a WebLogic Service Template■ Configuring Chargeback

4.5.3 Middleware as a Service (MWaaS): Self Service User Tasks

This section lists the tasks that need to be performed for MWaaS by users with either of the following roles:

- EM_SSA_USER: Users with this role, by default, can only access the Self Service Portal and all the service families.
- EM_SSA_USER_BASE: Users with this role can access the Self Service Portal but will not have access to any service family. Access the MWaaS service family must

to be explicitly granted to the users with this role. See [Section 3.3.1.3, "Creating a Custom Role Based on the EM_SSA_USER_BASE Role"](#) for details.

Table 4–27 SSA User Tasks (MWaaS)

Cloud Service Model	Usecase
Middleware as a Service (MWaaS)	<ul style="list-style-type: none"> ■ Using the MWaaS Self Service Portal ■ Requesting a Middleware Service ■ Viewing the Middleware Service Home Page ■ Viewing the Application Home Page ■ Uploading a Java EE Component to the Software Library

4.6 Enabling Testing as a Service (TaaS)

This section describes the tasks that need to be performed by users with the EM_CLOUD_ADMINISTRATOR, EM_SSA_ADMINISTRATOR, and EM_SSA_USER roles to setup and use TaaS.

4.6.1 Testing as a Service (TaaS): Cloud Administrator Tasks

This section lists the tasks that need to be performed for TaaS by users with the EM_CLOUD_ADMINISTRATOR role.

Table 4–28 Cloud Administrator Tasks (TaaS)

Cloud Service Model	Usecase
Testing as a Service (TaaS)	<ul style="list-style-type: none"> ■ Getting Started ■ Creating Test Administrators ■ Creating an Assembly Component ■ Creating a Deployment Plan

4.6.2 Testing as a Service (TaaS): Self Service Administrator Tasks

This section lists the tasks that need to be performed for TaaS by users with the EM_SSA_ADMINISTRATOR.

Table 4–29 SSA Administrator Tasks (TaaS)

Cloud Service Model	Usecase
Testing as a Service (TaaS)	<ul style="list-style-type: none"> ■ Getting Started ■ Creating Test Administrators ■ Creating an Assembly Component ■ Creating a Deployment Plan

4.6.3 Testing as a Service (TaaS): Self Service User Tasks

This section lists the tasks that need to be performed for TaaS by users with either of the following roles:

- EM_SSA_USER: Users with this role, by default, can only access the Self Service Portal and all the service families.
- EM_SSA_USER_BASE: Users with this role can access the Self Service Portal but will not have access to any service family. Access to a the TaaS service family must

to be explicitly granted to the users with this role. See [Section 3.3.1.3, "Creating a Custom Role Based on the EM_SSA_USER_BASE Role"](#) for details.

Table 4–30 SSA User Tasks (TaaS)

Cloud Service Model	Usecase
Testing as a Service (TaaS)	Using the Testing as a Service Portal

Part III

Setting Up and Using Infrastructure as a Service

This section describes how to set up infrastructure as a service, manage virtualization targets, deploy guest virtual machines, set up, and use the self service application.

It contains the following chapters:

- [Chapter 5, "Setting Up Cloud for IaaS"](#)
- [Chapter 6, "Defining and Managing Cloud Policies"](#)
- [Chapter 7, "Setting Up the IaaS Self Service Portal"](#)
- [Chapter 8, "Using the IaaS Self Service Portal"](#)
- [Chapter 9, "Administering and Monitoring an IaaS Cloud"](#)

Setting Up Cloud for IaaS

This chapter describes the server, storage and networking infrastructure that needs to be defined for providing Infrastructure as a Service (IaaS) cloud using the Oracle VM technology. It contains the following sections:

- [Getting Started](#)
- [Cloud Infrastructure Privileges](#)
- [Registering the Oracle VM Manager](#)
- [Synchronizing the Oracle VM Manager Targets](#)
- [Discovering a Virtual Server](#)
- [Rediscovering a Virtual Server](#)
- [Setting Up Networks](#)
- [Creating a Network Profile](#)
- [Registering Storage Servers](#)
- [Creating a Storage Repository](#)
- [Presenting the Storage Repository](#)
- [Using Self Update to Download Oracle VM Templates and Virtual Assemblies](#)
- [Importing Assemblies, Templates, and Virtual Disks into the Storage Repository](#)
- [Creating a Virtual Server Pool](#)
- [Creating a Zone](#)
- [Setting Up the Storage Quality of Service \(QoS\)](#)
- [Patching the Oracle VM Server](#)
- [Acknowledging OVM Events](#)
- [Managing the NTP Configuration](#)
- [Importing Virtual Machines](#)
- [Acknowledging the Repository Events](#)

5.1 Getting Started

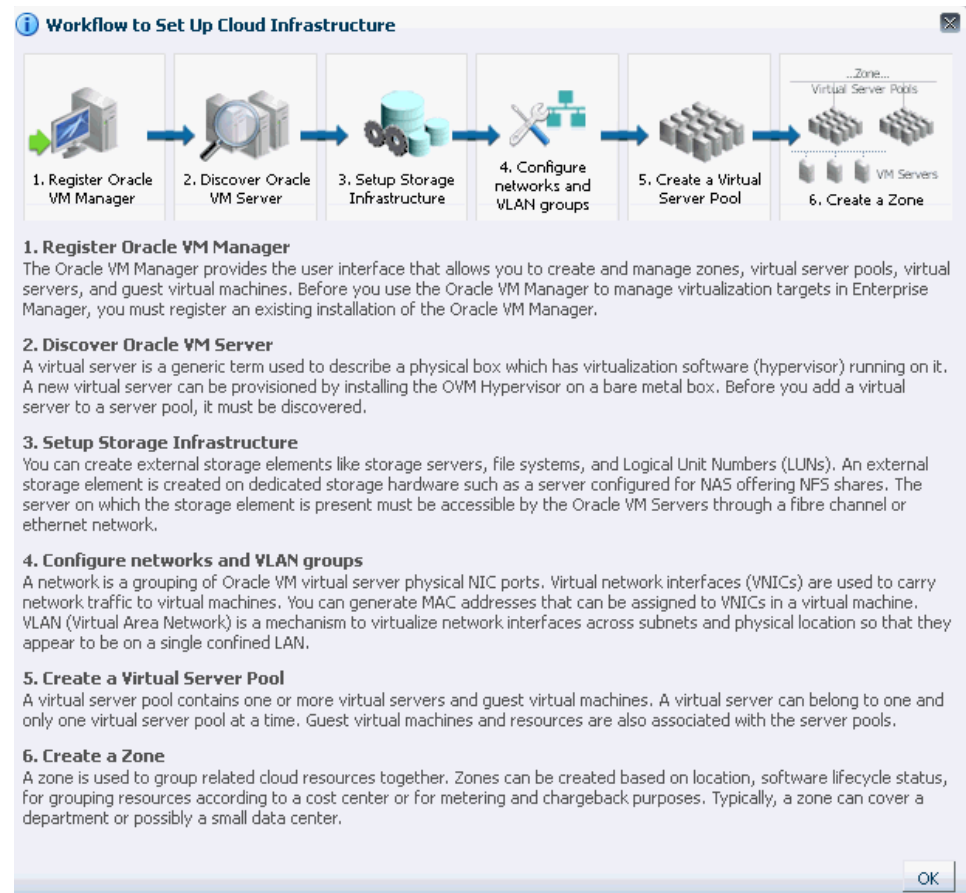
This section helps you get started with this chapter by providing an overview of the steps involved in setting up the virtualization infrastructure. Consider this section to be a documentation map to understand the sequence of actions you must perform to successfully set up virtualized systems.

Note: Click [here](#) to view a visual demonstration on how to discover OVM servers into the Cloud, configure storage for the Cloud, configure networking, and create server pools and Cloud zones using Oracle Enterprise Manager Cloud Control 12c.

1. Before you start monitoring and managing virtualization targets, you must register the Oracle VM Manager with Oracle Enterprise Manager. See [Section 5.3, "Registering the Oracle VM Manager"](#) for details.
2. You can then discover one or more Oracle VM Server targets. See [Section 5.5, "Discovering a Virtual Server"](#) for details.
3. Set up the storage infrastructure for the cloud. See [Section 5.9, "Registering Storage Servers"](#) for details.
4. Configure networks and VLAN Groups. See [Section 5.7, "Setting Up Networks"](#) for details.

If you are using Oracle VM Manager 3.3, you must configure the VLAN Interface. See [Section 5.7.3, "Creating a VLAN Interface for Oracle VM Manager 3.3"](#)
5. Create a virtual server pool. See [Section 5.14, "Creating a Virtual Server Pool"](#) for details.
6. Create a zone by grouping one or more server pools. See [Section 5.15, "Creating a Zone"](#) for details.

[Figure 5–1](#) shows the sequence of steps involved in setting up the virtualization infrastructure.

Figure 5–1 Setting Up the Cloud Infrastructure

5.2 Cloud Infrastructure Privileges

This section lists the actions that can be performed on various targets in the Infrastructure Cloud Home page when you:

- Right click on a target in the left panel.
- Select a target on the Members region on the parent target home page and then select the **Action** menu.
- Select the **Target** menu of the corresponding Target Home page.

Table 5–1 Infrastructure Cloud

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Register OVM Manager	Single		Add any Target
Setup Members	Single		View on Infrastructure Cloud
	Single		Operator on Infrastructure Cloud

Table 5–2 OVM Manager

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Members	Single		View On OVM Manager
Edit	Single		Operator on OVM Manager
Synchronize	Single		Full on OVM Manager
Deregister	Single		Full on OVM Manager and all its sub targets
Create Zone	Single		Operator on OVM Manager and Add any Target
Create Virtual Server Pool	Single		Operator on OVM Manager and Add any Target
Discover Virtual Server	Single		Operator on OVM Manager and Add any Target
Manage Unowned Virtual Servers	Single		Operator on OVM Manager
Manage Network	Single		Operator on OVM Manager
Manage Storage	Single		Operator on OVM Manager
Manage Storage Repository	Single		Operator on OVM Manager
Manage Yum Repository	Single		Full on OVM Manager
Manage NTP Configuration	Single		Full on OVM Manager

Table 5–3 Zone

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Members	Single		View On Zone
Edit	Single		Operator on Zone
Delete	Single		Full on Zone
Delete only from Enterprise Manager	Single		Full on Zone
Deploy Assembly	Single		Operator on Zone and Add any Target
Deploy Template	Single		Operator on Zone and Add any Target
Deploy ISO	Single		Operator on Zone and Add any Target
Deploy PXE	Single		Operator on Zone and Add any Target
Import Virtual Machine	Single		Operator on Zone and Add any Target

Table 5–4 Virtual Server Pool

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Members	Single		View On Virtual Server Pool
Edit	Single		Operator on Virtual Server Pool
Delete	Single		Full on Virtual Server Pool
Delete only from Enterprise Manager	Single		Full on Virtual Server Pool
Manage DRS / DPM Policies	Single		Operator on Virtual Server Pool
Deploy Assembly	Single		Operator on Virtual Server Pool and Add any Target
Deploy Template	Single		Operator on Virtual Server Pool and Add any Target
Deploy ISO	Single		Operator on Virtual Server Pool and Add any Target
Deploy PXE	Single		Operator on Virtual Server Pool and Add any Target
Import Virtual Machine	Single		Operator on Zone and Add any Target

Table 5–5 Virtual Server

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Edit	Single	Up	Operator on Virtual Server
Deregister	Single		Full on Virtual Server
Delete only from Enterprise Manager	Single		Full on Virtual Server
Start Maintenance	Multiple	Up	Operator on Virtual Server
Stop Maintenance	Multiple	Blackout	Operator on Virtual Server
Upgrade	Multiple		Full on Virtual Server
Start	Multiple	Down	Operator on Virtual Server
Stop	Multiple	Up	Operator on Virtual Server
Restart	Multiple	Up	Operator on Virtual Server
Rediscover Virtual Server	Single		Full on Virtual Server
Deploy Assembly	Single		Operator on Virtual Server and Add any Target
Deploy Template	Single		Operator on Virtual Server and Add any Target
Deploy ISO	Single		Operator on Virtual Server and Add any Target
Deploy PXE	Single		Operator on Virtual Server and Add any Target

Table 5–5 (Cont.) Virtual Server

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Import Virtual Machine	Single		Operator on Zone and Add any Target
Members	Multi-select / Single Select:Single		View on Virtual Server

Table 5–6 Guest VM

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Edit	Single		Operator on Guest VM
Delete	Multiple	Down, Metric Error	Full on Guest VM
Delete only from Enterprise Manager	Multiple		Full on Guest VM
Migrate	Multiple	Up, Down	Operator on Guest VM
Move	Single	Down	Operator on Guest VM
Clone	Single	Up, Down	Operator on Guest VM
Save as Template	Single	Down	Operator on Guest VM
Start	Multiple	Down	Operator on Guest VM
Stop	Multiple	Up	Operator on Guest VM
Restart	Multiple	Up	Operator on Guest VM
Kill	Multiple	Up	Operator on Guest VM
Stop and Start	Multiple	Up	Operator on Guest VM
Suspend	Multiple	Up	Operator on Guest VM
Resume	Multiple		Operator on Guest VM
Launch VNC Console	Single		Operator on Guest VM

Table 5–7 Assembly

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Start	Single		Operator on Assembly
Stop	Single		Operator on Assembly
Delete	Single		Operator on Assembly
Scale Up	Single		Operator on Assembly
Scale Down	Single		Operator on Assembly
Add Nodes	Single		Operator on Assembly

Table 5–8 Tier

Action Label	Multi-select / Single Select	Required Target State	Privileges Required
Start	Single		Operator on Tier
Stop	Single		Operator on Tier
Scale Up	Single		Operator on Tier
Scale Down	Single		Operator on Tier

5.3 Registering the Oracle VM Manager

The Oracle VM Manager provides the user interface that allows you to create and manage zones, virtual server pools, virtual servers, and guest virtual machines. Before you use the Oracle VM Manager to manage virtualization targets in Enterprise Manager, you must register an existing installation of the Oracle VM Manager.

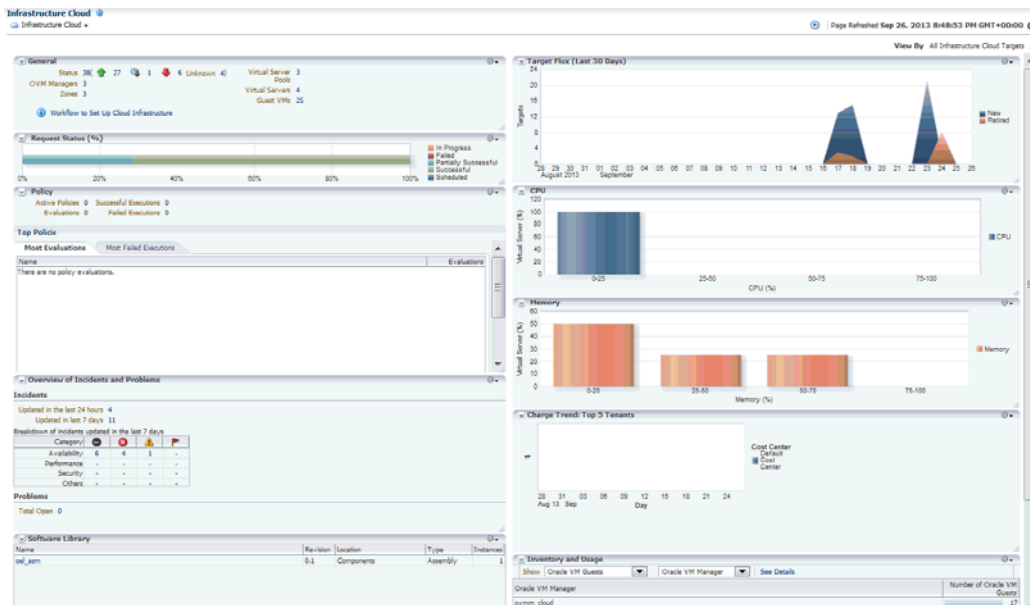
Note:

- The Oracle VM Manager that you register with Enterprise Manager must be at least version 3.0.2 or higher.
 - The Oracle VM Manager must be associated with only one Enterprise Manager installation.
 - As a best practice, it is recommended that the Management Agent and the Oracle VM Manager are present on the same physical machine.
 - If you are registering Oracle VM Manager 3.3, you must ensure that the Enterprise Manager for Oracle Virtualization (Oracle Virtualization) plugin 12.1.0.7 or a later version has been deployed on the Oracle Management Service and the Management Agent.
-

To register the Oracle VM Manager, you must first add it as an Enterprise Manager target. To do so, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.

Figure 5–2 Infrastructure Cloud Home



2. From the Infrastructure Cloud menu, select **Register OVM Manager**. The Add Oracle VM Manager page appears.

Figure 5–3 Add Oracle VM Manager

You can register an existing installation of Oracle VM Manager by following these steps:

Prerequisites

- If you are registering OVM Manager 3.1.1 or later, before you update the Oracle VM Manager URL, you must have configured tcps as described in Note 1490283.1.
- You must have imported the Oracle VM Manager certificate to the Agent keystore by following these steps:

- Export the OVM Manager certificate `<JAVA_HOME>/bin/keytool -keystore <OVM_MANAGER_HOME>/ovmmCoreTcps.ks -exportcert -alias ovmm -file <file_loc_for_certificate>`
- Import the OVM Manager certificate `<AGENT_INSTANCE_HOME>/bin/emctl secure add_trust_cert_to_jks -trust_certs_loc <file_loc_for_certificate> -alias <alias_name>`

If the certificate is being imported for multiple Oracle VM Managers, you can specify multiple alias names.

- If you are registering Oracle VM Manager 3.3, in addition to importing the Oracle VM Manager certificate, you must export the Oracle VM Manager WebLogic certificate and import the certificate to the Agent Keystore. See [Section 5.3.3, "Importing the Oracle VM Manager WebLogic Certificate"](#) for details.
1. Enter the target name for the Oracle VM Manager instance to be registered.
 2. Select the Management Agent to monitor and manage the Oracle VM Manager instance to be registered. It is recommended that the Management Agent (with *Enterprise Manager for Oracle Virtualization* plug-in (listed as *Oracle Virtualization* in Self Update) is present on the same machine where the Oracle VM Manager instance is running.
 3. Enter the Oracle VM Manager URL. Refer to Note 1490283.1 for details on configuring Oracle VM Manager for tcps access.

The URL must be in one of the following formats:

- `tcp://localhost:<port>`. Example: `tcp://localhost:54321` (If the Oracle VM Manager version is 3.1.1 or greater, you can specify only the tcps URL.)
- `tcps://<hostname>:<port>`. Example: `tcps://server.domain:54322`

4. Enter the Oracle VM Manager's Console URL. This is the URL to enable the VNC Console for the Guest VMs. For example,
`https://ovmmgr.example.com:7002/ovm/console`

The URL must be in the following format:

`https://<hostname>:<port>`

Note: If you are registering Oracle VM Manager 3.3, this URL is used to connect to the Oracle VM Manager.

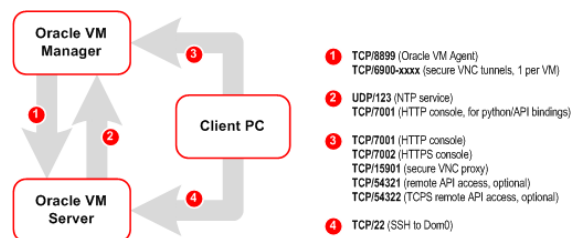
5. By default, data from Oracle VM Manager is automatically synchronized with Enterprise Manager at fixed intervals of time. If you do not wish to enable this option, you must disable the Automatic Synchronization checkbox and manually synchronize the data. For more details on the automatic and manual synchronization options, see [Section 5.4, "Synchronizing the Oracle VM Manager Targets"](#) for details.
6. Enter the administrator user name and password to connect to the Oracle VM Manager URL provided in **Step C**. If you want to use separate credentials for managing Oracle VM Manager, check the **Use Administration Credentials** check box. If these credentials are not specified, the monitoring credentials are used by default.

7. Click **Submit** to register the Oracle VM Manager. You can now use the Oracle VM Manager to monitor and manage the virtualization targets in Enterprise Manager.

5.3.1 Port Requirements for Oracle VM Manager Setup

The ports required for the Web browser connection to Oracle VM Manager are 7002 and 15901. TCP 7002 is used by the Oracle VM Servers to connect to Oracle VM Manager. Oracle VM Manager, in turn, connects to the Oracle VM Servers through port 8899 for Oracle VM Agent communication, and port 6900 and up for secure VNC tunneling to virtual machines (one port per VM). Ports 7900 and up are used to allow Oracle VM Manager to open secure serial console tunnels to virtual machines (one port per VM) on the Oracle VM Servers. The Oracle VM Command Line Interface connects to Oracle VM Manager on port 10000. TCP ports 54321 and 54322 must be enabled for remote API access to the Oracle VM Manager core. Follow the guidelines of in the diagram below:

Figure 5–4 Oracle VM Manager Firewall Configuration



5.3.2 Updating the Oracle VM Manager URL

If you had Oracle VM Manager 3.0.x registered with Enterprise Manager previously and had upgraded it to higher versions 3.1.x or 3.2.1, you must update the Oracle VM Manager URL.

If you are upgrading to version 3.3, you must also import the WebLogic certificate. See [Section 5.3.3, "Importing the Oracle VM Manager WebLogic Certificate"](#) for details.

Prerequisites

- Before you update the Oracle VM Manager URL, you must have configured tcps as described in Note 1490283.1.
- You must have imported the Oracle VM Manager certificate to the Agent keystore by following these steps:
 - Export the OVM Manager certificate `<JAVA_HOME>/bin/keytool -keystore <OVM_MANAGER_HOME>/ovmmCoreTcps.ks -exportcert -alias ovmm -file <file_loc_for_certificate>`
 - Import the OVM Manager certificate `<AGENT_INSTANCE_HOME>/bin/emctl secure add_trust_cert_to_jks -trust_certs_loc <file_loc_for_certificate> -alias <alias_name>`

To update the Oracle VM Manager URL, follow these steps:

1. Right click on the OVM Manager target that is to be upgraded and select **Edit**.
2. Enter a tcps based (tcps://hostname:port) URL in the Oracle VM Manager field.

Note: It is recommended that you use the tcps based URL. But if the Management Agent is running on the same host on which Oracle VM Manager has been installed, you can use the tcp based URL (tcp://localhost:54321).

5.3.3 Importing the Oracle VM Manager WebLogic Certificate

Oracle VM Manager 3.3 contains an internal Certificate Authority (CA) that is used to perform certificate-based authentication and to sign the SSL certificate that is used for the web-based user interface. Certificates are generated automatically when Oracle VM Manager is installed.

To export the Oracle VM Manager WebLogic certificate, enter the following command:

```
#/u01/app/oracle/ovm-manager-3/ovm_upgrade/bin/ovmkeytool.sh exportca >
<file_loc_for_certificate>
```

To import the Oracle VM Manager Weblogic certificate to the Agent Keystore, enter the following command:

```
<AGENT_INSTANCE_HOME>/bin/emctl secure add_trust_cert_to_jks -trust_certs_
loc <file_loc_for_certificate> -alias <alias_name>
```

Note: The first line in the <file_loc_for_certificate> must be deleted before the OVM Manager certificate is imported.

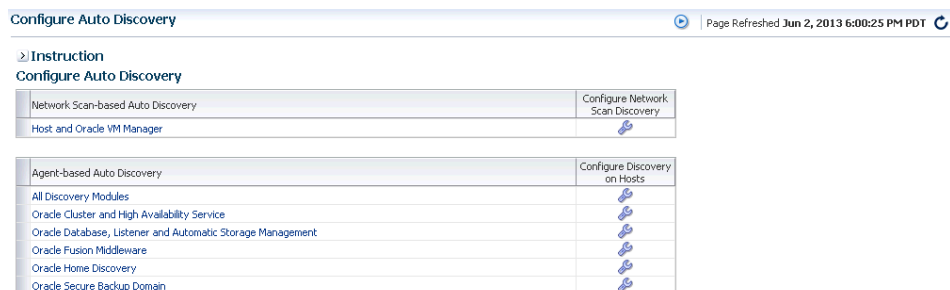
5.3.4 Discovering and Promoting the Oracle VM Manager (Optional)

Automatic discovery is a process that detects hosts, Oracle VM Managers, and other targets so that they can be monitored and managed by Enterprise Manager. If you know the Oracle VM Manager instances in your environment, see [Section 5.3, "Registering the Oracle VM Manager"](#) for details on registering them with Enterprise Manager. Discovery and promotion of Oracle VM Manager should be attempted if you want to scan your networks to discover unknown Oracle VM Manager instances.

To discover an Oracle VM Manager, follow these steps:

1. Log in to Enterprise Manager as a user with the Super Administrator role.
2. From the **Setup** menu, select **Add Target**, then select **Configure Auto Discovery**.

Figure 5–5 Configure Auto Discovery



3. In the Network Scan-based Auto Discovery table, click **Configure Network Scan Discovery** in the Host and Oracle VM Manager row. The Network Discovery page

appears. Use this page to search, browse, and create OVM Manager discovery specifications.

Figure 5–6 Network Scan Discovery

4. Click **Create**. The Network Scan Discovery: Create page appears.

Figure 5–7 Network Scan Discovery: Create

5. Enter the Name and Description for the Discovery Specification. Click **Add** in the Network Scans region to select the Agent that is to be used perform the IP scan. For each Agent, specify the IP ranges for the scan. The following formats are supported: host name, IP address, and IP range. Use space to separate values.
6. Use the Job Details tab on the Host Discovery Specification Create page to schedule the discovery IP scan, allowing you to start it immediately or at a later specified time. Use the Credentials section to enter preferred credentials for the host. You can choose from Preferred Credentials, Named Credentials, or New Credentials. The discovery IP Scan is run as root. It is required that you set privileged host credentials or named credentials that use Sudo.
7. You can use the Host Discovery page to check the status of discovery and view newly discovered OVM Managers.
8. After the target has been discovered, from the **Setup** menu, select **Add Target**, then select **Auto Discovery Results**. Enterprise Manager displays the Auto

Discovery Results page where you can review discovered unmanaged targets and promote targets to be managed by Enterprise Manager for monitoring.

9. On the Network-scanned Targets tab, the target discovery results are displayed in the table at the bottom. Select the OVM Manager target and click **Promote**. The OVM Manager Registration page is displayed. See [Section 5.3, "Registering the Oracle VM Manager"](#) for details.

5.3.5 Monitoring Configuration (OVM Manager)

To customize or view the monitoring configuration details for the OVM Manager target, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Infrastructure Home**.
2. Click on an OVM Manager target in the left panel.
3. From the **VM Manager** menu, select **Target Setup**, then select **Monitoring Configuration**. The Monitoring Configuration page for the OVM Manager target appears.

Figure 5–8 Monitoring Configuration (OVM Manager)



4. The following details are displayed:
 - **LiveSyncEnabled:** Indicates if auto synchronization is enabled between Enterprise Manager and Oracle VM Manager. By default, this is true. If enabled, the data is synchronized every 1 minute.
 - **Timeout Settings For Network Configuration of Deployment:** The total wait time allowed for network configuration during assembly deployment. The default is 60 minutes.
 - **OVM Job Retry Count:** The number of attempts that can be made after which the OVM Job should be retired. The default number of attempts is 5.
 - **OVM Job Retry Sleep Interval:** The interval between two subsequent OVM job retry attempts. The default interval is 5 seconds.
 - **Timeout value for short running OVM Job (minutes):** The time interval allowed for an OVM job to be completed.
 - **OVM Manager Console URL:** The URL used to launch VNC consoles for VM.

Note: For Oracle VM Manager 3.3, this URL is used to connect to the Oracle VM Manager.

- **OVM Manager URL:** The OVM Manager registration URL used for communication between Enterprise Manager and Oracle VM Manager.
 - **Oracle VM Manager Password:** The password required to access Oracle VM Manager.
 - **Oracle VM UUID:** The internal Oracle VM identifier.
 - **Oracle VM Manager Username:** The username required to access Oracle VM Manager
 - **Timeout Settings for Product Configuration of Deployment:** The total wait time allowed for product configuration during assembly deployment. The default is 60 minutes.
 - **Timeout Value for Checking if SSH Service is Running on a Deployed Virtual Machine:** The total wait time allowed to check if the SSH service is running on a Guest VM. This parameter is used as prerequisite for deploying the Management Agent on the Guest VM.
 - **SyncDataFetchTime:** The time at which the Oracle VM Manager was last synchronized.
 - **SyncStatus:** The status of the Oracle VM Manager synchronization.
 - **Deployed on Exalogic:** Indicates whether the Oracle VM Manager is inside an Exalogic rack.
5. After editing the entries, click **OK** to return to the previous page.

5.3.6 Upgrading the Oracle VM Manager

To upgrade from earlier versions of Enterprise Manager and Oracle VM Manager to Oracle VM Manager 3.3, follow these steps:

1. Upgrade Oracle Management Service to 12.1.0.4 and deploy the Oracle Virtualization 12.1.0.7 plugin.
2. Upgrade Management Agent to 12.1.0.4 and the deploy the Oracle Virtualization 12.1.0.7 plugin.
3. Blackout the old Oracle VM Manager target.
4. Upgrade the Oracle VM Manager to 3.3.1. For more information, see the *Oracle VM Installation and Upgrade Guide for Release 3.3*.
5. Upgrade the Oracle VM Server to 3.3.1. For more information, see the *Oracle VM Installation and Upgrade Guide for Release 3.3*.
6. Import the WebLogic certificate. See [Section 5.3.3, "Importing the Oracle VM Manager WebLogic Certificate"](#) for details.
7. Change the blackout status of the Oracle VM Manager target.
8. Add or modify the target property if required. For example, Webservice URL using Edit Oracle VM Manager page.

5.4 Synchronizing the Oracle VM Manager Targets

Enterprise Manager can monitor the OVM Manager and the various virtualization targets registered with the OVM Manager. The targets registered with the OVM Manager must also be monitored targets in Enterprise Manager. If some targets have been created directly in OVM Manager, you can synchronize them in two ways:

- Automatic Synchronization
- Manual Synchronization

5.4.1 Automatic Synchronization

You can enable this option when Oracle VM Manager is registered or when you Edit Oracle VM Manager. If the **Automatic Synchronization** option is enabled, all changes made in Oracle VM Manager are automatically reflected in Enterprise Manager at fixed intervals. The default interval is 1 minute. To change the default interval, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select an Oracle VM Manager target from the right panel to navigate to the Oracle VM Manager Home page.
3. From the **Target** menu, select **Monitoring**, then select **Metrics and Collection Settings**.
4. Click **Other Collected Items** and then click the **Collection Schedule** link for the OVM Manager Events Data metric.
5. Modify the frequency as required, click **Continue**, then click **OK**.

Note: If you do not enable automatic synchronization at this time, you can enable it later by following these steps:

- Navigate to the OVM Manager homepage.
 - From the **Target** menu, select **Target Setup**, then select **Edit OVM Manager**.
 - Select the **Automatic Synchronization** check box and click **Submit**.
-

5.4.2 Manual Synchronization

When the Oracle VM Manager is registered, if the **Automatic Synchronization** option is enabled, for the targets created in Oracle VM Manager, corresponding targets are created in Enterprise Manager. If, this option is not enabled, you can manually synchronize the targets by following these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target from the left panel and select **Synchronize**.
3. A confirmation message appears. Click **Submit** to submit a job to perform synchronization. The targets in Enterprise Manager and OVM Manager are synchronized.
 - Targets that are not present in OVM Manager will be removed.
 - For targets present only in OVM Manager, corresponding targets are created in Enterprise Manager.
 - Configuration collections are refreshed for all other targets.

5.5 Discovering a Virtual Server

A virtual server is a generic term used to describe a physical box which has virtualization software (hypervisor) running on it. A new virtual server can be provisioned by installing the OVM Hypervisor on a bare metal box. Before you add a virtual server to a server pool, it must be discovered.

To discover an Oracle VM Server, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target from the left panel and select **Discover Virtual Server**.

Figure 5–9 Discover Virtual Servers

The screenshot shows the 'Discover Virtual Servers' dialog in the Oracle VM Manager. The dialog has a title bar with 'ovm_manager' and a subtitle 'Oracle VM Manager'. Below the title bar, there is a 'Discover Virtual Servers' section with a text area for specifying host names or IP addresses. Below this, there is an 'Oracle VM Agent Credentials' section with fields for 'User Name' (containing 'oracle') and 'Password'.

3. Specify the host name or the IP address of the virtual server. You can enter multiple host names or IP addresses on separate lines.
4. Enter the user name and password of the Oracle VM Agent running on the virtual server to be discovered.
5. Click **Submit** to discover the virtual server.

The newly discovered Oracle VM Server contains some basic information about itself, and about any immediate connectivity to a network storage, but it is considered to be in an unconfigured state. After the storage and networking has been configured, the Oracle VM virtual servers are ready to be used as the infrastructure for cloud.

5.6 Rediscovering a Virtual Server

To rediscover a virtual server, follow these steps:

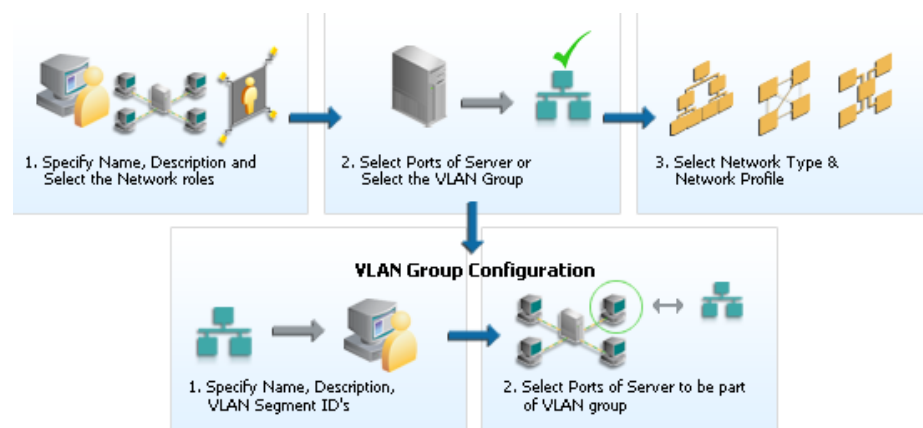
1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a Virtual Server target in the left panel and select **Rediscover Virtual Server**.
3. A confirmation message appears. Click **OK** to rediscover the virtual server and discover any new NICs and LUNs that have been added.

5.7 Setting Up Networks

This section discusses creation and use of Oracle VM Networks. You can define a name or an alias for each logical network. When you have created your networks, you connect the physical network ports on Oracle VM Servers to the logical networks. Before you define the logical networks in Enterprise Manager, you have to review your physical network configuration that you intend to use, such as VLAN and subnet usage. Setting up an Oracle VM network involves:

- [Generating MAC Addresses](#)
- Creating and configuring VLAN Groups / Interfaces
 - [Configuring a VLAN Group for Oracle VM Manager 3.2 or Earlier Versions](#)
 - [Creating a VLAN Interface for Oracle VM Manager 3.3](#)
- [Creating Networks](#)

Figure 5–10 *Setting Up Networks*



Note: In Oracle VM Manager 3.3, VLAN Groups have been replaced with VLAN Interfaces. When you are configuring the VLAN Interface, you are prompted for the VLAN Segment IDs and the ports on which the interfaces are to be created.

5.7.1 Generating MAC Addresses

Virtual network interfaces (VNICs) are used to carry network traffic to virtual machines. You can generate MAC addresses that can be assigned to VNICs in a virtual machine. Specify a range of MAC addresses that need to be generated.

VLAN Group has been replaced with VLAN Interface and during Vlan interface configuration, it asks VLAN Segment ID's and then Select Ports of Servers where the Interfaces to be created"

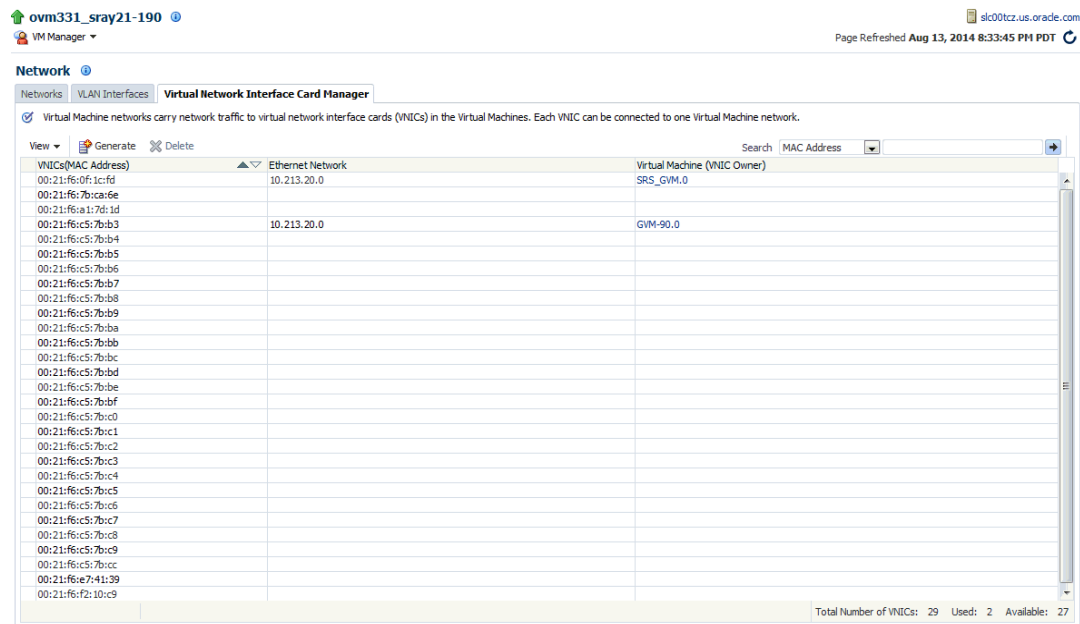
Note: MAC addresses must be unique across all Oracle VM Managers in the data center.

To create MAC Addresses, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **VM Infrastructure Home**.

- Right click on an OVM Manager target from the left panel and select **Manage Network**.

Figure 5–11 Virtual Network Interface Card Manager



- Click the **Virtual Network Interface Card Manager** tab.
- Click **Generate**. In the Generate MAC Addresses pop-up window, you are prompted to specify an initial MAC address in 3 sets of 3 characters. This is a two-digit number for the Initial MAC Address. Click **OK** to return to the previous page. You can now use these VNICs while creating virtual machines.

5.7.2 Configuring a VLAN Group for Oracle VM Manager 3.2 or Earlier Versions

Note: Configuring a VLAN Group is an optional feature. If VLANs exist in your physical network, you must follow the steps in this section to use them in the cloud.

VLAN (Virtual Area Network) is a mechanism to virtualize network interfaces across subnets and physical location so that they appear to be on a single confined LAN. This concept is used to isolate (and group) the network traffic across these distributed interface, which enables secure network traffic within such nodes.

You can create multiple virtual LAN (VLANs) on the same NIC port. Each VLAN is an independent logical network operating with other VLANs over the same physical connection. Configuring VLANs involves creating one or more VLAN Groups, each of which contain multiple VLANs segments.

Each VLAN is assigned a distinct VLAN identification. The VLAN ID is used by an attached VLAN switch to segregate traffic among the different VLANs operating on the same link. Once a VLAN is configured, it functions exactly like a separate physical connection. VLANs need to be configured in the physical switches before you use them. To create a VLAN group, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target from the left panel and select **Manage Network**.
3. Click the **VLAN Groups** tab and click **Create**.
4. Enter a name and description for the VLAN Group.
5. Enter one or more VLAN Segments. This is the VLAN ID that is enabled on the switch ports connecting the virtual server to the switch. The valid range is from 1 to 4094.
6. Click **Add** to select the ports to be added to the network. Select one or more virtual servers to be added to the network. If you add more than two ports of a virtual server, the first four ports will be bonded. Network bonding refers to the combination of network interfaces on one host for redundancy or increased throughput.

If your network supports jumbo frames, you must set the Maximum Transfer Unit size in the MTU field. Setting the MTU field, sets the maximum transmission rate, so that larger packets can be sent and received. You can set the MTU to a maximum of 1500 for Ethernet, 9000 for 1GbE, and 64,000 for 10GbE.

Note: The ports that you have selected must have the VLAN Segment IDs enabled.

7. Click **OK** to create the VLAN Group.

5.7.3 Creating a VLAN Interface for Oracle VM Manager 3.3

Note: Configuring a VLAN Interface is an optional feature. If VLANs exist in your physical network, you must follow the steps in this section to use them in the cloud.

VLAN (Virtual Area Network) is a mechanism to virtualize network interfaces across subnets and physical location so that they appear to be on a single confined LAN. This concept is used to isolate (and group) the network traffic across these distributed interface, which enables secure network traffic within such nodes. VLANs are divided into segments that are usually tagged with an ID.

To manage network traffic tagged for different VLAN IDs, a separate VLAN or virtual interface can be created for each VLAN ID. When creating different logical networks in Oracle VM Manager, these VLAN interfaces can be attached to different networks to specify the type of traffic that belongs to a particular VLAN ID.

If your network is configured to support VLANs, you should define interfaces for your different VLAN IDs on each of your servers, so that you are able to define Oracle VM networks that take advantage of VLAN separation.

You can create multiple virtual LAN (VLANs) on the same NIC port. Each VLAN is an independent logical network operating with other VLANs over the same physical connection. Configuring VLANs involves creating one or more VLAN Interfaces, each of which contain multiple VLANs IDs.

Each VLAN is assigned a distinct VLAN identification. The VLAN ID is used by an attached VLAN switch to segregate traffic among the different VLANs operating on the same link. Once a VLAN is configured, it functions exactly like a separate physical connection. VLANs need to be configured in the physical switches before you use them. To create a VLAN Interface, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target from the left panel and select **Manage Network**.
3. Click the **VLAN Interfaces** tab and click **Create**.

Figure 5–12 Create VLAN Interface

The screenshot shows the 'Create VLAN Interfaces' window in the Oracle VM Infrastructure management console. At the top, there's a header bar with the OVM Manager logo and a refresh button. Below the header, the 'Create VLAN Interfaces' title is displayed. The main area is divided into two sections: 'Ports' and 'VLAN Interfaces'. The 'Ports' section has a table with columns: Port, MAC Address, MTU, Address Type, IP Address, Netmask, and Bonding Mode. The 'VLAN Interfaces' section has a table with columns: Segment, MTU, Address Type, IP Address, and Netmask. Both tables are currently empty. To the right of the 'Ports' table, there is a 'Concepts' section with a list of items: 'VLAN Interface can be specified during network creation.' and 'VLAN Segment is the VLAN ID that is enabled on the switch ports connecting the virtual server to the switch. The valid range is from 2 to 4094.'

4. Enter one or more VLAN Segments separated by commas.
VLANs are divided into segments that are usually tagged with an ID. The ID is enabled on the switch ports connecting the virtual server to the switch. The valid range is from 2 to 4094.
5. Click **Add** to select the ports to be added to the network. In the Create VLAN Interfaces: Add Ports page, click the **Search** icon next to the Select Virtual Server(s) field. Select one or more virtual servers to be added to the network and click **Select**. The list of ports with the MTU size, MAC Address, and status is displayed. Select the ports to be added and click **Continue**. If you select more than one port of a virtual server, they will be bonded. Network bonding refers to the combination of network interfaces on one host for redundancy or increased throughput.
6. The selected ports are displayed. You can modify the following for each port:
 - **MTU:** If your network supports jumbo frames, you must set the Maximum Transfer Unit size in the MTU field. Setting the MTU field, sets the maximum transmission rate, so that larger packets can be sent and received. You can set the MTU to a maximum of 1500 for Ethernet, 9000 for 1GbE, and 64,000 for 10GbE.
 - **Address Type:** The network address assignment type can be Static, Dynamic, or None.
 - **IP Address:** The IP address for the port.
 - **Netmask:** The netmask for the port.

- Bonding Mode: Network bonding refers to the combination of network interfaces on one host for redundancy and/or increased throughput. This can be:
 - Active-Backup: There is one NIC active while another NIC is asleep. If the active NIC goes down, another NIC becomes active.
 - Load Balancing: The network traffic is equally balanced over the NICs of the machine and failover is also supported to provide redundancy.
 - Link Aggregation: Aggregated NICs act as one NIC which results in a higher throughput, but also provides failover in the case that a NIC fails.

Note: The ports that you have selected must have the VLAN Segment IDs enabled.

7. The VLAN Segments with the ports, MTU, Address Type, IP Address, and NetMask are listed in the VLAN Interfaces region. These parameters can be modified if necessary.

Click the **Manage** icon to add or delete VLAN Segments and click **OK** and return to the Create VLAN Interfaces page. Click **OK** to create the VLAN Interfaces and return to the Network page.

5.7.3.1 Viewing the VLAN Interfaces

To view the VLAN Interfaces that have been added, click the VLAN Interfaces tab on the Network page. The VLAN Interfaces are listed with the following details:

- Name: The name of the VLAN Interface that is created.
- Port: The network port on which the VLAN Interface has been assigned.
- Segment: The VLAN ID assigned to the VLAN Interface.
- Server: The server where the VLAN Interface is located.
- Network: The network to which the VLAN Interface is attached.
- MTU: The MTU value for the VLAN Interface.
- Address Type: The network address assignment type. This can be Static, Dynamic, or None.
- IP Address: The IP address allocated to the VLAN Interface.
- Netmask: The netmask applied to the VLAN Interface.

5.7.3.2 Editing a VLAN Interface

To edit a VLAN Interface, follow these steps:

1. Select the VLAN Interface you wish to edit from the list of VLAN Interfaces and click **Edit**.
2. In the Edit VLAN Interface page, you can edit the MTU setting and the Address Type. If you select Static type, you can specify the IP Address and the Netmask.
3. Click **OK** to save the changes and return to the previous page.

5.7.3.3 Deleting a VLAN Interface

To delete a VLAN Interface, follow these steps:

1. Select the VLAN Interface you wish to delete from the list of VLAN Interfaces and click **Delete**.
2. The Delete Confirmation dialog box is displayed. Click **OK** to delete the VLAN Interface.

5.7.4 Creating Networks

A network is a grouping of Oracle VM virtual server physical NIC ports. This section describes the procedure to create a logical network.

Prerequisites

- If you choose to associate a network profile with the network, then the network profile must be created before the network is created. A network profile stores the network interface configuration (IP address, subnet mask, host name, DNS servers) that is allocated to network interfaces of newly provisioned virtual machines.

Follow these steps to create a logical network:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target from the left panel and select **Manage Network**.
3. Click the **Create** option in the Networks tab. You are prompted to configure the ports of the VLAN groups. Click **Create VLAN Groups** to configure VLAN Groups.

For Oracle VM Manager 3.3, click Create VLAN Interfaces to configure the VLAN interfaces. See [Section 5.7.3, "Creating a VLAN Interface for Oracle VM Manager 3.3"](#) for details.

If you want to create the networks without configuring the VLAN groups or interfaces, click **Continue Network Creation**. In the Create Network: General page, enter the name and description of the network.

Figure 5–13 Create Network: General

Network Roles

Name	Description	Select
Server Management	Used to communicate between the Manager and Server Pool Master.	<input type="checkbox"/>
Cluster HeartBeat	This network role is used for cluster heartbeat traffic.	<input type="checkbox"/>
Storage	This network role is used to carry storage traffic.	<input type="checkbox"/>
Live Migrate	This network role is used for virtual machine live migration data.	<input checked="" type="checkbox"/>
Virtual Machine	Used to carry network traffic to Virtual Machines.	<input checked="" type="checkbox"/>

4. Specify if you are creating an inter-server or intra-server network. An inter-server network is routable through standard switches. An intra-server network is available within a single server without a route to an external physical network.

- Specify the network role by checking one or more check boxes in the Network Roles section.

Note: To deploy a Guest VM, you must have at least one logical network with the **Virtual Machine** role.

- **Server Management:** Manages the physical virtual servers in a server pool, for example, to update the Oracle VM Agent on the different virtual servers.
 - **Live Migrate:** Carries live migrate traffic. You can migrate virtual machines from one virtual server to another in a server pool, without changing the status of the virtual machine.
 - **Cluster Heartbeat:** Carries cluster heartbeat traffic.
 - **Virtual Machine:** Used for the network traffic between the different virtual machines in a server pool. The virtual machine role can either be an Inter-Server (routable through standard switches), or an Intra-Server (without a route to an external physical network). The Virtual Machine role must be unique on the network, which means that this network cannot have other network roles. It is however possible, and very likely, to have multiple networks with the Virtual Machine role in one Oracle VM Manager.
 - **Storage:** Used for all storage transport in a server pool. It is used by the virtual servers to connect to ethernet-based storage repositories.
- Click **Next**. In the Configure Ports and VLAN Interfaces page, click **Add** and select a VLAN Interface from the list.

Figure 5–14 Create Network: Configure Ports and VLAN Interfaces (OVM Manager 3.2)

OVM: Create Network

General **Configure Ports and VLAN Interfaces** Network Profile and QoS Review

Create Network : Configure Ports and VLAN Interfaces Back Step 2 of 4 Next Finish Cancel

VLAN Interfaces

View + Add... ✖ Remove

Port	MAC Address	MTU	Address Type	IP Address	Netmask	Bonding Mode
▼ vlan_120102, 100	network.EthernetPort (5) in 00:16:3e:3a:65:8a	1500	None			

Ports

View + Add... ✖ Remove

Port	MAC Address	MTU	Address Type	IP Address	Netmask	Bonding Mode
network.EthernetPort (2) in	00:16:3e:3a:65:87	9000	None			

- After adding the VLAN Segment, click **Add** the VLAN Interfaces and the ports. Select the ports to be added to network. If you select more than two ports, they will be bonded or aggregated into a single interface. By default, the Bonding Mode is Active Passive but you can change it by selecting one of the following:
 - **Active Passive:** There is one active NIC. If this one goes down, another NIC becomes active.
 - **Link Aggregation:** All NICs act as one NIC which results in a higher throughput.

- **Load Balanced:** The network traffic is equally balanced over the NICs of the machine.

If your network supports jumbo frames, you must set the Maximum Transfer Unit size in the MTU field. Setting the MTU field, sets the maximum transmission rate, so that larger packets can be sent and received. You can set the MTU to a maximum of 1500 for Ethernet, 9000 for 1GbE, and 64,000 for 10GbE.

Note: If you are using Oracle VM Manager 3.3, you will see the following page:

Figure 5–15 Create Network: Configure Ports and VLAN Interfaces (OVM Manager 3.3)

OVM: Create Network

General **Configure Ports and VLAN Interfaces** Network Profile and QoS Review

Create Network: Configure Ports and VLAN Interfaces

Back Step 2 of 4 Next Finish Cancel

✓ All the selected VLAN Interfaces should have same segment ID.
✓ All selected VLAN Interfaces should be on different Servers.

VLAN Interfaces

View Add... Remove

Name	Port	Segment	Server Name	Network	MTU	Address Type	IP Address	Netmask
bond1.5 on sray2...	bond1 on sray21-90	5	sray21-90		1500	None		

Ports

View Add... Remove

Port	MAC Address	MTU	Address Type	IP Address	Netmask	Bonding Mode
No Ports Added.						

8. Click **Next**. The Network Profile and QoS page appears.

Note: Defining the Network Profile and QoS is optional. A network profile stores the network interface configuration (IP address, subnet mask, host name, DNS servers) to be allocated to network interfaces of newly provisioned virtual machines.

Figure 5–16 Create Network: Network Profile and QoS

OVM: Create Network

General Configure Ports and VLAN Interfaces **Network Profile and QoS** Review

Create Network : Network Profile and QoS

Back Step 3 of 4 Next Finish Cancel

Select Network Type

Network Profiles

Add... Remove

Name	Domain Name	Net Mask	Gateway	DNS Server
No Network Profiles Added.				

Specify the following:

- **Network Type:** You can select Internet Routable, Non Internet Routable, or a predefined set of network types. For more details, see [Section 5.16.1, "Setting Up the Network Type"](#).
 - **Network Profile:** A network profile defines a set of IP Addresses, their associated host names (optionally), and common networking attributes for them. See [Section 5.8, "Creating a Network Profile"](#) for details.
9. **Review** the details entered so far and click **Finish** to create the network.

5.8 Creating a Network Profile

A network profile is used to automate assignment of IP addresses to guest virtual machines. A network profile is a list of IP address along with host names. It defines a set of IP addresses, their associated host-names, and common networking attributes for them.

Figure 5–17 Network Profile

Name	Domain Name	Netmask	Gateway	DNS Servers	IP Address	
					Total	Free
profile2					1	1

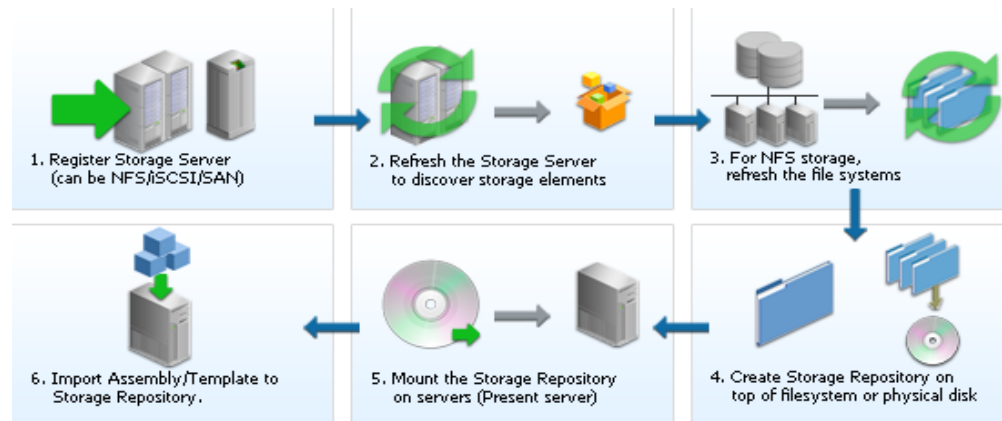
To create a network profile, follow these steps:

1. From the **Setup** menu, select **Provisioning and Patching**, then select **Network Profile**.
2. Click **Create** on the Network Profile page.
3. Enter the following details in the Create Network Profile pop-up window:
 - **Name:** Unique name that identifies the network profile name.
 - **Domain Name:** Domain for which the profile is being defined. The domain name must not begin with a dot ('.'). For example, you must specify the domain name as `us.example.com` and not with a dot ('.') in the front like `.us.example.com`.
 - **Netmask:** Network mask for the subnet IP. For example: `255.255.240.0`
 - **Gateway:** Gateway for the IP address list.
 - **DNS Servers:** Name resolution servers.
4. You can add a list of IP addresses or specify a range. If you select:
 - **List:** Specify IP addresses with host name and MAC address (optional).
 - **Range:** Specify a Hostname Pattern. The Start Value is appended to the host names generated. The First IP Address and the Last IP Address defines the range. For example: If the pattern is say `hostprod` and Start Value is 1, First IP Address is `10.1.1.1` and Last IP Address is `10.1.1.3`, the host names will be `hostprod1`, `hostprod2` and `hostprod3`.
5. Click **OK** to save the network profile.

5.9 Registering Storage Servers

You can create external storage elements like storage servers, file systems, and LUNs. An external storage element is created on dedicated storage hardware such as a server configured for NAS offering NFS shares. The server on which the storage element is present must be accessible by the Oracle VM Servers through a fibre channel or ethernet network. You can configure a virtual server pool with multiple such external storage devices.

Figure 5–18 Creating Storage Servers and File Systems



To set up a storage server, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target in the left panel and select **Manage Storage**. [Figure 5–19](#) appears.

Figure 5–19 Storage Server

Storage ⓘ

View ▾ File Server Storage Array Delete Discovery Validate Search

Name	Description
File Servers	NFS Storage Servers available in the OVM Manager.
NFS201	edit2, f
Storage Arrays	iSCSI and Fibre Channel(SAN) Storage Arrays available in the OVM Manager.
Unmanaged FibreChannel Storage Array	Default Fibre Channel(SAN) Storage Array managed by the Oracle Generic SCSI Storage Plugin.
Unmanaged iSCSI Storage Array	Default iSCSI Storage Array managed by the Oracle Generic SCSI Storage Plugin.
SA201	sa
multipath2	edit mu,
Local File Servers	OCFS2 File Systems on servers

3. A list of file servers, storage arrays, and local file servers that have been defined appears.
 - **Type:** Select the type of storage array that can be defined. A storage array is additional network provided storage that can be specifically used to store virtual disks for virtual machines. A server pool can be configured with multiple external storage devices. You can define 3 types of storage servers:

- **iSCSI:** An iSCSI target configured or discovered on the Oracle VM Server.
- **SAN:** A Fiber Channel SAN target configured/discovered on the Oracle VM Server.
- **NFS:** An NFS or NAS file system mounted locally.

Select File Server (NFS) or Storage Array (iSCSI or SAN).

4. You can register a File Server or a Storage Array by clicking the appropriate link.
5. Select a storage element and click **Discover** to start the discovery operation of the file systems available on the server. A confirmation message prompting you to refresh the file system appears. Click **OK** to refresh the file system and return to the Storage page.
6. Click on a **File Server**, **Storage Array**, or **Local File Server** link to drill down to the Details page.
7. Select a storage element and click **Validate**. A confirmation message prompting you to validate the storage server appears. Click **OK** to refresh the file system and return to the Storage page.

5.9.1 Registering the File Server

To register a file server, follow these steps:

1. Click the **File Server** link on the Storage page. The Register File Server: General page appears.

Figure 5–20 Register File Server: General

The screenshot shows the 'Register File Server: General' configuration page. At the top, there are tabs for 'General' and 'Admin and Refresh Servers'. Below the tabs, the title 'Register File Server : General' is displayed, followed by a progress indicator 'Step 1 of 2' and buttons for 'Back', 'Next', and 'Cancel'. The form contains several input fields: 'Name' (required, marked with an asterisk), 'Description', 'Plugin Name' (a dropdown menu currently showing 'Oracle Generic Network File Sys'), 'Admin Host', 'Admin Username', 'Admin Password', 'Access Host', and 'Uniform Exports' (a checkbox that is checked). The 'Access Information' section is partially visible below the 'Access Host' field.

2. Enter the following details:
 - **Name:** Name by which the storage server is to be identified.
 - **Plugin Name:** The Oracle VM Manager communicates with the external storage through a set of plug-ins. Generic plug-ins offer a limited set of standard storage operations on virtually all storage hardware, such as discovering and operating on existing storage resources. Vendor-specific plug-ins include a much larger set of operations (snapshot, clone, and so on).
 - **Admin Host:** Host name of the Administration Server.
 - **Admin Username and Password:** User name and password for the Administration Server.
 - **Access Host:** Host name or IP address of the server offering external storage.

- **Uniform Exports:** Select this check box to indicate that the NFS exports are uniform. This ensures that all the VM Servers in the server pool will have access to the same exports on the NFS server. If this check box is not selected, the NFS exports can be accessed only by specific servers that are used to refresh the NFS file systems.
3. Click **Next**. The Register File Server: Admin and Refresh Servers page appears. Enter the following:
 - **Admin Servers:** VM Servers that have the required Storage Plugin installed and are responsible for information exchange with the Admin Host of the Storage Server are referred to as Admin Servers. Click Add to add one or more Admin Servers.
 - **Refresh Servers:** If you have not selected the Uniform Exports checkbox in the Register File Server: General page, click Add to specify the list of Refresh servers that will be used to refresh the NFS file systems.
 4. Click **Finish** to add the file server. The new server appears in the table. At this point, the Storage Connect plugin has established a link to the storage location. No storage has been mounted yet.
 5. Click **Discover** to start the discovery operation of the file systems available on the server. When the operation is complete, the available file systems appear in the File Systems tab in the Storage Details page.

5.9.2 Registering the Storage Array

To register a storage array, follow these steps:

1. Click the **Storage Array** link on the Storage page. The Register Storage Array: General page appears.

Figure 5–21 Register Storage Array: General

The screenshot shows the 'Register Storage Array: General' page. At the top, there are tabs for 'General', 'Access Information', and 'Admin Servers'. Below the tabs, the title 'Register Storage Array : General' is displayed. On the right side, there are navigation buttons: 'Back', 'Step 1 of 3', 'Next', and 'Cancel'. The main form area contains the following fields:

- Name:** A text input field with a red asterisk indicating it is required.
- Description:** A larger text area for additional information.
- Storage Type:** A dropdown menu currently set to 'Fibre Channel Storage Array'.
- Plugin Name:** A dropdown menu currently set to 'Oracle Generic SCSI Plugin(1.1.0)'.
- Plugin Private Data:** A text input field.
- Admin Host:** A text input field.
- Admin Username:** A text input field.
- Admin Password:** A text input field.

2. Enter the following details:
 - **Name:** Name by which the storage server is to be identified.
 - **Storage Type:** Select the type of storage array that can be defined. A storage array is additional network provided storage that can be specifically used to store virtual disks for virtual machines. You can define 2 types of storage arrays:
 - **Fibre Channel Storage Array:** A Fiber Channel SAN target configured or discovered on the Oracle VM Server.

- **iSCSI Storage Array:** An iSCSI target configured or discovered on the Oracle VM Server.
- **Plugin Name:** The Oracle VM Manager communicates with the external storage through a set of plug-ins. Generic plug-ins offer a limited set of standard storage operations on virtually all storage hardware, such as discovering and operating on existing storage resources. Vendor-specific plug-ins include a much larger set of operations (snapshot, clone, and so on).
- **Plugin Private Data:** Any vendor-specific storage plug-in data that may be required. This is not available to generic storage.

Note: When registering a vendor-specific storage array, be sure to double-check the information you entered in the plug-in private data field. Once the storage array is registered, this field can no longer be modified. If you need to update the plug-in private data, you must unregister and re-register the storage array.

- **Admin Host:** Host name of the Administration Server.
 - **Admin Username and Password:** User name and password for the Administration Server.
3. Click **Next**. The Register Storage Array: Access Information page appears.

Figure 5–22 Register Storage Array: Access Information

General Access Information Admin Servers

Register Storage Array : Access Information

Back Step 2 of 3 Next Cancel

Access Host

* Access Host

* Access Port 3260

Access Username

Access Password

Use CHAP ☐

4. Enter the following details:
- **Access Host:** Host name or IP address of the server offering external storage.
 - **Access Port:** Port number used to access the storage.
 - **Access Username and Password:** User name and password for the Access Host.
 - **Use Chap (Applies to all Access Hosts):** Select this check box to enable Chap authentication.

Note: If you have selected the Storage Type as iSCSI Storage Array and Plugin Name as Oracle Generic SCSI Plugin (1.2.1 or above) in the Register Storage Array: General page, you can add multiple Access Hosts as shown in [Figure 5–23](#).

Figure 5–23 Register Storage Array (Multiple)

OVM: Register Storage Array

General Access Information Admin Servers

Register Storage Array : Access Information

Back Step 2 of 3 Next Cancel

Access Host

View Add Edit... Delete...

Access Host	Access Port	Access Username
	3260	

Use Chap (Applies to all Access Hosts) ☐

5. Click **Next**. The Register Storage Array: Admin Servers page appears. Click **Add** to add one or more Administration Servers on which the storage plug-in has been installed. The Administration Server is responsible for information exchange with the Administration Host of the storage server.
6. Click **Finish** to add the storage array. The new server appears in the table. At this point, the Storage Connect plugin has established a link to the storage location. No storage has been mounted yet.
7. Click **Discover** to start the discovery operation of the file systems available on the server. When the operation is complete, the available file systems appear in the General tab of the Storage Details page.

5.9.3 File Server Details

Click a File Server link to view the Details page. This page contains the following tabs:

- **General:** A list of Administration Servers is displayed. An Administration Server is a virtual server on which the storage plug-in has been installed. You can add an Administration Server or delete an existing one.

In the Configuration region, the storage server details are displayed. Click **Edit** to modify details such as Name, Description, and the name of the Access Host which provides the external storage.

In the Storage QOS Mapping region, map the storage type defined by the Cloud Administrator to the QOS defined by the Storage Server.

- **Refresh Servers:** For non-uniform NFS file system exports, you can specify the servers that need to be refreshed. Click **Add**. The Refresh Servers dialog box is displayed. Click **Select Servers**, choose one or more servers from the list and click **Select**. Click **OK** to refresh the servers.
- **File Systems:** A list of file systems is displayed. You can do the following:
 - Select a file system from the list and click **Edit**. You can modify the name and description of the file system.
 - Select a file system and click **Delete**. A confirmation message is displayed. Click **OK** to delete the file system.
 - Select one or more file systems and click **Refresh**. A confirmation message is displayed. Click **OK** to refresh the file system.
- **Access Groups:** Shows the mapping between Refresh Servers and File Systems (Exports). You can Create, Edit, or Delete an Access Group.

5.9.4 Storage Array Details

Click a Storage Array link to view the Details page. This page has four tabs:

- **General:** Provides general information on the storage array. A list of administration servers is displayed in the Administration region. An Administration Server is a virtual server on which the storage plug-in has been installed. You can add an Administration Server or delete an existing one.

In the Configuration region, the storage server details are displayed. Click Edit to modify the Name and Description.
- **Physical Disks:** Displays a list of all the physical disks on the storage array. Depending on the type of storage connector (You can Create, Clone, Edit, Resize (resize or extend the physical disk), Rescan (refreshes the physical disk), Delete, and Create File System (create OCFS2 file system on the physical disk).

Note: The operation allowed depends on the type of storage connect plug-in that has been installed. For example, if the generic storage connect plug-in has been installed, you cannot perform a Create operation on the physical disks.

- **Access Group:** Shows the mapping between Storage Initiators and Physical Disks. You can Create, Edit, Present / Unpresent Access Group (Add or Delete physical disk), and Delete access group.
- **Volume Group:** Displays the volume group available for this storage server.

5.9.5 Local File Server Details

Click on a Local File Server Servers link to view the Details page. This page contains the following tabs:

- **General:** The configuration details of the selected Local File Server including the Administration Host, Plug-in Name, and so on are displayed.
- **File Systems:** You can edit or refresh a file system in the list. Select a file system from the list and click **Edit**. You can modify the name and description of the file system.

To refresh, select a file system from the list and click **Refresh**. Select the name of the virtual server and click **OK** to refresh the file system.

5.10 Creating a Storage Repository

A storage repository is virtual disk space on top of physical storage hardware, made available to the Oracle VM Servers in a server pool or various server pools. It defines where Oracle VM resources may reside. Resources include virtual machines, templates for virtual machine creation, virtual machine assemblies, ISO images, shared virtual disks, and so on.

After you have created the storage server, you can assign these storage resources to the server pools in a zone by creating a storage repository.

To create a storage repository, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.

- Right click on an OVM Manager target in the left panel and select **Manage Storage Repository**.

Figure 5–24 Storage Repository

VM Manager Page Refreshed Jan 11, 2013 6:17:02 PM PST

Storage Repository

View Create... Import Edit... Delete Auto-Refresh

Name	Owned	File System	File System Size	File System Size Used (%)	Disk	Share Path	Storage Server	Description
leichRepos3	Yes	5,609,545	700	20			leichFS	
thin_supported_Rep3	Yes	700	0				Local FS	
thin_supported_Rep3	Yes	700	0				Local FS	

- The list of storage repositories that have been defined appears. Click **Create** to create a storage repository.
- In the pop-up window, enter the name of the storage repository.

Figure 5–25 Create Storage Repository

Create Repository

* Name

Storage Type ☒ Network File System ☐ Physical Disk

* Location

Share Path

Description

OK Cancel

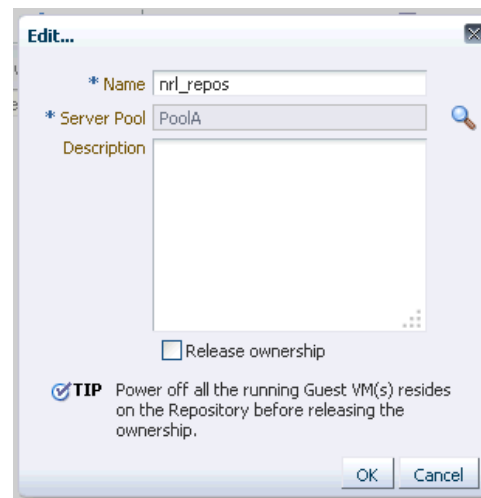
- Click the **Search** icon in the Disk field to select the Storage Server and File System on which the storage repository is to be created and click **OK**.

If you select the NFS File System, you must select the location of the storage server and a virtual server. You can optionally specify the Share Path and a description. The storage repository has now been created and will be displayed in the Storage Repositories page.

5.10.1 Performing Administrative Operations on a Storage Repository

After the storage repository has been created, you can perform a number of management operations on it. The listing of storage repositories depends on the server pool selection. If you select server pools, you see all the storage repositories. If you select an individual server pool, only the storage repositories related to that server pool appear. You can perform the following operations:

- Edit:** Select a repository and click **Edit**. You can modify the name and description or release the ownership of the repository. Click **OK** to save the changes.

Figure 5–26 Edit Storage Repository

Note: If you are editing a storage repository that has been created on a physical disk, you can change the server pool with which the storage repository is associated. To change the server pool, in the Edit dialog box, click the **Search** icon next to the Server Pool field, select a different server pool and click **OK**.

- **Delete:** Select a repository and click **Delete**. All the contents of the selected repository along with its associations will be deleted.
- **Auto-Refresh:** Select this option to enable Auto-Refresh and periodically refresh and update the file system size of all storage repositories. In the dialog box that appears, select the **Enable** check box and specify the Interval at which the file system size is to be refreshed.

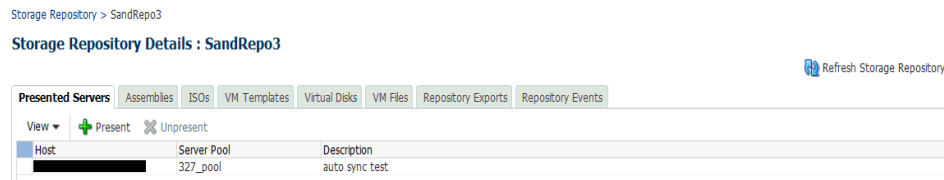
Note: As the Auto-Refresh option locks the repositories, you must use this option when no deployment operations are scheduled.

5.11 Presenting the Storage Repository

After you have created the storage repository, you can propagate it to one or more server pools. When the storage repository is prepared and created, it still must be made available for use by your virtual servers before it can be used. Typically you present the storage repository to all the virtual servers in the server pool.

To present a storage repository to server pool, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target from the left panel and select **Manage Storage Repository**.
3. In the Storage Repository page, select a storage repository from the list. The list of server pools on which the storage repositories have been propagated appears.

Figure 5–27 Presented Servers

4. Select one or more server pools from the list and click **Present**. In the Present Servers dialog box, click the **Select Servers** icon. The list of members appears in the Select Targets dialog box. Expand the Members in this dialog box and check the boxes for zones, pools, or individual virtual servers and click **Select** to return to the previous dialog box. Click **Present** to mount the member on the server.

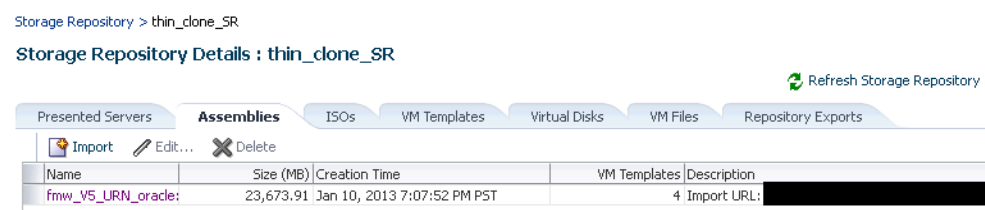
5.12 Importing Assemblies, Templates, and Virtual Disks into the Storage Repository

A storage repository associated with an Oracle VM server stores binary components associated with an Oracle VM servers. The following software components can be stored in the storage repository:

- Oracle VM Templates
- Oracle Virtual Assemblies
- ISOs
- Virtual Disks
- VM Files

The Oracle Virtual Assemblies, Oracle VM Templates and ISO images need to be imported into the storage repository before guest virtual machines can be created using them. Follow these steps to import software components into the storage repository:


1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target in the left panel and select **Manage Storage Repository**.
3. Click on a Repository Name link. The Storage Repository Details page shows the list of server pools on which the selected storage repository has been propagated.
4. Click the **Assemblies** tab. An assembly can be imported as a single .ova file.





Figure 5–28 Storage Repository - Assemblies

- Click **Import**. You can import the assembly from the Software Library or from an external source. If you select:
 - **Software Library**: The list of assemblies present in the Software Library are displayed. Select the assemblies to be imported and click **OK**. After the assembly has been imported, a series of templates is created. This option unpacks the contents of the assembly, for example, configuration files, disk images, and so on.
 - **External**: Specify a external URL from which the assembly is to be imported and click **OK**. The URL you specify must be accessible from the OVS Host on which the repository is presented.
- 5. Click on the **ISOs** tab to import the ISO images. Virtual machines have no access to the physical DVD or CD-ROM drive. You can assign virtual drives to virtual machines by offering .iso files containing the image of a DVD or CD-ROM. These image files can be found in the ISOs tab of the storage repository.
 - Click **Import**. You can import the ISO image from the Software Library or from an external source. If you select:
 - **Software Library**: The list of ISO images present in the Software Library are displayed. Select the ISO images to be imported and click **OK**. Select the ISO image that has been imported and click **Assign** to assign this template to a server pool.
 - **External**: Specify a valid external URL from which the ISO image is to be imported and click **OK**. The URL you specify must be accessible from the OVS Host on which the repository is presented.
- 6. Click the **VM Templates** tab. Templates contain the configuration of a single virtual machine. When you create a new virtual machine, you choose to either create it from scratch or from a template. In a storage repository, templates are typically imported as an archive (.tgz, .tar or other). The archive contains a .cfg file with the virtual machine configuration, and at least one .img file which is a virtual disk image.

Figure 5–29 Storage Repository - VM Templates

Storage Repository Details : thin_clone_SR

 Refresh Storage Repository

Presented Servers Assemblies ISOs VM Templates Virtual Disks VM Files Repository Exports					
 Import  Clone  Edit...  Delete					
Name	Size (MB)	Creation Time	Parent Assembly	Description	
fmw_V5_URN_oracle:defaultService:em:provisioning:1:ci	12,231.00	Jan 10, 2013 7:12:14 PM PST	fmw_V5_URN_oracle:Type: coherer		
fmw_V5_URN_oracle:defaultService:em:provisioning:1:ci	12,231.00	Jan 10, 2013 7:16:16 PM PST	fmw_V5_URN_oracle:Type: wls Cat		
fmw_V5_URN_oracle:defaultService:em:provisioning:1:ci	12,231.00	Jan 10, 2013 7:22:37 PM PST	fmw_V5_URN_oracle:Type: wls Cat		
fmw_V5_URN_oracle:defaultService:em:provisioning:1:ci	11,902.00	Jan 10, 2013 7:27:42 PM PST	fmw_V5_URN_oracle:Type: ohs Cat		

- Click **Import**. You can import the VM Template from the Software Library or from an external source. If you select:
 - **Software Library**: The list of VM Templates present in the Software Library are displayed. Select the VM Template to be imported and click **OK**. After the template has been imported, select the template and click **Assign** to assign this template to a server pool.

- **External:** Specify a valid external URL from which the VM template is to be imported and click **OK**. The URL you specify must be accessible from the OVS Host on which the repository is presented.

7. Click on the **Virtual Disks** tab.

Figure 5–30 Storage Repository - Virtual Disks

Storage Repository > thin_clone_SR

Storage Repository Details : thin_clone_SR

Refresh Storage Repository

Name	Used (MB)	Max (MB)	Fragmentation %	Creation Time
hBFyc9Um4ntrQA2_System	5,123.00	5,122.29	0	Jan 10, 2013 7:16:12 PM PST
AB	228.00	227.48	0	Jan 10, 2013 7:16:12 PM PST
hBFyc9Um4ntrQA2_sys-JavaHome	369.00	368.68	0	Jan 10, 2013 7:16:12 PM PST
hBFyc9Um4ntrQA2_usr-MiddlewareHome	6,511.00	6,510.72	0	Jan 10, 2013 7:16:12 PM PST
hBFyc9Um4ntrQA2_System	5,123.00	5,122.29	0	Jan 10, 2013 7:22:33 PM PST
AB	228.00	227.48	0	Jan 10, 2013 7:22:33 PM PST
hBFyc9Um4ntrQA2_sys-JavaHome	369.00	368.68	0	Jan 10, 2013 7:22:33 PM PST
hBFyc9Um4ntrQA2_usr-MiddlewareHome	6,511.00	6,510.72	0	Jan 10, 2013 7:22:33 PM PST
hBFyc9Um4ntrQA2_System	5,123.00	5,122.29	0	Jan 10, 2013 7:27:37 PM PST
AB	228.00	227.48	0	Jan 10, 2013 7:27:37 PM PST
hBFyc9Um4ntrQA2_sys-JavaHome	369.00	368.68	0	Jan 10, 2013 7:27:37 PM PST
hBFyc9Um4ntrQA2_usr-MiddlewareHome	6,511.00	6,510.72	0	Jan 10, 2013 7:27:37 PM PST
opPlrP5m4ntrQA2_System	5,123.00	5,122.29	0	Jan 10, 2013 7:33:34 PM PST
AB	228.00	227.48	0	Jan 10, 2013 7:33:34 PM PST
opPlrP5m4ntrQA2_sys-ORACLE_INSTANCE	40.00	39.22	0	Jan 10, 2013 7:33:34 PM PST
opPlrP5m4ntrQA2_sys-fmwHome	6,511.00	6,510.72	0	Jan 10, 2013 7:33:34 PM PST
ikoCreated	0.00	953.67	0	Jan 10, 2013 10:21:58 PM PST
hBFyc9Um4ntrQA2_sys-JavaHome (2)	369.00	368.68	0	Jan 10, 2013 11:26:32 PM PST

- Click **Create** and size of virtual disk to be created.
- Indicate if this is a shared disk by checking the **Shared** check box.
- Click **Import**. You can import the virtual disk from the Software Library or an external source. If you select:
 - **Software Library:** The list of virtual disks present in the Software Library are displayed. Select the virtual disks to be imported and click **OK**. Select the virtual disk has been imported, click **Assign** to assign this template to a server pool.
 - **External:** Specify a valid external URL from which the virtual disk is to be imported and click **OK**. The URL you specify must be accessible from the OVS Host on which the repository is presented. If you reference the virtual disk using `http://` or `ftp://` protocols, you must include `user/pw` in the reference.

For example, you must specify the URL as
`http://user:pw@host/virtualdisk_file_image_file` or
`ftp://user:pw@host/virtual_disk_image_file`. If the virtual disk is accessible by way of NFS, you can also specify
`file:///net/host/virtual_disk_image_file` if the OVS is enabled for NFS automount.

8. Click **Return** to return to the Storage Repository page.

5.12.1 Creating a Repository Export (Optional)

You can configure the virtual server to enable third party applications to back up the contents of the storage repository.

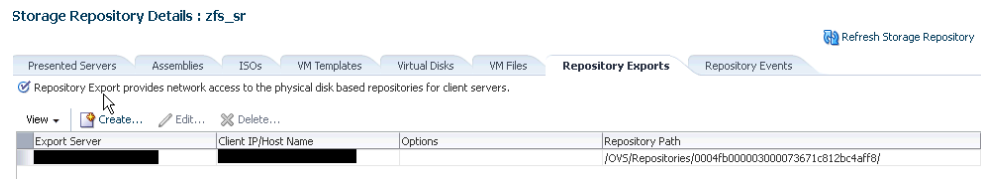
Prerequisites

- The Repository Exports feature is available only for storage repositories based on physical disks and at least one server must have been presented to the repository.
- The virtual server must be configured to provide an NFS share to access the contents of the repository.
- The virtual server must be in a clustered server pool and have the OCFS2-based storage repository presented to it.

To create a repository export, follow these steps:

1. Click the **Repository Exports** tab in the Storage Repository Details page.
2. Click **Create**. The Create Repository Export window appears.

Figure 5–31 Storage Repository - Repository Exports



3. Enter a name of the host which is used to mount the contents of the storage repository to the Export Server.
4. Specify the options to restrict access to the repository. For Linux systems, the default is `rw, async, no_root_squash`.
5. Click **Add** in the Export Server(s) region. Select one or more virtual servers on which the storage repository is to be presented and click **Select**.
6. Click **OK** to submit the job and return to the Storage Repository Details page.

5.13 Using Self Update to Download Oracle VM Templates and Virtual Assemblies

You can download the preconfigured assemblies and templates from the Self Update Console by following these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Setup** menu, select **Extensibility** and then select **Self Update**. The Self Update Console with the list of entity types that can be downloaded appears.

Figure 5–32 Self Update Console

Self Update Page Refreshed Jan 25, 2012 11:44:23 AM PST

Oracle periodically provides new functionality and updates for existing features in Enterprise Manager. The Self Update home allows administrators to receive notifications and view, download, and apply such updates. While these updates are retrieved automatically, a manual check can be made at any time.

Status Informational Updates

Connection Mode: **Online** Last Download Time: Jan 15, 2012 9:30:53 PM PST Last Apply Time: Jan 15
 Most Recent Refresh Time: ✔ Jan 25, 2012 10:25:31 AM PST Last Download Type: Plug-in Last Apply Type: Plug-in

Actions: Open Check Updates Agent Software

Type	Available Updates	Downloaded Updates	Applied Updates	Description
Agent Software	5	0	0	2 Agent software has to be installed on hosts for managing the host.
Compliance Content	0	0	0	0 Compliance Content contains Framework, Standard, Rules with support of add and delete on these entities.
Diagnostic Checks	0	0	0	0 Target side policy checks that identify conditions that may require the attention of target administrators.
EM Deployment Prerequisite Resources	0	0	0	0 EM Deployment Pre-requisite Checks are the metadata used for checking prerequisites for Install, Upgrade, Patching of EM Platform and Plugins.
Exadata Configuration Template	0	0	0	0 Configuration Templates for Oracle Exadata Database Machines
Management Connector	1	0	0	1 Management Connectors are components that integrate different enterprise frameworks into the Enterprise Manager Console
Middleware Profiles and Gold Images	0	0	0	0 A collection of Software Components used for provisioning of Oracle Application Server homes.
Oracle Database Provisioning Profiles	0	0	0	0 A collection of Software Components used for provisioning of Oracle Database, Clusterware and Grid Infrastructure homes.
Oracle VM Templates and Oracle Virtual Assemblies	0	0	0	0 Preinstalled and preconfigured software packages to deploy Oracle Guest VM Plug-in extends Enterprise Manager to manage newer target type as well as to bring

Past Activities: Agent Software

Actions	Status	OS Platform	Version	Administrator	Start Time	Elapsed Time(Sec)
Apply	Succeeded	Linux x86-64	12.1.0.1.0	SYSMAN		0.23

3. Select the Oracle VM Templates and Oracle Virtual Assemblies folder and click **Open**. The Oracle VM Templates and Oracle Virtual Assemblies Updates page appears.
4. Select an update and click **Download**. The Schedule Download dialog appears.
5. Specify if the update is to be downloaded immediately or at a later date.
6. Click **Select**. An Enterprise Manager job is created to download the update to the Software Library. Enterprise Manager starts downloading the archive from the Oracle Enterprise Manager store. Wait for the download to complete. (When in offline mode the system starts reading from the specified location.) When the download is complete, the status indicates that the update has been downloaded.
7. Click **Apply**. A job is submitted to apply the update. The downloaded plug-in is applied and appears on the Oracle VM Templates and Oracle Virtual Assemblies Updates page.

5.14 Creating a Virtual Server Pool

This section guides you through the ways of designing a server pool to meet your requirements.

Before creating a server pool, you need to consider how many physical servers will be contained in the server pool, and what functions each physical server will perform. The more virtual machines you will run in the server pool, the more resources these virtual machines will consume, therefore the more physical servers are needed to provide sufficient resources for the server pool.

A server pool is scalable. If you find a server pool does not have sufficient resources, such as CPU and memory, to run the virtual machines and the applications inside, you can expand the server pool by adding more Oracle virtual servers.

A virtual server pool contains one or more virtual servers and guest virtual machines. A virtual server can belong to one and only one virtual server pool at a time. Guest virtual machines and resources are also associated with the server pools.

Prerequisites

- A non-clustered virtual server pool can contain a maximum of 64 Oracle VM servers and a clustered virtual server pool can contain a maximum of 32 Oracle VM servers.
- Virtual servers that can be deployed as the Master Server, the Utility Server, and/or the Guest Virtual Machine. At least one virtual server is required in a server pool.
- All virtual servers in a server pool should have CPUs in the same CPU family. If they are not in the same CPU family, some operations such as live migration may fail. Though the CPUs should be in the same CPU family, they may have differing configurations, such as different number of cores. Other hardware components on the host computer may also differ, such as the amount of RAM, the number and size of disk drives, and so on.

Note: Although the host computers may have differing configurations, Oracle recommends that all virtual servers in a server pool are identical.

- A dedicated file system (either a NAS export, or a LUN) to use as the server pool file system is available.
- IP addresses for the virtual servers must be available. The IP address to be used as the Master Server's virtual IP address must be an unused and available IP address.
- To create a virtual server pool, you must be logged in as an **Administrator** with **Add Any Target** privilege.
- To delete a virtual server pool, you must have **Full** privilege on the server pool and appropriate privileges on the virtual servers and guest virtual machines belonging to the virtual server pool.

To create a virtual server pool:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target in the left panel and select **Create Virtual Server Pool**.

Figure 5–33 Create Virtual Server Pool

VM Manager Page Refreshed Jan 11, 2013 8:17:09 PM PST

Create Virtual Server Pool

OK Cancel

* Virtual Server Pool Name

Description

Keymap en-us (English, United States)

VM Start Policy Start on Best Server

Secure VM Migrate ☐

Activate Cluster ☒

Cluster Timeout (sec) 120

Type of Pool File System ☒ Network File System ☐ Physical Disk

* Location

☒ **TIP** File System must be refreshed before they can be used.

* Virtual IP

☒ **TIP** Virtual IP should be an unused IP

Virtual Servers

+ Add... - Remove

Name
No Virtual Server Added

Concepts

- Secure VM Migrate: Select whether to enable encrypted migration of virtual machines. When Secure VM Migrate is checked, virtual machines are migrated using SSL to protect the data during the migration process.
- Activate Cluster: Select whether to enable clustering of the Oracle VM Servers in the server pool to enable HA.
- Cluster Timeout: When enable Activate Cluster, allow to set the timeout in seconds for cluster. Disk heartbeat and network heartbeat are derived from the cluster timeout value.
- Pool File System: The server pool file system is used to hold the server pool and cluster data, and is also used for cluster heartbeat. The size of Pool File System should be at least 12GB.
- For Clustered ServerPool, if you are using Network File System as Pool File System, Admin Server must be set for the Storage Server which exposes the Network File System. The Network File System should be refreshed before it can be used as Pool File System.
- The Pool File System(NFS or Physical Disk) should be accessible on all the virtual servers in the ServerPool.
- Virtual IP: An IP address used to identify the master Oracle VM Server, which controls the other Oracle VM Server in the server pool.

3. Enter the server pool information:

- **Virtual Server Pool Name:** The name of the server pool. A server pool name must consist of alphanumeric characters, and must not contain spaces or special characters, except the underscore (_) or hyphen (-) characters. The maximum length of a server pool name is 200 characters.
- **Description:** A description of the server pool.
- **Keymap:** Specify the keyboard type for the guest virtual machines created in this server pool.
- **VM Start Policy:** Select the policy to be used to start the virtual machines. You can choose:
 - **Start on Best Server:** The best server in the server pool is used to start the virtual machine.
 - **Start on Current Server:** The virtual machine will be started on the same server on which it was created.
- **Secure VM Migrate:** Specify whether encrypted migration of virtual machines is to be enabled. If this checkbox is selected, virtual machines are migrated using SSL to protect data during the migration process.
- **Activate Cluster:** Select this check box to enable high availability on the server pool.
- **Cluster Timeout:** If the Activate Cluster is enabled, you can set the cluster timeout period in seconds. The disk heartbeat and network heartbeat are derived from the cluster timeout value.
- **Type of Pool File System:** Select the pool file system to use for the server pool. The pool file system is used to hold the server pool, cluster data, and is also used for the cluster heartbeat.

The type can either be Network File System or Physical Disk. If you are using a file server for the server pool, select Network File System. If you are using a physical disk on a storage array for the server pool, select the type as Physical Disk.

- **Location:** Click the **Search** icon to search for and select the pool file system. This must be accessible by all virtual servers in the server pool.
 - **Virtual IP:** An IP address used to locate the Master Server in the server pool. If the Master Server changes to another Oracle VM Server, this IP address is then assigned to the new host.
4. Click **Add** in the Virtual Servers section. Select one or more virtual servers from the Search window and click **OK**.

Note: Before you add a virtual server to the server pool, it must have been discovered. See [Section 5.5, "Discovering a Virtual Server"](#) for details.

5. Click **OK** to create a virtual server pool.

5.14.1 Editing a Virtual Server Pool

You can edit the configuration information of a virtual server pool, including the description, key map, start policy, and so on. You can also change the master server, which controls the cluster, as well as whether the virtual machines are migrated securely. You cannot change the Virtual IP or the Pool File System used for the server pool. To edit a virtual server pool, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. From the left panel, select the virtual server pool target that you want to edit.
3. From the **VM Server Pool** menu, select **Target Setup**, then select **Edit VM Server Pool**. The Edit Virtual Server Pool page appears.
4. You can also edit the following fields:
 - **Keymap:** The keyboard type for the guest virtual machines created in this server pool.
 - **VM Start Policy:** The policy to be used to start the virtual machines. You can choose to start on the current server or on the best server.
 - **Secure VM Migrate:** Indicates whether encrypted migration of virtual machines is to be enabled. If this checkbox is selected, virtual machines are migrated using SSL to protect data during the migration process.
5. In the Virtual Servers region, you can add or remove virtual servers.
6. Click **Change Agent Password** to change the password for the Management Agent running on the Master Server. The modified password will applied to the Management Agents running on all virtual servers in the server pool.

Note: Before you add a virtual server to the server pool, it must have been discovered. See [Section 5.5, "Discovering a Virtual Server"](#) for details.

7. You can **Add**, **Edit**, or **Delete** Anti-Affinity Groups. Anti-affinity groups specify that a group of virtual machines cannot run on the same server. In the Add Anti-Affinity Group window, enter a name for the group and select one or more

virtual machines that should be part of this group. The virtual machines that are part of this group cannot run on the same server.

8. Click **OK** to apply the changes to the virtual server pool.

5.15 Creating a Zone

A zone is used to group related cloud resources together. Cloud zones can be created based on location, software lifecycle status, for grouping resources according to a cost center or for metering and chargeback purposes. Typically, a zone can cover a department or possibly a small data center. The cloud environment can comprise of one or more zones. Each zone has a set of metrics that show the aggregate utilization of the zone.

Prerequisites

- To create a zone, you must be logged in as an Administrator with Add Any Target privilege.
- To remove a zone, you must have Operator / Full privilege on the zone.

Follow these steps to create a zone:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click the OVM Manager target for which the zone is to be created in the left panel and select **Create Zone**.

Figure 5–34 Create Zone

3. In the Create Zone page, specify the zone name and description.
4. Indicate if this zone will be used by the self service users by checking the **Infrastructure Cloud Self Service Zone** check box.
5. Click **Add** in the Virtual Server Pool section to add one or more virtual server pools. See [Section 5.14, "Creating a Virtual Server Pool"](#) for details. You can add the virtual server pools for which you have the privileges and that are not part of any other zone.
6. Click **OK**. The virtual server pools and the storage arrays appears in the newly created zone on the Home page.

5.16 Setting Up the Storage Quality of Service (QoS)

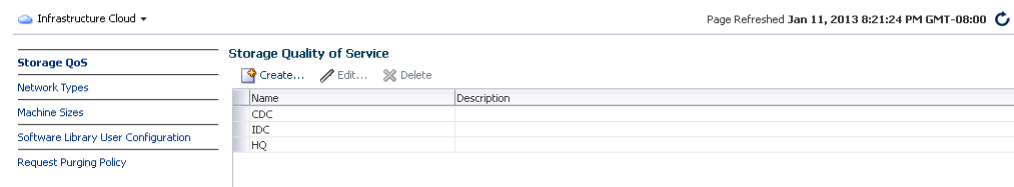
Storage QoS refers to quality of service that is defined at the storage server level. Setting up the storage QoS involves defining various storage properties. Before deploying a guest virtual machine, you can define the storage QoS, map this QoS to a storage server, and specify this QoS while deploying a guest virtual machine.

This involves defining the machine size, network type, and the storage QoS. After you have set up the storage QoS, you can set up the storage servers, network repositories, and storage arrays. This storage QoS can then be used during deployment of guest virtual machines.

To define the storage QoS, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on the **Infrastructure Cloud** menu in the left panel and select **Setup**.

Figure 5–35 Storage Quality of Service



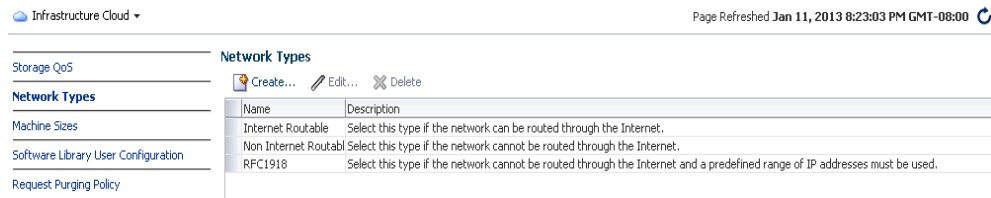
3. Click **Create** in the Storage Quality of Service page.
4. In the pop-up window, specify the name and description of the storage QoS and click **OK**. The newly added storage QOS appears on the Storage Quality of Service page.
5. Navigate to the OVM Manager Home page and select **Storage** from the **OVIM Manager** menu.
6. Click the **Storage** link under File Servers. In the General tab, scroll down to the Storage QOS Mapping region.
7. Click **Edit**. The Storage QOS Mapping window appears. Click **Add** and select that you had created earlier. The Storage QOS you have added appears in the Storage QOS Mapping table.
8. To see how this mapping is used when you deploy an assembly, navigate to the Home page of a Zone under the OVM Manager. From the **Zone** menu, select **Deploy**, then select **Assembly**.
9. In the Deployment Configuration page, click **Override** in the Disk section and select the Storage QOS you have created. This storage QOS will be used for deploying the assembly.

5.16.1 Setting Up the Network Type

You can define the QoS for network by defining some network types like routable, internet-facing, and so on. After the network QoS has been defined, you can map this to any network that is being created. You can then use this network type while deploying a guest virtual machine.

To define the network QoS, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select **Setup** from the **Infrastructure Cloud** menu.
3. Click the **Network Types** link on the Infrastructure Cloud page.

Figure 5–36 Network Types

4. Click **Create** in the Network Types page.
5. Enter a name and description of the network type and click **OK**.

5.16.2 Setting Up the Machine Sizes

You can define the machine size that will be available to the SSA users and during deployment. To define the machine size, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on the **Infrastructure Cloud** menu in the left panel and select **Setup**.
3. Click the **Machine Sizes** link on the Infrastructure Cloud page.
4. Click **Add Machine Size**.
5. Enter the name (internal name of the machine size), description, number of VCPUs, amount of memory and local storage assigned to machines of this size. Click **Save** to add this machine size.

5.16.3 Configuring the Software Library User

While setting up the storage repository, you can import VM Templates, Assemblies, and other software components into the storage repository. To configure the software library user who has the privileges to perform these tasks, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on the **Infrastructure Cloud** menu and select **Setup**.
3. Click the **Software Library User Configuration** link on the Infrastructure Cloud page.
4. Enter the password for the Cloud Software Library user who is allowed to import components from the Software Library. This password must be specified when the user accesses the Software Library and download the required components.

5.16.4 Configuring the Software Library User with External Management Agent

If the Management Agent is running on a remote machine, when importing the virtualization components, you must ensure that:

- The Software Library user must have Execute command privileges on the remote host.
- If Named Credentials are required to access the Management Agent on the remote host, the Software Library user must have View privileges while creating the Reference File locations for the Agent Storage Type.

To set up View privileges, follow these steps:

1. From the **Setup** menu, select **Security**, then select **Named Credentials**.
2. Select the Named Credentials to be used while creating the Software Library Reference Location of Storage Type: Agent.
3. Click **Add Grant**. Select the `CLOUD_SWLIB_USER` and click **Save**.

To set up Execute privileges on the remote host, follow these steps:

1. From the **Setup** menu, select **Security**, then select **Administrators**.
2. Select the `CLOUD_SWLIB_USER` and click **Edit**.
3. Navigate to the Target Privileges step. In the Target Privileges section, click **Add** and select the host target on which the Management Agent is running. The host target is added to the table.
4. Select the host target added in the Step 3 and click the **Edit** icon in the Manage Privilege Grants column. Select **Execute Command** in addition to the already existing View option and click **Continue**.
5. Click **Save** to save this configuration.

5.16.5 Defining the Request Purging Policy

All deployment requests can be retained for a certain period and then purged. To specify the number of days for which the requests should be available, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on the **Infrastructure Cloud** menu and select **Setup**.
3. Click the **Request Archiving Policy** link on the Infrastructure Cloud page.
4. Select the **Enable Archiving** check box, specify the Archiving Duration, and click **Apply**. The requests will be archived for the specified period and will then be purged.

5.17 Patching the Oracle VM Server

Oracle provides a publicly available YUM repository which includes repositories for Oracle VM. These repositories include the full releases of Oracle VM and mirror those releases on the Oracle VM DVDs/ISOs. The Oracle VM Server must be patched to ensure that the latest software updates and enhancements are applied. Patching the Oracle VM Server involves the following:

- Configuring the YUM Repository
- Upgrading the Virtual Server

5.17.1 Configuring the YUM Repository

You can configure the YUM repository that is to be used to upgrade the virtual server. The configured YUM repository can be used for to upgrade all discovered virtual servers.

Prerequisites

- The YUM repository being configured must be present at a *http* location. You can configure an internal or public YUM repository.

To configure the YUM repository, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on an OVM Manager target in the left panel, then select **Manage YUM Repository**.
3. Enter the following details in the YUM Repository page:
 - **Name:** Name of the YUM repository.
 - **YUM Base URL:** HURL for the YUM repository.
 - **Enable GPG Key:** Select this check box if you want to enable the GPG key. The GPG key checks the validity of the YUM repository and packages downloaded from the repository.
 - **YUM GPG Key:** If the Enable GPG Key field has been checked, specify the YUM GPG Key here.
4. Click **OK**. The YUM repository will be configured for the Oracle VM Manager.

5.17.2 Upgrading the Virtual Server

After you have configured the YUM repository, you must upgrade the virtual server to ensure that it has the latest updates. The virtual server being upgraded must be in maintenance mode. To upgrade the virtual server, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a VM Server in the left panel and select **Upgrade**.

Note: The Upgrade button is disabled if the Oracle VM Manager version is 3.3.x and the Oracle Virtual Server version is less than 3.3.1.

3. A confirmation message appears. Click **OK** to proceed with the upgrade. After the virtual server has been upgraded, the virtual server will be restarted.

5.18 Acknowledging OVM Events

OVM events are generated for all operations performed on a server, server pool, storage, or network. The event can be Informational, Minor, or Critical. When a target is in an error state, a Critical event is generated. Targets with a Critical status cannot be used to perform any operations. The `EM_CLOUD_ADMINISTRATOR` can acknowledge such events as the associated targets cannot be used. To acknowledge an OVM event, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Click on a VM Server in the left panel to navigate to the VM Server Home page.
3. From the **VM Server** menu, select **OVM Events**. The list of unacknowledged events appears. Select an event from the list and click **Acknowledge** to acknowledge the event.

5.19 Managing the NTP Configuration

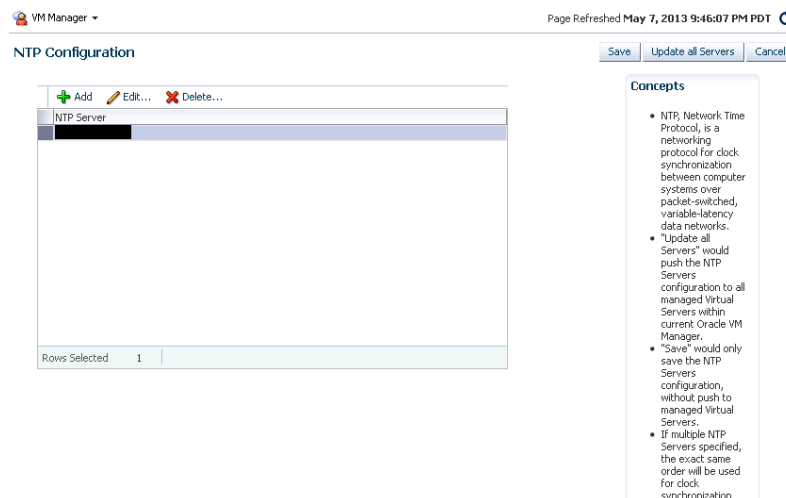
Note:

- This feature is available only with Oracle VM Manager 3.2.1 or later.
- The NTP Server to be added must already be configured to provide the NTP service.

Network Time Protocol (NTP) is a networking protocol that enables clock synchronization across all Oracle VM Servers managed by an Oracle VM Manager. By default, when an Oracle VM Server is discovered, it is configured to use the Oracle VM Manager host computer as the NTP time source. You can configure a custom list of NTP servers that will be used to synchronize the clock when an Oracle VM Server is discovered. To create a custom list of NTP servers, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**. The Infrastructure Cloud Home page appears.

Figure 5–37 NTP Configuration



2. Right click on an Oracle VM Manager target from the left panel and select **Manage NTP Configuration**.
3. To add an NTP server, click **Add**. In the Add NTP Server dialog box, enter the IP address or hostname of the NTP server in the IP Address/DNS Hostname field and click **OK**.

4. To edit an NTP server, select the server in the table and click **Edit**. In the Edit NTP Server dialog box, you are prompted for the name of the New NTP Server. Enter the IP address or hostname of the new NTP Server and click **OK**.
5. To delete an NTP server, select the server in the table and click **Delete**. A confirmation message is displayed. Click **OK** to delete the server or **Cancel** to cancel the operation.
6. To update the NTP server configuration on all Oracle VM Servers managed by the VM Manager, click **Update All Servers**. Any previous NTP configuration is overwritten.

Alternatively, you can save the NTP server configuration that you have added by clicking **Save**. This option saves the configuration but does not update the Oracle VM Servers. You can push the configuration to the VM Servers at a later date.

After any changes have been made the NTP server configuration, you must restart the VM Server for the changes to be effective.

Note: If multiple NTP configurations have been defined, the order in which have they have been defined will be used for clock synchronization.

5.20 Importing Virtual Machines

Note: This feature is available only with Oracle VM Manager 3.2.1 or later.

You can import a virtual machine into Oracle VM Manager from an external location. The imported virtual machine is placed under the VM Zone, VM Server Pool, or the VM Server you have selected. The virtual machine must be located on an FTP or web server, either as separate files, or compressed into a single archive file (for example, a .tgz or .zip file).

To import a virtual machine, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**. The Infrastructure Cloud Home page appears.
2. Right click on a VM Zone, VM Server Pool, or a VM Server target from the left panel and select **Import Virtual Machine**. The Import Virtual Machine: Select Target and Source page appears.

Figure 5–38 Import Virtual Machine: Select Target and Source

Select Target and Source | Instance Details | Schedule | Review

Import Virtual Machine : Select Target and Source

Back Step 1 of 4 Next Review Submit Cancel

Destination
Destination target on which the virtual machine to be imported.
Target: NON_CLUSTER_POOL
Target Type: Oracle VM Server Pool

Source
The URL of the virtual machine compress file. To import a virtual machine that is not compressed as a single file, enter each file in a new line.

Request Details
* Request Name: IMPORT_GVM_2013-05-08_11-06-45-917

3. The destination target on which the virtual machine is to be imported and the name of the target is displayed.
4. Enter the following details:
 - **Source:** Enter the URL of the archive (tgz or gzip) that is to be imported as a virtual machine. The URL can be in format HTTP, HTTPS, or FTP.
 - **Request Name:** Enter a name for the virtual machine import request.
5. Click **Next**. The Import Virtual Machine: Instance Details page appears.

Figure 5–39 Import Virtual Machine: instance Details

Select Target and Source | **Instance Details** | Schedule | Review

Import Virtual Machine : Instance Details

Back Step 2 of 4 Next Review Submit Cancel

Guest VM
* Guest VM Name: file.tgz

General
☐ Enable High Availability
☐ Start VM After Creation
 CPU Scheduling Priority: High (100)
 CPU Scheduling Cap (%): High (100)
 Keymap: en-gb (English, United Kingdom)
 Tags:

VM Size
 VM Size: Custom
 * Max. Memory (in MB): 1024
 * Memory (in MB): 1024
 * Max. Number Of CPU Cores: 1
 * Number Of CPU Cores: 1

6. Enter the following details:
 - **Enable High Availability:** If you want to enable high availability for this guest virtual machine, select this checkbox. This option allows the guest virtual machine to be automatically restarted on other virtual servers in the pool in case the virtual server hosting the guest virtual machine fails.

Note: High availability must be enabled both on the virtual server pool and on the guest virtual machine. If it is not enabled on both, high availability is disabled.

- **Start VM After Creation:** Specify whether the guest virtual machine should be started automatically after it is created.
- **CPU Scheduling Priority:** Specify the priority of a guest virtual machine to access the physical CPUs, while competing with other guest virtual machines

on the same virtual server. Higher the priority, higher is the stake of the guest virtual machine in claiming CPU cycles

- **CPU Scheduling Cap (%)**: Restricts the amount of physical CPU that a guest virtual machine can use. Use this to constrain guest virtual machine resource allocation.
- **Keymap**: The keyboard mapping that will be used by the guest virtual machine being cloned.
- **Tags**: Specify one or more tags for the virtual machine. These tags are used to logical group the virtual machines and can be used to search for one or more virtual machines that meet a certain criteria.
- **VM Size**: The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started. The size of the guest virtual machine (memory and CPU values). Select the VM Size which can be Small, Medium, Large, or Custom.

Note: The Root Password, Network, and Storage configuration cannot be modified for an imported virtual machine.

7. Click **Next**. In the Import Virtual machine: Schedule page, specify the Start and End Date. The Start Date is the date on which the request is being submitted and the End Date is the date on which the virtual machine is retired. Click **Next**.
8. Review the details of the virtual machine being imported and click **Submit**. From the Enterprise menu, select Job, then select Activity to view the Job Activity page. This page shows the details of the submitted job. You can click on the Name link to view more details.

5.21 Acknowledging the Repository Events

When the file system on the storage repository gets corrupted, a critical event is raised on the storage repository. This page displays all the critical events for the storage repository. To acknowledge repository events, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**. The Infrastructure Cloud Home page appears. Select an OVM Manager target from the left panel.
2. From the **VM Manager** menu, select **Administration**, then select **Storage Repository**.
3. A list of storage repositories that have been defined is displayed. Click on a storage repository name and click the **Repository Events** tab.
4. A list of unacknowledged critical events is displayed. Select an event from list and click **Acknowledge Events**. The file system associated with the acknowledged event cannot be used

Defining and Managing Cloud Policies

This chapter describes the process to define policies for different target types and perform specific actions on virtualization targets. It contains the following sections:

- [Managing Cloud Policies](#)
- [Viewing Cloud Policies](#)
- [Viewing Policies for a Target](#)
- [Defining a Performance Policy](#)
- [Defining a Schedule-Based Policy](#)
- [Activating and Deactivating Policies](#)
- [Viewing Policy Groups](#)
- [Creating a Policy Group](#)
- [DRS and DPM Policies](#)

6.1 Managing Cloud Policies

Cloud management policies are rules that a `EM_CLOUD_ADMINISTRATOR` can define to take certain actions based on either performance metric thresholds or based on a schedule. You can create your own policies or use the ready-to-use policies. The ready-to-use policies provided by Oracle cannot be edited but you can do a *create like* cloning of the policy and then edit it as required.

Note: A self service user (`EM_SSA_USER`) can also create cloud policies for the services for which he has been granted access..

There are two kinds of cloud management policies: Performance-based policies and Schedule-based policies. Performance policies are based on the performance metrics of a specific type of target. Schedule based policies are executed based on the schedule you have defined. You can group one or more policies together to form policy groups. You can:

- View and Monitor Cloud Policies
- Define a new policy which can be of the following types:
 - Performance Policy
 - Schedule Policy
- Activate or Deactivate a Policy

- Define Policy Groups

6.2 Viewing Cloud Policies

You can view all the cloud policies and policy groups from the Cloud Policy Home page. You can view details like the status of the policy, type of policy, action type, policy associations and the schedule for the policy.

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role and from the **Enterprise** menu, select **Cloud**, then select **Infrastructure Policies**.

Note: if you have logged into as a user with the `EM_SSA_USER` role, click the **Policies** tab in the Infrastructure Cloud Self Service Portal.

2. On the Policy Home page, you will see a list of a policies that you own and for which you have administration privileges.

Figure 6–1 Cloud Policies

The screenshot displays the 'Cloud Policies' interface. At the top, there's a header with 'Cloud Policies' and a refresh timestamp. Below this is a toolbar with actions like 'Create', 'View', 'Create Like...', 'Edit...', 'Delete', 'Activate', 'Deactivate', and a search bar. The main table lists several policies with columns for Name, Type, Associations, Target Type, Status, Owner, Date Created, and Last Modified. The 'scale_up_tier_instance' policy is highlighted. Below the table, a detailed view for this policy is shown, including its General information (Type: Performance, Associations: 3, Description: Policy to scale up tier instance by 1 node if VM CPU exceed 80%, Status: Active, Owner: CLOUD_ADMIN_1, Date Created: 6/4/2013, Last Modified: CLOUD_ADMIN_1, Target Type: Oracle Tier Instance) and its Rule and Action (Rule: At least one of Oracle Tier Instance/Oracle VM).

Name	Type	Associations	Target Type	Status	Owner	Date Created	Last Modified
scale_up_tier_instance	Performance	3	Oracle Tier Instance	Active	CLOUD_ADMIN_1	2013-06-04 10:41	2013-06-04 10:41
scale_down_tier_instance	Performance	3	Oracle Tier Instance	Active	CLOUD_ADMIN_1	2013-06-04 10:42	2013-06-04 10:42
notification_perf_host	Performance	0	Host	Active	CLOUD_ADMIN_1	2013-06-04 10:48	2013-06-04 10:48
shutdown_vm	Schedule	2	Oracle VM Guest	Active	CLOUD_ADMIN_1	2013-06-04 10:30	2013-06-04 10:30
start_vm	Schedule	2	Oracle VM Guest	Active	CLOUD_ADMIN_1	2013-06-04 10:31	2013-06-04 10:31
db_instance_perf_policy	Performance	1	Database Instance	Active	CLOUD_ADMIN_1	2013-06-04 10:34	2013-06-04 10:34

General		Associations	
Type	Performance	View	Add...
Associations	3	Remove	View History...
Description	Policy to scale up tier instance by 1 node if VM CPU exceed 80%	Target	Created By
Status	Active	VtService_tier_27_1	CLOUD_ADMIN_1
Owner	CLOUD_ADMIN_1	VtService_tier_99_1	CLOUD_ADMIN_1
Date Created	6/4/2013	VtService_tier_100_1	CLOUD_ADMIN_1
Last Modified	CLOUD_ADMIN_1		
Target Type	Oracle Tier Instance		

Rule and Action	
Rule	At least one of Oracle Tier Instance/Oracle VM

3. Select a policy from the table. The policy details including the type of policy, performance (rule, action, action description), or schedule (schedule, action and action description), the status, date on which it was created, and the target type are displayed.
4. You can perform the following actions on this page:
 - **Create:** To create a new policy, from the **Create** menu, select either of the following:
 - Schedule Policy: See [Section 6.5, "Defining a Schedule-Based Policy"](#).
 - Performance Policy: See [Section 6.4, "Defining a Performance Policy"](#).
 - **Create Like:** Select a policy and click **Create Like** to make a copy of an existing policy.
 - **Edit:** Select a policy and click **Edit** to launch the Edit Policy wizard. You can modify the description of the policy and add metrics to the policy. You cannot

change the name of the policy, the type of policy, the target with which the policy is associated, and the actions that can be performed.

- **Activate or Deactivate a Policy:** See [Section 6.6, "Activating and Deactivating Policies"](#).
- **Create Policy Associations:** In the Associations region, you can view a list of targets that have been associated with a selected policy. A policy can be associated with one or more targets. Click **Add**. In the Search and Select: Targets window, choose a target and click **Select** to associate the target with the policy. After you have associated one or more targets with the policy, you can:
 - Click on a target to drill down to the Policies page for the target. See [Section 6.3, "Viewing Policies for a Target"](#).
 - Select a target and click **View History** to view the Policy Action History.
 - Select a policy and click **Remove** to delete the associations for the policy.

Note:

- Associations cannot be added for inactive policies.
 - The **View History** option is not available for users with the EM_SSA_USER role.
-

6.3 Viewing Policies for a Target

After you have associated a target with a policy, you can view all policies that can be associated with a target on the Policies page.

To view policies that can be associated with a selected target, follow these steps:

1. Navigate to the Cloud Policies page.
2. Select a policy from the list of active policies in the list. In the Associations region, click on a target link to drill down to the Policies page for the target.

Figure 6–2 Policies - Target

Policies for VtService_assembly_vm_1_1

This page shows all policies that can be associated with target instance 'VtService_assembly_vm_1_1'. For each policy, you can see if the association is via the standalone method, template collection, policy group, or a combination of the three. In this page, you can manipulate (add or remove) only standalone associations.

Name	Description	Type	Association	Owner	Created On	Last Modified
stop_vm_policy	Schedule policy to shutdown Oracle VM Guest on every Monday morning	Schedule	Standalone	CLOUD_ADMIN_1	2013-06-12 09:51:31 AM PDT	2013-06-12 09:51:31 AM PDT
start_vm_policy	Schedule policy to start Oracle VM Guest on every Monday morning	Schedule	Standalone	CLOUD_ADMIN_1	2013-06-12 09:51:31 AM PDT	2013-06-12 09:51:31 AM PDT

start_vm_policy

General

- Type: Schedule
- Associations: 4
- Description: Schedule policy to start Oracle VM Guest on every Monday morning
- Status: Active
- Owner: CLOUD_ADMIN_1
- Date Created: 2013-06-12 09:51:31 AM PDT
- Last Modified: 2013-06-12 09:51:31 AM PDT
- Target Type: Oracle VM Guest

Schedule and Action

Weekly on Monday beginning Jun 17, 2013 6:00:00 AM

Policy Action History: start_vm_policy

Action	Status	Created On	Last Updated On
Start	Submitted	2013-06-12 09:53:36 AM	2013-06-12 09:53:36 AM

3. All policies that can be associated with the selected target are listed on this page. For each policy, the type of policy association that has been defined is displayed. This can be:

- Standalone
- Template Collection
- Policy Group

For each policy, the following details are displayed:

- Name and description of the policy.
- The type of policy which can be Schedule or Performance.
- The policy association method. A policy can be associated with a standalone association, template collection, a policy group or a combination of the three.
- The General section displays details like status of the policy, the number of associations, the date on which the policy was created, and the type of policy.
- The Policy Action History region shows the history of associations for this target.

Note:

- The history of policy associations is displayed only for users with the `EM_CLOUD_ADMINISTRATOR` role.
 - The Policy Action History region is blank if the action has a **Failed** status.
-

4. For policies that are active, you can do the following:
 - Select a policy and click **Associate** to associate it with the target.
 - Select a policy that has already been associated and click **Disassociate** to delete the policy association.

6.4 Defining a Performance Policy

Performance policies are formed based on the performance metrics of a specific target type and its associated targets. You can create conditions and rules for the policy based on the metrics.

To define a performance policy, follow these steps:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. On the Policy Home page, you will see a list of policies that you own and for which you have administration privileges.
3. From the **Create** menu, select **Performance Policy**.
4. In the General Information page, enter the name and description of the policy. Select the Target Type with which the policy is to be associated.

Figure 6–3 Create Performance Policy - General

Cloud Policies

General Rule Action Review

Create Performance Policy : General

Back Step 1 of 4 Next Cancel

* Name perf_scale_up_policy

Description Performance policy to scale up 1 node Oracle Tier Instance if Oracle VM Guest CPU utilization is more than 90% for 5 times.

Type Performance

* Target Type Oracle Tier Instance

5. Click **Next**. In the Rule page, select a metric from the right panel and click **Add to Definition**, or drag and drop metric from the Metrics column to the Definition column. Specify the condition, value, and number of occurrences. In the Match radio button, you can select
- All: All conditions must be met before the policy is executed on the target.
 - Any: Any of the conditions must be met for the policy to be executed.

Figure 6–4 Create Performance Policy - Rule

Cloud Policies

General Rule Action Review

Create Performance Policy : Rule

Back Step 2 of 4 Next Cancel

A rule can have one or more metrics. Select the required metric and add it to the definition table.
(If Cluster.CPU utilization above 90% for 5 occurrences OR ServiceL.responseTime above 7 seconds for 2 occurrences then "Scale out" cluster.)

Condition	Target Type	Metric	* Operator	* Value
At least one o	Oracle VM Guest	OVM Guest Load.Phys	>	90

Definition

View Remove Match All Any

Metrics

View Add to Definition

- Oracle Tier Instance
 - Oracle VM Guest
 - OVM Guest Load.Physical CPU Utilization
 - OVM Guest DiskActivity Summary.Total Throughput (kb/s)
 - OVM Guest Network Activity Summary.Total Throughput (kb/s)

6. Click **Next**. Specify the action to be performed when the policy condition is met. The list of available actions can vary depending on the selected target type.
- If notifications are disabled, you will see the following message:
- Notification action is currently disabled. Contact your system administrator to set up the email server information.

Figure 6–5 Create Performance Policy - Action

Cloud Policies

General Rule **Action** Review

Create Performance Policy : Action

Back Step 3 of 4 Next Cancel

Rule At least one of Oracle Tier Instance/Oracle VM Guest/OVM Guest Load.Physical CPU Utilization is greater than 90 for 5 consecutive occurrence(s)

* Applies to Target Oracle Tier Instance

Action Scale Up

Notification action is currently disabled. Contact your system administrator to set up the email server information.

Description

Parameter	Value
Number of Nodes	1

- Review the policy and click **Save** to define this policy and return to the Policy Home page.

Note: After you have defined the policy, you can associate one or more targets with the policy.

6.5 Defining a Schedule-Based Policy

Schedules based on policies are based on a predefined schedule. To define a schedule-based policy, follow these steps:

- Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
- On the Policy Home page, you will see a list of a policies that you own and for which you have administration privileges.
- From the Create menu, select **Schedule Policy**.

Figure 6–6 Create Schedule Policy

Cloud Policies

Create Schedule Policy

OK Cancel

* Name

Description

Type Schedule

* Target Type Oracle VM Guest

* Policy Action Start

Start 6/2/2011 4:26:55 PM (UTC+00:00) Universal Time

Repeat Every N minutes

Frequency Every 1 minute(s)

Grace Period Do not run if it cannot start within 1 hours of the scheduled start time

Duration Indefinitely For 1 hours

- In the Create Schedule Policy page, enter the name, description of the policy, and the Target Type with which the policy is to be associated.
- Specify the Grace Period, frequency, and schedule for the policy.
- When the policy conditions are met, the policy is executed as per the schedule on the selected target. The list of available actions can vary depending on the target type with which the policy is associated.
- Click **Save** to define this policy.

Note: After you have defined the policy, you can associate one or more targets with the policy.

6.6 Activating and Deactivating Policies

Once a policy is defined, it becomes active and can be applied to one or more targets. You can deactivate an active policy by following these steps:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. On the Policy Home page, you will see a list of a policies that you own and have administration privileges.
3. Select a policy from the table and click **Deactivate**. The policy is deactivated and the status of the policy is marked as Inactive. You cannot associate this policy to any target until it is activated and its current associations will be suspended for further evaluations.

Once a policy is deactivated, it is marked as Inactive. To activate an Inactive Policy, select the policy from the table and click **Activate**. In the confirmation window, click **Activate** again. The policy is now marked as Active.

6.7 Viewing Policy Groups

A policy group is a collection of policies that can be applied together and evaluated to generate a compliance score. To view the policy groups, follow these steps:

1. Log in to Enterprise Manager as a user with the EM_CLOUD_ADMINISTRATOR role and from the **Enterprise** menu, select **Cloud**, then select **Infrastructure Policies**.

Note: if you have logged into as a user with the EM_SSA_USER role, click the **Policies** tab in the Infrastructure Cloud Self Service Portal.

2. The Cloud Policies page appears. Click on the **Policy Groups** tab.

Figure 6–7 Policy Groups

Cloud Policies Page Refreshed Jun 12, 2013 11:43:47 PM PDT

Policy Groups

View Create... Create Like... Edit... Delete Search Group Name +

Group Name	Description	Policies	Associations	Owner	Date Created	Last Modified By	Last Modified
New Policy Group		3	2	CLOUD_ADMIN_1	2013-06-12 23:00:00	CLOUD_ADMIN_1	2013-06-12 23:00:00

New Policy Group

Associations **Policies Included**

View +

Name	Type	Target Type	Status	Owner	Date Created	Last Modified By	Last Modified
> start_vm_policy	Schedule	Oracle VM Guest	Active	CLOUD_ADMIN_1	2013-06-12 09:51:31 AM	PE CLOUD_ADMIN_1	2013-06-12 09:51:31 AM
> vm_perf_scale_up_policy	Performance	Oracle Tier Instanc	Active	CLOUD_ADMIN_1	2013-06-12 10:01:02 AM	PE CLOUD_ADMIN_1	2013-06-12 10:02:59 AM
> vm_perf_scale_down_policy	Performance	Oracle Tier Instanc	Active	CLOUD_ADMIN_1	2013-06-12 10:02:45 AM	PE CLOUD_ADMIN_1	2013-06-12 10:02:45 AM

- The list of policy groups that have already been defined are displayed. You can do the following:

- **Create a Policy Group:** See [Section 6.8, "Creating a Policy Group"](#).
- **Create Like:** Select a policy group and click **Create Like** to make a copy of an existing policy group.
- **Edit:** Select a policy group and click **Edit** to launch the Edit Policy Group wizard. You can add or remove policies from the policy group. You cannot modify the name of the policy group.
- **Delete:** Select a policy group and click **Delete**. When a policy group is deleted, all associations defined for the policy group will also be deleted.

Note: You can edit or delete policy groups that you have created or for which you have the privileges.

- **Create Policy Group Associations:** Click the **Associations** tab in the Policy Group region, to view a list of targets that have been associated with the selected policy group.

Figure 6–8 Policy Group: Associations

The screenshot shows the 'Cloud Policies' page in the Oracle Enterprise Manager Cloud Administration console. The page title is 'Cloud Policies' and it indicates 'Page Refreshed Jun 13, 2013 8:36:12 AM PDT'. The main section is 'Policy Groups', which includes a search bar and a table of policy groups. Below this, there is a 'New Policy Group' section with two tabs: 'Associations' and 'Policies Included'. The 'Associations' tab is active, showing a table of associations.

Group Name	Description	Policies	Associations	Owner	Date Created	Last Modified By	Last Modified
New Policy Group		3	2	CLOUD_ADMIN_1	2013-06-12 23:00:00	CLOUD_ADMIN_1	2013-06-12 23:00:00
Policy Group II		1	0	CLOUD_ADMIN_1	2013-06-13 00:00:00	CLOUD_ADMIN_1	2013-06-13 00:00:00

Name	Type	Target Type	Status	Owner	Date Created	Last Modified By	Last Modified
start_vm_policy	Schedule	Oracle VM Guest	Active	CLOUD_ADMIN_1	2013-06-12 09:51:31 AM	PC CLOUD_ADMIN_1	2013-06-12 09:51:31 AM
vm_perf_scale_up_policy	Performance	Oracle Tier Instance	Active	CLOUD_ADMIN_1	2013-06-12 10:01:02 AM	PC CLOUD_ADMIN_1	2013-06-12 10:02:59 AM
vm_perf_scale_down_policy	Performance	Oracle Tier Instance	Active	CLOUD_ADMIN_1	2013-06-12 10:02:45 AM	PC CLOUD_ADMIN_1	2013-06-12 10:02:45 AM

A policy group can be associated with one or more targets. Click **Add**. In the Search and Select: Targets window, choose a target and click **Select** to associate the target with the policy group. After you have associated one or more targets with the policy group, you can:

- Click on a target to drill down to the Policies page for the target. See [Section 6.3, "Viewing Policies for a Target"](#).
- Select a target and click **View History** to view the Policy Group Action History.
- Select a target and click **Remove** to delete the policy group association.
- **View Policies:** Click the **Policies Included** tab in the Policy Group region to view the list of policies included in the policy group.

Figure 6–9 Policy Group: Policies Included

Cloud Policies Page Refreshed Jun 13, 2013 8:36:12 AM PDT

Policy Groups

View + Create... Create Like... Edit... Delete Search Group Name

Group Name	Description	Policies	Associations	Owner	Date Created	Last Modified By	Last Modified
New Policy Group		3	2	CLOUD_ADMIN_1	2013-06-12 23:00:00	CLOUD_ADMIN_1	2013-06-12 23:00:00
Policy Group II		1	0	CLOUD_ADMIN_1	2013-06-13 00:00:00	CLOUD_ADMIN_1	2013-06-13 00:00:00

New Policy Group

Associations Policies Included

View +

Name	Type	Target Type	Status	Owner	Date Created	Last Modified By	Last Modified
start_vm_policy	Schedule	Oracle VM Guest	Active	CLOUD_ADMIN_1	2013-06-12 09:51:31 AM PT	CLOUD_ADMIN_1	2013-06-12 09:51:31 AM PT
vm_perf_scale_up_policy	Performance	Oracle Tier Instance	Active	CLOUD_ADMIN_1	2013-06-12 10:01:02 AM PT	CLOUD_ADMIN_1	2013-06-12 10:02:59 AM PT
vm_perf_scale_down_policy	Performance	Oracle Tier Instance	Active	CLOUD_ADMIN_1	2013-06-12 10:02:45 AM PT	CLOUD_ADMIN_1	2013-06-12 10:02:45 AM PT

6.8 Creating a Policy Group

To define a policy group, follow these steps:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. Click on the **Policy Groups** tab. On the Policy Groups page, you will see a list of a policy groups that have been defined.
3. Click **Create**. The Create Policy Group page appears.

Figure 6–10 Policy Group: Create

Create Policy Group OK Cancel

* Group Name Policy Group III

Description

Policies Included

View + Add... Remove

There are no policies included in this policy group.

4. Click **Add**. A list of policies that can be added to the policy group are displayed. Select one or more policies from the list and click **Select**.
5. The selected policies will be added to the policy group. Click **OK** to save this policy group.
6. Click **OK** to save this policy group.

6.8.1 Example 1

If you want to shut down a guest virtual machine every Friday at 6:00 pm and restart it every Monday at 9:00 pm, you can create policies as follows:

- First, create a schedule based policy where the guest virtual machine shuts down every Friday at 6:00 pm. See [Section 6.8.1.1, "Policy for Shutting Down Guest Virtual Machine"](#).

- Secondly, create another schedule based policy where the guest virtual machine is restarted every Monday at 6:00. See [Section 6.8.1.2, "Policy for Starting Up Guest Virtual Machine"](#).
- Combine these two policies into a Policy Group and associate these policies with one or more guest virtual machine targets. See [Section 6.8.1.3, "Creating a Policy Group \(Start Up and Shut Down\)"](#).

6.8.1.1 Policy for Shutting Down Guest Virtual Machine

To shut down a guest virtual machine every Friday, you can set up the policy as follows:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. In the Cloud Policies page, select **Schedule Policy** from the **Create** menu. In the Create Schedule Policy page, enter the following details:
 - Enter a name and description for the policy.
 - Select the Target Type as **Oracle VM Guest**.
 - Select **Stop** in the Policy Action field.
 - In the Start field, specify the date and time from which this policy should be effective.
 - In the Repeat field, select **Specific Days of the Week** and select **Friday** in the Days of Week checkbox.

Figure 6–11 Create Schedule Policy (Example 1)

The screenshot shows the 'Create Schedule Policy' form in the 'Cloud Policies' section. The form has the following fields and values:

- Name:** guestvm_policy1
- Description:** (empty text area)
- Type:** Schedule
- Target Type:** Oracle VM Guest
- Policy Action:** Stop
- Description:** Stop a Guest Virtual Machine
- Start:** 8/10/2012 6:00:00 PM (GMT+00:00) GMT
- Repeat:** Specific days of the week
- Days of Week:** Monday, Tuesday, Wednesday, Thursday, ☒ Friday, Saturday, Sunday
- Grace Period:** ☐ Do not run if it cannot start within 1 hours of the scheduled start time

3. Click **OK** to save this policy and return to the Cloud Policies page.

6.8.1.2 Policy for Starting Up Guest Virtual Machine

To start a guest virtual machine every Monday, navigate to the Cloud Policy page and select the policy you just created. Perform the following steps:

1. Click **Create Like** to make a copy of the policy.
2. In the Cloud Policies page, select **Schedule Policy** from the **Create** menu. In the Create Schedule Policy page, enter the following details:
 - Enter a name and description for the policy.
 - Select the Target Type as **Oracle VM Guest**.

- Select **Start** in the Policy Action field.
 - In the Start field, specify the date and time from which this policy should be effective.
 - In the Repeat field, select **Specific Days of the Week** and select **Monday** in the Days of Week checkbox.
3. Click **OK** to save this policy and return to the Cloud Policies page.

6.8.1.3 Creating a Policy Group (Start Up and Shut Down)

After defining the two policies for the guest virtual machine target type, you can combine these policies into a policy group and associate these policies to one or more targets. To create a policy group, follow these steps:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. On the Cloud Policies page, click the **Policy Groups** tab.
3. Click **Create**. The Cloud Policy Group page appears.
4. Enter a name and description for the group.
5. Click **Add** and select the two schedule policies that you have created.
6. Click **OK** to return to the Cloud Policies page and click on the Policy Group that you have created.
7. The details of the policy group that you have created such as the name of the policy group, number of policies associated with this group, number of targets associated, and so on are displayed.
8. Click the **Policies Included** tab in the bottom region to view the policies associated with this policy group.
9. Click the **Associations** tab to view the list of guest virtual machines associated with this policy. Click **Add** to associate more guest virtual machines with this policy group.
10. When this policy group is active, the guest virtual machines associated with the policies are shut down and started up as per the schedule.

6.8.2 Example 2

Suppose you want to define a policy group for an Oracle Tier Instance target where the tier instance is scaled down to 1 every Friday and scaled up to 2 every Monday. You can create the following policies:

- First, create a Schedule Policy to scale down the tier instance to 1. See [Section 6.8.2.1, "Policy to Scale Down a Tier Instance"](#).
- Next, create another policy to scale up the tier instance to 2 every Monday. See [Section 6.8.2.2, "Policy to Scale Up a Tier Instance"](#).
- Combine these policies and create a Policy Group. See [Section 6.8.2.3, "Creating a Policy Group \(Scale Up and Scale Down\)"](#).

6.8.2.1 Policy to Scale Down a Tier Instance

To scale down a tier instance every Friday, you can set up a performance policy as follows:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. In the Cloud Policies page, select **Schedule Policy** from the **Create** menu. The Create Schedule Policy page appears.

Figure 6–12 Schedule Policy Example 1

The screenshot shows the 'Create Schedule Policy' form. At the top, there's a 'Cloud Policies' header and a 'Create Schedule Policy' title. Below the title are 'OK' and 'Cancel' buttons. The form fields are as follows:

- Name:** A text input field.
- Description:** A large text area.
- Type:** A dropdown menu set to 'Schedule'.
- Target Type:** A dropdown menu set to 'Oracle Tier Instance'.
- Policy Action:** A dropdown menu set to 'Scale Down'.
- Action Parameters:** A table with two columns: 'Parameter' and 'Value'. It contains one row: 'Number of Nodes' with the value '1'.
- Start:** A date and time picker showing '6/13/2013 9:49:42 AM' with a clock icon and '(GMT-08:00) Los Angeles - Pacific Time (PT)'.
- Repeat:** A dropdown menu set to 'Specific days of the week'.
- Days of Week:** A row of checkboxes for 'Monday', 'Tuesday', 'Wednesday', 'Thursday', 'Friday' (checked), 'Saturday', and 'Sunday'.
- Grace Period:** A field set to '1' with a unit dropdown set to 'hours'.

3. Enter a name and description for the policy and specify the following details:
 - **Target Type:** Select the **Tier Instance** target type.
 - **Policy Action:** Select the **Scale Down** policy action.
 - **Repeat:** In the Repeat field, select **Specify Days of the Week**.
 - **Days of the Week:** Select **Friday** here.
4. Click **OK** to save the policy.

6.8.2.2 Policy to Scale Up a Tier Instance

To scale down a tier instance every Friday, you can set up a performance policy as follows:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. In the Cloud Policies page, select **Schedule Policy** from the **Create** menu. The Create Schedule Policy page appears.

Figure 6–13 Schedule Policy Example II

Cloud Policies

Create Schedule Policy [OK] [Cancel]

* **Name** Scale Up Policy

Description

Type Schedule

* **Target Type** Oracle Tier Instance

* **Policy Action** Scale Up

Action Parameters

Parameter	Value
Number of Nodes	2

Start 6/13/2013 10:14:07 AM (GMT-08:00) Los Angeles - Pacific Time (PT)

Repeat Specific days of the week

Days of Week ☒ Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday

Grace Period ☐ Do not run if it cannot start within 1 hours of the scheduled start time

3. Enter a name and description for the policy and specify the following details:
 - **Target Type:** Select the **Tier Instance** target type.
 - **Policy Action:** Select the **Scale Up** policy action.
 - **Action Parameters:** Enter 2 for the **Number of Nodes** parameter.
 - **Repeat:** In the Repeat field, select **Specify Days of the Week**.
 - **Days of the Week:** Select **Monday** here.
4. Click **OK** to save the policy.

6.8.2.3 Creating a Policy Group (Scale Up and Scale Down)

After defining the two policies for the Oracle Tier Instance target type, you can combine these policies into a policy group and associate these policies to one or more targets. To create a policy group, follow these steps:

1. Depending on your user role, use the menu options to navigate to the Infrastructure Policies page.
2. On the Cloud Policies page, click the **Policy Groups** tab.
3. Click **Create**. The Cloud Policy Group page appears.
4. Enter a name and description for the group.
5. Click **Add** and select the two schedule policies that you have created.
6. Click **OK** to return to the Cloud Policies page and click on the Policy Group that you have created.

6.9 DRS and DPM Policies

The Dynamic Resource Scheduling (DRS) and Distributed Power Management (DPM) policies are automated policies that improve quality of service and reduce power consumption by dynamically relocating running virtual machines within a server pool based on the load.

Dynamic Resource Scheduling (DRS) policies provide real-time monitoring of Oracle VM Server utilization to rebalance a server pool and provide consistent resources to the running virtual machines. DRS migrates VMs away from heavily loaded Oracle VM Servers to those servers with more resources available.

Distributed Power Management (DPM) policies optimize the server pool for minimum power consumption. DPM complements DRS by reducing the number of powered-on servers in the pool when there are periods of low resource utilization. It can automatically power-on capacity as needed when resource utilization ramps up.

To set up a DRS / DPM policy, follow these steps:

1. Log in as a user with the `EM_CLOUD_ADMINISTRATOR` role, and from the **Enterprise** menu, select **Cloud**, then select **Infrastructure Home**.
2. Right click on a VM Server Pool target in the left panel and select **Manage DRS/DPM Policies**. Click **Configure**. The Configure DRS/DPM General page appears.

Figure 6–14 Configure DRS/DPM: General

The screenshot shows the 'Configure DRS/DPM: General' configuration page. At the top, there are tabs for 'General' and 'Network'. Below the tabs, the title is 'Configure DRS/DPM : General'. On the right, there are buttons for 'Back', 'Step 1 of 2', 'Next', and 'Cancel'. The 'Policy Type' is set to 'Distributed Resource Scheduler' and the 'Time Period (Minutes)' is set to '10'. Below this is a 'Virtual Servers' section with a table that has columns for Name, Add, and Remove. The table is currently empty. At the bottom, there is a 'Constraints' section for 'Virtual Server CPU' with 'Enable' checked and 'Threshold (%)' set to '90'.

3. Select the **Policy Type**. This can be:
 - **Distributed Resource Scheduler:** Select this policy type to optimize virtual machine resource utilization in a server pool.
 - **Distributed Power Management:** Select this policy type to increase the consolidation ratio to use fewer Oracle VM Servers during periods of relative low resource utilization.
4. Specify the **Time Period (Minutes)**. This is the time period for the policy job to run. This sets the policy job to run every n minutes, for example, 10 sets the policy job to run every 10 minutes. You can enter a number between 1 and 60.
5. Click **Add** in the Virtual Servers region to add one or more virtual server targets for which the policy is to be enabled.
6. Specify the Constraints for the Virtual Server CPU as follows:
 - **Enable:** Set this field to enable or disable logging of CPU performance and utilization.
 - **Threshold:** The maximum amount of CPU percentage usage allowed before the policy must be enacted. You can enter between 0 and 99.
7. Click **Next**. The Configure DRS/DPM Network page appears.

Figure 6–15 Configure DRS/DPM Policies: Network

Network	Enable	Threshold (%)
Network	<input checked="" type="checkbox"/>	51
cloud_network	<input type="checkbox"/>	0

8. Select the **Enable** checkbox to indicate whether the policy is to be enabled on the network, and select the threshold at which the policy is to be enacted for the network.
9. Click **Apply**.

Note: Once the policy is created, it is enabled and applicable to all the virtual server pool targets that have been included in the policy. To disable the DRS/DPM policy, create a schedule based policy for the Oracle VM Server Pool target type and in the Policy Action field, select **Disable DRS/DPM** policies. See [Section 6.5, "Defining a Schedule-Based Policy"](#) for more details on creating a schedule based policy. You can enable the policy by editing the Schedule Policy and select **Enable DRS** or **Enable DPM** as necessary.

6.9.1 Creating Automated DRS and DPM Policies

You can create automated DRS or DPM policies by following these steps:

1. Log in as a user with the EM_CLOUD_ADMINISTRATOR role and from the **Enterprise** menu, select **Cloud**, then select **Infrastructure Policies**.
2. From the **Create** menu, select **Schedule Policy**.
3. In the Create Schedule Policy page, enter a name and description for the policy.
4. Select Oracle VM Server Pool as the Target Type.
5. Select **Enable DRS** or **Enable DPM** Policy from the Policy Action field.
6. Specify the schedule and frequency for the policy and click **OK** to save the policy.
7. In the Cloud Policies page, select the policy you have created and click **Add** in the Associations region.
8. Select the Oracle VM Server Pool target with which the policy is to be associated and click **Select**.
9. The DRM or DPM policy is now automatically enabled for the selected target.

Setting Up the IaaS Self Service Portal

This chapter describes the process of setting up the Self Service Portal. It contains the following sections:

- [Setting Up the Self Service Portal](#)
- [Uploading Large Files on the Self Service Portal](#)

7.1 Setting Up the Self Service Portal

The Self Service Portal allows administrators to configure the cloud and perform various operations such as deciding the total amount of resources each user can reserve, quota for each user role, and so on. Users can log in to the Self Service Portal and identify the images they need, reserve resources (for example, compute power, storage, memory, and so on) and define policies specific to their system.

Note: Click [here](#) to view a visual demonstration on how to enable the Self Service capability for the Cloud using Enterprise Manager Cloud Control 12c. You will see how to setup Self Service roles and users, allocating quota and privileges, publishing assemblies to the Self Service portal, and configuring metering and chargeback for the Cloud.

Before the Self Service Portal can be used, the user quota, roles for zone access, and software components must be defined.

Prerequisites

- Enterprise Manager Cloud Control is set up to manage the cloud environment.
- The Enterprise Manager administrator has the privileges to set up the self service application. This user must have the `EM_SSA_ADMINISTRATOR` role. See [Section 3.3, "Defining Roles and Assigning Users"](#) for details.

Follow this process to set up and configure the Self Service Portal.

1. From the **Setup** menu, select **Cloud**, then select **Infrastructure**. Click **Machine Sizes** in the left panel. Small, Medium, and Large machine sizes are available out-of-the-box.

Figure 7–1 Self Service Portal Setup - Machine Sizes

Name	Description	VCPUs	Memory (MB)	Local Storage (GB)
Small	Small sized machine	2	4096	250
Medium	Medium sized machine	4	8192	500
Large	Large sized machine	8	15360	1000

- To view a demo on setting up the self service portal, click the video link next to the Page Refreshed section of the page. Click **Create** to add a machine size. You are prompted for the Name (internal name of the machine size), description, number of VCPUs, amount of memory and local storage to be assigned to machines of this size. Click **Create** to add this machine size.
 - Select a machine size from the list and click **Edit**. You can configure the machine sizes by specifying the amount of memory, number of CPUs, and the local storage for each machine. While requesting a server, the SSA user can specify any of the machine sizes defined here.
2. Click **Request Settings** in the left panel to define request related policies. On this page, you can enter the following details:
- **Future Reservation:** Indicate how far in advance you can make a request.
 - **Request Duration:** The maximum duration for which requests should be made.
 - **Network Restriction:** Allows you to restrict the physical networks for each EM_SSA_USER role. If this feature is enabled, you can navigate to the Roles page and assign networks for each EM_SSA_USER role.
 - **Configure EM Agent:** Select the **Enable EM Agent Configuration** check box to configure the Management Agent on the servers while the self service user's request is being processed.

Note: If you have chosen to configure the Management Agent, you must ensure the following:

- Write permissions to the directory specified in the **Installation Base Directory** field must be available.
 - Write permissions to the /home/oracle/agent directory specified during assembly or template deployment must be available.
 - Necessary software components must be configured.
-
- **Allow Partial Deployment:** Select this option to enable partial deployment. By default, when a deployment fails, the assembly instance, tier instance, and the Guest VMs that have been created are automatically deleted. But if partial deployment is enabled, this clean up activity is disabled.
 - **Software Library Top Folder:** Select the top level folder in the Software Library in which user specific folders need to be created. This folder is used by the SSA users to store their assemblies, templates, and deployment plans.

Figure 7–2 Self Service Portal Setup - Request Settings

Infrastructure Cloud Self Service Setup Page Refreshed Apr 11, 2014 11:06:02 PM UTC

- Machine Sizes
- Request Settings**
- Roles
- Software Components
- Chargeback

Request Settings

Future Reservation
How far in advance a user can make a request
Future Reservation: ☒ No Restriction ☐ Restricted

Request Duration
The maximum duration for which requests can be submitted.
Request Duration: ☒ No Restriction ☐ Restricted
Default Duration:

Network Restriction
The networks are published to global or restricted.
Network Restriction: ☐ No Restriction ☒ Restricted

Configure EM Agent
EM Agent will be configured on the servers while processing the SSA user's request. The EM Agent configuration properties should be set for assemblies and templates using the 'Software Components' page under SSA Setup.
☒ Enable EM Agent Configuration

Allow Partial Deployments
During assembly deployment if the step that does product configuration fails, then the assembly instance, its instance and Guest VMs that were created are cleaned up. The System Administrator can disable this clean up activity by checking the "Allow Partial Deployment" checkbox.
☐ Allow partial deployment in case of the product configuration step while deploying an assembly fails.

Software Library top level folder
Choose the top level folder in Software Library under which user specific folders will be created.
Folder Name:

- Click **Roles** in the left panel to define the mappings between roles and other entities like zones, quota, and network profiles. The SSA administrator can control the quota that the SSA user can request which ensures that there is no over provisioning of cloud resources.

Figure 7–3 Self Service Portal Setup - Roles

Infrastructure Cloud Self Service Setup Page Refreshed Apr 11, 2014 11:15:55 PM UTC

- Machine Sizes
- Request Settings
- Roles**
- Software Components
- Chargeback

Roles

View

Role Name	No of Servers	VCPUs	Memory (GB)	Local Storage (GB)	Archive to Library	Save Server on Expiry	Zones	Networks	Network Prof
SSA_COMMON_RO...	100	200	1024	1024	---	---	328Zone,Cluster...	bd	bd
SSA_COMMON_RO...	100	200	102400	102400	---	---	328Zone,Cluster...	bd	bd

- In the Roles page, click **Assign Quota to Role** to define quota at the role level. The quota assigned to a role is available to all users with that role. For example, if the Number of Servers for the SSA_USER_ROLE1 is set to 5, all users with this role can have a maximum of 5 servers. The quota is the aggregate amount of resources that can be granted to each self service user belonging to a certain role. If the user has more than one role, his quota is calculated as the absolute maximum across the roles for each attribute value.
 - **Select Roles:** Click the torch icon to select a role for which the mapping is to be defined. The list of all the SSA roles appears.
 - **Select Zones:** Click the torch icon. All zones marked as Cloud Self Service Zones during zone creation are displayed here. Select a zone from the list and click **OK**.
 - **Number of Servers:** Maximum number of servers that can be reserved at any time. This number is across the zones. For example if the quota for a user is 5. Then, the total number of instances from all zones is 5. So the user can have 3 instances in zone 1 and 2 instances in zone 2, or all 5 instances in the same zone.
 - **Number of VCPUs:** Maximum number of VCPUs that can be allocated.

- **Memory:** Maximum amount of memory that can be allocated.
- **Local Disk:** Maximum amount of local storage that can be allocated.
- **Additional Storage:** Maximum amount of additional storage that can be allocated.
- **Allow Archiving to Software Library:** Indicate whether the machine images can be archived in the Software Library after expiry. You can also select this option to save the machine image as a template when the guest virtual machine is stopped.
- **Select Networks:** This field is displayed only if Network Restriction has been enabled. Click the torch icon to select the physical networks that are to be assigned to all users in the role.
- **Select Network Profiles:** Select the network profile to assigned to the selected role. All deployments are done in a specific network defined by the network profile.

Note: Network profiles that have been associated with networks in the selected zone are displayed. For more details on network profiles, see [Section 5.8, "Creating a Network Profile"](#)

- **Override Global Request Settings:** Select this checkbox to override the request settings for the selected role. You can modify the Future Reservation, Request Duration, and configure the Management Agent.

Select a role and click **Edit**. You can modify the role mappings in the **Assign Quotas, Zones & Network Profiles to Role** page.

- Click **Software Components** in the left panel to select the set of templates or assemblies that are accessible to the SSA users. You can publish the assemblies and templates to the SSA Portal and provide SSA users with access to these software components.

Figure 7–4 Self Service Portal Setup - Software Components

Infrastructure Cloud Self Service Setup

Software Components

Publish Software Components

Software Components can be published to provide access privileges on Software Library Components for Self Service Portal Users.

* Roles: All + Add Components... ✎ Edit... ✕ Delete... ⚙ Configure ✕ Remove Config

Software Component	Type	Version	Configured	Imported	Description
fiser_assem	Assembly	0.1	✓	✓	
frmw_assembly	Assembly	0.1	✓	✓	
oel6u4_assembly	Assembly	0.1	✗	✓	

Import Rules

Import Rules can be defined to schedule recurring jobs for importing Software Library Components into Storage Repository.

+ Create... ✎ Edit... ✕ Delete...

- You can do the following on this page:
 - **Add Components:** Click **Add Components**. The Publish Assemblies / Templates to Roles page appears.

Figure 7-5 Publish Assemblies / Templates to Roles

Publish Assemblies/Templates to Roles
Select the software components and roles. Click publish button to make the software components available to selected roles.

Select Software Components
+ Add - Remove...

Software Component	Type	Version	Description
No data to display.			

Select Roles
+ Add - Remove...

Role Name	Role Description
No data to display.	

Publish Cancel

On this page, do the following:

1. Click **Add**. Select the assembly or template from the list and click **Select**.
2. Click **Add** in the Select Roles section. Select the role from the list and click **Select**.
3. Click **Publish** to publish these software components to the SSA Portal. These software components are now available to the SSA users and can be deployed.

Note: You will see a list of assemblies or templates if they have been uploaded to the Software Library. See the Oracle Enterprise Manager Cloud Control Administration Guide for details on uploading components to the Software Library.

- **Import:** You can import the published assembly to a selected set of zones. Select the assembly and click **Import**. In the Select Zones page, select one or more zones and click **Save** to import the assembly to the selected zones.
- **Configure:** Select a software component and click **Configure** to configure the Management Agent.

Note: The Management Agent can be deployed only if the **Enable Agent Configuration** check box has been selected in the Request Settings page.

The Management Agent configuration details are displayed:

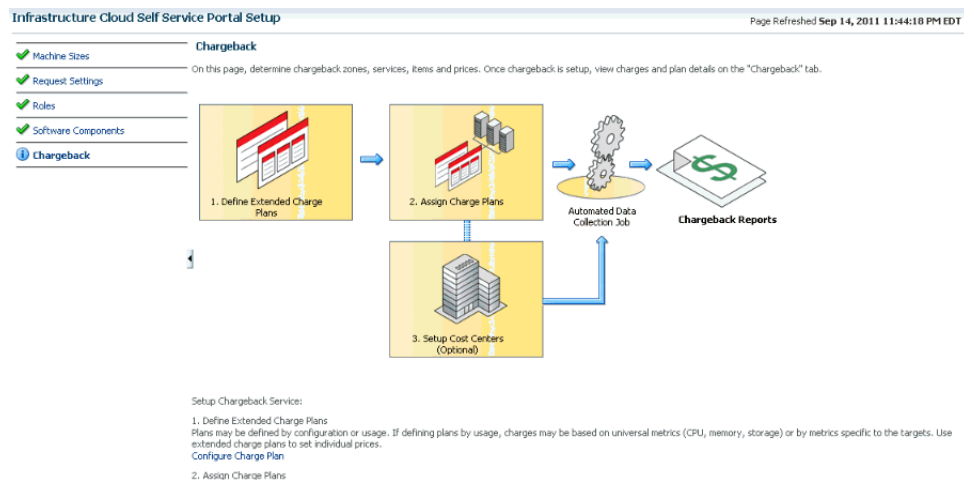
- **Installation Base Directory** (Mandatory): Specify the full path to the directory in which the Management Agent is to be installed. Ensure that the Installation Base Directory you specify in the response file is empty and has write permissions. This is a mandatory field.
- **Platform** (Mandatory): The platform for which you want to download the Management Agent software. This is a mandatory field.

- **Password (Mandatory):** Specify a password for registering the new Management Agents. By default, the communication between the Oracle Management Service and the Management Agent is secure and locked. Any new Management Agents that are registered must be authenticated. The password you specify here will be used to authenticate the new Management Agents.
- **Port (Mandatory):** Enter the port used for the Management Agent process. If no value is specified, then either 3872 or any free port between 1830 and 1849 will be used.
- **Additional Parameters:** You can add some options supported by agent installation. See the *Enterprise Manager Basic Installation Guide* for details.
- **SSH Timeout:** The timeout minutes for SSH.
- **Privilege Delegation Settings:** Run as root.
- **Tier Configuration:** Specify the product and network configuration time out values and the log file location.

Specify the details and click **OK** to configure the Management Agent.

- **Import Rules:** You can define rules to import published assemblies and templates to zones on a periodic basis based on a predefined schedule. Click **Create** in the Import Rules section. Enter a Rule Name, select a set of zones, a schedule for the import and click **Save**. The published assembly or template is imported to the selected server pools and zones on a regular basis.
7. Click **Chargeback** tab in the left panel. The Chargeback application allows the SSA Administrator to define a charge plan and assign the plan to a specific zone or target.

Figure 7–6 Chargeback



8. Setting up the Chargeback Plan involves:
- **Defining Extended Charge Plans:** Click **Configure Charge Plan**. You can edit the Base Charge Plan or create an Extended Charge Plan to customize the charge plan for a specified target type.
 - **Assigning Charge Plans:** Click **Configure Targets**. You can assign charge plans to a set of targets.

- **Setting Up the Cost Center:** Click **Configure Cost Center**. You can setup cost centers to aggregate costs among groups of users.

For more details on setting up the chargeback plan, see [Chapter 43, "Chargeback Administration"](#).

7.2 Uploading Large Files on the Self Service Portal

The EM_SSA_USER can upload software components to a library location. See [Section 8.7, "Viewing Library"](#) for details. If the file to be uploaded is large, the EM_SSA_USER will see the following error message.

Error: The file is too large. Please add a smaller file,

To resolve this issue, you can use one of the following methods:

7.2.1 Setting the OMS Property Using emctl

To set the Oracle Management Service property, follow these steps:

1. Set the oracle.sysman.emSDK.ui.trinidad.uploadedfilemaxdiskspace OMS property to a value (in bytes) greater than the size of the file that is to be uploaded. For example, to set the value of the property to 3 GB,

```
$ORACLE_HOME/bin/emctl set property -name
"oracle.sysman.emSDK.ui.trinidad.uploadedfilemaxdiskspace" -sysman_pwd
sysman -value 3221225472
```

2. If the file to be uploaded is huge, the page may expire while the upload is still in progress (usually after 10 minutes). To avoid this, the oracle.sysman.eml.maxInactiveTime OMS property must be set to a value (in seconds) greater than the expected time for the upload to complete. If this property is set, you must restart the OMS to reflect the new property value.

7.2.2 Modifying the web.xml Configuration File

To modify the web.xml configuration file, follow these steps:

1. Locate the web.xml configuration file by navigating to the following location in the Oracle Management Service Home

```
./oms/sysman/archives/emgc/deployments/EMGC_
DOMAIN/emgc.ear/em.war/WEB-INF/web.xml
```

If this directory structure is not present, navigate to the following location in the Oracle Management Service Home

```
./oms/sysman/archives/emgc/deployments/GCDomain/emgc.ear/em.war/WEB-INF
/web.xml
```

2. Open the web.xml file and locate the following four lines. If these lines are not present in the web.xml, you must add them. Increase the size of the <param_value> parameter to a value larger than the size of the file to be uploaded.

```
<context-param>
<param-name>org.apache.myfaces.trinidad.UPLOAD_MAX_DISK_
SPACE</param-name>
<param-value>40960000</param-value>
</context-param>
```

```
<context-param>
<param-name>org.apache.myfaces.trinidad.UPLOAD_MAX_FILE_
SIZE</param-name>
<param-value>40960000</param-value>
</context-param>
```

3. A smaller chunk size increases performance during large file upload. By default, the chunk size would be 2 GB. Setting this to a smaller chunk size such as 500MB will optimize browser memory usage. The parameter for setting the chunk size is `org.apache.myfaces.trinidad.UPLOAD_MAX_CHUNK_SIZE`.

```
<context-param>
<param-name> org.apache.myfaces.trinidad.UPLOAD_MAX_CHUNK_
SIZE</param-name>
<param-value>40960000</param-value>
</context-param>
```

4. If the file to be uploaded is huge, the page may expire while the upload is still in progress (usually after 10 minutes). To avoid this, the OMS property `oracle.sysman.eml.maxInactiveTime` must be set to a value (in seconds) greater than the expected time for the upload to complete.

For example, set `$ORACLE_HOME/bin/emctl set property -name oracle.sysman.eml.maxInactiveTime -value 3600`

5. Restart the Oracle Management Service to reflect the updated settings.
6. While the file upload is in progress, the uploaded chunks are written in a default location on the OMS. This default location is usually a subdirectory of where the application is deployed on the WebLogic Server. This location can be configured by setting the parameter `org.apache.myfaces.trinidad.UPLOAD_TEMP_DIR` in the `web.xml` file to a custom location. If there are multiple users uploading files concurrently on the OMS, you must ensure that this location has enough disk space to accommodate all of this data. It is recommended that this location is on a different volume than the location on which the OMS is installed. This ensures that if the volume runs out of space, there is no impact on the OMS performance.

Using the IaaS Self Service Portal

This chapter provides instructions on using the Self Service Portal for IaaS. It contains the following sections:

- [Using the Self Service Portal to Request Server Resources](#)
- [Requesting Servers](#)
- [Viewing Requests](#)
- [Viewing Servers](#)
- [Viewing Storage](#)
- [Viewing Chargeback Details](#)
- [Viewing Library](#)
- [Viewing Policies](#)
- [Viewing Preferences](#)

Note: Click [here](#) to view a visual demonstration on how to allow users to create new deployment requests through the Cloud Self Service Portal, manage requested deployments, track metering and chargeback information, and author and enforce Cloud policies using Enterprise Manager Cloud Control 12c.

8.1 Using the Self Service Portal to Request Server Resources

The Self Service Portal for IaaS provides a dashboard for business users and cloud consumers to request resources. It allows SSA users to request and manage resources, view the metering and usage of these resources, and define policies to manage the workload and deployment automatically. The SSA Portal allows users to:

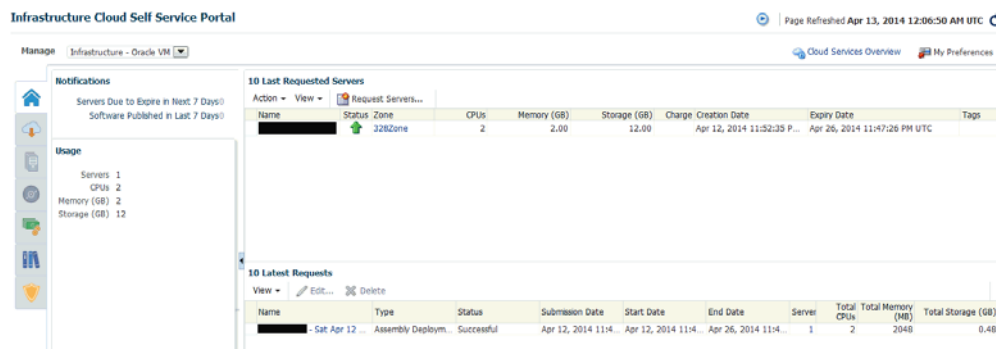
- Create new deployment requests
- Manage requested deployments
- Track metering and chargeback information
- Author and enforce cloud policies.

To use the Self Service Portal, follow these steps:

1. Log in as a user with the `EM_SSA_USER` role.
2. The Cloud Self Service Portal Home page appears. Click on the video link next to the Page Refreshed section to view a demo on using the self service portal. The following details are displayed:

- **Notifications:** Lists notifications related to machine expiry and new assemblies.
- **Your Usage:** Lists the total quota allowances available for server and storage requests and quota that has been used.
- **10 Last Requested Servers:** Lists the top 10 machines that you own in descending order of creation date. Click a Server Name to view the server details. See [Section 8.4.4.3, "Server Details Page"](#) for more information.
- **10 Latest Requests:** This section lists the top 10 requests which are sorted as follows:
 - Descending order of the End Date.
 - Descending order of the Creation Date.
 Click a Request Name to view the request details.

Figure 8–1 Self Service Portal



3. Click **Request Servers**. The New Server Request wizard appears. See [Section 8.2, "Requesting Servers"](#) for details.

8.2 Requesting Servers

Follow this process if you need to request or reserve servers for a specific duration:

1. From the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**.
2. On the Cloud Self Service Portal page, click **Request Servers** to create a new request for a virtual machine.
3. In the General page, enter a name for the request and select a zone in which the server is to be created.

Figure 8–2 New Server Request: General

General Deployment Configuration Schedule Review

New Server Request : General Back Step 1 of 4 Next Save As Deployment Plan... Finish Cancel

Request Name
Specify a name for your request. This will help you track it later.
* Name SSAUSER3 - Tue Jun 04 09:49:16 PDT 2013

Destination
Select the zone in which servers will get created.
* Zone SandZone
Description SandZone

Source
Select the source software (assembly or template) to be used for this request. ?
* Source SIDB Assembly
Description

Assembly Instance Name
* Name SIDB Assembly

Deployment Plan(Optional)
Deployment plans allow you to record inputs and use them later while creating new requests using standard values.
Name
Description

4. Click the **Search** icon in the **Source** field. Select an assembly or template to be used for this request and enter the server name. For details on how to create an assembly component, see [Section 9.8.3.1.1, "Creating an Assembly Component"](#). For details on how to create a template component, see [Section 9.8.3.1.2, "Creating a Template Component"](#).

Note:

- The source file that you select must be in the .ova format (for assemblies), and .tgz format (for templates).
 - You can see only the assemblies and templates for which you have access (granted by the user with the EM_SSA_ADMINISTRATOR role),
-

5. You can optionally select a Deployment Plan to pre-fill values in the deployment flow from an existing saved or imported deployment plan.
6. Click **Next**. If you have selected an assembly, you will see the following page.

Figure 8–3 New Server Request: Deployment Configuration (Assembly)

General Deployment Configuration Schedule Review

New Server Request: Deployment Configuration

Back Step 2 of 4 Next Save As Deployment Plan... Finish Cancel

Configure Networks

Name	Number of Servers	Auto Scalable	Deploy	Server Size	Deployment Option	Server Name Prefix
Default	Minimum	Maximum	Initial			
sidb	1	1	1	1		
sidbA_linux64_11203psu1/sidb:sidb	1	1	1	1		

Selected Row sidbA_linux64_11203psu1/sidb:sidb

sidbA_linux64_11203psu1/sidb:sidb

Deployment Option

Server Configuration Product Configuration

General

Enable High Availability ☐

* Root Password

* Confirm Root Password

Keymap en-us (English, United States)

Tags

Enter one or more comma separated tags. Use meaningful keywords that can be used to search for server(s).

Server Size: Custom

* Maximum Memory(MB) 2048

* Memory(MB) 2048

* Maximum Number of CPUs 1

* Number of CPUs 1

as template on expiry ☐

Network

View Add Edit Remove

Name	Quality Of Service	Backend Network	IP Assignment	Network Profile Name
eth0	network-1	Any Network T...	DHCP	

7. If you have select a template, you will see the following page.

Figure 8–4 New Server Request: Deployment Configuration (Assembly)

General Deployment Configuration Schedule Review

New Server Request: Deployment Configuration

Back Step 2 of 4 Next x

Specify the resource configuration parameters for your servers. These settings will apply to all the servers in this request.

Number Of Servers 1 Configure Individual Servers

* Name SSA_USER11_OEL5U7_server

Server Size: Custom

* Maximum Memory(MB) 1024

* Memory(MB) 1024

* Maximum Number of CPUs 2

* Number of CPUs 2

Enable High Availability ☐

Keymap en-us (English, United States)

Tags

Network

View Add Edit Remove

Name	Quality Of Service	Backend Network	Network Profile Name
No Networks Configured.			

Storage

View Quality Of Service System Defined Custom

Disk Name	Size (GB)	Mode
No Disks Configured.		

- Depending on your selection, the configuration properties defined for the assembly or template are displayed. Click on a tier that you wish to configure.
- Click on the **Server Configuration** tab. The following regions can be configured:
 - General**

- **Enable High Availability:** If you want to enable high availability for this server, select this check box.
- **Root Password:** The root password to access the server.
- **Keymap:** Select a key board type for the server.
- **Tags:** You can specify tags that can be used to identify the servers. You can use these tags to search for servers in the My Servers page.
- **Network:** The network interfaces for the server. Click **Add** to add a network interface card. In the Add a Network Interface Card, specify the name of the NIC card and click **OK**.

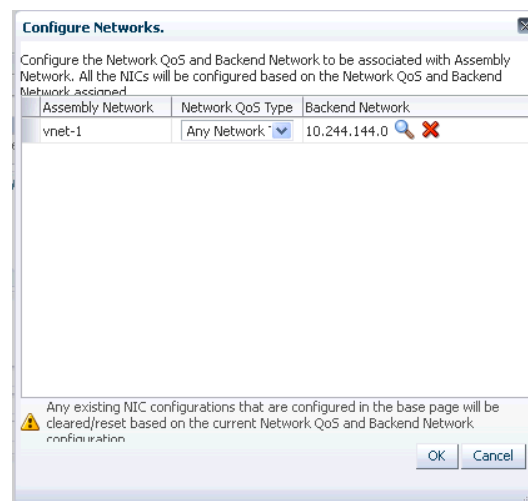
Note: You can use the **Edit** option to modify the IP Assignment of the NIC. This option can be performed only if:

- The NIC is a part of the assembly definition.
 - The NIC does not have any assembly networks associated with it. For NICs associated with assembly networks, the IP Assignment can be changed only if the NICs have been assigned with a backend network.
-

To modify the QoS and Backend Network, click the **Configure Networks** in the top right hand corner of the page.

Note: If Network Restriction has been enabled by the self service administrator, the backend network cannot be edited.

Figure 8–5 SSA: Configure Networks



On this page, you can configure the Network QoS and Backend Network to be associated with Assembly Network. All the NICs will be configured based on the Network QoS and Backend Network that have been assigned. Click **OK** to return to the previous page.

- **Server Size:** If the server size is large, medium, or small, you can modify the maximum memory and maximum number of CPUs that can be allocated to

the server. If the server size is custom, you can specify the memory that can be allocated and the number of CPU cores to be assigned to the server.

- **Storage:** The storage disks assigned to the server. This can be system defined or custom.
10. Click on the **Product Configuration** tab. This tab shows the properties of the products in the tier. You can choose to view All Properties or Required Properties. For each property, the default value and the current value is displayed. Select a property to modify the value if applicable.
 11. If a tier has more than one server, you can configure each server separately. Click the **Configure Individual Servers** link on the top right corner of the lower region. The Deployment Configuration: Configure Individual Servers page appears. You can modify the configuration of the individual server and click **Continue** to return to the New Server Request: Deployment Configuration page.
 12. Specify the schedule for the request and click **Next**.

Note: The schedule for the new server request is dependent on the schedule defined by the EM_SSA_ADMIN in the Self Service Portal Setup pages. See [Section 7.1, "Setting Up the Self Service Portal"](#)

13. In the Review page, you can click **Finish** to submit the request or **Save as Deployment Plan**. If you select the **Save as Deployment Plan** option, the request will be saved as a Deployment Plan that can be used to record inputs that can be used to create new request.

8.3 Viewing Requests

The Requests tab lists all the requests made by the SSA user.

Figure 8–6 Requests

Infrastructure Cloud Self Service Portal Page Refreshed Mar 3, 2014 7:27:02 PM PST

Manage Infrastructure - Oracle VM Cloud Services Overview My Preferences

View Edit Delete Search Name

Name	Type	Status	Submission Date	Start Date	End Date	Ser	To Me	Total
							CP	(M)
SYSMAN Assembly Creation 1393586381420	Assembly Deployment	Execution Error	Feb 28, 2014 3:1...	Feb 28, 2014 3:1...		1	1	40
SYSMAN Assembly Creation 1393586362773	Assembly Deployment	Execution Error	Feb 28, 2014 3:1...	Feb 28, 2014 3:1...		1	1	40
SYSMAN Assembly Creation 1393586256898	Assembly Deployment	Execution Error	Feb 28, 2014 3:1...	Feb 28, 2014 3:1...		1	1	40
SYSMAN - Thu Feb 27 00:47:50 PST 2014	Assembly Deployment	Execution Error	Feb 27, 2014 12:...	Feb 27, 2014 12:...	Mar 6, 2014 12:4...	1	2	20
SYSMAN - Thu Feb 27 00:44:03 PST 2014	Assembly Deployment	Execution Error	Feb 27, 2014 12:...	Feb 27, 2014 12:...	Mar 6, 2014 12:4...	1	2	20
SYSMAN Assembly Creation 1393488845002	Assembly Deployment	Execution Error	Feb 27, 2014 12:...	Feb 27, 2014 12:...		1	1	40
SYSMAN Assembly Creation 1393487783895	Assembly Deployment	Execution Error	Feb 26, 2014 11:...	Feb 26, 2014 11:...		1	1	40
SYSMAN Assembly Creation 1393487711277	Assembly Deployment	Execution Error	Feb 26, 2014 11:...	Feb 26, 2014 11:...		1	1	40
SYSMAN Assembly Creation 1393487645680	Assembly Deployment	Execution Error	Feb 26, 2014 11:...	Feb 26, 2014 11:...		1	1	40
SYSMAN - Wed Feb 26 00:22:23 PST 2014	Template Deployment	Successful	Feb 26, 2014 12:...	Feb 26, 2014 12:...	Mar 5, 2014 12:2...	1	1	10
SYSMAN - Tue Feb 25 04:31:37 PST 2014	Clone Guest VM	Successful	Feb 25, 2014 4:3...	Feb 25, 2014 4:3...	Mar 4, 2014 4:34...	1	1	20
SYSMAN - Tue Feb 25 04:26:51 PST 2014	Scale Up	Execution Error	Feb 25, 2014 4:3...	Feb 25, 2014 4:3...		2	4	40
SYSMAN - Tue Feb 25 04:20:18 PST 2014	Update Guest VM	Successful	Feb 25, 2014 4:2...	Feb 25, 2014 4:2...		0	1	20
SYSMAN Assembly Creation 1392982256188	Assembly Deployment	Execution Error	Feb 21, 2014 3:3...	Feb 21, 2014 3:3...		1	1	40
SYSMAN Assembly Creation 1392981993473	Assembly Deployment	Execution Error	Feb 21, 2014 3:3...	Feb 21, 2014 3:3...		1	1	40
SYSMAN Assembly Creation 1392981860372	Assembly Deployment	Execution Error	Feb 21, 2014 3:2...	Feb 21, 2014 3:2...		1	1	40
SYSMAN Assembly Creation 1392969251559	Assembly Deployment	Execution Error	Feb 20, 2014 11:...	Feb 20, 2014 11:...		1	1	40
SYSMAN Assembly Creation 1392968313403	Assembly Deployment	Execution Error	Feb 20, 2014 11:...	Feb 20, 2014 11:...		1	1	40
SYSMAN Assembly Creation 1392792651770	Assembly Deployment	Successful	Feb 18, 2014 10:...	Feb 18, 2014 10:...		1	2	20
SYSMAN VM Creation 1392728254119	Template Deployment	Successful	Feb 18, 2014 4:5...	Feb 18, 2014 4:5...		1	1	25
SYSMAN VM Creation 13927186443465	Template Deployment	Successful	Feb 18, 2014 3:3...	Feb 18, 2014 3:3...		1	1	25

The name of the request, status, start and end date, type of request, number of servers, total CPU, and memory appears. Click a Name to drill down to the Request Details page which shows complete details about the request.

You can:

- **Edit a Request:** You can edit the following types of requests:

- **Scheduled:** Select a request that is **Scheduled** and click **Edit** to modify the request configuration details. The Request Server wizard appears and you can modify the request server configuration as required. See [Section 8.2, "Requesting Servers"](#) for details.
- **Executed:** Select a request that has been executed successfully and click **Edit**. In the window that appears, specify a new End Date for the request and click **Edit** to edit the request.
- **Delete a Request:** Select a request that has been scheduled or executed to click **Delete** to delete the request.

8.4 Viewing Servers

Click the **Servers** tab to view a list of servers grouped according to the zone. On this page, the self service user can view the specific assembly and template deployments, the tiers, and the servers in each tier. You will see a list of servers that you have requested and can perform a search based on either the name of the server or the tag.

Figure 8–7 My Servers

Name	Type	Server Size	CPU	Memory (GB)	Storage (GB)	Status	Expiry Date	Tags
3282zone oelbua_assembly	Zone Assembly Instance						Apr 26, 2014 11:47:26 PM	

You can drill down to the Assembly or Tier Instance Home page or click a server name to drill down to the Server Details page. From this page, you can perform the following actions:

- **Request Servers:** You can request or reserve servers for a specific duration. See [Section 8.2, "Requesting Servers"](#) for details.
- **Assemblies:** You can start, stop, delete an assembly instance, and add tiers. Select an assembly instance from the list and from the **Actions** menu, select an appropriate option. See [Section 8.4.2, "Assembly Operations"](#).
- **Tiers:** You can start, stop, scale up, and scale down a tier instance. Select a tier instance from the list and from the **Actions** menu, select an appropriate option. See [Section 8.4.3, "Tier Operations"](#).
- **Servers:** You can modify the configuration of the server, stop, start or restart a server, clone a server, save as template, suspend, resume, and launch a VNC Console. See [Server Operations](#).

8.4.1 Zone Details Page

The Zone Details page displays the details of all assemblies, tiers, and servers in the SSA Zone.

Figure 8–8 Zone Details Page

My Servers > Zone: zone_idc

General

Zone: zone_idc
Assemblies: 2
Tiers: 2
Servers: 3

Members

Action	View	Request Servers...	Search	Name	Type	Server Size	CPUs	Memory (GB)	Storage (GB)	Status	Software Installed	Expiry Date	Tags
				Assemblies	Assembly Instance						N/A		
				Tier	Tier Instance						N/A		
				Server	Server Instance						N/A		
				OVH_OIGUA_x86_64_PVM1:ovham_0	Tier Instance						N/A		

Requests

Name	Status	Submission Date	Start Date	End Date	Servers	Total CPUs	Total Memory (MB)	Total Storage (GB)
Mon Nov 25 20:08:35 UTC 2013	Partially Succeed	Nov 25, 2013 8:	Nov 25, 2013 8:		3	6	6144	1.43
Mon Nov 25 17:44:15 UTC 2013	Partially Succeed	Nov 25, 2013 5:	Nov 25, 2013 5:		1	2	2048	0.48

From this page, depending on the entity you select, the following options are available:

- [Requesting Servers](#)
- [Assembly Operations](#)
- [Tier Operations](#)
- [Server Operations](#)

You can click a tier instance, assembly instance, or a server link to drill down to the Details page.

8.4.2 Assembly Operations

You can perform the following operations on an assembly instance:

- **Start:** Select an assembly instance and select **Start** from the **Actions** menu. A confirmation message is displayed. Click **Start** to submit the Start Assembly Instance job. You can start an assembly instance only if it has been stopped.
- **Stop:** Select an assembly instance and select **Stop** from the **Actions** menu. A confirmation message is displayed. Click **Stop** to submit the Stop Assembly Instance job. You can stop an assembly instance only if it has been started.
- **Delete:** Select an assembly instance and select **Delete** from the **Actions** menu. A confirmation message is displayed. Click **Delete** to submit the Delete Assembly Instance job.
- **Add Tier:** Select an assembly instance and select **Add Tier** from the **Actions** menu.

8.4.2.1 Assembly Details Page

This page displays the details of the SSA Assembly Instance.

Figure 8–9 Assembly Details Page

oelbu4_assembly Page Refreshed Apr 13, 2014 1:37:32 AM UTC

My Servers > Zone: 3282Zone > Assembly: oelbu4_assembly

Assembly

- Start
- Stop oelbu4_assembly
- Delete 3282Zone
- Add Tiers 1

Name	Type	Server Size	CPUs	Memory (GB)	Storage (GB)	Status	Software Installed	Expiry Date	Tags
OVM_OU8U4_x86_64_PVM1.oelbu4_assembly	Tier Instance						N/A	Apr 26, 2014 11:47:26 PM...	
	Server	Custom	2	2.0	12.00		bd	Apr 26, 2014 11:47:26 PM...	

Requests

Name	Status	Submission Date	Start Date	End Date	Servers	Total CPUs	Total Memory (MB)	Total Storage (GB)
	Successful	Apr 12, 2014 11:4...	Apr 12, 2014 11:4...	Apr 26, 2014 11:4...	1	2	2048	6.48

It contains the following sections:

- **General:** This section displays the name of the assembly, the zone to which it belongs, the total number of servers or guest VMs deployed by the assembly, and the date on which the assembly was created.
- **Members:** A hierarchical view of the members in the assembly is displayed here. Click on a link to drill down to the member Home page.
- **Request:** This section lists all the requests corresponding to the assembly and its members. Click on a request link to drill down to the Request Details page.

You can perform operations such as **Start**, **Stop**, **Delete**, and **Add Tiers** on the assembly instance. Select the required option from the Assembly menu and click **OK** in the confirmation page to perform the selected operation.

8.4.3 Tier Operations

You can perform the following operations on an assembly tier instance:

- **Start:** Select a tier instance and select **Start** from the **Actions** menu. A confirmation message is displayed. Click **Start** to submit the Start Tier Instance job. You can start a tier instance only if it has been stopped.
- **Stop:** Select a tier instance and select **Stop** from the **Actions** menu. A confirmation message is displayed. Click **Stop** to submit the Stop Tier Instance job. You can stop an tier instance only if it has been started.
- **Scale Up:** You can scale up or add more servers to a tier instance. See [Section 8.4.3.1, "Scaling Up a Tier Instance"](#).
- **Scale Down:** You can scale down or stop servers that are part of a tier. See [Section 8.4.3.2, "Scaling Down a Tier Instance"](#).

8.4.3.1 Scaling Up a Tier Instance

A scalable tier allows creation of multiple servers and has a minimum and maximum limit. The scalability of the tier depends on how it is defined in the Assembly. See [Section 9.8.4, "Provisioning Guest Virtual Machines Using Oracle Virtual Assemblies \(OVA\)"](#) for details. To scale up a tier instance, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_SSA_USER` role.
2. Click the **My Servers** tab, expand an assembly and click on a tier of the assembly.
3. In the Tier Instance Home page, click the **Scale Up** option from the Tier menu.

4. The Scale Up: General page appears. The name of the request, the assembly, zone, and number of instances appears. Click **Next** to continue.
5. In the Server Selection page, select the servers for the scale up operation. As a part of the Scale Up operation, either the existing shutdown servers of the tier are brought up and/or new servers are created to the Max Instance Number Limit if required.

If the Max Instance Number Limit of the tier is 4 and only 1 server has been created during the assembly deployment, the tier can be scaled up by 3 new servers. Click **Next** to continue.

6. If new servers are to be provisioned, you can modify their configuration in the Server Configuration page. The values are pre-filled with the values that specified during the deployment of the assembly. Modify the details if required and click **Next** to continue.

Note:

- If the tier is auto scalable, the Server Configuration page cannot be modified.
 - If Network Restriction has been enabled (see [Section 5.7, "Setting Up Networks"](#)), the backend network cannot be modified.
-
-

7. Specify the schedule for this operation and click **Next**.
8. Review the details and click **Finish** to scale up the tier.

8.4.3.2 Scaling Down a Tier Instance

You can scale down the servers belonging to a tier. To scale down a tier, follow these steps:

1. Log in to Enterprise Manager as an user with the EM_SSA_USER role.
2. Click the **My Servers** tab, expand an assembly and click on a tier of the assembly.
3. In the Tier Instance Home page, click the **Scale Down** option from the **Tier** menu.
4. In the Scale Down page, select the servers to be included in the Scale Down operation and click **OK**. The selected servers will be stopped and scaled down.

8.4.3.3 Tier Details Page

This page displays the details of the SSA Tier Instance.

Figure 8–10

Name	Type	Server Size	CPUs	Memory (GB)	Storage (GB)	Status	Software Installed	Expiry Date	Tags
[Redacted]	Server	Custom	2	2.0	12.00	Running	oel	Apr 26, 2014 11:47:26 PM...	

Name	Status	Submission Date	Start Date	End Date	Servers	Total CPUs	Total Memory (MB)	Total Storage (GB)
[Redacted]	Successful	Apr 12, 2014 11:4...	Apr 12, 2014 11:4...	Apr 26, 2014 11:4...	1	2	2048	6.48

It contains the following sections:

- **General:** This section displays the name of the tier, the zone to which it belongs, the total number of servers or guest VMs deployed, and the date on which the tier was created.
- **Members:** A hierarchical view of the members in the tier is displayed here. Click on a link to drill down to the member Home page.
- **Request:** This section lists all the requests corresponding to the tier and its members. Click on a request link to drill down to the Request Details page.

You can perform operations such as **Start**, **Stop**, **Scale Up**, and **Scale Down** on the tier instance. Select the required option from the Tier menu and click **OK** in the confirmation page to perform the selected operation.

8.4.4 Server Operations

You can perform the following operations for a server:

- **Modify Configuration:** Select the server to be modified and select **Modify Configuration** from the **Actions** menu. Note that the server must be in a **Stopped** status if the configuration is to be modified.
- **Clone:** Select the server to be cloned and select **Clone** from the **Actions** menu. See
- **Delete:** You can delete a server that is **Down** or **Suspended**. Select the server to be deleted and select **Delete** from the **Actions** menu. A confirmation message is displayed. Click **Delete** to submit the Delete Server Job.
- **Save as Template:** You can save a server that is **Down** or **Suspended** as a template for future use. Select the server and select **Save as Template** from the **Actions** menu. The Save as Template page appears. You can specify the following details:
 - **Template Name:** Enter a unique name for the template
 - **Request Name:** Enter a name for the Save as Template request.
 - **Keymap:** Select a keyboard type for the server.
 - **Configuration:** In this region, you can specify the default and maximum memory and number of CPUs.

Click **OK** to save as template.

- **Start:** Select a server that is **Stopped** and select **Start** from the **Actions** menu. A confirmation message is displayed. Click **Start** to submit the Start Server job to start the server.
- **Stop:** Select a server that is up and running and select **Stop** from the **Actions** menu. A confirmation message is displayed. Click **Stop** to submit the Stop Server job to stop the server.
- **Restart:** A server that is up and running can be restarted.
- **Suspend:** Select a server that is up and running and select **Suspend** from the **Actions** menu. A confirmation message is displayed. Click **Suspend** to submit the Suspend Server job.
- **Resume:** Select a server that is **Suspended** and select **Resume** from the **Actions** menu. A confirmation message is displayed. Click **Resume** to submit the Resume Server job to start the server.
- **Launch VNC Console:** Select this option from the **Actions** menu to launch a VNC Console. This option is available only if the server is up and running.

8.4.4.1 Modifying the Server Configuration

Select the server that is to be modified and select **Modify Configuration** from the **Actions** menu. The following page appears.

Figure 8–11 Modifying the Server Configuration

Modify Configuration : slc01zgc.us.oracle.com [OK] [Cancel]

General

Enable High Availability ☐

Keymap: en-us (English, United States) [v]

Tags: []

Server Size : Custom

Maximum Memory(MB) 2048 Maximum Number of CPUs 2

* Memory(MB) 2048 * Number of CPUs 2

Network

View [v] Add [+] Remove [-]

Name	Backend Network
00-21:86-52:a1:1f	

Storage

View [v] Add [+] Attach [A] Delete... [-]

Disk Name	Size (MB)
system (7)	12288

Total Size 12.00 GB

Request Name

Specify a name for your request. This will help you track it later.

* Name [Name: Sun Apr 13 02:09:09 UTC 2014]

Schedule

Start [Immediately] [Later] [v] (UTC+00:00) GMT

You can modify the details such as Server Size, Keymap, Tags, Network, and Storage. Click **OK** to save the configuration.

Note: If the server is up and running, you cannot modify the Maximum Memory, Maximum Number of CPUs, Network, and Storage. To modify these parameters, you must stop the server and then select the **Modify Configuration** option.

8.4.4.2 Cloning the Server

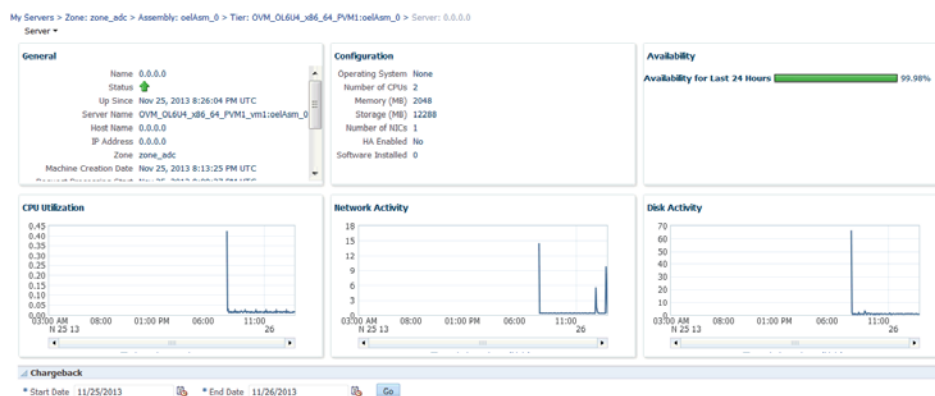
You can clone a server to create one or more servers. Select a server and select **Clone** from the **Actions** menu. The Clone Server Request: General page appears. Enter the name for the clone request. The name of the source server cloned and the zone in which the cloned server will appear is displayed. Click **Next** to continue to the Clone Server Request: Deployment Configuration page. In this page, you can specify the number of servers to be cloned and the resource configuration parameters. These parameters will be applicable to all the servers being cloned. Specify the schedule, review the details, and click **Finish** to submit the Clone Server operation.

8.4.4.3 Server Details Page

The Server Details page displays detailed information about the server. From this page, you can modify configuration, clone, stop, restart, suspend, resume, and launch VNC console.

This page contains the following sections:

Figure 8–12 Server Details Page



- **General:** Displays information like status of server, the associated zone, date from which it is available, and the expiry date.
- **Configuration:** Displays configuration details of the server such as number of CPUs, memory, storage, operating system, and other software installed on the server.
- **Availability:** Shows the availability status of the server over the last 24 hours.
- **Charts:** You can see the Availability chart that displays the status of the server for past 24 hours, and the CPU, Memory, and Storage Utilization charts.
- **Chargeback Details:** This section displays all the charge back break-up data for the server. The charge incurred will be calculated from the server requested date to the current date.

8.5 Viewing Storage

Click the **Storage** tab to view all the storage elements grouped by the Guest VMs with which they are associated. The Storage tab lists all the Servers owned by the EM_SSA_USER along with all the storage resources in tree format. The top level nodes represent the servers owned by the user and the sub nodes represent the storage disks that belong to the server. You can do the following:

- **Request Storage:** This action allows the user to add a shared or non-shared storage disk to a server. Select one or more servers and click **Request Storage**. Enter the Disk Name, Size, and Mode. Select the Shared Disk check box to add a shared disk. If you create a non-shared storage disk, it is available only for the server on which it is created. A shared storage disk can be assigned to other servers. If you select multiple servers, you can create only non-shared storage disks.
- **Assign Storage:** This action allows the user to assign shared storage disk to any other server owned by the EM_SSA_USER. Select a server and click **Assign Storage**. The list of available shared storage disks are displayed. Select a disk from the list and click **OK** to assign the shared storage disk to the server.
- **Release Storage:** Select a server and click **Release Storage**. This action allows the user to release an existing shared or non-shared storage disks.

8.6 Viewing Chargeback Details

Click the **Chargeback** tab to view the chargeback details. The tab contains the following sections:

- **Charge Trend:** The Charge Trend shows the charges across a date range for various metrics. You can set a date range and click **Go** to recalculate charges.
- **Details:** This section shows charge details for the specified date range. You can reorder the data by selecting an option from the Detail Level drop-down menu. Click **Export** to export the details of the charge plan to a .csv file.
- **Charge Plans:** This section allows you to select a zone to see the charge plan in effect for the target type.
- **Oracle VM Guest (Default):** If you are using the Extended Charge Plan, the base plan for the Oracle Guest VM target type appears here.

8.7 Viewing Library

Click the **Library** tab to view the list of assemblies, templates, and deployment plans that you can access. You can choose to view:

- **Public:** The list published by the SSA Administrator for your role. The assemblies, templates and deployment plans on which you have view privileges. You will see the assemblies, templates, or deployment plans if the EM_SSA_ADMINISTRATOR has published them or if another EM_SSA_USER has made them shareable.
- **Private:** These include the assemblies, templates, and deployment plans that you own. Generally, an SSA user may not own assemblies but may own templates and deployment plans.

You can request servers from this page. See [Section 8.2, "Requesting Servers"](#) for details.

You can upload software, share, delete, or stop sharing a software component that you own. Select a component from the list and click **Share**. Select one or more users with whom the entity is to be shared and click **Share**.

To unshare an entity, select a shared entity from the list and click **Stop Sharing**. The list of users with whom this component has been shared appears. Select one or users from the list and click **Stop Sharing**.

To upload software, click **Upload**. In the dialog box that appears, select the source file to be upload, enter a name and description, and specify the type (Assembly or Template) of component being uploaded. Click **Upload** to upload to software to My Library.

8.8 Viewing Policies

Click the **Policies** tab to view the list of policies that you have defined. You can create a new Performance or Schedule Based Policy or a Policy Group. For example, you can define a policy to start an automatic scale up for a tier if the CPU Utilization is greater than 90 for 5 consecutive occurrences.

For more details on creating and using policies, see [Section 6.1, "Managing Cloud Policies"](#).

8.9 Viewing Preferences

Click **Apply** to save the preferences. The values specified here will be used when you request resources using Infrastructure Self Service Portal.

Click the **Preferences** link on the top right hand corner of the page. The following window appears:

Figure 8–13 Preferences

The screenshot shows a 'Preferences' window with a sidebar on the left containing links: General, Infrastructure - Oracle Co, Infrastructure - Oracle VM, Databases, Middleware, and Tests. The 'General' tab is selected. The main area contains the following fields:

- Email Address:** A text input field with a 'Test Email' button to its right.
- Locale:** A dropdown menu currently set to 'English'.
- Request Notifications:** An unchecked checkbox.
- Request Status:** A dropdown menu.
- Instance Expiry Notifications:** An unchecked checkbox.
- Days before first notification:** A text input field.
- Days before second notification:** A text input field.
- Quota Notifications:** An unchecked checkbox.
- Quota Threshold (%):** A text input field.
- Self Service Default Portal:** A dropdown menu currently set to 'Infrastructure - Oracle VM'.

At the bottom right of the window are 'Apply' and 'Cancel' buttons.

Before you request resources using SSA, you can set up your user profile by specifying the following details:

- **General Preferences**
 - **Email Address:** The default email address to be used to receive notifications.
 - **Locale:** The default locale for receiving cloud notifications.
 - **Request Notifications:** Select this checkbox to receive notifications of different statuses of the request.
 - **Request Status:** If you select the **Request Notifications** checkbox, select the status for each you wish to receive notifications from the drop down list.
 - **Days Before the First / Second Notification:** If you select the Instance Expiry Notifications checkbox, specify the number of days before the first and second notifications are sent.
 - **Quota Notification:** If you select this checkbox, notifications are sent when the quota reaches a specified threshold.
 - **Quota Threshold (%):** If you have selected the **Quota Notification** checkbox, specify the quota threshold in this field.
 - **Self Service Portal:** Select the default Self Service Portal page that should appear when you log in to the Self Service Portal.

Administering and Monitoring an IaaS Cloud

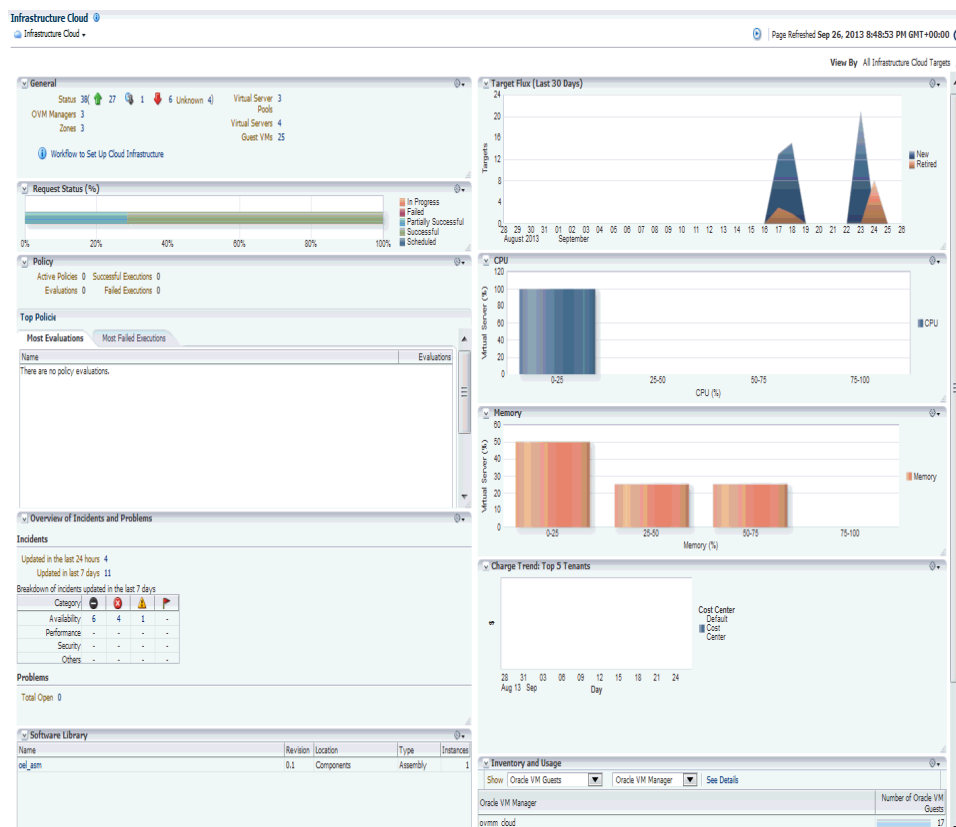
This chapter describes the monitoring and administrative tasks that you can perform on the zones, virtual server pools, virtual servers and guest virtual machines within an IaaS Cloud. It includes the following sections:

- [Viewing the Infrastructure Cloud Home Page](#)
- [Viewing the OVM Manager Home Page](#)
- [Viewing and Managing Members](#)
- [Managing Zones](#)
- [Viewing the Virtual Server Pool Home Page](#)
- [Managing Virtual Servers](#)
- [Managing Guest Virtual Machines](#)
- [Deploying Guest Virtual Machines](#)
- [Viewing the Infrastructure Request Dashboard](#)

9.1 Viewing the Infrastructure Cloud Home Page

The Cloud target is available out of the box and represents the entire virtualization infrastructure monitored by Enterprise Manager Cloud Control. You can view and monitor the various targets in the data center from the Infrastructure Cloud Home page. To view the Infrastructure Cloud Home page, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**. The Infrastructure Cloud Home page shows the various targets such as zones, pools, and virtual servers, request status, policies, and so on. Click the video link to view a demo on setting up the cloud infrastructure.

Figure 9–1 Infrastructure Cloud Home

The Infrastructure Cloud Home page shows the following details:

- **General:** Shows the number of OVM Managers, zones, and servers, and guest virtual machines in the cloud and the status of each target. Select a link to drill down to the Members page.
- **Target Flux:** Shows the number of targets (Guest VMs, Oracle VM Managers, Zones, server pools, virtual servers) created and deleted over the last 30 days.
- **Request Status:** Shows the status of various requests and reservations. Click the graph to drill down to the Requests page.
- **CPU & Memory:** Shows the CPU and memory utilization by the virtual servers in the data center.
- **Software Library:** Shows the number of assemblies and templates available in the software library and how many have been deployed.
- **Policy:** Shows the status of the various policies that have been defined for the cloud. It shows the number of corrective actions that were executed and whether they were successful. Click the graph to drill down to the Policy Home page.
- **Overview of Incidents and Problems:** Shows the various incidents and policy violations that have occurred in the last 24 hours.
- **Charge Trend:** Shows the charge back break-up data across the cloud. It lists the top 5 requests that have incurred the highest cost.
- **Inventory and Usage:** Shows the inventory summaries for virtual servers, guest virtual machines, and assembly instances. Select an option from the Show drop

down list to view the details. You can view the summary information in the context of different dimensions. For example, for Oracle VM Servers, you can view the number of virtual servers under each Oracle VM Manager, zone, virtual server pool, and so on.

Click on the bar charts to drill down multiple levels of inventory details. Click **See Details** to drill down to the Inventory and Usage Details page which provides detailed information on the selected target and associated inventory charts.

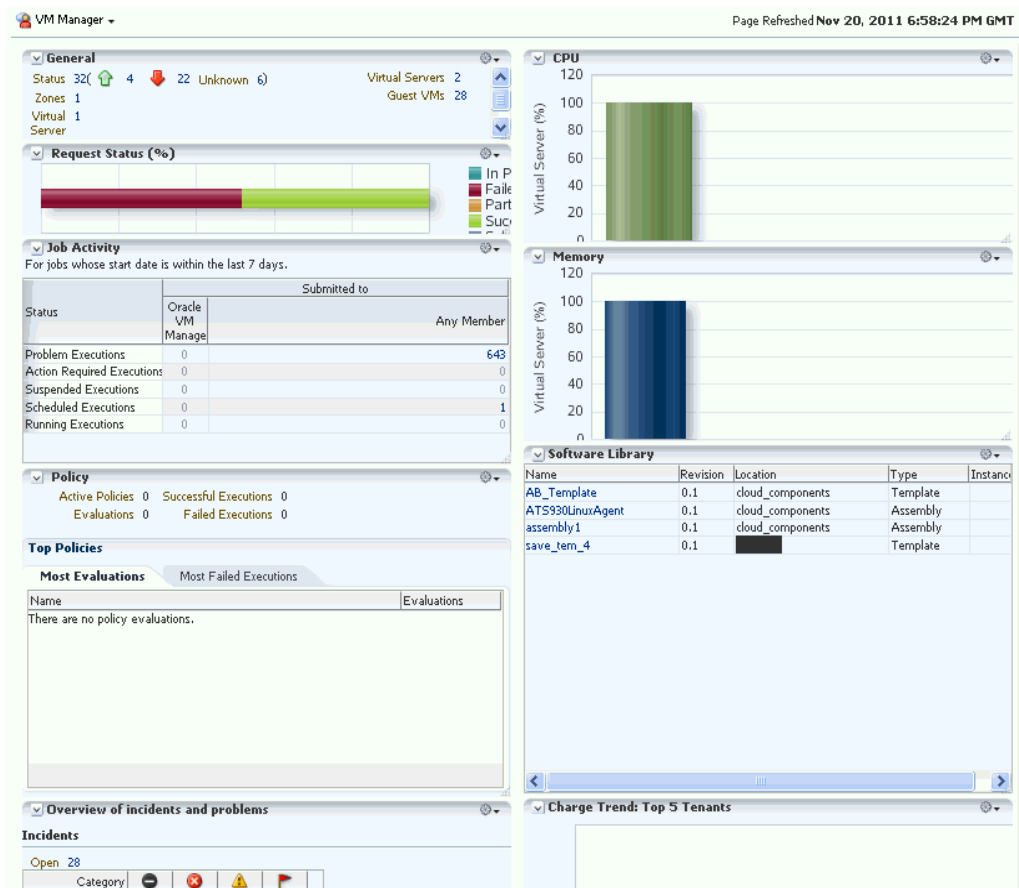
Before you can start monitoring a virtualization target, you must register the OVM Manager target. See [Section 5.3, "Registering the Oracle VM Manager"](#) for details.

9.2 Viewing the OVM Manager Home Page

The OVM Manager provides the interface to monitor zones, virtual servers, virtual server pools, and guest virtual machines. A zone is a set of virtual server pools. Each virtual server pool contains one or more virtual servers and guest virtual machines. A virtual server pool cannot belong to more than one zone. To view the OVM Manager Home page, follow these steps:

1. From the Enterprise menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Click on an OVM Manager target from the left panel. The OVM Manager Home page shows the following details:

Figure 9–2 OVM Manager Home



- **General:** Shows the number of zones, and servers, and guest virtual machines under the OVM Manager and the status of each target. Click on a link to drill down to the Members page.
- **Request Status:** Shows the status of all requests for this OVM Manager. Click on the graph to drill down to the All Requests page.
- **Job Activity:** Shows the list of jobs started within the last 7 days.
- **Policy:** Shows the status of all the policies that have been defined for the OVM Manager. It shows the number of corrective actions that were executed and whether they were successful.
- **Overview of Incidents and Problems:** Shows all the incidents and problems reported on the OVM Manager and member targets.
- **Inventory and Usage:** Shows the inventory summaries for virtual servers, guest virtual machines, and assembly instances. Select an option from the Show drop down list to view the details. You can view the summary information in the context of different dimensions. For example, for Oracle VM Servers, you can view the number of virtual servers under each Oracle VM Manager, zone, virtual server pool, and so on.

Click on the bar charts to drill down multiple levels of inventory details. Click **See Details** to drill down to the Inventory and Usage Details page which provides detailed information on the selected target and associated inventory charts.

- **CPU & Memory:** Shows the CPU and memory utilization by the virtual servers under the OVM Manager.
 - **Software Library:** Shows the templates and assemblies that have been deployed.
 - **Charge Trend: Top 5 Tenants:** Shows the charge back break-up data across the OVM Manager. It lists the top 5 requests that have incurred the highest cost.
3. From the OVM Manager Home page, you can do the following:
- Edit OVM Manager
 - Synchronize OVM Manager
 - Deregister OVM Manager
 - Create a Zone
 - Create a Virtual Server Pool
 - Discover a Virtual Server
 - Manage Unowned Virtual Server
 - Manage Networks
 - Manage Storage
 - Manage Storage Repository
 - Manage YUM Repository
 - Manage NTP Configurations

9.3 Viewing and Managing Members

You can view and manage members for one or more virtualization targets on this page.

1. From the **Enterprise** menu select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on the **Infrastructure Cloud** menu, select **Members**, then select **Show All**.

Members

Search [Advanced Search](#)

Action All

Target Name	Status	Type	Operating System	Memory (MB)	CPU	Utilization
▶ Exalogic_OVMM		OVM Manager				
▶ OVM Manager		OVM Manager				
▶ OVM311_Ken		OVM Manager				
▶ [REDACTED]		OVM Manager				
▶ [REDACTED]		OVM Manager				

3. The list of OVM Managers, Zones, Virtual Server Pools, Virtual Servers, and Guest Virtual Machines that can be managed from the Infrastructure Cloud appear.
4. You can:
 1. Click on a target to drill down to its Home page.
 2. Select a target and click on an option from the **Actions** menu. The actions you can perform vary based on the target you have selected.

Note: You can view and manage the members under a OVM Manager target, zone, virtual server pool, or virtual server. From the Infrastructure Cloud Home page, select the appropriate target (such as an OVM Manager, zone, virtual server pool, or virtual server) from the left panel. From the Infrastructure Cloud menu, select **Members**, then select **Show All**. The Members page for the selected target appears and you can perform various administrative activities on these targets.

9.4 Managing Zones

This section describes the following:

- [Viewing the Zone Home Page](#)
- [Creating or Editing a Zone](#)
- [Deleting a Zone](#)

9.4.1 Viewing the Zone Home Page

A zone is a logical grouping of resources like servers and storage entities. It is a logical entity used to organize the guest virtual machines exposed to the self service application user. Zones have metrics that show the aggregate utilization of the zone. To view the Zone Home page, follow these steps:

1. From the **Enterprise** menu select **Cloud**, then select **Oracle VM Infrastructure Home**. In the left panel, click on the zone to be viewed. The following details are displayed:

Figure 9–3 Zone Home



- **General:** Shows the number of virtual servers, virtual server pools, and guest virtual machines under this zone and the status of each target. Click on a link to drill down to the Members page.
- **Job Activity:** Shows the list of jobs started within the last 7 days.
- **Overview of Incidents and Problems:** Shows all the incidents and problems reported on the OVM Manager and member targets.
- **CPU and Memory Usage Trending:** Shows the average CPU and memory utilization over the last 30 days.
- **CPU and Memory:** Shows the CPU and memory utilization by the virtual servers and guest virtual machines in this zone.

9.4.2 Creating or Editing a Zone

A zone is a collection of virtual server pools which share storage. Follow these steps to create a zone:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.

2. Select the OVM Manager target for which the zone is to be created, and click **Create Zone** from the OVM Manager menu.
3. In the Create Zone page, specify the zone name and description.
4. Indicate if this zone will be used by the self service users by checking the **Infrastructure Cloud Self Service Zone** check box.
5. Click **Add** in the Virtual Server Pool section to add one or more virtual server pools. See [Section 5.14, "Creating a Virtual Server Pool"](#) for details.
6. Click **Create Zone** and click **OK**. After the successful completion of this job, the virtual server pools appear in the newly created zone on the Virtualization Central Home page.

Note: To edit an existing zone, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
 2. Select a zone target from the left panel.
 3. From the **Zone** menu, select **Target Setup**, then select **Edit VM Zone**.
-

9.4.3 Deleting a Zone

To delete a zone, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Click on a zone target from the left panel to navigate to the Zone Home page. From the **Zone** menu, select **Target Setup**, then select **Delete**. A confirmation message appears.
3. Click **OK** to delete the zone. Any virtual server pools that are members of this zone will now be moved under the OVM Manager target.

Note: If Chargeback has been enabled for the zone (or virtual server pools / guest virtual machines within the zone) being deleted, the metric data is automatically disabled when the target is deleted.

9.4.4 Deleting a Zone from Enterprise Manager

To delete a zone from Enterprise Manager, follow these steps:

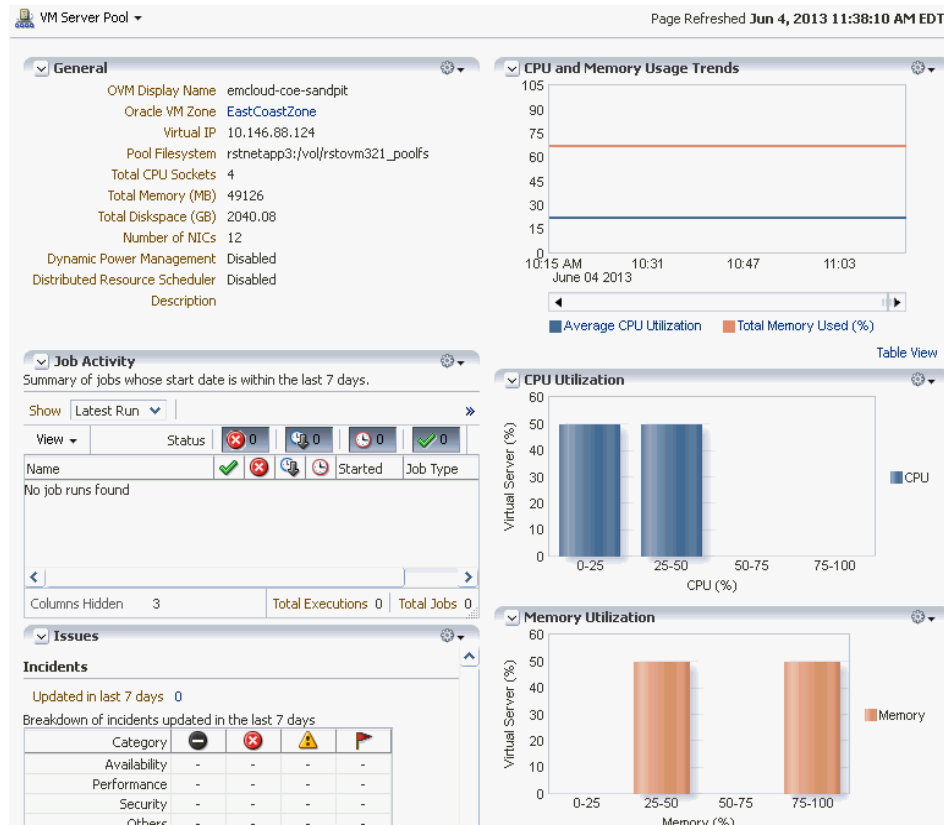
1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Click on a zone target from the left panel to navigate to the Zone Home page. From the **Zone** menu, select **Target Setup**, then select **Delete from Enterprise Manager**. A confirmation message appears.
3. Click **OK** to delete the zone. The zone and the associated targets under this zone will be removed from Enterprise Manager. After synchronization, these targets will be added back to Enterprise Manager.

Note: If Chargeback has been enabled for the zone (or virtual server pools / guest virtual machines within the zone) being deleted, the metric data is automatically disabled when the target is deleted.

9.5 Viewing the Virtual Server Pool Home Page

A virtual server pool is logically an autonomous region that contains one, or more virtual servers. A virtual server pool may or may not belong to a zone. However, it can belong to only one zone at a time. The following details are displayed:

Figure 9–4 Virtual Server Pool Home



- **General:** Shows details of the virtual server pool such as the zone to which it belongs, the number of CPUs, memory and storage, and number of NICs.
- **Job Activity:** Shows the list of jobs started within the last 7 days.
- **Issues:** Shows all the incidents and problems reported on the virtual server pool and member targets.
- **CPU and Memory Usage Trends:** Shows the average CPU and memory utilization by the virtual servers in the zone over the last 30 days.
- **CPU and Memory Utilization:** These charts show the CPU and memory utilization by all the virtual servers in the server pool.

9.6 Managing Virtual Servers

This section describes the following:

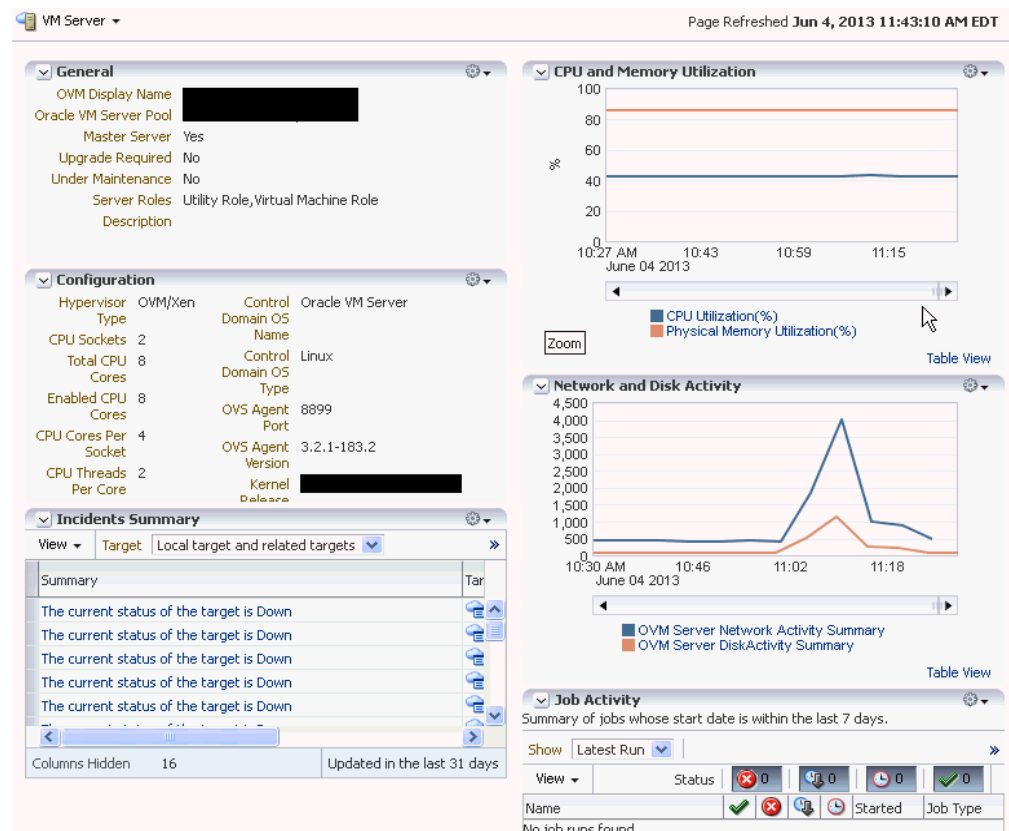
- [Virtual Server Home Page](#)
- [Editing a Virtual Server](#)
- [Upgrading a Virtual Server](#)

- Starting and Stopping a Virtual Server
- Performing Maintenance on the Virtual Server

9.6.1 Virtual Server Home Page

A virtual server is a generic term used to describe a physical machine which has virtualization software (hypervisor) running on it. A virtual server can belong to one and only one virtual server pool at a time. Guest virtual machines and resources are also associated with the server pools.

Figure 9–5 Virtual Server Home



The following regions are displayed:

- **General:** Shows details of the virtual server such as the virtual server pool it belongs to, whether the server needs to be upgraded, if it is under maintenance, and so on.
- **Job Activity:** Shows the list of jobs started within the last 7 days.
- **Configuration:** The virtual server configuration such as number of enabled CPU cores and processors, memory, disk space, OVS Agent Port, and so on.
- **Network and Disk Activity:** The network and disk activity of the virtual server.

Note: If you are using Oracle VM Manager 3.2.4, the Disk Activity is not shown in the graph.

- **CPU and Memory Utilization:** The CPU and memory utilization of the virtual server.
- **Incident Summary:** This region shows a list of incidents and problems reported on all the Guest VMs and related targets.

9.6.2 Editing a Virtual Server

To edit a virtual server, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. In the left panel, select the virtual server that is to be edited. The Virtual Server Home page appears.
3. From the **Virtual Server** menu, select **Target Setup**, then select **Edit VM Server**. You can modify the description of the virtual server and the following fields:
 - **Configure IPMI:** Select the **Enable Server IPMI** checkbox to enable the Intelligent Platform Management Interface (IPMI). Selecting this option allows you to remotely power off a virtual server and send a wake on lan message to power on a virtual server without having to physically press the power button. If this checkbox is selected, you must enter the user name, password, and IP address of the IPMI.
 - **Server Role:** A server can be designated to perform utility or virtual machine functions by specifying the role which can be:
 - **Utility Role:** Servers with this role are used to perform non-virtual machine operations such as cloning, importing templates, creating repository, deleting assemblies and so on.
 - **Virtual Machine Role:** Servers with this role are used to run virtual machines. This role cannot be deselected if the virtual server already contains Guest VMs.
4. Click **OK** to confirm the changes.

9.6.3 Upgrading a Virtual Server

After the YUM Repository has been set up (see [Section 5.17.1, "Configuring the YUM Repository"](#)), you must upgrade the virtual server to ensure that it has the latest updates. The virtual server must be in maintenance mode if it is to be upgraded.

To upgrade the virtual server, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a VM Server from the left panel and select **Upgrade**.
3. After the virtual server has been upgraded, the virtual server will be restarted.

9.6.4 Starting and Stopping a Virtual Server

You can start a virtual server that is in a **Stopped** state. To start a virtual server, follow these steps:

Note: Before you start the virtual server, you must ensure that the IPMI has been configured. See [Section 9.6.2, "Editing a Virtual Server"](#).

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a virtual server target in the left panel and select **Start**. A confirmation message appears.
3. Click **OK** to start the virtual server.

You can stop a virtual server that is **Up**. To stop a virtual server, follow these steps:

1. Login to Enterprise Manager Cloud Control.
2. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
3. Right click on a virtual server target in the left panel and select **Stop**. A confirmation message appears.
4. Click **OK** to stop the virtual server.

9.6.5 Performing Maintenance on the Virtual Server

You can place a virtual server in maintenance mode to perform hardware and software maintenance. When a virtual server is placed in maintenance mode, any virtual machines running on the virtual server are automatically migrated to other virtual servers in the server pool, if they are available, otherwise they are stopped. The server pool roles being performed by the virtual server are also moved to other virtual servers in the server pool, if available.

To place an Oracle VM Server into maintenance mode:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select a virtual server target from left panel.
3. Right click on a virtual server target from the left panel and select the **Start Maintenance**. The virtual server target is placed in blackout mode during maintenance.

When you have finished performing maintenance, click **Stop Maintenance** for it to rejoin the server pool.

9.7 Managing Guest Virtual Machines

This section describes the following:

- [Creating a Guest Virtual Machine](#)
- [Guest Virtual Machine Home Page](#)
- [Migrating a Guest Virtual Machine](#)
- [Starting and Shutting Down a Guest Virtual Machine](#)
- [Cloning a Guest Virtual Machine](#)
- [Editing a Guest Virtual Machine](#)
- [Saving a Guest Virtual Machine as a Template](#)
- [Deleting a Guest Virtual Machine](#)
- [Deleting a Guest Virtual Machine Only From Enterprise Manager](#)

9.7.1 Creating a Guest Virtual Machine

A guest virtual machine runs on a virtual server. You can create a guest virtual machine by using one of the following methods:

- Assemblies
- Templates
- Installation Media (ISO or PXE)

For more details on creating a Guest VMs, see [Section 9.8, "Deploying Guest Virtual Machines"](#).

Before you create a guest virtual machine, you must have:

- Discovered a virtual server.
- Created a virtual server pool.
- Created the necessary components in the Software Library
- Deployed assemblies, templates, ISO images, or PXEs for creating virtual machines based on these.

9.7.2 Guest Virtual Machine Home Page

A guest virtual machine is the container running on top of a virtual server. Multiple guest virtual machines can run on a single virtual server. The following regions are displayed:

- **General:** Shows details of the guest virtual machine such as the virtual server pool, and virtual server it belongs to, and a description.
- **Networks:** Displays the network configuration for the guest virtual machine.
- **CPU and Memory Utilization:** The CPU and memory utilization of the guest virtual machine.
- **Networks and Network Activity:** The networks in the guest virtual machine and the network throughput of the guest virtual machine.
- **Configuration:** The virtual server configuration such as number of virtual CPUs, CPU priority, allocated storage and memory, whether it is HA enabled, and the domain type.
- **Job Activity:** Shows the list of jobs started within the last 7 days.
- **Incidents Summary:** Shows the various alerts and policy violations that have occurred in the last 31 days.

From the Guest Virtual Machine Home page, you can do the following:

- Edit a Guest VM
- Migrate a Guest VM
- Clone a Guest VM
- Start and Stop
- Reboot, Restart, Suspend, and Resume

9.7.3 Migrating a Guest Virtual Machine

To migrate one or more guest virtual machines, do the following

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. From the **Infrastructure Cloud** menu, select **Members**, then select **Show All**.
3. Expand the list of targets displayed and select one or more guest virtual machines from the list. From the **Actions** menu, select **Guest VMs**, then select **Migrate**. The Migrate page appears. You can select the following:
 - Running Guest VMs
 - Stopped / Suspended Guest VMs.
4. Select one or more Guest VMs from these regions, and click **Submit**.

Note: For running Guest VMs, the virtual server to which the guest virtual machine is to be migrated is auto selected by default. For stopped or suspended Guest VMs, the target server can be modified if required.

9.7.4 Starting and Shutting Down a Guest Virtual Machine

After a guest virtual machine has been created, you can start it or shut it down. When a guest virtual machine is running, you can pause or suspend it temporarily:

- [Starting a Guest Virtual Machine](#)
- [Restarting a Guest Virtual Machine](#)
- [Stopping a Guest Virtual Machine](#)

9.7.4.1 Starting a Guest Virtual Machine

When a Guest VM has not been used for a while, it may be shut down to release system resources. To use the Guest VM, you must start it:

Prerequisites

The guest virtual machine must be **Down**.

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select the guest virtual machine target from the left panel.
3. Click **Start** from the guest virtual machine menu.

9.7.4.2 Restarting a Guest Virtual Machine

You may need to reboot or restart a virtual machine if operating system updates require you to restart the virtual machine, for example Microsoft Windows updates. To reboot a guest virtual machine:

Prerequisites

The guest virtual machine must be **Up**.

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a guest virtual machine target from the left panel and click **Restart**.

9.7.4.3 Stopping a Guest Virtual Machine

You may need to stop a Guest VM that is not being used to release system resources.

Prerequisites

The guest virtual machine must be **Up**.

To stop a guest virtual machine:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a guest virtual machine target from the left panel and click **Stop**.

9.7.4.4 Killing a Guest Virtual Machine

Killing a virtual machine is equivalent to performing a power off of a virtual machine, similar to unplugging the power cable from a physical machine. This is not the recommended method of shutting down a virtual machine, but may be used if the **Stop** command fails to shut down the virtual machine.

To kill a guest virtual machine:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a guest virtual machine target from the left panel and click **Kill**.

9.7.5 Cloning a Guest Virtual Machine

Prerequisites

- At least one virtual machine must exist and be in a state appropriate for cloning to proceed.
- You can clone a guest virtual machine to create one or more new virtual machines in the same server pool.

Note: If you are using the Enterprise Manager for Oracle Virtualization 12.1.0.3 (listed as Oracle Virtualization in Self Update) plug-in or above, you can clone running guest virtual machines if the virtual disks associated with them are thin cloneable.

To clone a guest virtual machine, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select a guest virtual machine target from the left panel.
3. Click **Clone** from the guest virtual machine menu.
4. In the Select Target and Source page, specify the Request Name.
5. In the Deployment Configuration page, you can modify the following:
 - **Guest VM:**
 - **Number of Guest VMs:** The number of guest virtual machine instances being cloned.

- **Guest VM Naming:** Indicates whether the guest virtual machine names are to be automatically generated or if the names will be uploaded from a file.
- **Guest VM Name:** Enter a name of the guest virtual machine being cloned. The guest virtual machine name cannot contain any special characters.

■ **General:**

- **Enable High Availability / Start VM After Creation:** Select the **Enable High Availability** and **Start VM After Creation** checkboxes to restart the guest virtual machine automatically after any outage.
- **CPU Scheduling Priority:** Set the Priority of the virtual machine. You can select a high, medium, low, or custom priority for the virtual CPUs.
- **CPU Scheduling CAP:** This parameter defines the percentage to which the virtual CPUs can receive scheduled time. You can select a high, medium, low, or a custom percentage of scheduled time for the virtual CPUs.
- **Keymap:** The keyboard mapping that will be used by the guest virtual machine being cloned.
- **Tags:** Specify one or more comma separated tags. These tags are used to logical group the virtual machines and can be used to search for one or more virtual machines that meet a certain criteria.

■ **VM Size**

- **VM Size:** The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started. The size of the guest virtual machine (memory and CPU values).
- **Memory:** Specify the memory allocated to guest virtual machine. For a running guest virtual machine, this can be increased up to the Max Memory.
- **CPU Cores:** Specify the number of virtual CPUs for the guest virtual machine. For a running guest virtual machine, this can be increased upto the Max virtual CPU.

■ **Disk Configuration:** You can configure the storage type to specify the location of the disks of the new cloned Guest VM. You can use the Default type as specified by the server pool or select Override. If you select Override, you must specify the Storage QoS and click the Search icon in the Storage field to specify the Storage Type. In the Storage Type window, specify the following:

- **Clone Target Type:** This can be Repository or Storage Array.
- **Clone Target:** If you select Repository, select the storage location where the disk is to be created. If you select Storage Array, specify the type, which can be SAN or iSCSI storage server.
- **Clone Type:** This can be Sparse or Non-Sparse Copy. A sparse copy is a disk image file of a physical disk, taking up only the amount of space actually in use; not the full specified disk size. A non-sparse copy is a disk image file of a physical disk, taking up the space equivalent to the full specified disk size, including empty blocks.

- Apart from specifying the storage type, you can also add new disks for the Guest VM to be cloned. Click **Add New Disk** to create a new disk in repositories and connect it to the target Guest VM. Click **Attach Disk** to provide the existing disk in the repositories and connect it to the Guest VM.
6. Click **Next** to continue.
 7. On the Schedule page, specify whether the guest virtual machine is to be cloned immediately or later. Click **Next**.
 8. On the **Review** page, review the configuration details and click **Submit** to run the cloning procedure.

9.7.6 Editing a Guest Virtual Machine

Note:

- If you edit a guest virtual machine that is **Up**, you cannot modify the server size, storage and network fields. To edit these values, you must stop or halt the guest virtual machine.
- You can create a new disk for a guest virtual machine which is **Down**, if Oracle VM Manager 3.1.1 and Enterprise Manager for Oracle Virtualization 12.1.0.2 plug-in have been installed. In other cases, existing disks are attached to the guest virtual machines.

To modify the configuration of a guest virtual machine, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select a guest virtual machine target from the left panel. From the **Guest VM** menu, select **Target Setup**, then select **Edit VM Guest**. The Guest VM Configuration page appears.

Figure 9–6 Edit Guest Virtual Machine: Hardware Configuration

VM Guest Page Refreshed Aug 1, 2012 10:41:55 PM GMT

Hardware Configuration Other Configuration

General

Configure CPU and Memory

* VM Size Custom

Max. Memory (MB) 1536

* Memory (MB) 1536

Max. Virtual CPUs 1

* Virtual CPUs 1

CPU Cap 10 40 70 100 Custom

☒ Oracle VM Server will limit the allocation of physical CPU cycles, based on the CPU Cap of Guest VM

CPU Scheduling Priority 0 25 50 75 100 Custom

☒ Oracle VM Server will schedule the physical CPU cycles, based on the CPU Schedule Priority of the Guest VM

Network

View Add Delete...

MAC Address	Network	Network Type
00:21:f6:4d:70:0e	cloud_network_setup_ovm303	

Available Backend Network: 1

Storage

View Add Delete...

Disk Name	Size (MB)	Storage	Storage Type
JSnLlyoFsvnQA2_System (5122	cloud_repo_ovm_303	Repository
AB (S)	219	cloud_repo_ovm_303	Repository
JSnLlyoFsvnQA2_sys-Java	439	cloud_repo_ovm_303	Repository
JSnLlyoFsvnQA2_usr-Midd	6565	cloud_repo_ovm_303	Repository

3. In the Hardware Configuration page, you can modify the following details:

■ **General:**

- **VM Size:** The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started. The size of the guest virtual machine (memory and CPU values).
- **Memory:** Specify the memory allocated to guest virtual machine. For a running guest virtual machine, this can be increased up to the Max Memory.
- **CPU Cores:** Specify the number of virtual CPUs for the guest virtual machine. For a running guest virtual machine, this can be increased up to the Max virtual CPU.
- **CPU Scheduling Priority:** Set the Priority of the virtual machine. You can select a high, medium, low, or custom priority for the virtual CPUs.
- **CPU Scheduling CAP:** This parameter defines the percentage to which the virtual CPUs can receive scheduled time. You can select a high, medium, low, or a custom percentage of scheduled time for the virtual CPUs.

- **Network:** You can add delete virtual network interfaces. For more details, see [Section 5.7, "Setting Up Networks"](#).
- **Storage:** Select the desired storage configuration of your virtual machine, such as virtual disks and ISO file.

4. Click the **Other Configuration** tab.

Figure 9–7 Edit Guest Virtual Machine: Other Configuration

VM Guest ▾ Page Refreshed Jan 11, 2013 11:45:58 PM PST

Hardware Configuration **Other Configuration** OK Cancel

Attribute
Set the basic attributes of Guest VM

Virtual Machine Name
 Description
 Operating System Type

High Availability
Guest VM can be startup automatically after outage if HA enabled

High Availability ☐

Boot Sequence
By changing the boot order, Guest VM can be forced to boot from Disk, CDROM, or Network.

Sequence Number	Boot Type
1	<input type="text" value="None"/>
2	<input type="text" value="None"/>
3	<input type="text" value="None"/>

Network (PXE) boot path

Advanced
Configure KeyMap Name, Mouse Type and Domain Type

KeyMap Name
 Mouse Type
 Domain Type
 VM Start Policy
 Tags

- **Attribute:** You can set the basic attributes of the guest virtual machine such as the description and the type of operating system to be used.
- **High Availability:** If the **High Availability** checkbox is selected, the guest virtual machine will automatically restart after any outage.

- **Boot Sequence:** Specify the boot sequence for the guest virtual machine. This is the boot order for the guest virtual machine and indicates if the guest virtual machine is forced to boot from disk, CDROM, or network.
- **Advanced:**
 - **Keymap Name:** The name of the keyboard mapping that will be used by the guest virtual machine.
 - **Mouse Type:** The mouse type to be used for the guest virtual machine. This can be Default, PS2 Mouse, USB Mouse, or USB Tablet.
 - **Domain Type:** The domain type of the virtual machine. This can be:
 - Xen HVM:** Hardware virtualization, or fully virtualized. When you select this option you must supply an ISO file in a repository (in the Create Storage step of the wizard) from which to create the virtual machine.
 - Xen HVM, PV Drivers:** Identical to Xen HVM, but with additional paravirtualized drivers for improved performance of the virtual machine. This Domain Type is used to run Microsoft Windows guest operating systems with an acceptable performance level.
 - Xen PVM:** Enables you to select a location for the mounted ISO file from which to create the virtual machine. Before you create the virtual machine using the paravirtualized method, mount the ISO file on an NFS share, or HTTP or FTP server. You supply the location of the mounted ISO file in the Network Boot Path field in the Boot Options step of the wizard.
 - OVM/SPARC:** This domain type should be selected if the server pool and hypervisors use Oracle VM Server for SPARC as the hypervisor instead of Oracle VM Server for x86.
 - Unknown:** This hypervisor should be selected if the domain type is unknown.
- **VM Start Policy:** Select the policy to be used to start the virtual machines. You can choose:
 - Start on Best Server:** The best server in the server pool is used to start the virtual machine.
 - Start on Current Server:** The virtual machine will be started on the same server on which it was created.
- **Tags:** Specify one or more comma separated tags. These tags are used to logical group the virtual machines and can be used to search for one or more virtual machines that meet a certain criteria.

9.7.7 Saving a Guest Virtual Machine as a Template

You can save a guest virtual machine as a template and use the template for provisioning guest virtual machines.

To save a guest virtual machine as a template, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select a Guest VM target from the left panel. From the **Guest VM** menu, select **Target Setup**, then select **Save Guest VM as a Template**. The Save Guest VM as Template: Select Target and Source page appears.

3. The name of the guest virtual machine target that is to be saved as template is displayed.
4. In the Target Repository field, select the repository on which the guest virtual machine template is to be stored.
5. Specify a name for the template and click **Next**.
6. In the Save Guest VM as Template: Deployment Configuration page, you can modify the following details:
 - **General Configuration:**
 - **Memory and No. of CPU Cores:** Specify the Memory and No of CPU Cores (virtual CPUs) for the virtual machine. The number of processors is expressed in number of physical CPU cores, and is limited to 32. The memory and the number of processors that you can select is limited to the properties of the Virtual Machine Server. If you do not select a Virtual Machine Server however, you can set your desired value. You can modify the Max Virtual CPUs and Max Memory fields without restarting the Guest VM.
 - **CPU Scheduling Priority:** Set the Priority of the virtual machine. You can select a high, medium, low, or custom priority for the virtual CPUs.
 - **CPU Scheduling CAP:** This parameter defines the percentage to which the virtual CPUs can receive scheduled time. You can select a high, medium, low, or a custom percentage of scheduled time for the virtual CPUs.
 - **Storage:** Select the desired storage configuration of your virtual machine, such as virtual disks and ISO file.
 - **Tags:** Specify one or more comma separated tags. These tags are used to logical group the virtual machines and can be used to search for one or more virtual machines that meet a certain criteria.
 - **Disk:** Specify the storage type. You can use the Default type as specified by the server pool or select Override. If you select Override, you must specify the Storage QoS and click the Search icon in the Storage field to specify the Storage Type. In the Storage Type window, specify the following:
 - **Clone Target Type:** This can be Repository or Storage Array.
 - **Clone Target:** If you select Repository, select the storage location where the disk is to be created. If you select Storage Array, specify the type, which can be SAN or iSCSI storage server.
 - **Clone Type:** This can be Sparse or Non-Sparse Copy. A sparse copy is a disk image file of a physical disk, taking up only the amount of space actually in use; not the full specified disk size. A non-sparse copy is a disk image file of a physical disk, taking up the space equivalent to the full specified disk size, including empty blocks.

9.7.8 Deleting a Guest Virtual Machine

To delete a guest virtual machine, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Infrastructure Home**.
2. Click on a guest virtual machine target from the left panel to navigate to the Guest VM Home page. From the **Guest VM** menu, select **Target Setup**, then select **Delete**. A confirmation message appears.

3. Click **OK** to delete the guest virtual machine. The guest virtual machine must be down before it can be deleted. This option deletes the guest virtual machine permanently from Oracle VM Manager.

9.7.9 Deleting a Guest Virtual Machine Only From Enterprise Manager

To delete a guest virtual machine only from Enterprise Manager, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Infrastructure Home**.
2. Click on a guest virtual machine target from the left panel to navigate to the Guest VM Home page. From the **Guest VM** menu, select **Target Setup**, then select **Delete from Enterprise Manager**. A confirmation message appears.
3. Click **OK** to delete the guest virtual machine from the Enterprise Manager repository. This option does not delete the guest virtual machine from the Oracle VM Manager. You can use the **Synchronize** operation to restore the target to the Enterprise Manager repository. See [Section 5.4, "Synchronizing the Oracle VM Manager Targets"](#).

To permanently delete the guest virtual machine from the Enterprise Manager repository and the Oracle VM Manager, see [Section 9.7.8, "Deleting a Guest Virtual Machine"](#).

9.8 Deploying Guest Virtual Machines

This section describes the various options that can be used to deploy guest virtual machines. It contains the following sections:

- [Getting Started](#)
- [Deployment Options](#)
- [Prerequisites](#)
- [Provisioning Guest Virtual Machines Using Oracle Virtual Assemblies \(OVA\)](#)
- [Provisioning a Guest Virtual Machine Using Oracle VM Templates](#)
- [Provisioning a Guest Virtual Machine Using an ISO Image](#)
- [Creating PXE Bootable Guest Virtual Machines](#)

9.8.1 Getting Started

This section helps you get started by providing an overview of the steps involved in provisioning virtualized systems. Consider this section to be a documentation map to understand the sequence of actions you must perform to successfully provision virtualized systems. Click the reference links provided against the steps to reach the relevant sections that provide more information.

Table 9–1 *Getting Started with Oracle VM Provisioning*

Step	Description	Reference Link
Step 1	Understanding the Deployment Options Understand the deployment plans offered by Enterprise Manager for deploying virtualization systems.	To learn about the deployment options, see Section 9.8.2, "Deployment Options" .

Table 9–1 (Cont.) Getting Started with Oracle VM Provisioning

Step	Description	Reference Link
Step 2	Meeting the Prerequisites Before you run the Deployment Procedure, you must meet the prerequisites, such as setting up the provisioning environment, applying mandatory patches, and creating the Software Library components.	To learn about the prerequisites for provisioning guest virtual machines, see Section 9.8.3, "Prerequisites" .
Step 3	Selecting the Use Case This section covers a few use cases for the provisioning of guest virtual machines. Select the use case that best matches your requirements.	To provision a guest virtual machine using: <ul style="list-style-type: none"> ■ Assemblies: See Section 9.8.4, "Provisioning Guest Virtual Machines Using Oracle Virtual Assemblies (OVA)" ■ Templates: See Section 9.8.5, "Provisioning a Guest Virtual Machine Using Oracle VM Templates" ■ ISO Images: See Section 9.8.6, "Provisioning a Guest Virtual Machine Using an ISO Image" ■ PXE Boot: See Section 9.8.7, "Creating PXE Bootable Guest Virtual Machines"

9.8.2 Deployment Options

Enterprise Manager provides the following deployment options for provisioning guest virtual machines:

- **Virtual Machine Provisioning Using Assembly:** Creates new guest virtual machines using an assembly component.
- **Virtual Machine Provisioning Using Template:** Creates new guest virtual machines using a template component.
- **Virtual Machine Provisioning Using ISO:** Creates a new guest virtual machine using an ISO image.
- **Virtual Machine Provisioning Using PXE:** Creates a new guest virtual machine using Preboot Execution Environment. The new guest virtual machines will be PXE-booted and they will get provisioned by way of networks.
- **Cloning a Virtual Machine:** Clones a guest virtual machine to one or more guest virtual machines.

9.8.3 Prerequisites

Before you run any deployment procedures, meet the infrastructure requirements described in this section.

- Mandatory Infrastructure Requirements as defined in the Enterprise Manager Lifecycle Administrator's Guide.
- Optional Infrastructure Requirements as defined in the Enterprise Manager Lifecycle Administrator's Guide.
- The assembly, template, or the ISO image to be deployed must be present as a Software Library component, or at an external HTTP or NFS location, or imported to the server pool shared location.

9.8.3.1 Creating and Storing Virtualization Components in the Software Library

This section describes the procedure to create the virtualization components in the Software Library. It includes the following:

- [Creating an Assembly Component](#)
- [Creating a Template Component](#)
- [Creating an ISO Component](#)
- [Creating a Virtual Disk](#)

9.8.3.1.1 Creating an Assembly Component An assembly is a collection of virtual machine instances. When an assembly is deployed, a group of virtual machines or an **assembly instance** is created.

Prerequisites

- The Assembly Binary, a file with a .ova extension must be present on the Management Agent or on an external `http/ftp/nfs` location.

Follow this process to create a new assembly component:

1. From the **Enterprise** menu, select **Provisioning and Patching**, then select **Software Library**.
2. Select a folder on the Software Library page. From the Actions menu, select **Create Entity**, then select **Virtualization**. You can also right click on a folder and select the virtualization option from the context menu.
3. From the **Create Entity: Virtualization** pop-up window, choose **Assembly** from the Select Subtype drop down list.
4. In the Create Assembly: Describe page, enter the following details:
 - Name and description of the assembly.
 - In the Attachments section, click **Add** to attach any files relevant to the entity. Ensure that the file size is less than 2 MB.
 - In the Notes section, include information related to the entity like changes being made to the entity or modification history that you want to track and click **Add**.
5. Click **Next** to continue. In the Create Assembly: Upload Files page, select one or more files to be associated with the assembly. You can either:
 - **Upload Files:** You can upload files from a storage location in the Software Library. For Software Library to become usable, at least one upload file location must be configured. Select the **Upload Files** option. In the Specify Destination section, click the **Browse** button in the Upload Location field. Two storage options are supported:
 - **OMS Shared File System:** An OMS Shared File System location is required to be shared (or mounted) across all the Oracle Management Server (OMS) hosts. This option is ideal for UNIX systems.

For single OMS environments, you can configure the Software Library either on the host where the OMS is running or in a shared location, so that it is accessible to all the OMS hosts. For multiple OMS environments, Oracle recommends that you configure the Software Library in a shared location so that the storage is accessible through NFS mount points to all Oracle Management Servers in the environment

- **OMS Agent File System:** An OMS Agent File System location is a location that is accessible to one of the OMS host's Agent. This option is ideal for OMS installed on Windows hosts. By selecting this option for uploading files, you can avoid sharing a location between all participating OMS hosts.

Credentials must be set before using an OMS Shared File System or OMS Agent File System. For an OMS Shared File System, normal host credential must be set before configuring a storage location. However, for OMS Agent File System location configuration, a credential (preferred or named) has to be specified.

- **Refer Files:** Select this option if you want to use an external file location where the software library files are staged. Referenced File Locations support three storage options:
 - **HTTP:** An HTTP storage location represents a base URL which acts as the source of files that can be referenced. For example, the base URL `http://my.files.com/scripts` could be configured as an HTTP location for sourcing files such as `http://my.files.com/scripts/perl/installMyDB.pl` or `http://my.files.com/scripts/linux/stopMyDB.sh`.
 - **Agent:** A storage location is similar to the OMS Agent File System option, but can be any host monitored by an Management Agent. The Management Agent can be configured to serve the files located on that host. For example, the directory `/u01/binaries` on the Enterprise Manager Host `my.em.file.server` could be configured as an Agent location for sourcing files such as `/u01/binaries/rpms/myCustomDB.rpm` or `/u01/binaries/templates/myTemplate.tar.gz`
 - **NFS:** An NFS storage location represents an exported file system directory on a server. The server need not be an Enterprise Manager host target. For example, the directory `/exported/scripts` is exported on server `my.file.server` could be configured as an NFS location for sourcing files such as `/exported/scripts/generic/installMyDB.pl` or `/exported/scripts/linux/stopMyDB.sh` once mounted on a target host file system.

These locations require a named credential to be associated which will be used to access the files from the base location on the host through the Management Agent.

- **Specify Source:** You can add additional file storage locations.
 - To add a HTTP location that can be accessed through a HTTP URL, select HTTP from the Storage Type list and click **Add**. In the Add HTTP Location dialog box, enter a unique name and a HTTP location for the storage that you want to reference, and click **OK**. A new entry for the storage location is created, with details like Name, Location, and Status.
 - To add a Management Agent location that has read-only privileges set on it, select Agent from the Storage Type list and click **Add**.
6. Click **Next**. In the Assembly Details page, you will see a set of predefined deployment profiles. You will also see the structure of the assembly and all the appliances in the assembly. Click **Next**.
 7. On the Review page, click **Save** to save the assembly component. Click **Upload** to upload the assembly component to the Software Library.

9.8.3.1.2 Creating a Template Component Follow these steps to create a template component:

1. From the **Enterprise** menu, select **Provisioning and Patching**, then select **Software Library**.
 2. Select a folder on the Software Library page. From the **Actions** menu, select **Create Entity**, then select **Virtualization**. You can also right click on a folder and select the virtualization option from the context menu.
 3. Select the Subtype as **Template**.
 4. In the Create Template: Describe page, enter the name and description of the template.
 5. Select the Operating System Name, Type, and Virtualization Type. The Virtualization Type can be Para Virtualized, Hardware Virtualized or both. Select **Para Virtualized** if you want use machines that are not enabled for virtualization. Select **Hardware Virtualized** if you want to use machines that are enabled for virtualization.
 - **Para Virtualized:** A virtual machine with a kernel that is recompiled to be made aware of the virtual environment. Runs at near native speed, with memory, disk and network access optimized for maximum performance.
 - **Hardware Virtualized:** A virtual machine with an unmodified guest operating system. It is not recompiled for the virtual environment. There may be substantial performance penalties running as a hardware virtualized guest. Enables Microsoft Windows™ operating system to be run, as well as legacy operating systems. Hardware virtualization is only available on Intel VT or AMD SVM CPUs.
 6. Click **Next** to continue. In the Create Template: Upload Files page, select one or more files to be associated with the assembly. You can:
 - **Upload Files:** You can upload files from a storage location in the Software Library. For the Software Library to become usable, at least one upload file location must be configured. Select the **Upload Files** option. In the Specify Destination section, click the **Browse** button in the Upload Location field. The following storage options are supported:
 - **OMS Shared File System:** An OMS Shared File System location is required to be shared (or mounted) across all the Oracle Management Service (OMS) hosts. This option is ideal for UNIX systems.

For single OMS environments, you can configure the Software Library either on the host where the OMS is running or in a shared location, so that it is accessible to all the OMS hosts. For multiple OMS environments, Oracle recommends that you configure the Software Library in a shared location so that the storage is accessible through NFS mount points to all Oracle Management Servers in the environment
 - **OMS Agent File System:** An OMS Agent File System location is a location that is accessible to one of the OMS host's Agent. This option is ideal for OMS installed on Windows hosts. By selecting this option for uploading files, you can avoid sharing a location between all participating OMS hosts.
- Credentials must be set before using an OMS Shared File System or OMS Agent File System. For an OMS Shared File System, normal host credential must be set before configuring a storage location. However, for OMS Agent

File System location configuration, a credential (preferred or named) has to be specified.

- **Refer Files:** Select this option if you want to use a external file location where the software library files are staged. Referenced File Locations support three storage options:
 - **HTTP:** An HTTP storage location represents a base URL which acts as the source of files that can be referenced. For example, the base URL `http://my.files.com/scripts` could be configured as an HTTP location for sourcing files such as `http://my.files.com/scripts/perl/installMyDB.pl` or `http://my.files.com/scripts/linux/stopMyDB.sh`.
 - **Agent:** A storage location is similar to the OMS Agent File System option, but can be any host monitored by the Management Agent. The Management Agent can be configured to serve the files located on that host. For example, the directory `/u01/binaries` on the Enterprise Manager Host `my.em.file.server` could be configured as an Agent location for sourcing files such as `/u01/binaries/rpms/myCustomDB.rpm` or `/u01/binaries/templates/myTemplate.tar.gz`
 - **NFS:** An NFS storage location represents an exported file system directory on a server. The server need not be an Enterprise Manager host target. For example, the directory `/exported/scripts` is exported on server `my.file.server` could be configured as an NFS location for sourcing files such as `/exported/scripts/generic/installMyDB.pl` or `/exported/scripts/linux/stopMyDB.sh` once mounted on a target host file system.

These locations require a named credential to be associated which will be used to access the files from the base location on the host through the Management Agent.

- **Specify Source:** You can add additional file storage locations.
 - To add a HTTP location that can be accessed through a HTTP URL, select HTTP from the Storage Type list and click **Add**. In the Add HTTP Location dialog box, enter a unique name and a HTTP location for the storage that you want to reference, and click **OK**. A new entry for the storage location is created, with details like Name, Location, and Status.
 - To add the Management Agent location that has read-only privileges set on it, select Agent from the Storage Type list and click **Add** and enter the required information in the Add Agent Location dialog box.
- 7. Click **Next**. In the Review page, review the details of the template and click **Save**. Click **Upload** to upload the template component to the Software Library. The template component will now appear as an entity in the Software Library page.

9.8.3.1.3 Creating an ISO Component Follow these steps to create an ISO component:

1. From the **Enterprise** menu, select **Provisioning and Patching**, then select **Software Library**.
2. Select a folder on the Software Library page. From the **Actions** menu, select **Create Entity**, then select **Virtualization**. You can also right click on a folder and select the virtualization option from the context menu.
3. Select the Subtype as **ISO**.

4. In the Create ISO: Describe page, enter the name and description of the deployment plan.
5. Click **Next** to continue. In the Create ISO: Upload Files page, select one or more files to be associated with the assembly. You can either:
 - **Upload Files:** You can upload files from a storage location in the Software Library. For Software Library to become usable, at least one upload file location must be configured. Select the **Upload Files** option. In the Specify Destination section, click the **Browse** button in the Upload Location field. The following storage options are supported:
 - **OMS Shared File System:** An OMS Shared File System location is required to be shared (or mounted) across all the Oracle Management Service (OMS) hosts. This option is ideal for UNIX systems.

For single OMS environments, you can configure the Software Library either on the host where the OMS is running or in a shared location, so that it is accessible to all the OMS hosts. For multiple OMS environments, Oracle recommends that you configure the Software Library in a shared location so that the storage is accessible through NFS mount points to all Oracle Management Servers in the environment
 - **OMS Agent File System:** An OMS Agent File System location is a location that is accessible to one of the OMS host's Agent. This option is ideal for OMS installed on Windows hosts. By selecting this option for uploading files, you can avoid sharing a location between all participating OMS hosts.

Credentials must be set before using an OMS Shared File System or OMS Agent File System. For an OMS Shared File System, normal host credential must set before configuring a storage location. However, for OMS Agent File System location configuration, a credential (preferred or named) has to be specified.

- **Refer Files:** Select this option if you want to use a external file location where the software library files are staged. Referenced File Locations support three storage options:
 - **HTTP:** An HTTP storage location represents a base URL which acts as the source of files that can be referenced. For example, the base URL `http://my.files.com/scripts` could be configured as an HTTP location for sourcing files such as `http://my.files.com/scripts/perl/installMyDB.pl` or `http://my.files.com/scripts/linux/stopMyDB.sh`.
 - **Agent:** A storage location is similar to the OMS Agent File System option, but can be any host monitored by the Management Agent. The Management Agent can be configured to serve the files located on that host. For example, the directory `/u01/binaries` on the Enterprise Manager Host `my.em.file.server` could be configured as an Agent location for sourcing files such as `/u01/binaries/rpms/myCustomDB.rpm` or `/u01/binaries/templates/myTemplate.tar.gz`
 - **NFS:** An NFS storage location represents an exported file system directory on a server. The server need not be an Enterprise Manager host target. For example, the directory `/exported/scripts` is exported on server `my.file.server` could be configured as an NFS location for sourcing files such as `/exported/scripts/generic/installMyDB.pl` or

`/exported/scripts/linux/stopMyDB.sh` once mounted on a target host file system.

These locations require a named credential to be associated which will be used to access the files from the base location on the host through the Management Agent.

- **Specify Source:** You can add additional file storage locations.
 - To add a HTTP location that can be accessed through a HTTP URL, select HTTP from the Storage Type list and click **Add**. In the Add HTTP Location dialog box, enter a unique name and a HTTP location for the storage that you want to reference, and click **OK**. A new entry for the storage location is created, with details like Name, Location, and Status.
 - To add an NFS shared location, select NFS from the Storage Type list and click **Add**. In the Add NFS Location dialog box, enter a unique name in the Name field for the storage. In NFS server field, provide a fully qualified domain name or the IP address of the hosted machine that has NFS services running on them. In the Location field, provide the shared location or directory path on the NFS server to define a storage location, then click **OK**. A new entry for the storage location is created in the table, with details like Name, Location, and Status.
 - To add a Management Agent location that has read-only privileges set on it, select Agent from the Storage Type list and click **Add**.

6. Click **Next**. In the Review page, review the details and click **Save**. Click **Upload** the ISO component to the Software Library. The ISO image will now appear as an entity in the Software Library page.

9.8.3.1.4 Creating a Virtual Disk Follow these steps to create a virtual disk component:

1. From the **Enterprise** menu, select **Provisioning and Patching**, then select **Software Library**.
2. Select a folder on the Software Library page. From the **Actions** menu, select **Create Entity**, then select **Virtualization**. You can also right click on a folder and select the virtualization option from the context menu.
3. Select the Subtype as **Virtual Disk**.
4. In the Virtual Disk: Describe page, enter the name and description of the deployment plan.
5. Click **Next** to continue. In the Create Virtual Disk: Upload Files page, select one or more files to be associated with the assembly. You can either:
 - **Upload Files:** You can upload files from a storage location in the Software Library. For Software Library to become usable, at least one upload file location must be configured. Select the Upload Files option. In the Specify Destination section, click the **Browse** button in the Upload Location field. The following storage options are supported:

- **OMS Shared File System:** An OMS Shared File System location is required to be shared (or mounted) across all the Oracle Management Server (OMS) hosts. This option is ideal for UNIX systems.

For single OMS environments, you can configure the Software Library either on the host where the OMS is running or in a shared location, so that it is accessible to all the OMS hosts. For multiple OMS environments, Oracle recommends that you configure the Software Library in a shared

location so that the storage is accessible through NFS mount points to all Oracle Management Servers in the environment

- **OMS Agent File System:** An OMS Agent File System location is a location that is accessible to one of the OMS host's Agent. This option is ideal for OMS installed on Windows hosts. By selecting this option for uploading files, you can avoid sharing a location between all participating OMS hosts.

Credentials must be set before using an OMS Shared File System or OMS Agent File System. For an OMS Shared File System, normal host credential must set before configuring a storage location. However, for OMS Agent File System location configuration, a credential (preferred or named) has to be specified.

- **Refer Files:** Select this option if you want to use an external file location where the software library files are staged. Referenced File Locations support three storage options:
 - **HTTP:** An HTTP storage location represents a base URL which acts as the source of files that can be referenced. For example, the base URL `http://my.files.com/scripts` could be configured as an HTTP location for sourcing files such as `http://my.files.com/scripts/perl/installMyDB.pl` or `http://my.files.com/scripts/linux/stopMyDB.sh`.
 - **Agent:** A storage location is similar to the OMS Agent File System option, but can be any host monitored by the Management Agent. The Agent can be configured to serve the files located on that host. For example, the directory `/u01/binaries` on the Enterprise Manager Host `my.em.file.server` could be configured as an Agent location for sourcing files such as `/u01/binaries/rpms/myCustomDB.rpm` or `/u01/binaries/templates/myTemplate.tar.gz`
 - **NFS:** An NFS storage location represents an exported file system directory on a server. The server need not be an Enterprise Manager host target. For example, the directory `/exported/scripts` is exported on server `my.file.server` could be configured as an NFS location for sourcing files such as `/exported/scripts/generic/installMyDB.pl` or `/exported/scripts/linux/stopMyDB.sh` once mounted on a target host file system.

These locations require a named credential to be associated which will be used to access the files from the base location on the host through the Management Agent.

- **Specify Source:** You can add additional file storage locations.
 - To add a HTTP location that can be accessed through a HTTP URL, select HTTP from the Storage Type list and click **Add**. In the Add HTTP Location dialog box, enter a unique name and a HTTP location for the storage that you want to reference, and click **OK**. A new entry for the storage location is created, with details like Name, Location, and Status.
 - To add an Agent location that has read-only privileges set on it, select Agent from the Storage Type list and click **Add**.
6. Click **Next**. In the Review page, review the details of the virtual disk and click **Save**. Click **Upload** to upload the virtual disk component to the Software Library. The virtual disk component will now appear as an entity in the Software Library page.

9.8.4 Provisioning Guest Virtual Machines Using Oracle Virtual Assemblies (OVA)

An assembly is a packaging of a multi-tier application stack, which when deployed results in the creation of a set of related virtual machines representing every tier of the application stack. For example, a Siebel assembly can contain the Siebel mid-tier and a database. It can be deployed such that it creates 2 virtual machines for a 2-node Siebel mid-tier and 1 virtual machine running the database.

The deployment of the assembly is based on the policies/constraints defined in the assembly definition. The initial placement of virtual machines will be based on the storage, network and computational resources. Once an assembly is deployed, additional instances can be added (scale up) or removed (scale down) based on application demand.

When an assembly is deployed, an assembly instance is created. An assembly instance is a collection of dependent virtual machines, which is created after an assembly is deployed. The composition of the assembly instance is dynamic in nature, as any subsequent scale-up or scale-down operations will change the membership. An assembly instance contains one or more tiers, each tier further comprising of virtual machines and or tiers.

Follow this process to deploy an assembly and create the virtual machines.

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a Zone, VM Server Pool, or VM Server target and select **Deploy Assembly**.

Figure 9–8 Assembly Deployment: Instance Details

The screenshot shows the 'Assembly Deployment: Instance Details' page with the following sections:

- Destination:** Select the Destination target on which Guest VM(s) is/are to be deployed. Target: EastCoastZone, Target Type: Oracle VM Zone.
- Source:** Select Source image for deployment. ☒ Deployment Plans allows the recording of inputs and using them later while performing deployments using standard source images and values. Selecting a Deployment Plan at this stage allows you to pre-populate the current interview with previously saved values and configuration. ☐ Use Deployment Plan. Deployment Plan: [empty], Image: FMW Assembly.
- Details:** Request Name: ASSEMBLY_DEPLOYMENT_2013-06-..., Assembly Instance Name: example_assembly, ☐ Allow Partial Deployment. Tip: If this option is enabled, and the deployment process fails, you must manually delete any newly created Guest VMs.
- Assembly Content:** Select Tiers/VM Nodes in the Assembly that are to be deployed. A Tier/VM Node can be disabled for deployment only if the minimum number of instances for it is defined to be 0 in the OVF metadata. A Tier/VM Node cannot be disabled if a deployment plan is being used where this Tier/VM Node was earlier enabled for deployment.

Node Name	Start Order	Deploy
assembly_ohs_1102/FMW_Wls/AdminServer	0	<input checked="" type="checkbox"/>
assembly_ohs_1102/FMW_Wls/CacheCluster	1	<input checked="" type="checkbox"/>
assembly_ohs_1102/FMW_Wls/Cluster1	1	<input checked="" type="checkbox"/>
assembly_ohs_1102/FMW_Obsv	2	<input checked="" type="checkbox"/>

3. On the Assembly Deployment: Instance Details page, specify the following:
 - **Target:** Select the server pool on which the guest virtual machines are to be deployed.
 - **Source:** You can select either of the following options:
 - **Deployment Plan:** If you select the **Use Deployment Plan** check box, you can select a deployment plan (if available) with predefined configurations. The deployment plan will be used when the assembly is deployed. (image is selected automatically when the deployment plan is selected)

- **Image:** The assembly component to be used for this deployment. This can either be a component present in the Software Library, or at an external location. If it is stored in an external location, specify the NFS or HTTP location where the component is stored. For example, `http://myvm_server/assembly` or `file://myvm_server/assembly`.
- **Details:**
 - **Request Name:** This is the name of the assembly deployment request.
 - **Assembly Instance Name:** The name to be assigned to the assembly instance.
 - **Allow Partial Deployment:** Select this option to enable partial deployment. By default, when a deployment plan fails, all virtual machines that have been created are automatically deleted. But if partial deployment is enabled, virtual machines are not deleted even if the deployment has failed.
- **Assembly Content:** You can disable an assembly tier or a node from being deployed. By default, all nodes and tiers in the selected component are automatically deployed. To disable a node or tier from being deployed, unselect the **Deploy** checkbox in the table.

Note:

- A tier or a node can be disabled for deployment if the minimum number of instances for the node or tier is set to **0** in the **ovf** metadata file.
 - If you choose to use a deployment plan where a tier or a node has been enabled for deployment, that node or tier cannot be disabled.
-

4. Click **Next**. In the Deploy Assembly: Network and Agent page, specify the physical public and private networks to be used for the assembly instance. A public network is used for external traffic. In a private network, the guest virtual machines can communicate only within a predefined network set up by the Cloud Administrator.

Assembly network refers to the logical network defined in the OVF metadata file and the network defined here is the actual physical network to which it is to be mapped. If you do not choose to associate the network explicitly, the mappings are automatically assigned.

Figure 9–9 Assembly Deployment: Network and Agent

Assembly Deployment : Network and Agent

▼ **Network configured in the table will be deployed in this request.**
 Changing the Network QoS/Type to any value other than "Any Network Type" will reset back-end/physical network selection.
 Network QoS/Type is used to filter the list of applicable networks that can be chosen in the back-end/physical network selector. Choose "Any Network Type" if you want Network Selector to display all networks.

Assembly Network	Type	Network
vnet-1	Any Network 1	System Assigned

Configure EM Agent Push

☐ Enable EM Agent Push Configuration

▼ **Nodes displayed in the table will be deployed in this request. Those which have EM agent install type set as "RPM Installation" cannot be marked for push installation.**
 Nodes that have EM agent install type set as "No Agent Installation" will not have any agent installed after they are deployed.
 VM level agent push selection can be done in the Miscellaneous tab of the respective Tier.

Assembly Node Selection for EM Agent Push Selection

Node Name	Installation Type	Enable Agent Push
assembly_ohs_1102/FMW_Wlts/AdminServer	Push Agent Installation	<input checked="" type="checkbox"/>
assembly_ohs_1102/FMW_Wlts/CacheCluster	Push Agent Installation	<input checked="" type="checkbox"/>
assembly_ohs_1102/FMW_Wlts/Cluster 1	Push Agent Installation	<input checked="" type="checkbox"/>
assembly_ohs_1102/FMW_Ohs	Push Agent Installation	<input checked="" type="checkbox"/>

* Installation Base Directory

* Platform

* Username

* Password

* Verify Password

Port

Additional Parameters

Privilege Delegation Settings

SSH Service Timeout

5. Click on the **Browse** icon in the Network field. Specify if the network should be allocated by the system or selected manually.
6. If you want to install the Management Agent on an assembly tier (collection of Guest VMs) or selected guest virtual machines, check the **Enable EM Agent Push Configuration** check box. You can then select the tiers and / or the guest virtual machines on which the Management Agent is to be installed using the Agent Push approach in the Assembly Node Selection for the EM Agent Push Selection table.
 - **Node Name:** The name of the assembly tier on which the Management Agent is to be deployed.
 - **Installation Type:** The type of installation which can be Push Agent Installation, No Agent Installation, and RPM Installation.
 - **Enable Agent Push:** This checkbox is enabled only if the Enable EM Agent Push Configuration checkbox has been selected. Select this checkbox to select the tiers on which the Management Agent is to be installed by way of the Agent Push approach.

In a selected tier, you can also choose the guest virtual machines on which the Management Agent is to be installed.

Note:

- If you select Push Agent Installation, you can specify the guest virtual machines that need to be enabled or disabled in the Miscellaneous tab.
 - For tiers that have the Management Agent as a product (as part of the binary package), the **Enable Agent Push** checkbox is disabled and only RPM Installation is available. In this case, you can specify the Management Agent details in the Product Configuration tab of the selected tier.
-
-

7. After you have specified the options to configure the Management Agent, enter the following details:
 - **Installation Base Directory:** This is the parent directory on the remote host where the Oracle home of the Management Agent is created.
 - **Platform:** The operating system on which the Management Agent is to be installed.
 - **User:** The name of the Oracle Install user is displayed here.
 - **Port:** The port used by the Management Agent for communication.
 - **Password:** This field is mandatory for PS5 assemblies if the **Enable Agent Push Configuration** checkbox has been selected.
 - **Privilege Delegation Settings:** Run as root.
 - **SSH Service Timeout:** The timeout settings for SSH.
 - **Additional Parameters:** Specify additional parameters to be used during the installation of the Management Agent. This field is pre-populated with the entry `-ignoreDirPrereq -enablePty` to ignore the prerequisite checks during installation.
8. Click **Next** to go to the Deploy Assembly: Deployment Configuration page.

Figure 9–10 Assembly Deployment: Deployment Configuration

Instance Details Network and Agent **Deployment Configuration** Schedule Review

Assembly Deployment : Deployment Configuration

Review Save As Plan... Back Step 3 of 5 Next Cancel

Select each Component in the table to View and Customize the default configuration properties.

Component	Guest VM(s)				Auto Scalable	VM Size	Deployment Option	Guest VM Name Prefix
	Default	Minimum	Maximum	Initial				
example_assembly								
assembly_ohs_1119/FMW_Ohs:example_assembly	1	1	1	1	<input type="checkbox"/>	Custom	Not Defined	
assembly_ohs_1119/FMW_Wls/AdminServer:exam	1	1	1	1	<input type="checkbox"/>	Custom	Not Defined	
assembly_ohs_1119/FMW_Wls/CacheCluster:exam	2	1	2	2	<input type="checkbox"/>	Custom	Not Defined	assembly_ohs_1119/FMW_Wls/
assembly_ohs_1119/FMW_Wls/Cluster1:example_a	2	1	2	2	<input type="checkbox"/>	Custom	Not Defined	assembly_ohs_1119/FMW_Wls/

Selected Co

No Tier/Assembly Instance selected in the table above.

The following details are displayed:

- **Component:** The assembly component that is being deployed.
- **Guest VMs:** The default number of guest virtual machines as specified in the deployment profile appears. Specify the minimum and maximum number of guest virtual machines that are to be created.
- **Auto Scalable:** Select this check box to indicate that the tier instances can be auto scaled based on their policies.
- **VM Size:** The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started. The size of the guest virtual machine (memory and CPU values).
- **Deployment Option:** The deployment for this assembly instance.

- **Guest VM Name Prefix:** This string will be used as a prefix in the guest virtual machine name. When a guest virtual machine is created using the Enterprise Manager, guest virtual machine names will be prefixed by the virtual machine name prefix you provide here and a number.
9. Select the assembly component to view and customize the default configuration properties.

Figure 9–11 Assembly Deployment: Deployment Configuration: Product Configuration

The screenshot shows the 'Assembly Deployment: Deployment Configuration' window. The 'Assembly' table lists components of 'example_assembly'. The 'Details example_assembly' section shows the 'Product Configuration' tab with a table of properties.

Component	Default	Minimum	Maximum	Initial	Auto Scalable	VM Size	Deployment Option	Guest VM Name Prefix
example_assembly								
assembly_ohs_1119/FMW_Ohs:example_assembly	1	1	1	1	<input type="checkbox"/>	Custom	Not Defined	
assembly_ohs_1119/FMW_Wls/AdminServer:example	1	1	1	1	<input type="checkbox"/>	Custom	Not Defined	
assembly_ohs_1119/FMW_Wls/CacheCluster:example	2	1	2	2	<input type="checkbox"/>	Custom	Not Defined	assembly_ohs_1119/FMW_Wls/
assembly_ohs_1119/FMW_Wls/Cluster1:example_a	2	1	2	2	<input type="checkbox"/>	Custom	Not Defined	assembly_ohs_1119/FMW_Wls/

Name	Default Value	Value	Category	Description
version	1.0.0	1.0.0		
uid	c2a588f257fb57b52f-c2a588f257fb57b52f			
sysprop/admin-username	weblogic	weblogic	Assembly Properties	
sysprop/domain-name	WLS_OHS_COH	WLS_OHS_COH	Assembly Properties	
component	coherenceweb	coherenceweb	Assembly Properties	
CoherenceCluster1.multicast-port	7777	7777	Assembly Properties	
sysprop/admsvr-jmx-protocol	iiop	iiop	Assembly Properties	
sysprop/domain-root	/u01/apps/oracle/con/u01/apps/oracle/con		Assembly Properties	

- **Product Configuration:** This tab shows the properties of the products in the assembly. You can choose to view All Properties or Required Properties. For each property, the default value and the current value is displayed. Select a property to modify the value if applicable.
 - **Miscellaneous:** You can create one or more anti-affinity groups. An anti-affinity group is a group of virtual machines cannot run on the same server. Click **Add** and enter the Group Name and select the guest virtual machines that are to be part of the anti-affinity group.
10. Click a row in the table to select the tier you want to configure. There are 3 tabs that can be configured for each tier in the assembly: **Guest VM Configuration**, **Product Configuration**, and **Miscellaneous**.
 11. Let us look at the first tab: **Guest VM Configuration**. This tab allows you to modify the resource configuration parameters for all guest virtual machine instances of the selected assembly tier.

Figure 9–12 Tier: Deployment Configuration: GuestVM Configuration

The screenshot shows the 'Assembly Deployment: Deployment Configuration' window in Oracle Enterprise Manager. The window is divided into several sections:

- Assembly Table:** A table listing components and their configurations. The columns are Component, Def, Minimum, Maximum, Initial, Aut, VM, Deployment Option, and Guest VM Name Prefix. The components listed are:

Component	Def	Minimum	Maximum	Initial	Aut	VM	Deployment Option	Guest VM Name Prefix
example_assembly								
assembly_ohs_1102/FMW_Ohcsample_assembly	1	1	1	1	Cust	Not Defined		
assembly_ohs_1102/FMW_Wlts/AdminServerexample_assembly	1	1	1	1	Cust	Not Defined		
assembly_ohs_1102/FMW_Wlts/CacheClusterexample_assembly	2	1	2	2	Cust	Not Defined	assembly_ohs_1102/FMW_Wlts/Ca	
assembly_ohs_1102/FMW_Wlts/Cluster1example_assembly	2	1	2	2	Cust	Not Defined	assembly_ohs_1102/FMW_Wlts/Cb	
- Details:** A section for configuring the selected component, 'assembly_ohs_1102/FMW_Ohcsample_assembly'. It includes:
 - General:**
 - ☐ Enable High Availability
 - ☒ Start VM After Creation
 - CPU Scheduling Priority: Medium
 - CPU Scheduling Cap (%): High
 - * Root Password: [Text Field]
 - * Confirm Root Password: [Text Field]
 - Keymap: en-us (English, United States)
 - Tags: [Text Field]
 - VM Size: Custom:**
 - Name: assembly_ohs_1102/FMW_Ohcsample_assembly
 - * Max. Memory (in MB): 512
 - * Max. Number Of CPU Cores: 1
 - * Memory (in MB): 512
 - * Number Of CPU Cores: 1
 - Storage Options:**
 - Storage Type: ☒ Default ☐ Override
 - Disk:**
 - Table with columns: Disk Name, Size (MB), Type, Disk Target Storage.
 - Rows: kJYJSofSqlaYW_System (5122 Local, Default), AB (0 Local, Default).
 - NIC:**
 - Table with columns: Name, Assembly Network, Type, Network, IP Assignment.
 - Row: eth0, vnet-1, Any Network Type, System Assigned, Dhcp.

The following parameters can be configured:

■ **Guest VM Configuration:**

- **Enable High Availability:** If you want to enable high availability for this guest virtual machine, select this check box. If this option is enabled, the virtual server is shut down or restarted, the guest virtual machine is migrated to or restarted on another virtual server.

Note: High availability must be enabled both on the virtual server pool and on the guest virtual machine. If it is not enabled on both, high availability is disabled.

- **CPU Scheduling Priority:** Specify the priority of a guest virtual machine to access the physical CPUs, while competing with other guest virtual machines on the same virtual server. The higher the priority, the higher the stake of the guest virtual machine in claiming CPU cycles.
- **CPU Scheduling Cap (%):** Restricts the amount of physical CPU that a guest virtual machine can use. Use this to constrain guest virtual machine resource allocation.
- **Root Password:** Specify the operating system root password to log in to the guest virtual machine once it is up and running.
- **Keymap:** The keyboard mapping that will be used by the guest virtual machine being cloned.
- **Tags:** Specify one or more tags for the virtual machine. These tags are used to logical group the virtual machines and can be used to search for one or more virtual machines that meet a certain criteria.

- **Memory (in MB):** The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started.
- **CPUs:** The number of CPU cores to assign to this guest virtual machine. This will show up as virtual CPU (VCPU) configuration parameter for the guest virtual machine.
- **Disk:** Specify the storage type. You can use the **Default** type as specified by the server pool or select **Override**. If you select **Override**, you must specify the Storage QoS and click the **Search** icon in the Storage field to specify the Storage Type. In the Storage Type window, specify the following:

Clone Target Type: This can be Repository or Storage Array.

Clone Target: If you select Repository, select the storage location where the disk is to be created. If you select Storage Array, specify the type, which can be SAN or iSCSI storage server.

Clone Type: This can be Sparse or Non-Sparse Copy. A sparse copy is a disk image file of a physical disk, taking up only the amount of space actually in use; not the full specified disk size. A non-sparse copy is a disk image file of a physical disk, taking up the space equivalent to the full specified disk size, including empty blocks.

- **Disk:** Every guest virtual machine is created with at least one disk. You can specify additional disks and their sizes. These disks will be added to the guest virtual machine. After the guest virtual machine is created, log in to the guest virtual machine and reformat and mount the additional disks. Click **Add** to add a storage device (disk).

Specify the name of the hard disk, its size, and QoS Priority Class. You can enable the disk I/O priority by setting an appropriate QoS Priority Class. The priority class ranges from 0 to 7. The priority class 0 has the highest priority, and 7 the lowest.

Select the Shared Disk check box to share this disk between multiple guest virtual machines. You can enable the disk I/O priority by setting an appropriate QoS Priority Class. The priority class ranges from 0 to 7. The priority class 0 has the highest priority, and 7 the lowest.

- **NIC:** Specify the network interfaces for this guest virtual machine. The minimum value is 1 and maximum is 8. Click **Add** to add a network interface and specify the following details:

Name: Enter a name for the network resource.

Network: Assembly Network / Backend network.

Network Type: Specify if the network type is Internet Routable, Non Internet Routable, or a predefined set of IP addresses.

IP Assignment: Select the protocol to be used to assign the IP address. This can be DHCP, Network Profile, or None.

The configuration parameters you specify here will be applied to all the guest virtual machine instances of the selected node. If you want to specify a different configuration for a guest virtual machine instance, click the Guest VM Instances option. In the Deployment Configuration: GuestVM

Instance page, you can select a guest virtual machine instance from the View list and specify configuration parameters for that instance.

12. The next tab is Product Configuration. This tab shows the properties of the products in the tier. You can choose to view **All Properties** or **Required Properties**. For each property, the default value and the current value is displayed. Select a property to modify the value if applicable.

Figure 9–13 Tier Deployment Configuration: Product Configuration

The screenshot displays the 'Assembly Deployment : Deployment Configuration' window. The 'Product Configuration' tab is active, showing a table of properties for the selected component 'assembly_ohs_1119/FMW_Ohs:example_assembly'.

Component	Guest VM(s)				Auto Scalable	VM Size	Deployment Option	Guest VM Name Prefix
	Default	Minimum	Maximum	Initial				
example_assembly								
assembly_ohs_1119/FMW_Ohs:example_assem	1	1	1	1	<input type="checkbox"/>	Custom	Not Defined	
assembly_ohs_1119/FMW_Wls/AdminServer:exar	1	1	1	1	<input type="checkbox"/>	Custom	Not Defined	
assembly_ohs_1119/FMW_Wls/CacheCluster:exar	2	1	2	2	<input type="checkbox"/>	Custom	Not Defined	assembly_ohs_1119/FMW_Wls/CacheClu
assembly_ohs_1119/FMW_Wls/Cluster1:example	2	1	2	2	<input type="checkbox"/>	Custom	Not Defined	assembly_ohs_1119/FMW_Wls/Cluster1_

Selected Component: assembly_ohs_1119/FMW_Ohs:example_assembly

Details: assembly_ohs_1119/FMW_Ohs:example_assembly

Guest VM Configuration | **Product Configuration** | Miscellaneous

Show: All Properties | ☐ Show only unassigned properties | Search: %

Name	Default Value	Value	Category	Description
ocm.runConfiguration	false	false	Appliance Properties	
sysprop/oracleInstance	/u01/apps/oracle/co	/u01/apps/oracle/co	Appliance Properties	
system-fileset/ORACLE_INSTANCE	/u01/apps/oracle/co	/u01/apps/oracle/co	File set properties	
sysprop/ocm.ccrDirPath	/u01/apps/oracle/pi	/u01/apps/oracle/pi	Appliance Properties	
scaling abs-max	2147483647	2147483647	Appliance Properties	
ocm.metalink.CslRegistration.CSI			Appliance Properties	
sysprop/fmwHome	/u01/apps/oracle/pr	/u01/apps/oracle/pr	Appliance Properties	
template-target-platform	OVM	OVM	Template Properties	
system-fileset/fmwHome root	/u01/apps/oracle/pr	/u01/apps/oracle/pr	File set properties	

13. The next tab is the Miscellaneous tab.

Figure 9–14 Tier Deployment Configuration: Miscellaneous

The screenshot displays the 'Assembly Deployment : Deployment Configuration' window. The 'Miscellaneous' tab is active, showing additional properties and timeout settings for the selected component 'assembly_ohs_1119/FMW_Ohs:example_assembly'.

Additional Properties

Log Location: /assemblybuilder/logs

☒ **TIP** Copying of logs may consume space in database where job logs are stored. Be careful while specifying location of logs to copy to prevent unnecessary files from being copied.

Timeout Settings

Product Configuration Timeout: 60 minute(s)

Network Configuration Timeout: 60 minute(s)

- **Miscellaneous:** Specify the following details:

- **Log File Location:** Specify the directory in which the log files are to be stored.
 - **Timeout Settings:** Specify the timeout settings for the Product Configuration and Network Configuration. The default value is 60 minutes and this value can be modified for each Oracle VM Manager target. The timeout value specifies how long Enterprise Manager should wait for either Product Configuration or Network Configuration to be completed before proceeding with the assembly deployment.
14. If a tier has more than one Guest VM Instance, you can configure each Guest VM Instance separately. Select the tier for each Guest VM Instance has to be separately configured. Click the **Guest VM Instances** link on the top right corner of the lower region. The Deployment Configuration: Configure Guest VM Instance page appears. Click **Edit VM Name** to modify the name of the Guest VM Instance, specify a new name and click **OK**. You can modify the configuration of the Guest VM and click **Continue** to return to the Assembly Deployment: Deployment Configuration page.
 15. Click **Next**. In the Assembly Deployment: Schedule page, specify the Start and End Date for the assembly deployment. The Start Date is the date on which the request is being submitted and the End Date is the date on which the assembly deployment instances are retired. Click **Next**.
 16. Click **Next**. The Assembly Deployment: Review page appears.

Figure 9–15 Assembly Deployment: Review

Instance Details Network and Agent Deployment Configuration Schedule **Review**

Assembly Deployment : Review

Save As Plan... Back Step 5 of 5 Submit Cancel

▼ Target and Component ▼ Schedule

Target Type oracle_vm_zone Start Date Immediately

Target Name CDC_ZONE End Date Indefinitely

Source Binary fmw_V5

▼ Assembly Deployment Information

Component	Guest VM(s)			Initial	Auto Scalable	VM Size	Deployment Option	Guest VM Name
	Default	Minimum	Maximum					
▼ example_assembly								
assembly_ohs_1119/FMW_1	1	1	1	1	X	Custom		
assembly_ohs_1119/FMW_1	1	1	1	1	X	Custom		
▼ assembly_ohs_1119/FMW_1	2	1	2	2	X	Custom		assembly_ohs_1119/FMW_Wls/CacheClus
assembly_ohs_1119/FMW_1								
assembly_ohs_1119/FMW_1								
▼ assembly_ohs_1119/FMW_1	2	1	2	2	X	Custom		assembly_ohs_1119/FMW_Wls/Cluster1_v
assembly_ohs_1119/FMW_1								

17. Click **Next**. Review the details entered so far. You can save as a plan that can be used later. Click **Save as Plan**, specify a name, and description for the plan. Select the folder in which the deployment plan is to be saved and click **OK**. Note that the deployment plan is stored as a software library component but can be created only through this procedure or by a Cloud API that generates a default deployment plan for an assembly.
18. Click **Submit** to submit the job. From the **Enterprise** menu, select **Job**, then select **Activity** to view the Job Activity page. This page shows the details of the submitted job. You can click on the Name link to view more details.

To view details of the deployment request, from the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Request Dashboard**. See [Section 9.9, "Viewing the Infrastructure Request Dashboard"](#) for details.

Note: To ensure that Enterprise Manager has been configured correctly to push a 12c Management Agent automatically on the guest virtual machines when the assembly deployed, you must change the agentpush entry in the <OMS_ORACLE_HOME>/sysman/prov/agentpush/agentpush.properties file as follows:

From: oracle.sysman.prov.agentpush.pdpShellOutEnabled=true

To: oracle.sysman.prov.agentpush.pdpShellOutEnabled=false

After this change has been made, you must restart the Oracle Management Service.

9.8.5 Provisioning a Guest Virtual Machine Using Oracle VM Templates

You can create one or more virtual machines by deploying a template. The deployment of the template is based on the constraints defined while the template was created. Typically, a template can contain an operating system, basic configuration (number of CPUs, memory, disk size), and preinstalled applications. The initial placement of virtual machines will be based on the storage, network and computational resources. Once a template is deployed, additional instances can be added (scale up) or removed (scale down) based on application demand.

Note: Enterprise Manager supports deployment of legacy Oracle VM 2.2 style Templates. This templates are available in the .tgz file format. Guest virtual machines are created when these templates are deployed, but the you need to manually login to the VNC console of the newly created virtual machines to complete the network and product configuration. Also, unlike for Oracle Virtual Assemblies (.ova file format), Enterprise Manager does not automatically push the Management Agent for Oracle VM 2.2 Templates (.tgz file format).

Prerequisites

- Enterprise Manager Cloud Control is set up to manage the cloud environment.
- The template is available to the zone and you have sufficient privileges to deploy it.
- There are sufficient resources available in the zone for successful deployment.

Follow this process to deploy a template:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a virtual server pool target and select **Deploy Template**.

Figure 9–16 Template Deployment - Select Target and Source

zone_327

Select Target and Source Instance Details Schedule Review

Template Deployment : Select Target and Source

Back Step 1 of 4 Next Save As Plan... Review Submit Cancel

Destination

Select the destination target on which the Guest VMs are to be deployed.

Target zone_327

Target Type Oracle VM Zone

Source

Plans allows you to record inputs and use them later while performing deployments using standard source images and values. Selecting a plan at this stage allows you to pre-populate the interview with previously saved values of deployment and configuration parameters. Select an existing plan below, or skip the plan selection to continue with your deployment.

☐ Use Deployment Plan

Deployment Plan

* Template template1

Description Type: sdbasm CatalogId: 06NuoU5P9bYW Appliance Name: sdbasm CaptureId: zcZl8m8d5oZYW TemplateId: B5vYAKP9bYW Architecture: X86_64 OsName: Enterprise Linux Enterprise Linux Server release 5.7 (Carthage) Note:

Request Details

* Request Name TEMPLATE_DEPLOYMENT_2014-04-13_20-46-52

3. On the Select Target and Source page, select the following:
 - Select the target machine on which the guest virtual machine is to be created.
 - In the Source section, you can select either of the following options:
 - **Deployment Plan:** If you select the **Use Deployment Plan** check box, you can select a deployment plan (if available) with predefined configurations. Selecting a plan at this stage allows you to prepopulate the interview with previously saved values of deployment and configuration parameters.
 - **Template:** The template component to be used for this deployment. This can either be a component present in the Software Library, or at an external location. If it is stored in an external location, specify the NFS or HTTP location where the component is stored. For example, `http://myvm_server/template` or `file://myvm_server/template`.
4. Click **Next**. The Template Deployment: Instance Details page appears.

Figure 9–17 Template Deployment - Instance Details

The screenshot displays the 'Template Deployment - Instance Details' page. At the top, there's a progress bar with steps: 'Select Target and Source', 'Instance Details' (current), 'Schedule', and 'Review'. Below this, a 'TIP' states: 'Specify the resource configuration parameters for the Guest VM instances. The settings will apply to all the Guest VM instances.' The page is divided into several sections:

- Guest VM:** Includes a 'Guest VM(s)' field with a value of '1' and a 'Configure Each Guest VM Instance' link. Below this, 'Guest VM Naming' options are shown: 'Generate Guest VM Names using prefix' (selected), 'Upload Guest VM Names from file', and 'Guest VM Name' field with the value 'template1_vm'.
- General:** Contains checkboxes for 'Enable High Availability' and 'Start VM After Creation'. It also has 'CPU Scheduling Priority' (Medium), 'CPU Scheduling Cap (%)' (High), 'Keymap' (en-us), and a 'Tags' field.
- VH Size:** Includes a 'VH Size' dropdown set to 'Custom', 'Max. Memory (in MB)' (2048), 'Memory (in MB)' (2048), 'Max. Number Of CPU Cores' (1), and 'Number Of CPU Cores' (1).
- NIC:** A table with columns 'Name', 'Network Type', 'Network', and 'MAC Address'. It shows one entry 'eth0' with 'Any Network Type' and 'System Assigned'.
- Disk:** Includes a 'Storage Type' dropdown set to 'Default' and an 'Override' link. Below is a table with columns 'Disk Name', 'Size', 'Type', and 'Disk QoS'. It lists six disks, all 'Local' and 'Not Enabled'. The 'Total Size' is 25.5 GB. A 'TIP' at the bottom states: 'If storage array is selected for the disk, system will select an existing physical disk automatically to fit the size'.

This page contains the following sections:

■ Guest VM

- **Guest VM:** Number of guest virtual machines to be deployed. Click **Configure Each Guest VM Instance** if you want to configure each guest virtual machine instance individually.
- **Guest VM Naming:** You can choose either of the following options:
Generate Guest VM Names Using Prefix: This string will be used as a prefix in the guest virtual machine name. When a guest virtual machine is created using the Enterprise Manager, guest virtual machine names will be prefixed by the virtual machine name prefix you provide here and a number.

Upload Guest VM Names from File: If you select this option, you can Browse and upload a file with user defined guest virtual machine names. The guest virtual machine name cannot contain any special characters.

■ General Configuration

- **Enable High Availability:** If you want to enable high availability for this guest virtual machine, select this check box. If this option is enabled, the virtual server is shut down or restarted, the guest virtual machine is migrated to or restarted on another virtual server.

Note: High availability must be enabled both on the virtual server pool and on the guest virtual machine. If it is not enabled on both, high availability is disabled.

- **Start VM After Creation:** Specify whether the guest virtual machine should be started automatically after it is created.

- **CPU Scheduling Priority:** Specify the priority of a guest virtual machine to access the physical CPUs, while competing with other guest virtual machines on the same virtual server. Higher the priority, higher is the stake of the guest virtual machine in claiming CPU cycles.
 - **CPU Scheduling Cap (%):** Restricts the amount of physical CPU that a guest virtual machine can use. Use this to constrain guest virtual machine resource allocation.
 - **Keymap:** The keyboard mapping that will be used by the guest virtual machine being cloned.
 - **Tags:** Specify one or more tags for the virtual machine. These tags are used to logical group the virtual machines and can be used to search for one or more virtual machines that meet a certain criteria.
 - **Memory (in MB):** The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started.
 - **CPU Cores:** The number of CPU cores to assign to this guest virtual machine. This will show up as virtual CPU (VCPU) configuration parameter for the guest virtual machine.
 - **VM Size:** The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started. The size of the guest virtual machine (memory and CPU values). Select the VM Size which can be Custom or Medium. If you select Custom, specify the Memory size and the number of CPUs.
 - **NIC:** Specify the network interfaces for this guest virtual machine. The minimum value is 1 and maximum is 8. Click **Add** to add a network interface and specify the following details:
 - **Name:** Enter a name for the network resource.
 - **Network Type:** Specify if the network type is Internet Routable, Non Internet Routable, or a predefined set of IP addresses.
 - **IP Assignment:** Select the protocol to be used to assign the IP address.
 - **Disk:**

The list of available disks appears in the Disk section. Click **Add** to add an additional storage. In the Add Storage Device window, enter the name of the disk and its size. Indicate if it is a shared disk and specify the priority of a guest virtual machine to access the physical CPUs, while competing with other guest virtual machines on the same virtual server. Higher the priority, higher is the stake of the guest virtual machine in claiming CPU cycles.
5. Click **Next** and **Review** the details entered so far.
 6. **Review** the details entered so far. You can save as a plan that can be used later. Click **Save as Plan**, specify a name, and description for the plan. Select the folder in which the deployment plan is to be saved and click **OK**. If you do not wish to save the deployment procedure, click **Submit** to submit the job. From the Enterprise menu, select **Job**, then select **Activity** to view the Job Activity page. This page shows the details of the submitted job. You can click on the Name link to view more details.

To view details of the deployment request, from the Enterprise menu, select Cloud, then select Oracle VM Infrastructure Request Dashboard. See [Section 9.9, "Viewing the Infrastructure Request Dashboard"](#) for details.

9.8.6 Provisioning a Guest Virtual Machine Using an ISO Image

ISO images are imported into Enterprise Manager from installation media. You can create one or more virtual machines by deploying an ISO image.

Prerequisites

- Enterprise Manager Cloud Control is set up to manage the cloud environment.
- The ISO image is available to the zone and you have sufficient privileges to deploy the image.
- There are sufficient resources available in the zone for successful deployment.
- The Domain Type of the guest virtual machine being deployed must be set to HVM (hardware virtualized).

Follow this process to deploy an ISO image:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Right click on a virtual server pool target and select **Deploy ISO**.

Figure 9–18 ISO Deployment: Select Target and Source

3. On the Select Target and Source page, the server pool target on which the ISO image is to be deployed appears. In the Destination section, you can select either of the following:
 - **Deployment Plan:** If you select the Use Deployment Plan check box, you can select a deployment plan (if available) with predefined configurations. Selecting a plan at this stage allows you to pre-populate the interview with previously saved values of deployment and configuration parameters.
 - **ISO:** The ISO image to be used for this deployment. This can either be a component present in the Software Library, or at an external location. If it is stored in an external location, specify the NFS or HTTP location where the component is stored. For example, `http://myvm_server/image` or `file://myvm_server/image`.

4. Enter the name of the request and click **Next** to continue. The ISO Deployment: Deployment Configuration page appears.
5. This page contains the following sections:
 - **Guest VM**
 - **Guest VM:** Number of guest virtual machines to be deployed. Click **Configure Each Guest VM Instance** if you want to configure each guest virtual machine instance individually.
 - **Guest VM Naming:** You can choose either of the following options:

Generate Guest VM Names Using Prefix: This string will be used as a prefix in the guest virtual machine name. When a guest virtual machine is created using the Enterprise Manager, guest virtual machine names will be prefixed by the virtual machine name prefix you provide here and a number.

Upload Guest VM Names from File: If you select this option, you can Browse and upload a file with user defined guest virtual machine names. The guest virtual machine name cannot contain any special characters.
 - **General Configuration**

Note: High availability must be enabled both on the virtual server pool and on the guest virtual machine. If it is not enabled on both, high availability is disabled.

 - **Start VM After Creation:** Specify whether the guest virtual machine should be started automatically after it is created.
 - **CPU Scheduling Priority:** Specify the priority of a guest virtual machine to access the physical CPUs, while competing with other guest virtual machines on the same virtual server. Higher the priority, higher is the stake of the guest virtual machine in claiming CPU cycles.
 - **CPU Scheduling Cap (%):** Restricts the amount of physical CPU that a guest virtual machine can use. Use this to constrain guest virtual machine resource allocation.
 - **VM Size:** The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started. The size of the guest virtual machine (memory and CPU values). Select the VM Size which can be Custom or Medium. If you select Custom, specify the Memory size and the number of CPUs.
 - **NIC:** Specify the network interfaces for this guest virtual machine. The minimum value is 1 and maximum is 8. Click **Add** to add a network interface and specify the following details:
 - **Name:** Enter a name for the network resource.
 - **Network Type:** Specify if the network type is Internet Routable, Non Internet Routable, or a predefined set of IP addresses.

- **IP Assignment:** Select the protocol to be used to assign the IP address.
- **Disk:**

The list of available disks appears in the Disk section. Click **Add** to add an additional storage. In the Add Storage Device window, enter the name of the disk and its size. Indicate if it is a shared disk and specify the priority of a guest virtual machine to access the physical CPUs, while competing with other guest virtual machines on the same virtual server. Higher the priority, higher is the stake of the guest virtual machine in claiming CPU cycles.
- 6. Click **Next**. In the Schedule page, specify when the ISO image is to be deployed and click **Next**.
- 7. **Review** the details entered so far. You can save as a plan that can be used later. Click **Save as Plan**, specify a name, and description for the plan. Select the folder in which the deployment plan is to be saved and click **OK**. If you do not wish to save the deployment procedure, click **Submit** to submit the plan and complete the process.

9.8.7 Creating PXE Bootable Guest Virtual Machines

One of the key requirements of provisioning is the hardware server's ability to boot over the network instead of a diskette or CD-ROM. There are several ways computers can boot over a network, and Preboot Execution Environment (PXE) is one of them. PXE is an open industry standard supported by a number of hardware and software vendors. A detailed document on PXE specification can be found at <http://www.pix.net/software/pxeboot/archive/pxespec.pdf>.

You can create a network bootable (PXE boot) virtual machine that has the minimum configuration information, then start the virtual machine through Preboot Execution Environment (PXE) over a network later to install the guest operating system.

Prerequisites

- Enterprise Manager Cloud Control is set up to manage the cloud environment.
- There are sufficient resources available in the zone for successful deployment.

Follow this process to deploy an ISO image:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Home**.
2. Select a Virtual Server Pool target. Select **Deploy PXE** from the Virtual Server Pool menu.
3. On the Select Target and Source page, select the following:
 - Select the target machine on which the guest virtual machines are to be deployed.
 - Select the deployment plan to be used while creating PXE bootable guest virtual machines. The Deployment Plan contains pre-configured values and configuration parameters. This is an optional field.
4. Click **Next**. In the General Configuration page, enter the following details:
 - Name of the guest virtual machine to be deployed. If you are deploying more than one guest virtual machine, you can use a prefix or upload a file with user defined guest virtual machine names.

- Number of guest virtual machines to be deployed. Click **Configure Each Guest VM Instance** if you want to configure each guest virtual machine instance individually.
- Select the VM Size which can be Custom or Medium. If you select Custom, specify the Memory size and the number of CPUs.
- Specify the priority of a guest virtual machine to access the physical CPUs, while competing with other guest virtual machines on the same virtual server. Higher the priority, higher is the stake of the guest virtual machine in claiming CPU cycles.
- Specify the cap to restrict the amount of physical CPU that a guest virtual machine can use.
- CPU Cores: The number of CPU cores to assign to this guest virtual machine. This will show up as virtual CPU (VCPU) configuration parameter for the guest virtual machine.
- Keymap: The keyboard mapping to be used for the guest virtual machine.
- Memory (in MB): The amount of memory to be allocated to the guest virtual machine. The virtual server should have sufficient memory to run the guest virtual machine. Otherwise, the guest virtual machine will be created, but will not be started.
- CPU Cores: The number of CPU cores to assign to this guest virtual machine. This will show up as virtual CPU (VCPU) configuration parameter for the guest virtual machine.
- In the NIC Configuration section, you can specify the number of virtual network interfaces for this guest virtual machine. The minimum value is 1 and the maximum value is 8. You can add one or more network interfaces or edit existing ones.
- Enterprise Manager Cloud Control provides a VNC console to the newly created guest virtual machine. This is the VNC password to access the VNC console.
- Select a Domain Type for the virtual machine:
 - **xen_hvm** (hardware virtualization, or fully virtualized): Enables you to select an ISO file from which to create the virtual machine.
 - **xen_pvm** (para-virtualized): Enables you to select a location for the mounted ISO file from which to create the virtual machine. Before you create the virtual machine using the paravirtualized method, mount the ISO file on an NFS share, or HTTP or FTP server. The ISO file must be available in the relevant repository.
 - **xen_hvm_pv_drivers**: Identical to xen_hvm but with additional paravirtualized drivers for improved performance of the virtual machine. This Domain Type is used to run Windows guest operating systems with an acceptable performance level.
- Select the **Enable High Availability** option if you want the guest virtual machine to run automatically on a different virtual server if the earlier virtual server shuts down.
- Select the **Start VM After Creation** check box to indicate whether the machine should automatically be started after it is created.

- The list of available disks appears in the Disk section. Click **Add** to add an additional storage.
- 5. Click **Next**. In the Schedule page, specify when the PXE bootable guest virtual machines are to be created and click **Next**.
- 6. Review the details entered so far and click **Submit** to create the PXE bootable guest virtual machines.

9.9 Viewing the Infrastructure Request Dashboard

The SSA Administrator can use the Request Dashboard to track the status of requests and reservations. The SSA administrator can view the requests across all zones for all users. The requests the SSA user can view depends on his zone and his instance level privileges.

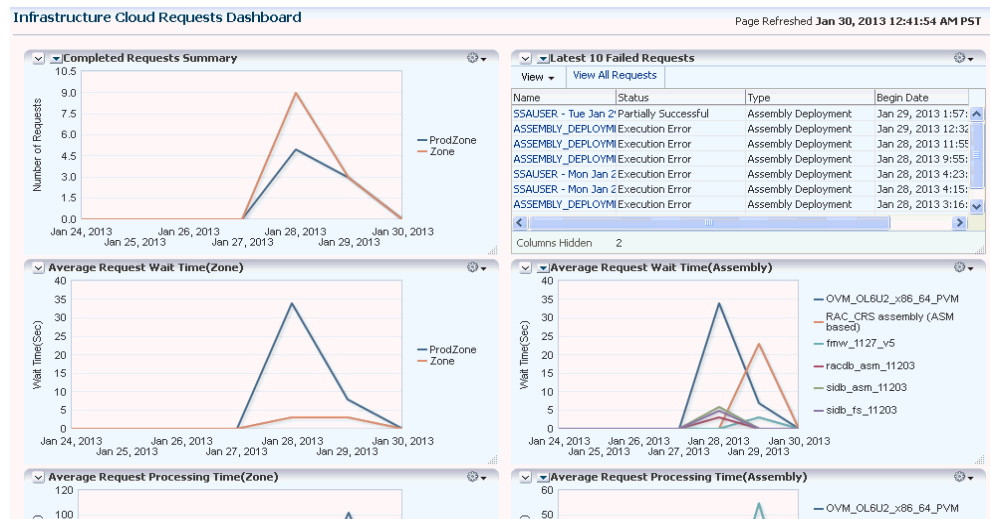
Prerequisites

- Enterprise Manager Cloud Control is set up to manage the cloud environment.
- Appropriate self service users have been defined in the LDAP directory.
- Requests and reservations for resources have been submitted.

To view the Infrastructure Request Dashboard, follow these steps:

1. From the Enterprise menu, select **Cloud**, then select **Oracle VM Infrastructure Request Dashboard**. The Infrastructure Cloud Requests Dashboard appears.

Figure 9–19 Infrastructure Requests Dashboard



2. The following charts are displayed:
 - Latest 10 Failed and Pending Requests
 - Oldest 10 Running Requests
 - Request Summary - Failed, Successful, and Partially Successful Requests
 - Average Request Wait Time (Zone)
 - Average Request Wait Time (Assemblies and Templates)

- Average Request Processing Time (Zone)
 - Average Request Processing Time (Assemblies and Templates)
3. Click on the **View All Requests** link to go to the All Cloud Requests page.
 4. In this page, you can search for one of the following:
 - Request Name: The name of the request.
 - Request Type: The type of request that you want to view. This can be Assembly Deployment, Template Deployment, ISO Deployment, PXE Deployment, Clone Guest VM, Update Guest VM.
 - Requesting Application: The application making the request. You can view only Self Service requests from this dashboard.
 - Status: The status of the request such as Successful, Canceled, Scheduled, Error Ending, and so on.
 5. For each request type you select, you can view the Request Name, Request Type, Created By, Status, Begin Date, End Date, Memory, CPU, VMs, and so on. You can also select a request and click **Delete** to remove the request.
 6. Click on a **Request Name** link to drill down to the Request Details page.

9.9.1 Viewing Request Details

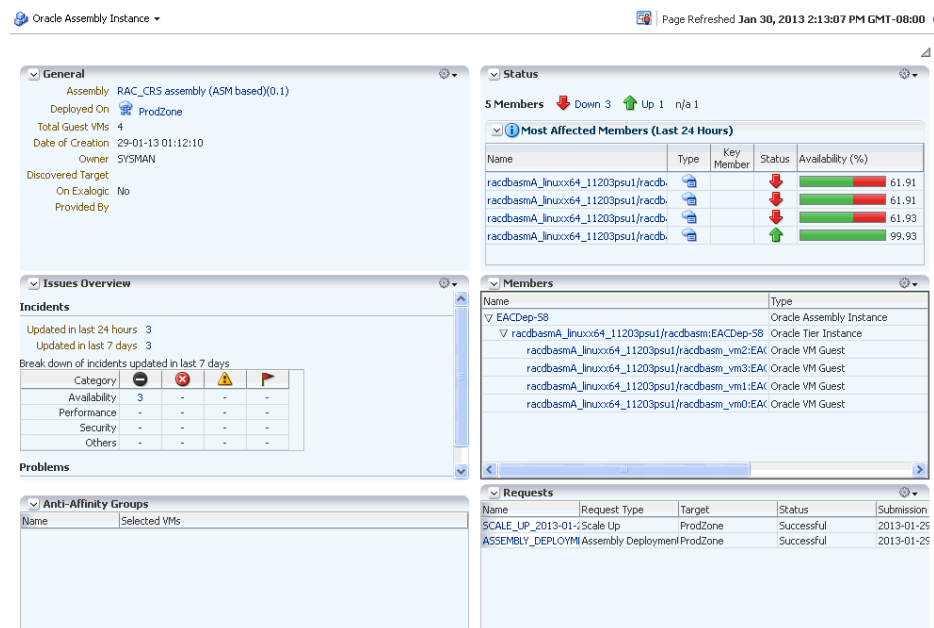
The Request Details page shows the details of the selected request. The name of the request, type, the OVM Manager associated with the request, status, date on which it was created, and so on are displayed.

- **General:** This section displays the name of the request, request type, target name, and other details.
- **Deployment:** This section shows the name of the requests and the targets that have been deployed. Click on request link to drill down to the Job Details page. Click on a target link to drill down to the Home page of the target.

9.9.2 Viewing the Assembly / Tier Instance Page

To view the Home page for the assembly or tier instance, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Oracle VM Infrastructure Request Dashboard**.
2. The Infrastructure Request Dashboard page appears. Click the **All Requests** link in the Requests table.
3. In the All Requests page, click on an assembly deployment request name in the table. The Assembly Deployment page appears. Click on the **Deployment** tab. The assembly instance that has been deployed is displayed.
4. Click on the Assembly Instance link. The following page appears.

Figure 9–20 Assembly Instance

- **General:** This section shows the name of the assembly, the target on which it was deployed, the total number of Guest VMs, the date on which it was created, and the owner of this assembly instance.
- **Status:** The status of the most affected members over the last 24 hours is displayed. Click on a Name link to drill down to the target Home page.
- **Issues Overview:** Shows the various incidents and policy violations that have occurred in the last 24 hours.
- **Affinity Relations:** The rules that have been defined for the assembly or tier are displayed here. For example, you can define rules to specify whether two guest VMs can exist together on the same server or server pool, rules to ensure that two guest VMs must exist on the same server, and so on.
- **Members:** The members in this instance, their status, and the installed software is displayed.
- **Requests:** The name of the request specified during deployment. Click on the link to navigate to the Deployment page.

Part IV

Direct Monitoring

This section describes how to discover and monitor a Xen based hypervisor and the associated virtual targets.

It contains the following chapters:

- [Chapter 10, "Direct Monitoring of Xen Based Systems"](#)

Direct Monitoring of Xen Based Systems

This chapter describes the procedures to discover and monitor Xen based systems. It contains the following sections:

- [Direct Monitoring Overview](#)
- [Discovering the Hypervisor Target](#)
- [Viewing the Oracle Server Home Page](#)
- [Viewing the Oracle Virtual Platform Home Page](#)
- [Viewing the Oracle VM Instance Home Page](#)

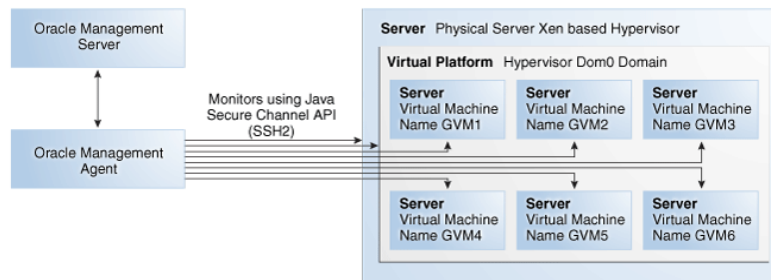
10.1 Direct Monitoring Overview

You can directly monitor a Xen based Hypervisor, the bare metal machine, its operating system, and the virtual machines without relying on their monitoring software. Monitoring these targets involves the following:

- Direct Monitoring of the Oracle Virtual Server (Guest OS or DomU running on the Hypervisor) target based on Xen 4.1.2 or later.
- Direct monitoring of Oracle Server (Physical Server)
- Direct monitoring of the Oracle Virtual Server (Xen based Hypervisor).
- Direct Monitoring of the Oracle Virtual Platform or the host operating system of the hypervisor machine.

Note: To enable direct monitoring of Xen based Hypervisors, the Oracle Virtual Infrastructure 12.1.0.2 plugin must be deployed on the Management Server. This plugin is automatically deployed on the Management Agent when the Hypervisor is registered.

The following figure shows the high level architecture.

Figure 10–1 Direct Monitoring Architecture

10.2 Discovering the Hypervisor Target

Prerequisites:

- To discover a Hypervisor target, the administrator must have the following privileges:
 - Add Any Target
 - Create Job
 - Operator privilege on the Management Agent that is monitoring the Hypervisor target.

To discover the Hypervisor by following these steps:

1. Log in to Enterprise Manager as a user with the above privileges.
2. From the **Setup** menu, select **Add Targets**, then select **Add Targets Manually**.
3. In the Add Targets Manually page, select **Add Targets Using Guided Process (Also Related Targets)** and select Oracle Virtual Platform from the Target Types drop down list.
4. Click **Add Using Guided Process**. The Discover Oracle Virtual Platforms page appears.

Figure 10–2 Discover Virtual Platform

The screenshot shows the 'Discover Oracle Virtual Platforms' page. It includes the following sections:

- Default Monitoring Agent and Credentials:**
 - Specify the default Monitoring Agent and Credentials for the Oracle Virtual Platforms to be discovered.
 - Monitoring Agent:
 - Falover Monitoring Agent:
 - Privileged User: ☐ Yes ☐ No
 - Credential type:
- Credential Properties:**
 - * Username:
 - * Password:
 - Run Privilege:
- Hostname and IP Address:**
 - Specify the hostname or IP address for the Oracle VM servers that need to be discovered.
 - Buttons:
 - Table with columns: Host/IP Address, Agent & Credentials, Monitoring Agent, Username.
 - Current state: No data to display.
- Global Target Properties (Optional):**
 - Setting global target properties is optional. These can also be set at a later time.
 - Fields: Comment, Contact, Cost Center, Department, Lifecycle Status (Test), Line of Business, Location.

5. In the Default Monitoring Agent and Credentials region, enter the following details:

Note: The credentials specified in this region will be applied to all Oracle Virtual Platform targets discovered through this process by default. You can choose to override these credentials for a specific Oracle Virtual Platform target.

- **Monitoring Agent:** Click the **Search** icon and select the default monitoring agent to monitor the targets.
- **Failover Monitoring Agent:** Click the **Search** icon and select the failover monitoring agent to monitor the targets.

Note: To ensure that Hypervisors and the associated targets can be monitored smoothly in a large scale environment, you must use the following recommendation for the Java Heap Size.

- If the Total Number of Targets (includes Oracle Virtual Platform, Oracle Server, and Oracle Virtual Server targets) is less than or equal to 300, the Java Heap Size for the Management Agent must be set to 128 MB.
 - If you add another 300 targets, you must increase the Java Heap Size by an additional 128 MB.
-

- **Privileged User:** This field is used to provide the user with access to certain privileged commands. The access is available either by a root user or through the Privilege Delegation options provided here.
 - **Yes:** If you select **Yes**, you must be a user who can execute the following `xl / xm` commands that require root access privileges:


```
/usr/sbin/xl list*,/usr/sbin/xl info*,/usr/sbin/xl network-list*,
/usr/sbin/xl uptime*,/usr/sbin/xl vcpu-list*,/usr/sbin/dmidecode,
/usr/sbin/xentop,/usr/bin/xenstore-read,/usr/bin/xenstore-list,
/usr/bin/xenstore-ls,/sbin/ethtool
```

These commands allow you to collect virtualization metrics when they are executed. If the `xl` command is not present on the system, the following commands will be used:

```
/usr/sbin/xm list*,/usr/sbin/xm info*,/usr/sbin/xm network-list*,
/usr/sbin/xm uptime*,/usr/sbin/xm vcpu-list*,/usr/sbin/dmidecode,
/usr/sbin/xentop,/usr/bin/xenstore-read,/usr/bin/xenstore-list,
/usr/bin/xenstore-ls,/sbin/ethtoo
```
 - **No:** If you select **No**, you cannot execute the `xl/xm` commands, and virtualization and configuration metrics for the Oracle Virtual Platform target are not collected.
- **Credential Type:** Specify the credentials for the target being discovered. You can select **Host Credentials** or **SSH Key Credentials**. Depending on your choice, you must enter the credential properties as described in [Section 10.2.2](#),

["Setting the Credential Properties".](#)

6. Click **Add** in the Host Name and IP Address region. In the Add Host/IP Address window, enter one or more host names, IP addresses or IP address ranges and click **Add**. Multiple host names, IP addresses or the ranges must be separated by a new line. The host names that you have added will appear in the Discover Oracle Virtual Platforms page.
7. You can choose to use the default agent and credentials or click **Override** to override them. You can also override the Failover Monitoring Agent credentials. In the Override Monitoring Agent and Credentials window, enter the monitoring agent and credential properties and click **Override**. This will override the monitoring credentials. The new agent and credentials you specify will be applied.
8. Optionally, you can also specify the Global Target Properties. The Enterprise Manager Target Properties allows you to store descriptive target information, such as Contact or Location, which can then be used in dynamic/administration group definition, reports, incident rules and notifications. The Global Target Credentials region allows you to specify the values for the target properties that are applied to all the targets discovered using this process.
9. Click **Submit**. The registration information is validated and a job is submitted. On completion of the job, the following targets are discovered from a host that is running a Xen based hypervisor.
 - **Oracle Server:** The bare metal box running the hypervisor.
 - **Oracle Virtual Platform:** The host operating system that represents the hypervisor process.
 - **Oracle Virtual Server:** The virtual machines managed by the hypervisor domain.

Note: To facilitate monitoring of these targets in a group, you can specify global target properties to create dynamic groups while registering the targets or by editing the already registered targets.

For instance, you can include all production virtual platforms into a dynamic group with production lifecycle status.

10.2.1 Deleting the Targets

To delete the targets that have been discovered, you must first delete the Oracle Virtual Platform target. When this target is deleted, all associated Oracle Virtual Server and Oracle Server targets are deleted.

To delete the target, follow these steps:

1. From the Targets menu, select All Targets to navigate to the All Targets page.
2. In the left panel of the All Targets page, select Oracle Virtual Platform under Servers, Storage, and Network target type. The list of Oracle Virtual Platform targets available is displayed.
3. Click on one of the targets to navigate to the Oracle Virtual Platform Home page. From the Oracle Virtual Platform menu, select Target Setup, then select Remove Target. A confirmation message is displayed. Click Yes to delete the Oracle Virtual Platform target and the associated targets.

10.2.2 Setting the Credential Properties

You can specify the credentials for the Virtual Platform target being discovered. You can select the credential type as Host Credentials or SSH Key Credentials. Each of these credentials can be clubbed with the Sudo or PowerBroker privilege delegation option.

Figure 10–3 Discover Oracle Virtual Platform: Setting the Credentials

Host Credentials

If you have selected Host Credentials, you must specify the credential properties shown below:

- **User Name:** The user name required to access the target.
- **Password:** The password required to access the target.
- **Run Privilege:** This can be:
 - **None:** Run privileges are not required. This option is used when the user is **root** and the Privileged User option is set to **Yes**.
 - **Sudo:** If you select Sudo, you must specify the following:
 - **Sudo Command:** Sudo allows a permitted user to execute a command as the super user or another user as specified in the sudoers file. Enter the command in the format `/usr/bin/sudo -S -u %RUN_AS% %COMMAND%` where `/usr/bin/sudo` is the path to the sudo executable, `RUN_AS` is the name of the user who is executing the command and `COMMAND` represents that Sudo command being executed.
 - **Run As:** Specify `root` to run this command as a root user.
 - **Enable Pseudo Terminal:** Select the checkbox if the sudo command requires the user to log in to a real terminal (tty). If this flag is set, the sudo user must log into the machine via a separate terminal.
 - **PowerBroker:** If you select PowerBroker, you must specify the following:
 - **PowerBroker Command:** Enter the command in the format `/usr/bin/pbrun -l -u %RUN_AS% %COMMAND%` where `/usr/bin/pbrun` is the path to the PowerBroker executable, `RUN_AS` is the name of the user running the command, and `COMMAND` represents the PowerBroker command being executed.
 - **Password Prompt:** The prompt that is to be displayed when the password is specified.
 - **Run As:** Specify `root` to run this command as a root user.
 - **Profile:** Specify the user profile to be used to run this command.

SSH Key Credentials

If you select **SSH Key Credentials**, you must specify the user name, private and public key, passphrase (for further encryption), and the run privilege.

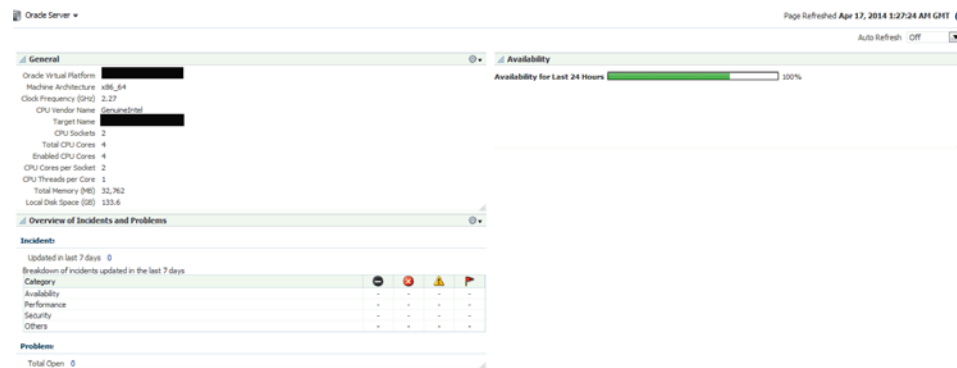
If you select Sudo or PowerBroker in the Run Privilege field, enter the additional details as listed in the **Host Credentials** section.

10.3 Viewing the Oracle Server Home Page

To view the Oracle Server Home page, follow these steps:

1. From the Targets menu, select All Targets to navigate to the All Targets page.
2. In the left panel of the All Targets page, select Oracle Server under Servers, Storage, and Network target type. The list of Oracle Server targets available is displayed.
3. Click on one of the targets to navigate to the Oracle Server Home page.

Figure 10–4 Oracle Server Home Page



This page contains the following regions:

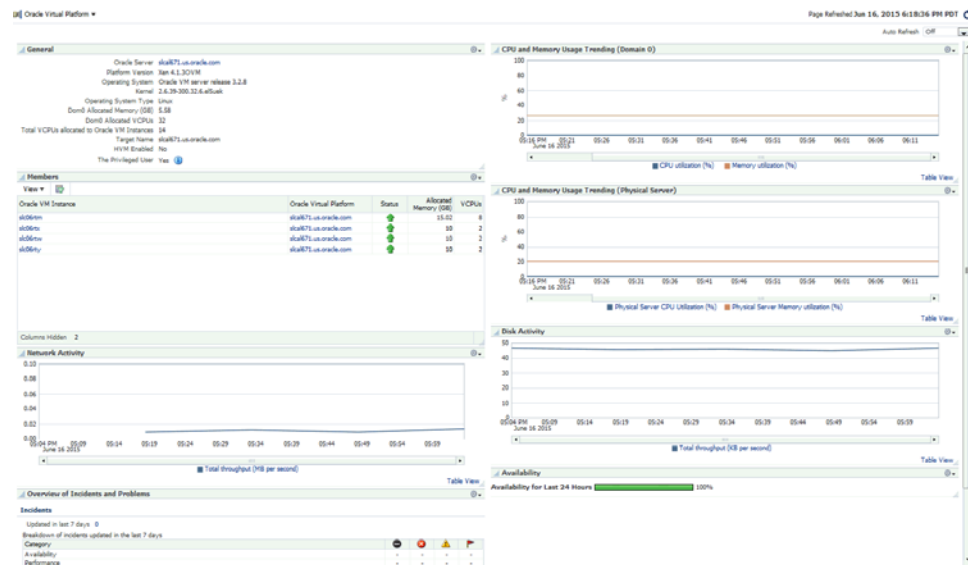
- **General:** This region provides general details such as the Oracle Virtual Platform target, name of the target, CPU sockets, CPU cores, total memory, and local disk space.
- **Availability:** The chart in this region shows the status of the target over the last 24 hours.
- **Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.

10.4 Viewing the Oracle Virtual Platform Home Page

To view the Oracle Virtual Platform Home page, follow these steps:

1. From the **Targets** menu, select **All Targets** to navigate to the All Targets page.
2. In the left panel of the All Targets page, select **Oracle Virtual Platform** under Servers, Storage, and Network target type. The list of Oracle Virtual Platform targets available is displayed.
3. Click on one of the targets to navigate to the Oracle Virtual Platform Home page.

Figure 10–5 Oracle Virtual Platform Home Page



This page contains the following regions:

- **General:** This region shows general details such as the Oracle Server target, platform version, name of the target, VCPUs allocated to Dom0 and total VCPUs allocated to the Oracle Virtual Server targets. It also indicates if this is a Privileged User. Virtualization metrics are collected only for privileged users.
- **Members:** This region listed the virtual servers that belong to this virtual platform, their status, and the memory allocated to each virtual server.

Host names corresponding to the Oracle Virtual Server target are also displayed if the Management Agent is present on the virtual server.

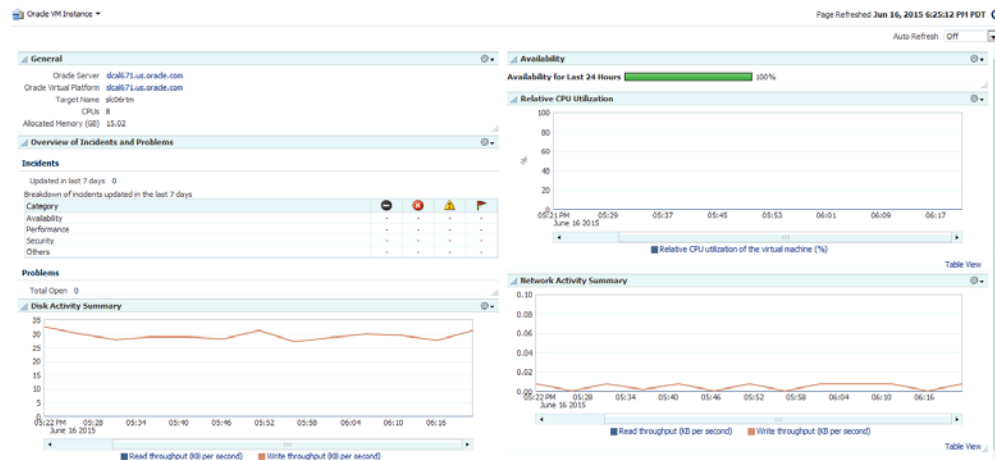
By default, this column is not visible. You can select this column using the View drop down menu.

- **Network Activity:** This region shows the total throughput (MB per second) over the last 24 hours.
- **Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.
- **Charts:** The CPU utilization, Memory Utilization, Network, and Disk Activity charts show the activity over the last 24 hours. It shows the CPU and memory usage trending
- **Availability:** The chart in this region shows the status of the target over the last 24 hours.

10.5 Viewing the Oracle VM Instance Home Page

To view the Oracle VM Instance Home page, follow these steps:

1. From the **Targets** menu, select **All Targets** to navigate to the All Targets page.
2. In the left panel of the All Targets page, select Oracle VM Instance under Servers, Storage, and Network target type. The list of Oracle VM Instance targets available is displayed.
3. Click on one of the targets to navigate to the Oracle VM Instance Home page.

Figure 10–6 Oracle VM Instance Home Page

This page contains the following regions:

- **General:** This region provides general details such as the Oracle Server and Oracle Virtual Platform targets, name of the target, and allocated memory.
- **Availability:** The chart in this region shows the status of the target over the last 24 hours.
- **Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.
- **Charts:** The CPU utilization, Memory Utilization, Network, and Disk Activity charts show the activity over the last 24 hours.

Part V

Setting Up and Using Platform as a Service

This section describes the steps required to enable Platform as a Service, which encompasses the Database as a Service (DBaaS) and Middleware as a Service (MWaaS) Cloud models.

It contains the following chapters:

- [Chapter 11, "Setting Up the PaaS Infrastructure"](#)
- [Chapter 12, "Enabling the DBaaS Cloud"](#)
- [Chapter 13, "Setting Up an MWaaS Cloud"](#)

Setting Up the PaaS Infrastructure

The PaaS model allows users to create platforms onto which consumers can deploy their own applications. A platform resource is typically comprised of a host, operating system, and application server, and may be virtualized. The platform may also include a database and even multiple hosts in a cluster.

This chapter covers the common operations that need to be performed to enable Platform as a Service (PaaS), which encompasses different service families such as Database as a Service (DBaaS) using Oracle Single Instance, and RAC or Middleware as a Service (MWaaS) using WebLogic Server, SOA Infrastructure, and Oracle Service Bus. It contains the following sections:

- [About Service Families](#)
- [Common Setup Tasks](#)

11.1 About Service Families

A service family can be classified as a group of services that provide a solution for a specific domain. For example, a Database Service provides RDBMS solutions and a WebLogic service provides the Java solutions for J2EE based application development and hosting.

Each service family can contain one or more service types. A service type provides a specialized service within a service family. For example, a database service can contain service types such as database service, schema service, or pluggable database service. A middleware service type can contain WebLogic service, OSB service, or SOA service. Each service type has certain fixed attributes, actions, configurations, metrics, and other properties.

A service instance is a cloud resource that is requested and managed by the self service user. For example, single instance database service instance, WebLogic service instance, and so on.

11.2 Common Setup Tasks

This section helps you get started by providing an overview of the common steps that must be performed before you set up a service family.

Table 11–1 *Setting Up the Service Family*

Step	Task	Role
1	Configure the Software Library. See Setting Up the Software Library section for details.	Cloud Administrator

Table 11–1 (Cont.) Setting Up the Service Family

Step	Task	Role
2	Deploy the necessary plug-ins. See Section 3.2, "Deploying the Required Plug-ins"	Cloud Administrator
3	Define roles for administrators and self service users. See Section 3.3, "Defining Roles and Assigning Users" .	Super Administrator
4	Install the Management Agent on unmanaged hosts so that they can be monitored by Enterprise Manager. See Section 11.2.1, "Adding Hosts" .	Cloud Administrator
5	Create one or more resource providers. See Section 11.2.2, "Creating the Resource Providers" .	Self Service Administrator
6	Configure the request settings. See Section 11.2.3, "Configuring Request Settings" .	Self Service Administrator
7	Set up quotas for self service users. See Section 11.2.4, "Setting Up Quotas" .	Self Service Administrator

11.2.1 Adding Hosts

Oracle Management Agent (Management Agent) is one of the core components of Enterprise Manager Cloud Control. It works in conjunction with the plug-ins to monitor the targets running on a managed host. You must install Oracle Management Agents on your unmanaged hosts to monitor them in Enterprise Manager.

To install the Management Agent on an unmanaged server, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Setup** menu, select **Add Target**, then select **Add Target Manually**.
3. Select the **Add Host Targets** option and click **Add Host**.
4. Add the host names and select the platform. Check the Self Update console, if the Agent software for the desired platform is listed as not available, click **Next**.
5. Enter the Agent Install location by clicking the Instance directory field to auto-generate the path, create a named credential for the agent user (provide access to root user either by using `sudo` or `pbrun`), and clear the value in the port field (this will enable automatic selection of the port), click **Next**.
6. Review all entered values, and click **Deploy Agent**.
7. Track the progress of agent deployment on the Add Host Status page. The agent deployment takes between 5-10 minutes.
8. Select **Targets**, then select **Hosts** to navigate to the Hosts page. Confirm if all the hosts are listed on the page.

11.2.2 Creating the Resource Providers

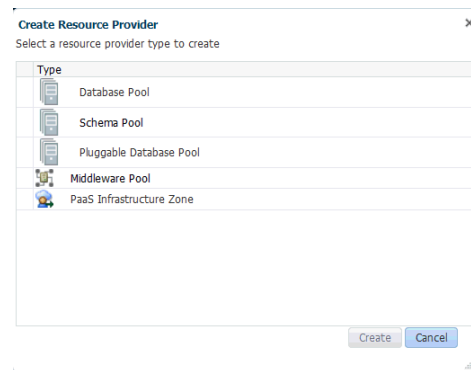
A resource provider is a target that represents the type of resources required to provision a service instance of a specific service type. A PaaS Infrastructure zone is a resource provider which contains one or more hosts. A Software Pool is another resource provider that can contain resources such as Oracle Home targets, Oracle database targets, and so on. Resource providers such as the Database Pool or Middleware Pool are dependent on the PaaS Infrastructure Zone.

Resources can be grouped under a resource provider for easier administration and management. Resource providers allow administrators to enforce policies for service provisioning and capacity planning.

To create a resource provider, follow these steps:

1. Login as a user with the appropriate role. To create a PaaS Infrastructure Zone, you must login as a user with the EM_CLOUD_ADMINISTRATOR role. To create all other resource providers such as database pools, schema pools, and so on, you must login as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Resource Providers**, then click **Create**. The Create Resource Provider window appears.

Figure 11–1 Create a Resource Provider

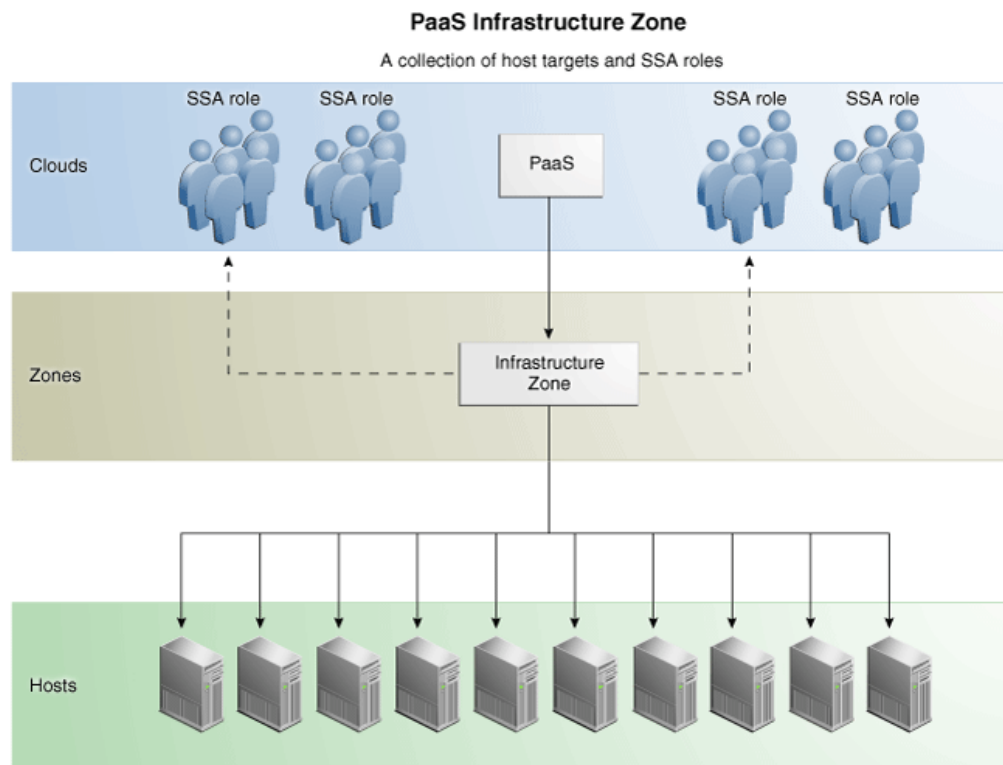


4. Select the type of resource provider you want to create. This can be:
 - PaaS Infrastructure Zone. See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#).
 - PaaS Pool. See [Section 11.2.2.2, "Creating a PaaS Pool"](#)
5. Click **Create** and follow the steps in the wizard to create the selected resource provider.

11.2.2.1 Creating a PaaS Infrastructure Zone

A PaaS Infrastructure Zone can contain a group of hosts. Each zone can contain homogeneous resources of only one type. Each resource in a zone represents a location at which a service instance is to be deployed.

The first step in building a PaaS cloud is to create at least one PaaS Infrastructure Zone, which is done by selecting one more Enterprise Manager host targets and identifying the SSA enabled roles that users will need to in order to request resources in this zone.

Figure 11–2 PaaS Infrastructure Zone**Prerequisites**

Before you create a PaaS Infrastructure Zone, you must ensure that the following prerequisites are met:

- The `EM_CLOUD_ADMINISTRATOR`, `EM_SSA_ADMINISTRATOR`, and `EM_SSA_USER` roles must have been created. See [Section 3.3, "Defining Roles and Assigning Users"](#) for details.

Note: If you are using an OMS Shared System location in the Software Library, the credentials owner must grant privileges to the `CLOUD_ENGINE_USER`. Since the `CLOUD_ENGINE_USER` is a hidden user account, the owner of the named credential cannot grant **View** privileges from the Enterprise Manager Console. To address this issue, (especially on a Windows host where OMS Agent Filesystem is the recommended approach for setting up Software Library) you need to run the following EMCLI commands:

```
emcli login -username=<username> -password =<password>

emcli grant_privs -name=CLOUD_ENGINE_USER -privileges="GET_
CREDENTIAL; CRED_NAME=<namedcred>:CRED_
OWNER=<loginusername>"
```

- You must log in as a user with `EM_CLOUD_ADMINISTRATOR` privileges to create a PaaS Infrastructure Zone.

To create a PaaS Infrastructure Zone, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
2. From the **Cloud Home** menu, select **Resource Providers**, then select **Create**. In the Create Resource Provider window, select **PaaS Infrastructure Zone**, then click **Create**. The Create PaaS Infrastructure Zone: General page appears.

Figure 11–3 Create PaaS Infrastructure Zone: General

3. Enter the target name, name, and description for the zone. Click **Next**.
4. Click **Add** to add one or more host members to the zone. The hosts that you select cannot be present in more than one PaaS Infrastructure Zone. Click **Next**.
5. In the Create PaaS Infrastructure Zone: Credentials page, specify the host credentials that are to be used for provisioning all targets in this zone. The credentials provided should be of global credential type (valid across the members in the zone) and owned by the current user. Click **Next**.

Note: To create new named credentials, from the **Setup** menu, select **Security**, then select **Named Credentials**. You can create user or password named credentials here. Other types of credentials such as SSH must be created from the **Security** menu and can be used here.

6. Specify appropriate values for the placement policy constraints based on the resources available to the host members. The placement policy constraints are used to set maximum ceilings for any host in the zone. Placement policy values are used during deployment to filter out hosts that are overburdened. You can define the following placement policy constraints for each host:

- Maximum CPU Utilization: The average CPU utilization percentage for the past 7 days.
- Maximum Memory Allocation: The average memory allocation for the past 7 days.

Hosts exceeding these thresholds will not be considered for provisioning operations.

7. Click **Next**. In the Create PaaS Infrastructure Zone: Characteristics page, specify the target properties such as cost center, lifecycle status, location, and so on
8. Click **Next**. The Create PaaS Infrastructure Zone: Roles page appears. A PaaS Infrastructure Zone can be made available to a restricted set of self service users with the EM_SSA_USER role. Click **Add** to add and select the roles that can access this PaaS Infrastructure Zone.
9. Click **Next**. The Create PaaS Infrastructure Zone: Review page appears. Review the details of the zone being created and click **Submit** to create the zone. You will return to the Database and Cloud Home page.

Note: You can use EMCLI commands (see [Section 51.13.1.1, "Creating a PaaS Zone"](#)) or REST APIs (see [Section 48.3.1.3.3, "Creating a PaaS Zone"](#)) to create a PaaS Infrastructure Zone.

11.2.2.1.1 Editing a PaaS Infrastructure Zone To edit a PaaS Infrastructure Zone, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
2. From the **Cloud Home** menu, select **Resource Providers**. The Resource Providers page appears.
3. Select a PaaS Infrastructure Zone from the list and click **Edit**.

Note: If you do not have access to or own the Named Credentials that have been defined for the PaaS Infrastructure Zone, you must specify new credentials.

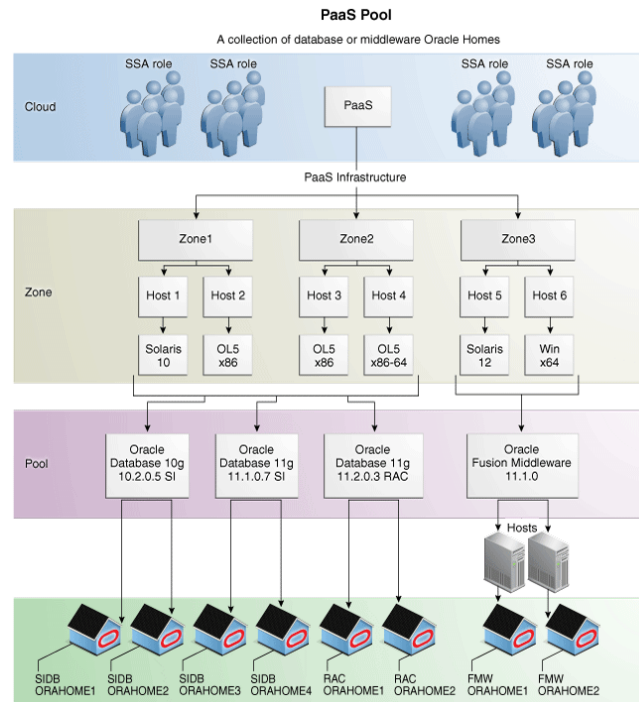
4. Follow the steps in the wizard to edit the necessary parameters and click **Submit** to accept the changes.

11.2.2.1.2 Deleting a PaaS Infrastructure Zone To delete a PaaS Infrastructure Zone, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
2. From the **Cloud Home** menu, select **Resource Providers**. The Resource Providers page appears.
3. Select a PaaS Infrastructure Zone from the list and click **Delete**.
4. A confirmation message is displayed. Click **Delete PaaS Infrastructure Zone** to delete the zone.

11.2.2.2 Creating a PaaS Pool

The second step in building a PaaS cloud is to create software pools (for example, database or middleware Oracle Homes that exist on hosts within the PaaS Infrastructure Zone, or database instances for schema as a service). The figure below shows an example of a PaaS pool.

Figure 11–4 PaaS Pool

A PaaS pool must be a homogeneous collection of Oracle Homes of the same platform, type, and version. For example, Solaris 10 Oracle Database single instance version 10.2.0.5 or Oracle Enterprise Linux 5 x86-64 WebLogic Server version 10.3.6. You can create a Database Pool or a Middleware Pool.

- To create a Database Pool, see [Section 11.2.2.2.1, "Creating a Database Pool"](#).
- To create a Middleware Pool, see [Section 11.2.2.2.2, "Creating a Middleware Pool"](#).

11.2.2.2.1 Creating a Database Pool A Database Pool contains a set of resources that can be used to provision a database instance within a PaaS Infrastructure Zone. A database pool is a collection of homogenous targets such as servers or clusters with database software installed. For more details, see [Section 11.2.2.2, "Creating a PaaS Pool"](#).

Depending on the type of database service you are setting up, you can do one of the following:

- [Creating a Database Pool for Database as a Service](#)
- [Creating a Database Pool for Schema as a Service](#)
- [Creating a Database Pool for PDB as a Service](#)

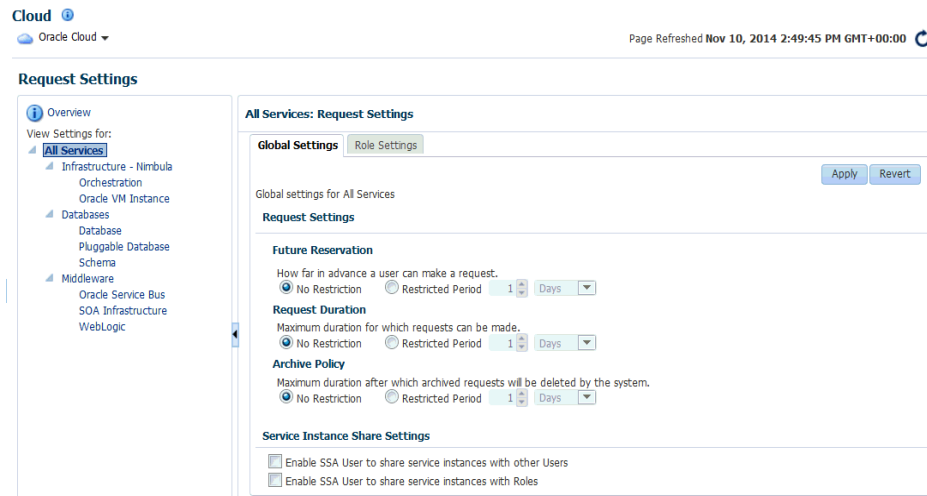
11.2.2.2.2 Creating a Middleware Pool A Middleware Pool contains a set of resources that can be used to provision a service instance within a PaaS Infrastructure Zone. For more details on creating the middleware pool, see [Section 25.2, "Creating a Middleware Pool"](#).

11.2.3 Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. To configure request settings, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Request Settings**.

Figure 11–5 Configuring Request Settings



3. You can specify the following settings:
 - **Future Reservation:** How far in advance can a request be made.
 - **Request Archive Retention:** Period for which archived requests are stored before they are automatically deleted by the system.
 - **Request Duration:** Maximum duration for which requests can be made.
 - **Service Instance Share Settings:** You can choose to share the service instance with other users or roles by selecting either of the following checkboxes.
 - Enable SSA User to share service instances with other Users
 - Enable SSA User to share service instances with Roles
4. Click **Apply**.

Request settings can be defined for all services or a specific service family, service type or role. The most restrictive value of request settings is taken from all matched values. "No Restriction" on a level means the setting is not applied at this level and will not be considered in evaluating final value.

For example, if a user requests a schema service and the Request Duration settings are as follows: All Services 30 Days, Database family 10 days, Schema service type (Global) 5 days, and Schema service type (SSAUser1 Role) 3 days. Then the most restrictive setting, 3 days from the Schema service type (SSAUser1 Role) setting, will be applied.

Share Service Instance Settings are taken from the highest enabled level. For example, if sharing is enabled for All Services, then sharing is allowed for all users regardless of any lower level settings. To turn off sharing for the Middleware family, you must first disable sharing at the All Services level, then disable sharing for the Middleware family and enable sharing for the other families.

Any modified settings must be saved before making another selection. Any changes not yet applied will be discarded.

11.2.4 Setting Up Quotas

Quota is the aggregate amount of resources that can be granted to each self service user belonging to a certain role. This quota applies only to the databases provisioned through the Database Cloud Self Service Portal. To set up quotas, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Cloud** menu, select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Quotas**.
3. Click the **Databases** link on the left hand side. The quota definition page appears. Click **Create**.

Note: Quota validation ensures that a request is executed only if the user's current usage is within the limits specified for the roles to which the user belongs. Only the direct roles are considered for the quota determination, and not nested ones.

4. In the Create New Quota window, select the Role Name for which the quota is to be granted. Only roles that have the EM_SSA_USER privileges are displayed in the Select Roles dialog box. After you have selected the role, enter the following details:
 - **Memory:** Total allocated memory that can be assigned for all the databases owned by a specific user. This should be the total memory used by all:
 - Databases
 - Schemas requested
 - Pluggable Databases
 - **Storage:** Total allocated storage that can be assigned for all the databases owned by a user. This should be total storage used by all:
 - Databases
 - Schemas requested
 - Pluggable Databases

Note: Storage used for backups is not included here.

- **Number of Database Requests:** The number of databases that can be requested by a user at any point in time. The standby databases created as part of database requests will not be included in this quota. But the storage and memory values for the standby databases will be added to the total allocated storage and memory.
- **Number of Schema Service Requests:** The number of database services that can be requested by the user.
- **Number of Pluggable Database Service Requests:** The number of PDBs that can be requested by the user.

For example, if a user has 3 roles with quota setup for each role as shown in the table below:

Role Name	Attribute	Value
Dev Role	Memory	30 GB
	Storage	40 GB
	DB Requests	10
	Schema Requests	2
	PDB Requests	3
Test Role	Memory	40 GB
	Storage	60 GB
	DB Requests	12
	Schema Requests	3
	PDB Requests	5
PM Role	Memory	Quota not set
	Storage	Quota not set
	DB Requests	Quota not set
	Schema Requests	Quota not set
	PDB Requests	Quota not set

The quota limits for each of the attributes would be determined based on all the roles to which a user directly belongs. The quota is calculated as the absolute maximum across the roles for each attribute value. For the user who belongs to the Dev, Test, and PM Role, the Quota is calculated as:

Value for Memory = MAX (Dev, Test, PM) = MAX (2, 5, NA) = 5 GB

Value for Storage = MAX (Dev, Test, PM) = MAX (15, 10, NA) = 15 GB

Value for DB Requests = MAX (Dev, Test, PM) = MAX (10, 12, NA) = 12 Databases

Value for Schema Requests = MAX (Dev, Test, PM) = MAX (2, 3, NA) = 5 Database Services

Value for PDB Requests = MAX (Dev, Test, PM) = MAX (3, 5, NA) = 8 PDB Services

A sample quota validation log generated by the user request follows:

```
Quota validation:
=====
                        Quota Details
=====
Total resources available
Memory: 15
Storage: 20
Number of Database Instances: 5
Number of Schema Services: 5
Number of Pluggable Databases: 10

=====
                        Current Usage
```



```
=====
Memory: 0.0
Storage: 0.0
Number of Database Instances: 0.0
Number of Database Services: 0.0

=====
Requested Resource
=====
Memory: 0.681640625
Number Of Databases: 1
Storage: 0.681640625

-----
Quota validation for 'Memory'
-----
Allocated Resource: 15.0
Current Usage: 0.0
Requested: 0.681640625
-----
Remaining Resource After Allocation: 14.318359375
-----

Result: Passed
-----
Quota validation for 'Storage'
-----
Allocated Resource: 20.0
Current Usage: 0.0
Requested: 0.681640625
-----
Remaining Resource After Allocation: 19.318359375
-----

Result: Passed
-----
Quota validation for 'Number of Database Instances'
-----
Allocated Resource: 5.0
Current Usage: 0.0
Requested: 1.0
-----
Remaining Resource After Allocation: 4.0
-----
```


Enabling the DBaaS Cloud

This chapter covers the initial configuration required to enable a DBaaS Cloud. It contains the following sections:

- [Getting Started](#)
- [Setting Up Credentials for Provisioning](#)
- [Provisioning Database Software for Database as a Service](#)
- [Provision the Database for Schema as a Service](#)
- [Provision a Container Database for PDB as a Service](#)
- [Configuring the Oracle Listener](#)
- [Registering and Managing Storage Servers](#)

12.1 Getting Started

This section helps you get started by providing a list of steps that must be performed to get started in setting up a private database cloud. Before you set up the database cloud, you must have completed the common setup tasks described in [Section 11.2, "Common Setup Tasks"](#).

Table 12–1 *Getting Started with DBaaS*

Step	Task	Role
1	Configure Privilege Delegation Settings on your managed hosts. See Section 3.5, "Configuring Privilege Delegation Settings"	Super Administrator
2	Set up provisioning credentials. See Section 12.2, "Setting Up Credentials for Provisioning"	Self Service Administrator
3	<ul style="list-style-type: none"> ■ Setting up Database as a Service, you must provision the database software or create Oracle Homes. See Section 12.3, "Provisioning Database Software for Database as a Service". ■ Setting up Schema as a Service, you must provision the database. See Section 12.4, "Provision the Database for Schema as a Service". ■ Setting up Pluggable Database as a Service, you must create a container database (CDB) with one or more pluggable databases (PDBs). See Section 12.5, "Provision a Container Database for PDB as a Service". 	Self Service Administrator

Table 12–1 (Cont.) Getting Started with DBaaS

Step	Task	Role
4	Configure the Listener. See Section 12.6, "Configuring the Oracle Listener" .	Self Service Administrator
5	If you are using the Snap Clone profile, you must register the storage servers. See Section 12.7, "Registering and Managing Storage Servers" .	Self Service Administrator

12.2 Setting Up Credentials for Provisioning

Before you perform any operations on the Managed Servers or databases, you must define the credentials that will be used by Enterprise Manager to connect to the targets.

You need to set up the following types of credentials:

- Normal credentials are the host operating system credentials used to provision the database software and create databases. For example, `oracle/<login password>`. These credentials are saved when the Database Pool is created and are used when the `EM_SSA_USER` requests a database or a schema.
- Privileged credentials are the host operating system credentials used to perform privileged actions like executing root scripts. These credentials are used deploying software (for running `root.sh` during deployment), for mounting and unmounting storage volumes (for databases created with snapshots) and so on. These credentials are saved along with the Database Pool if the pool is used for creating databases using snapshots.
- Database SYSDBA credentials are used and saved for schema as a service database pool. These credentials are required only for schema as a service.

Note: It is recommended that the same OS user who owns the Oracle Home on the host, creates the database.

To create named credentials, follow these steps:

1. Log in to Enterprise Manager as an administrator with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Setup** menu, select **Security**, then select **Named Credentials**.
3. Click **Create** in the Named Credentials page.
4. Enter the Credential Name and Credential Description. Set the Authenticating Target Type field to Host and Scope field to Global. Enter the user name and password in the Credential Properties section. If you need to set privileged credentials, select Sudo or PowerBroker in the Run Privilege field and enter values in the Run As and Profile fields.
5. Click **Test** and **Save**.
6. Verify these credentials against a host target and click **OK**.

12.3 Provisioning Database Software for Database as a Service

Before you can enable database as a service, the database software must already be provisioned on all hosts. Database software can be provisioned by an administrator with the `EM_SSA_ADMINISTRATOR` role in the following ways:

■ Provisioning Profile

- Capture a gold image of an existing database using a Provisioning Profile. See the Enterprise Manager Lifecycle Management Administrator's Guide for details.
- Use the Provisioning Profile to provision the Clusterware/ASM or Grid Infrastructure (for Real Application Cluster databases), and Database Oracle Home. This method ensures that the necessary database plug-in (monitoring part of the database plug-in) is deployed onto the Management Agent as part of the database provisioning Oracle Home installation.

To create a provisioning profile, from the **Enterprise** menu, select **Provisioning and Patching**, then select **Database Provisioning** and select the database provisioning deployment procedure to be used. You can select either **Provision Oracle Database** or **Provisioning Oracle RAC Database** deployment procedure.

Note: Do not create a new database as part of this deployment procedure.

■ Using the Database Installer

- From the **Setup** menu, select **Extensibility**, then select **Plug-ins**. and deploy the complete SSA (Enterprise Manager for Oracle Cloud) plug-in on all the Management Agents in a PaaS Infrastructure Zone.
- Run the Clusterware/ASM or Grid Infrastructure installer to set up the cluster and ASM (for RAC databases).
- Run the Database Installer and ensure you select the **create database** option on all hosts.
- Discover the database. From the **Setup** menu, select **Add Target**, then **Add Targets Manually**, and then select **Add Non-Host Targets Using Guided Process** (Also Adds Related Targets).
- From the **Enterprise** menu, you can also select **Job**, then select **Library** and submit the **Discover Promote Oracle Home Target** job to add the Oracle Home.

For more details on provisioning the database software, see the Enterprise Manager Lifecycle Management Administrator's Guide.

12.4 Provision the Database for Schema as a Service

For schema as a service, you must deploy a single instance or RAC database. To deploy a database, you must use the Provision Oracle Database deployment procedure. See the Enterprise Manager Lifecycle Management Administrator's Guide for details.

12.5 Provision a Container Database for PDB as a Service

Note: If pluggable databases (PDBs) need to be provisioned, you must create container databases.

An Oracle Database can contain a portable collection of schemas, schema objects, and nonschema objects, that appear to an Oracle Net client as a separate database. This

self-contained collection is called a pluggable database (PDB). A multi-tenant container database (CDB) is a database that includes one or more PDBs.

You can create a CDB either by using the Database Configuration Assistant (DBCA) or the `CREATE_DATABASE SQL` statement. See the *Oracle Database Administrator's Guide* for details. After the CDB is created, it consists of the root and the seed. The root contains minimal user data or no user data, and the seed contains no user data.

PDBs contain user data. After the CDB has been created, you can add PDBs to the CDB by using either of the following options:

- Create a new CDB. See the Enterprise Manager Lifecycle Management Administrator's Guide for details.
- Plug in an unplugged PDB into a CDB. See the Enterprise Manager Lifecycle Management Administrator's Guide for details.

12.6 Configuring the Oracle Listener

You need to configure an Oracle Home and the Oracle Listener before you can add them as Enterprise Manager targets.

To set up the Oracle Listener (Listener) for the database hosts, follow these steps:

1. Log in as a user with the `EM_SSA_ADMINISTRATOR` role and perform mass deployment of database homes on the newly added hosts as described in [Section 11.2.1, "Adding Hosts"](#)
2. To configure a Listener running from the same Oracle Home on which the database instance is to be created, launch a Bash shell and enter the following commands:
 1. `<AGENT_BASE>/agent_inst/bin/emctl stop agent`
 2. `export TNS_ADMIN=<DB_HOME_LOCATION>/network/admin`
 3. `<AGENT_BASE>/agent_inst/bin/emctl start agent`
 4. `export ORACLE_HOME=<DB_HOME_LOCATION>`
 5. Run `$ORACLE_HOME/bin/netca` and create the listener. Make sure you have the same Listener name and Listener port on all the hosts.
3. To configure a Listener running from the Single Instance High Availability (SIHA) Oracle Home, launch a Bash shell and enter the following commands:
 1. `export ORACLE_HOME=<SIHA_HOME_LOCATION>`
 2. Run `$ORACLE_HOME/bin/netca` and create the listener. Make sure you have the same listener name and listener port on all the hosts
4. Log in as the user with the `DBAAS_ADMIN_ROLE` and discover the newly added Listener target on all the hosts. From the **Setup** menu, select **Add Target**, then select **Add Target Manually**.
5. Select the **Add Non-Host Targets Using Guided Process** option and select Target Type as **Oracle Database, Listener, and Automatic Storage Management** and click **Add Guided Discovery** and follow the steps in the wizard. Before you add the new Listener target, ensure the `ORACLE_HOME` for the Listener is pointing to the correct `ORACLE_HOME` location. This process adds the Oracle Home target which is used when a database pool is created.

12.7 Registering and Managing Storage Servers

Note: If you are creating thin clones from a snap clone based profile, you must register and manage the storage servers such as NetApp, Sun ZFS, or EMC. See [Chapter 20, "Creating Snap Clones for Databases"](#) for details.

This section describes the following:

- [Overview of Registering Storage Servers](#)
- [Before You Begin](#)
- [Prerequisites for Registering Storage Servers](#)
- [Registering Storage Servers](#)
- [Administering the Storage Server](#)
- [Managing Storage Servers](#)

12.7.1 Overview of Registering Storage Servers

Registering a storage server, such as NetApp storage server, Sun ZFS storage server, or EMC storage server in Enterprise Manager enables you to provision databases using the snapshot and cloning features provided by the storage.

The registration process validates the storage, and discovers the Enterprise Manager managed database targets on this storage. Once the databases are discovered, you can enable them for *Snap Clone*. Snap Clone is the process of creating database clones using the Storage Snapshot technology.

Note: Databases on Windows operating systems are not supported.

12.7.2 Before You Begin

Before you begin, note the following:

- Windows databases are not discovered as part of storage discovery. This is because the Windows storage NFS collection does not happen at all. NFS collection is also not supported on certain OS releases, and thus databases on those OS releases cannot be Snap Cloned. For further details please refer to the *My Oracle Support* note 465472.1. Also, NAS volumes cannot be used on Windows for supporting Oracle databases.
- Snap Clone is supported on Sun ZFS Storage 7120, 7320, 7410, 7420 and ZS3 models, NetApp 8 hardware in 7-mode and c-mode, EMC VMAX 10K and VNX 5300, and Solaris ZFS Filesystem.
- Snap Clone supports Sun ZFS storage on HP-UX hosts only if the OS version is B.11.31 or higher. If the OS version is lower than that, the Sun Storage may not function properly thereby Snap Clone gives unexpected results.
- By default, the maximum number of NFS file systems that Enterprise Manager discovers on a target host is 100. However, this threshold is configurable. You can also choose a list of file systems to be monitored if you do not want all the extra file systems to be monitored.

The configuration file `$agent_inst/sysman/emd/emagent_storage.config` for each host agent contains various storage monitoring related parameters.

To configure the threshold for the NFS file systems, you need to edit the following parameters:

```
Collection Size:START
Disks=1000
FileSystems=1000
Volumes=1000
Collection Size:END
```

If you choose to provide a list of file systems to be monitored, it can be provided between the following lines:

```
FileSystems:START
FileSystems:END
```

Restart the Management Agent and refresh the host configuration for the changes to this configuration file to be effective.

- If the OMS Repository is running on RDBMS with 11.1.0.7.0 and AL32UTF8 character set, you need to apply patch 11893621.

12.7.3 Prerequisites for Registering Storage Servers

Before you register a storage server, follow the prerequisites outlined in the following sections:

- [Configuring Storage Servers](#)
- [Customizing Storage Proxy Agents](#)

12.7.3.1 Configuring Storage Servers

Before you register a storage server, you require the following privileges and licenses to successfully use Snap Clone:

- [Configuring NetApp Hardware](#)
- [Configuring Sun ZFS and ZF3 Hardware](#)
- [Configuring Solaris File System \(ZFS\) Storage Servers](#)
- [Configuring EMC Storage Servers](#)

Note: Enterprise Manager Cloud Control 12c supports NetApp, Sun ZFS, Solaris File System (ZFS) and EMC storage servers.

Configuring NetApp Hardware

This section consists of the following:

- [Obtaining NetApp Hardware Privileges](#)
- [Obtaining NetApp Hardware Licenses](#)
- [Creating NetApp Storage Credentials](#)
- [Configuring NetApp 8 Cluster Mode Hardware](#)
- [NetApp 8 Configuration Supported with Cluster Mode](#)

- [Preparing the NetApp 8 Storage and SVM](#)

Obtaining NetApp Hardware Privileges

Privileges is a generic term. NetApp refers to privileges as *Capabilities*.

For NetApp storage server, to use Snap Clone, assign the following privileges or capabilities to the NetApp storage credentials:

Note: You can assign these capabilities individually or by using wildcard notations. For example:

```
'api-volume-*', 'api-*', 'cli-*
```

- api-aggr-list-info
- api-aggr-options-list-info
- api-file-delete-file
- api-file-get-file-info
- api-file-read-file
- api-license-list-info
- api-nfs-exportfs-append-rules
- api-nfs-exportfs-delete-rules
- api-nfs-exportfs-list-rules
- api-nfs-exportfs-modify-rule
- api-snapshot-create
- api-snapshot-delete
- api-snapshot-list-info
- api-snapshot-reclaimable-info
- api-snapshot-restore-volume
- api-snapshot-set-reserve
- api-system-api-get-elements
- api-system-api-list
- api-snapshot-set-schedule
- api-system-cli
- api-system-get-info
- api-system-get-ontapi-version
- api-system-get-version
- api-useradmin-group-list
- api-useradmin-user-list
- api-volume-clone-create
- api-volume-clone-split-estimate
- api-volume-create

- api-volume-destroy
- api-volume-get-root-name
- api-volume-list-info
- api-volume-list-info-iter-end
- api-volume-list-info-iter-next
- api-volume-list-info-iter-start
- api-volume-offline
- api-volume-online
- api-volume-restrict
- api-volume-set-option
- api-volume-size
- cli-filestats
- login-http-admin

Obtaining NetApp Hardware Licenses

Snap Clone on a NetApp storage server requires a valid license for the following services:

- flex_clone
- nfs
- snaprestore

Creating NetApp Storage Credentials

To create the NetApp storage credentials, follow these steps:

Note: Snap Clone is supported only on NetApp Data ONTAP® 7.2.1.1P1D18 or higher, and ONTAP® 8.x (7-mode, c-mode, and v-server mode).

1. Create ROLE `em_smf_admin_role` with all the recommended capabilities, such as `api-aggr-list-info`, `api-file-delete-file`, and the like.
2. Create GROUP `em_smf_admin_group` with the ROLE `em_smf_admin_role`.
3. Create USER `em_smf_admin` with GROUP `em_smf_admin_group` and a secure password.

Note: The user `em_smf_admin` must be a dedicated user to be used by Oracle Enterprise Manager. Oracle does not recommend sharing this account for any other purposes.

Configuring NetApp 8 Cluster Mode Hardware

This topic discusses how to setup NetApp 8 cluster mode (c-mode) hardware for supporting Snap Clone in Enterprise Manager Cloud Control 12c.

NetApp 8 hardware in 7-mode is already supported for Snap Clone.

To configure NetApp 8 c-mode hardware, refer to the following sections:

- [NetApp 8 Configuration Supported with Cluster Mode](#)
- [Preparing the NetApp 8 Storage and SVM](#)

NetApp 8 Configuration Supported with Cluster Mode

The configuration supported with c-mode is as follows:

- Snap Clone features are supported only with SVM (Vserver).
- Registration of a physical cluster node is not supported.
- Multiple SVMs can be registered with Enterprise Manager Cloud Control 12c. All the registered SVMs are managed independently.

Preparing the NetApp 8 Storage and SVM

To prepare the NetApp 8 storage and SVM, ensure that the following requirements are done:

- The NetApp 8 c-mode hardware should have an SVM created. If not, you should create an SVM which will be registered with the Enterprise Manager.
- The SVM should have a network interface (LIF) with both Management and Data access. The domain name and IP address of this interface should be provided on the Storage Registration page in the Enterprise Manager.
- There should be at least one aggregate (volume) assigned to the SVM. The aggregates should not be shared between the SVMs.
- The SVM should have a user account that has the vsadmin-volume role assigned for ontapi access.

The user credentials should be supplied on the Storage Registration page in the Enterprise Manager.

- The root volume of SVM should have an export policy with a rule that allows Read Only access to all hosts. If you are using NFS v4, then the Superuser access needs to be granted from the Modify Export Rule dialog box.

Note:

- A directory named `em_volumes` is created with permissions 0444 inside the root volume of SVM. This directory will be used as an Enterprise Manager name space for the junction point.
 - All the storage volumes created will use the junction point `/em_volumes` in the name space.
-

Note: When you register an SVM in Enterprise Manager Cloud Control, the details of all the aggregates assigned to it are fetched. The total size of an aggregate is required to set the quota, perform space computation, and for reporting.

Presently, NetApp does not provide any Data ONTAP API to fetch the aggregate total size from an SVM. As a workaround, the available size of an aggregate is considered as the total size and is set as the Storage Ceiling during first Synchronize run. Storage Ceiling is the maximum amount of space that Enterprise Manager can use in an aggregate.

If the total space of an aggregate is increased on the storage, you can increase the Storage Ceiling till you consume the available space in that aggregate.

Configuring Sun ZFS and ZF3 Hardware

This section consists of the following:

- [Obtaining Sun ZFS Hardware Privileges](#)
- [Obtaining Sun ZFS Hardware Licenses](#)
- [Creating Sun ZFS Storage Credentials](#)

Obtaining Sun ZFS Hardware Privileges

Privileges is a generic term. For example, Sun ZFS refers to privileges as *Permissions*.

For Sun ZFS storage server, to use Snap Clone, assign the following privileges or permissions to the Sun ZFS storage credentials:

Note: All the permissions listed must be set to `true`. The scope must be `'nas'` and there must not be any further filters.

- `changeProtocolProps`
- `changeSpaceProps`
- `clone and createShare`
- `destroy`
- `rollback`
- `takeSnap`

Obtaining Sun ZFS Hardware Licenses

Snap Clone on Sun ZFS Storage Appliance requires a license for the Clones feature. A restricted-use license for the same is included with the Enterprise Manager Snap Clone.

Creating Sun ZFS Storage Credentials

To create the Sun ZFS storage credentials, follow these steps:

1. Create ROLE `em_smf_admin_role`.
2. Create AUTHORIZATIONS for the ROLE `em_smf_admin_role`.
3. Set SCOPE as `nas`.

4. Set the recommended permissions, such as, `allow_changeProtocolProps`, `allow_changeSpaceProps`, and the like to `true`.
5. Create USER `em_smf_admin` and set its ROLE property as `em_smf_admin_role`.

Note: The user `em_smf_admin` must be a dedicated user to be used by Oracle Enterprise Manager. Oracle does not recommend sharing this account for any other purposes.

Configuring Solaris File System (ZFS) Storage Servers

This section consists of the following:

- [Obtaining Solaris File System \(ZFS\) Privileges](#)
- [Obtaining Solaris File System \(ZFS\) Licenses](#)
- [Setting Up Solaris File System \(ZFS\) Storage Servers](#)

Obtaining Solaris File System (ZFS) Privileges

Solaris File System (ZFS) refers to privileges as *Permissions*. For Solaris File System (ZFS) storage server, to use Snap Clone, grant the following permissions on the pool for the Solaris File System (ZFS) user:

- `clone`
- `create`
- `destroy`
- `mount`
- `rename`
- `rollback`
- `share`
- `snapshot`
- `quota`
- `reservation`
- `sharenfs`
- `canmount`
- `recordsize`

Obtaining Solaris File System (ZFS) Licenses

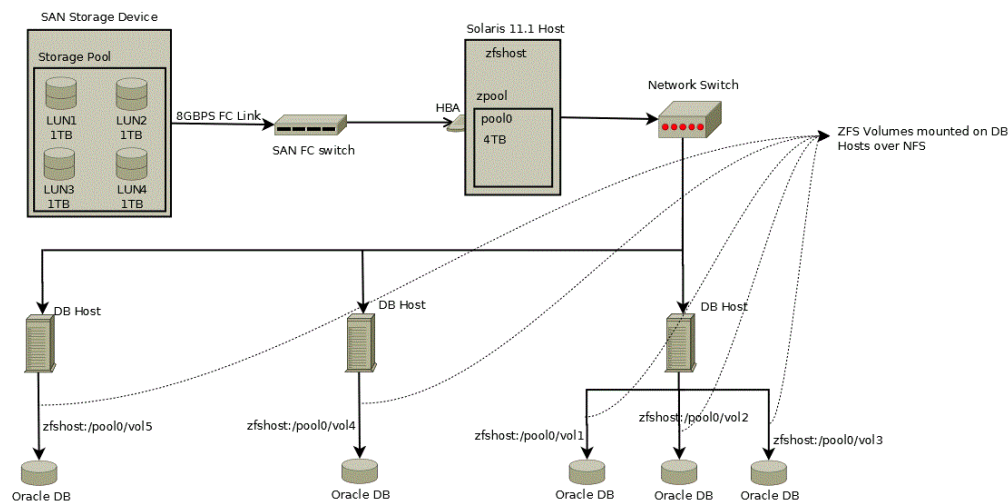
Solaris File System (ZFS) does not require any special hardware license. Only Oracle Solaris OS version 11.1 is supported.

Setting Up Solaris File System (ZFS) Storage Servers

Solaris File System (ZFS) storage servers can work with any storage hardware. You do not need to buy any additional storage hardware. Instead, you can attach your in-house storage hardware and to acquire the Oracle Snap Clone functionality. For example, you can attach LUNs from an EMC VMAX, VNX systems, a Hitachi VSP, or an Oracle Pillar Axiom FC array.

The following storage topology figure explains how this works:

Note: This figure assumes that you have a SAN storage device with 4 x 1TB logical unit devices exposed to the Solaris File System (ZFS) storage server.



This section contains the following:

- Prerequisites for Setting Up Solaris File System (ZFS) Storage Servers
- Requirements for Storage Area Network Storage
- Recommendations for Solaris File System (ZFS) Pools
- Configuring Solaris File System (ZFS) Users and Pools

Prerequisites for Setting Up Solaris File System (ZFS) Storage Servers

Before you configure a Solaris File System (ZFS) storage server, ensure that you meet requirements:

- Ensure that `zfs_arc_max` is not set in `/etc/system`. If it needs to be set ensure that it is set to a high value such as 80% of RAM.
- Ensure that the storage server is configured with multiple LUNs. Each LUN should be a maximum of 1TB. A minimum 2 LUNs of 1TB each is recommended for a Snap Clone. Each LUN should have a mirror LUN which is mounted on the host over a different controller to isolate failover. A LUN can be attached to the Solaris host over Fibre Channel for better performance.

Note: If Fibre Channel is not available, any direct attached storage or iSCSI based LUNs are sufficient.

- All LUNs used in a pool should be equal in size. It is preferable to use less than 12 LUNs in a pool.
- Apart from LUNs, the storage needs cache and log devices to improve zpool performance. Both these devices should ideally be individual flash/SSD devices. In case it's difficult to procure individual devices, one can use slices cut from a single device. Log device needs to be about 32GB in size and also have

redundancy and battery backup to prevent data loss. Cache device can be about 128GB in size and need not have redundancy.

Requirements for Storage Area Network Storage

The requirements for Storage Area Network (SAN) storage are as follows:

- It is recommended to create large LUNs and lesser number of LUNs. The maximum recommended size for a LUN is 3TB.
- LUNs should come from different SAN storage pools or an entirely different SAN storage device.

These LUNs are needed for mirroring, to maintain the pool level redundancy. If your SAN storage maintains a hardware level redundancy, then you can skip this requirement.

- The LUNs should be exposed over Fiber Channel.

Recommendations for Solaris File System (ZFS) Pools

The recommendations for Solaris File system (ZFS) pools are as follows:

- Create the Storage pool with multiple LUNs of the same size. You can add more disks to the storage pool to increase the size based on your usage.
- The storage pool created on the Solaris File System (ZFS) storage server should use the LUNs coming from a different SAN storage pool or an entirely different SAN storage device. You can skip this if your SAN storage maintains hardware level redundancy.
- To repair data inconsistencies, use ZFS redundancy such as mirror, RAIDZ, RAIDZ-2 or RAIDZ-3 to repair data inconsistencies, regardless of whether RAIDZ is implemented at the underlying storage device.
- For better throughput and performance, use cache and log devices. Both these devices should ideally be on individual flash/SSD devices. In case of difficulty in procuring individual devices, you can use slices cut from a single device.

It is recommended to have the Log device at about 50% of RAM and also have redundancy and battery backup to prevent data loss. Cache device size could be based on the size of the workload and the pool.

Cache device do not support redundancy. This is optional.

- While creating the pool, it has to be sized to accommodate the test master database along with the cloned databases. A clone will co-exist with the parent database in the same storage pool. Therefore, you should plan for test master and clone capacity well ahead.

For example, The size of the test master is 1TB and you expect to create 10 clones with each of them expected to differ from the test master by 100G. Then, the storage pool should be minimum 2.5TB in size.

- Maintain the storage pool with at least 20% free space. If the free space falls below this level, then the performance of the pool degrades.

Configuring Solaris File System (ZFS) Users and Pools

You need to create a user which will be able to administer the storage from Enterprise Manager. To do this, run the following commands as root user:

```
# /sbin/useradd -d /home/emzfsadm -s /bin/bash emzfsadm
# passwd emzfsadm
```

Note: The username should be less than or equal to 8 characters.

You need to configure the ZFS pool that is used to host volumes, and grant privileges on this pool to the user created. The `emzfsadm` user should have the privileges on all the zpools and its mount points in the system.

To configure the ZFS pool, refer to the following table and run the following commands:

Note: The table displays a reference implementation, and you can choose to change this as required.

Pool Name	lunpool
Disks (SAN exposed LUNs over FC/iSCSI)	lun1=c9t5006016E3DE0340Ed0, lun2=c9t5006016E3DE0340Ed1
Disks Mirror (SAN exposed LUNs over FC/iSCSI)	mir1=c10t5006016E3DE0340Ed2, mir2=c10t5006016E3DE0340Ed3
Flash/ SSD disk (log)	ssd1=c4t0d0s0
Flash/SSD disk (cache)	ssd2=c4t0d1s0

```
# zpool create lunpool mirror lun1=c9t5006016E3DE0340Ed0
mir1=c10t5006016E3DE0340Ed2 mirror lun2=c9t5006016E3DE0340Ed1
mir2=c10t5006016E3DE0340Ed3 log ssd1=c4t0d0s0 cache ssd2=c4t0d1s0
```

Example format output is as follows:

```
bash-4.1# /usr/sbin/format
Searching for disks...done
```

AVAILABLE DISK SELECTIONS:

0. c9t5006016E3DE0340Ed0 <DGC-VRAID-0532-1.00TB>
/pci@78,0/pci8086,3c08e3/pci10df,f100@0/fp@0,0/disk@w5006016e3de0340e,0
1. c9t5006016E3DE0340Ed1 <DGC-VRAID-0532-1.00TB>
/pci@78,0/pci8086,3c08e3/pci10df,f100@0/fp@0,0/disk@w5006016e3de0340e,1
2. c10t5006016E3DE0340Ed2 <DGC-VRAID-0532-1.00TB>
/pci@78,0/pci8086,3c08e3/pci10df,f100@0/fp@0,0/disk@w5006016e3de0340e,2
3. c10t5006016E3DE0340Ed3 <DGC-VRAID-0532-1.00TB>
/pci@78,0/pci8086,3c08e3/pci10df,f100@0/fp@0,0/disk@w5006016e3de0340e,3

[We need to find the size of pool that was created]

```
# df -k /lunpool
```

Filesystem	1024-blocks	Used	Available	Capacity	Mounted on
lunpool	1434746880	31	1434746784	1%	/lunpool

[We use the Available size shown here to set quota as shown below]


```
# zfs set quota=1434746784 lunpool

# zfs allow emzfsadm
clone,create,destroy,mount,rename,rollback,share,snapshot,quota,reservation,sharen
fs,canmount,recordsize,logbias lunpool

# chmod A+user:emzfsadm:add_subdirectory:fd:allow /lunpool

# chmod A+user:emzfsadm:delete_child:fd:allow /lunpool
```

-
- When you set the quota using the command `zfs set quota`, you may get the following error message:

Size is less than current used or reserved space

You need to ensure that the quota is set to more than the used space. To ensure that the quota is set correctly, it is recommended that you verify the quota by running the following command:

```
$ zfs get quota lunpool
```

- It is recommended that you verify if all the required parameters are set correctly after you run the `zfs allow emzfsadm` command.
-

Configuring EMC Storage Servers

Before you use an EMC Symmetrix VMAX Family or an EMC VNX storage server, you need to first setup the EMC storage hardware for supporting Snap Clone in Oracle Enterprise Manager 12c. Ensure that all the requirements are met in the following sections:

- [Supported Configuration for EMC Storage Servers](#)
- [Requirements for EMC Symmetrix VMAX Family and Database Servers](#)
- [Preparing the Storage Area Network](#)
- [Understanding VMAX Terminology](#)
- [Preparing the EMC VMAX Storage](#)
- [Preparing the EMC VNX Storage](#)
- [Preparing Database Servers](#)
- [Setting Privileged Host Monitoring Credentials](#)

Supported Configuration for EMC Storage Servers

Before you configure the EMC Symmetrix VMAX family or the EMC VNX storage server, check the following list. The list displays components that are supported and are not supported for EMC VMAX and EMC VNX storage.

- EMC VMAX 10K and VNX 5300 are certified to use. Higher models in the same series are expected to work.
- Only Linux and Solaris operating systems are supported. Other operating systems are not yet supported.
- Multi-pathing is mandatory.
- Only EMC PowerPath, and Solaris MPxIO are supported.
- Switched fabric is supported. Arbitrated loop is not supported.

- Emulex (LPe12002-E) host bus adapters are certified to use. Other adapters are expected to work.
- SCSI over Fibre Channel is supported. iSCSI, NAS are not yet supported.
- Oracle Grid Infrastructure 11.2 is supported.
- Oracle Grid Infrastructure 12.1 with Local ASM Storage option is supported. Flex ASM is not supported.
- ASM Filter Driver is not supported.
- ASM support is only for raw devices. File System is not supported.
- Support for Thin Volumes (TDEV) on VMAX.
- Support for only LUNs on VNX. NAS is not yet supported.

Requirements for EMC Symmetrix VMAX Family and Database Servers

The requirement for the operating system version of EMC Symmetrix VMAX Family is:

- EMC VMAX Enginuity Version: 5876.251.161 and above
- SMI-S Provider Version: V4.6.1.6 and above
- Solutions Enabler Version: V7.6-1755 and above

Note: The EMC VMAX Enginuity version is the Operating System version of the storage.

The SMI-Provider and Solutions Enabler are installed on a host in a SAN.

The requirements for database server are as follows:

Oracle Database Requirements

- Oracle Database 10.2.0.5 and higher

Operating System Requirements

- Oracle Linux 5 update 8 (compatible with RHEL 5 update 8) and above
- Oracle Linux 6 (compatible with RHEL 6) and above
- Oracle Solaris 10 and 11

Multipathing Requirements

- EMC PowerPath Version 5.6 or above as available for Linux Operating System release and kernel version
- EMC PowerPath Version 5.5 or above as available for Oracle Solaris 11.1 release
- EMC PowerPath Version 6 is not supported.
- Solaris MPxIO as available in latest update

Oracle Grid Infrastructure Requirements

- Oracle Grid Infrastructure 11.2
- Oracle Grid Infrastructure 12.1. Flex ASM is not supported.

Preparing the Storage Area Network

To prepare the storage area network, follow the configuration steps outlined in each section.

SAN Fabric Configuration

Configure your SAN fabric with multipathing by ensuring the following:

- You must have redundancy at storage, switch and server level.
- Perform the zoning such that multiple paths are configured from the storage to the server.
- Configure the paths such that a failure at a target port, or a switch or a host bus adapter will not cause unavailability of storage LUNs.
- Configure gatekeepers on the host where EMC SMI-S provider is installed. To configure gatekeepers, refer to the documentation available on the EMC website:

SMI-S Provider

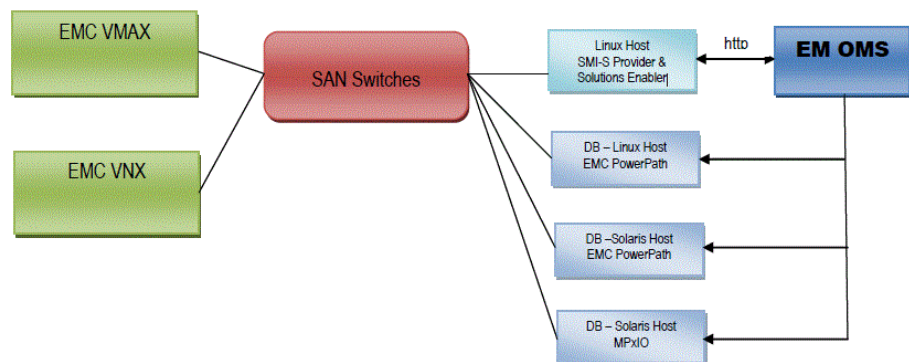
You should install the SMI-S provider and Solutions Enabler on one of the servers in the fabric where the storage is configured. To install and configure the SMI-S provider, refer to the documentation available on the EMC website:

The SMI-S provider URL and login credentials are needed to interact with the storage. An example of an SMI-S Service Provider URL is <https://rstx4100smis:5989>.

These details are needed when you register a storage server. You are required to do the following:

- Ensure that the VMAX or VNX storage is discovered by the SMI-S provider.
- Add the VNX storages to the SMI-S provider.
- Create a user account with administrator privileges in the SMI-S provider to access the VMAX or VNX storage.
- Set a sync interval of 1 hour.

Setup



Understanding VMAX Terminology

The following table outlines VMAX terms that are used in this section. Refer to these terms to gain a better conceptual understanding, before you prepare the EMC VMAX storage.

Table 12–2 VMAX terminologies

Term	Definition
Logical Unit	An I/O device is referred to as a Logical Unit.
Logical Unit Number	A unique address associated with a Logical Unit.
Initiator	Any Logical Unit that starts a service request to another Logical Unit is referred to as an Initiator
Initiator Group	An initiator group is a logical grouping of up to 32 Fibre Channel initiators (HBA ports), eight iSCSI names, or a combination of both. An initiator group may also contain the name of another initiator group to allow the groups to be cascaded to a depth of one.
Port Group	<p>A port group is a logical grouping of Fibre Channel and/or iSCSI front-end director ports. The only limit on the number of ports in a port group is the number of ports in the Symmetrix system. It is also likely that a port group can contain a subset of the available ports in order to isolate workloads to specific ports.</p> <p>Note: As a pre-requisite, OEM expects a port group created with the name <code>ORACLE_EM_PORT_GROUP</code> and it should contain the required target ports.</p>
Storage Group	A storage group is a logical grouping of up to 4,096 Symmetrix devices.
Target	Any Logical Unit to which a service request is targeted is referred to as a Target
Masking View	A masking view defines an association between one initiator group, one port group, and one storage group. When a masking view is created, the devices in the storage group are mapped to the ports in the port group and masked to the initiators in the initiator group.
SCSI Command	A service request is referred to as a SCSI command
Host Bus Adapter (HBA)	The term host bus adapter (HBA) is most often used to refer to a Fibre Channel interface card. Each HBA has a unique World Wide Name (WWN), which is similar to an Ethernet MAC address in that it uses an OUI assigned by the IEEE. However, WWNs are longer (8 bytes). There are two types of WWNs on a HBA: a node WWN (WWNN), which is shared by all ports on a host bus adapter, and a port WWN (WWPN), which is unique to each port. There are HBA models of different speeds: 1Gbit/s, 2Gbit/s, 4Gbit/s, 8Gbit/s, 10Gbit/s, 16Gbit/s and 20Gbit/s.

For more information on VMAX storage and terminologies, refer to the document *EMC Symmetrix VMAX Family with Ingenuity* available in the EMC website.

Preparing the EMC VMAX Storage

Configure your EMC VMAX appliance such that it is zoned with all the required nodes where you need to provision databases. To prepare the EMC VMAX storage, do the following on the storage server:

- Ensure that all the Host Initiator ports are available from the storage side.
- It is recommended to create one initiator group per host with corresponding initiators to increase security. The 'Consistent LUNs' property of the immediate parent Initiator Group of the initiators should be set to 'No'
- Create a Port Group called `ORACLE_EM_PORT_GROUP` to be used by Oracle Enterprise Manager for creating Masking Views. This port group should contain all the target ports that will be viewed collectively by all the hosts registered in the Enterprise Manager Cloud Control system.

For example, host1 views storage ports P1 and P2, and host2 views storage ports P3 and P4. Then, the `ORACLE_EM_PORT_GROUP` should include all ports P1, P2, P3 and P4. Include only the necessary target ports as needed by the development infrastructure.

- Create a separate Virtual Provisioning Pool also known as Thin Pool, and dedicate it for Oracle Enterprise Manager.
- Ensure that the TimeFinder license is enabled to perform VP Snap

Preparing the EMC VNX Storage

Configure your EMC VNX appliance such that it is zoned with all the required nodes where you need to provision databases. To prepare the EMC VNX storage, do the following on the storage server:

Note: EMC VNX Storage supports only LUN creation, cloning, and deletion. It does not support NAS.

- Ensure that all host initiator ports are available from the storage side.
- Ensure that the initiators belonging to one host are grouped and named after the Host on the EMC VNX storage.
- Create one storage group with one host for each of the hosts registered in Enterprise Manager.

For example, if initiators i1 and i2 belong to host1, register the initiators under the name Host1. Create a new storage group SG1 and connect Host1 to it. Similarly, create one storage group for each of the hosts that are to be added to Enterprise Manager.

Preparing Database Servers

To prepare your server for Enterprise Manager Snap Clone, ensure the following:

- Servers should be physical and equipped with Host Bus Adapters. NPIV and VMs not supported.
- Configure your servers with recommended and supported multipath software. If you use EMC PowerPath, then enable the PowerPath license. To enable the PowerPath license, use the following command:

```
emcpreg -install
```

- If you need the servers to support Oracle Real Application Clusters, then install Oracle Clusterware.

Note: ASM and Clusterware have to be installed and those components have to be discovered in Enterprise Manager as a target. Once ASM and Clusterware are installed, additional ASM disk groups can be created from Enterprise Manager.

- Enable Privileged Host Monitoring credentials for all the servers. If the server is part of a cluster, then you should enable privileged host monitoring credential for that cluster.

For more details on enabling privileged host monitoring credentials, refer to *Oracle Enterprise Manager Framework, Host, and Services Metric Reference Manual*.

- If you are using Linux, you should configure Oracle ASMLib, and set the `asm_diskstring` parameter to a valid ASM path. For example:

```
/dev/oracleasm/disks/
```

Update the boot sequence such that the ASMLib service is run first, and then the multipath service.

To install Oracle ASMLib, refer to the following website:

<http://www.oracle.com/technetwork/server-storage/linux/install-082632.html>

To configure Oracle ASMLib on multipath disks, refer to the following website:

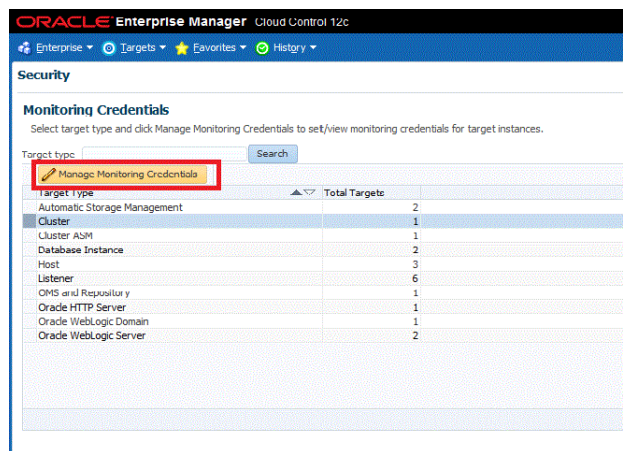
<http://www.oracle.com/technetwork/server-storage/linux/multipath-097959.html>

Setting Privileged Host Monitoring Credentials

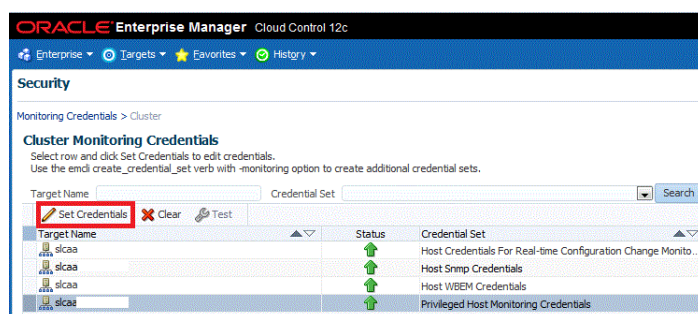
You should set the privilege delegation settings before setting Host monitoring credentials. Do the following:

Note: This is required only on hosts that are used for snap cloning databases on EMC storage.

1. From the **Setup** menu, click on **Security** and then select **Monitoring Credentials**.
2. On the Monitoring Credentials page, select **Cluster** or **Host** according to your requirement and then click **Manage Monitoring Credentials**.

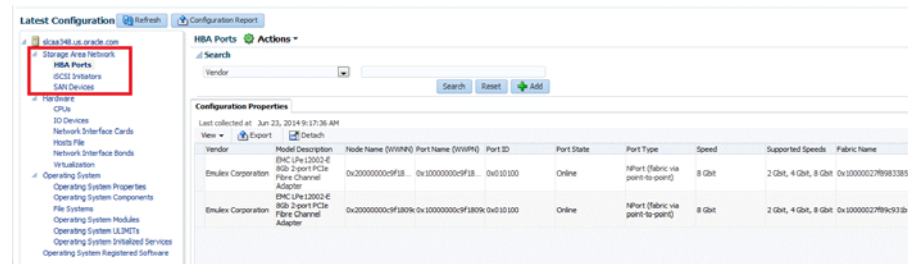


3. On the Cluster Monitoring Credentials page, select **Privileged Host Monitoring Credentials** set for the cluster or host and click **Set Credentials**.



4. In the dialogue box that appears, specify the credentials, and click **Save**.

- After the host monitoring credentials are set for the cluster, refresh the cluster metrics. Verify if the Storage Area Network metrics get collected for the hosts.



12.7.3.2 Customizing Storage Proxy Agents

A Proxy Agent is required when you register a NetApp, Sun ZFS or Solaris File System (ZFS) File System.

Before you register a NetApp storage server, meet the following prerequisites:

- [Acquiring Third Party Licenses](#)
- [Uploading Storage Vendor SDK](#)
- [Overriding the Default SDK](#)
- [Overriding Third Party Server Components](#)

Note: Storage Proxy Agent is supported only on *Linux Intel x64* platform.

Acquiring Third Party Licenses

The Storage Management Framework is shipped by default for *Linux x86-64* bit platform, and is dependent on the following third party modules:

- Source CPAN - CPAN licensing apply
 - IO::Tty (version 1.10)
 - XML::Simple (version 2.20)
 - Net::SSLeay (version 1.52)
- Open Source - Owner licensing apply
 - OpenSSL(version 1.0.1e)

Uploading Storage Vendor SDK

Before you register a NetApp storage server, do the following:

- Download the *NetApp Manageability SDK* version 5.0R1 for all the platforms from the following NetApp support site:
<http://support.netapp.com/NOW/cgi-bin/software>
- Unzip the 5.1 SDK and package the Perl NetApp Data OnTap Client SDK as a tar file. Generally, you will find the SDK in the `lib/perl/NetApp` folder. The tar file when extracted should look as follows:

```
NetApp.tar
- netapp
- NaElement.pm
```

```
- NaServer.pm
- NaErrno.pm
```

For example, the Software Library entity `Storage Management Framework Third Party/Storage/NetApp/default` should have a single file entry that contains `NetApp.tar` with the above tar structure.

Note: Ensure that there is no extra space in any file path name or software library name.

3. Once the tar file is ready, create the following folder hierarchy in software library:
`Storage Management Framework Third Party/Storage/NetApp`
4. Upload the tar file as a Generic Component named `default`.

Note: To upload the tar file, you must use the OMS shared filesystem for the software library.

The tar file should be uploaded to this `default` software library entity as a Main File.

Overriding the Default SDK

The `default` SDK is used for all the NetApp storage servers. However, the storage server may work with only a certain SDK. In such a case, you can override the SDK per storage server, by uploading an SDK and using it only for this particular storage server.

To override the existing SDK for a storage server, upload the tar file to the Software Library entity. The tar file should have the structure as mentioned in Step 3 of the previous section.

The Software Library entity name should be the same as the storage server name.

For example, if the storage server name is `mynetapp.example.com`, then the Software Library entity must be as follows:

```
Storage Management Framework Third
Party/Storage/NetApp/mynetapp.example.com
```

Note: A storage specific SDK is given a higher preference than the `default` SDK,

Overriding Third Party Server Components

By default, all the required third party components are shipped for *Linux Intel 64 bit* platform. If you need to override it by any chance, package the tar file as follows:

Note: The tar file should contain a `thirdparty` folder whose structure should be as mentioned below:

```
thirdparty
|-- lib
```



```

| -- engines
| | -- lib4758cca.so
| | -- libaep.so
| | -- libatalla.so
| | -- libcapi.so
| | -- libchil.so
| | -- libcsniff.so
| | -- libgmp.so
| | -- libgost.so
| | -- libnuron.so
| | -- libpadlock.so
| | -- libsureware.so
| | `-- libubsec.so
| -- libcrypto.a
| -- libcrypto.so
| -- libcrypto.so.1.0.0
| -- libssl.a
| -- libssl.so
| `-- libssl.so.1.0.0
|-- pm
|-- CPAN
| -- IO
| | -- Pty.pm
| | -- Tty
| | `-- Constant.pm
| `-- Tty.pm
|-- Net
| -- SSLeay
| | `-- Handle.pm
| `-- SSLeay.pm
|-- XML
| `-- Simple.pm
|-- auto
|-- IO
| `-- Tty
| | -- Tty.bs
| | `-- Tty.so
| `-- Net
| `-- SSLeay
| -- SSLeay.bs
| -- SSLeay.so

```

Ensure that the tar file is uploaded to the Software Library entity which is named after the platform name, `x86_64`. The Software Library entity must be under the following:

Storage Management Framework Third Party/Server

The `x86_64` entity, when uploaded is copied to all the storage proxy hosts irrespective of which storage server it would be processing. To use this entity on a specific storage proxy agent, name the entity after the host name.

For example, `Storage Management Framework/Third Party/Server/x86_64` will be copied to any storage proxy host which is on an `x86_64` platform. Similarly, `Storage Management Framework Third Party/Server/myhost.example.com` is copied only to `myhost.example.com`, if it is used as a storage proxy host.

The host name is given a higher preference than the platform preference.

12.7.4 Registering Storage Servers

To register a particular storage server, follow the procedure outlined in the respective section:

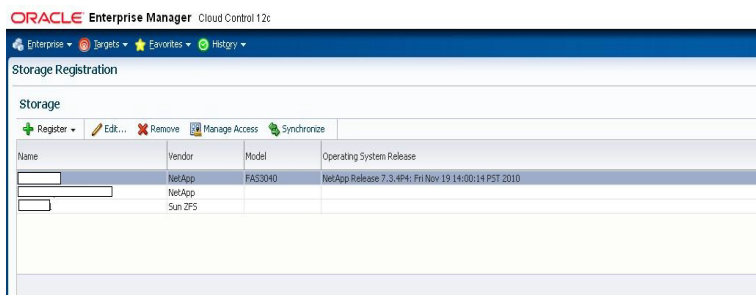
- [Registering a NetApp or a Sun ZFS Storage Server](#)
- [Registering a Solaris File System \(ZFS\) Storage Server](#)
- [Registering an EMC Storage Server](#)

12.7.4.1 Registering a NetApp or a Sun ZFS Storage Server

To register the storage server, follow these steps:

1. From the **Setup** menu, click on **Provisioning and Patching**, and then select **Storage Registration**.
2. On the Storage Registration page, in the Storage section, click on **Register**, and then select either **NetApp Storage Appliance** or **Sun ZFS Storage Appliance**, based on which storage server you want to register.

Note: If you see a *No named credentials available* message, it means that no credentials are registered or the credentials are owned by another user.



Note: You need the EM_STORAGE_ADMINISTRATOR role to complete the storage registration.

3. On the NetApp or Sun ZFS Storage Registration page, in the Storage section, do the following:



- Enter the storage server name in the Name field. Ensure that the name is the valid host name and contains no spaces and invalid characters.
- Select the protocol.

Note: For NetApp storage, the connection is over http or https. For Sun ZFS storage, the connection is over ssh.

- Select the Storage Credentials, or click on the green plus sign to add.

Note: These credentials will be used by the Management Agent to execute storage (NetApp or Sun ZFS) APIs.

Only credentials owned by the user are displayed here.

In the display box that appears, enter the storage server name and password. Confirm the password and click **OK**.

- Enter storage name aliases (optional).

The storage name alias should be in lowercase.

Note: A storage name alias is any name that may have been used when mounting a volume from the storage.

For example: IP address, FQDN, DNS alias, and the like.

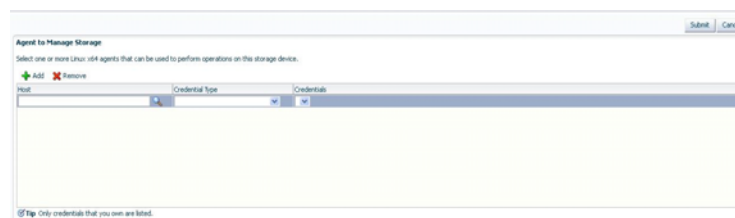
A storage alias is necessary to identify the database targets on the storage. The database targets are identified by mapping the mount points to the files used by the database. For example, if the storage `mystorage.com` has an alias `mystorage.net`, and a database uses a data file mounted as `mystorage.net:/u01`, then `mystorage.net` must be added as an alias for the discovery to work.

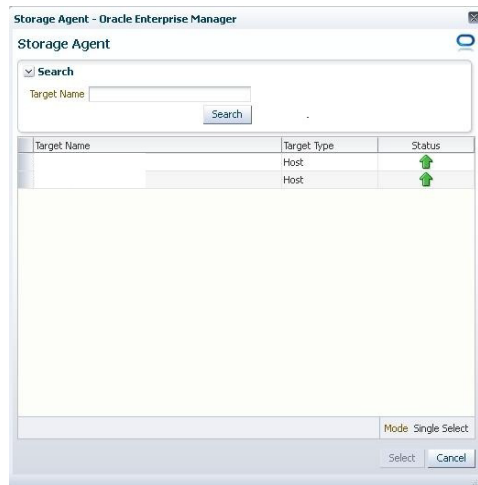
When you register the storage, use the admin interface as the storage name. List the data interfaces in the storage alias section. The registered storage name will be used to perform registration operations and while mounting the volumes on target host, it will give preference to interfaces listed as storage aliases.

4. In the Agent to Manage Storage section, do the following:

- Click **Add** to add a Management Agent host. A Storage Agent display box appears. Select a Management Agent from the Target Name column of the table. Then, click **Select**.

Note: The Management Agent list displays only *Linux X64* Management Agents.





The Management Agent selected is used for performing operations on the storage server.

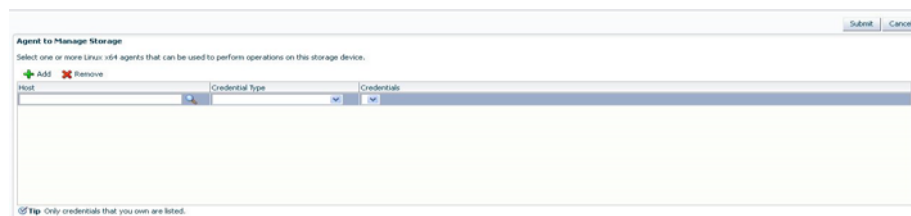
- Once a Management Agent is selected, the Management Agent credentials are found and a named credential for the host is displayed.

Note: The Management Agent credentials are used to connect to the Management Agent from Oracle Management Service.

Multiple Management Agents can be configured to monitor the storage device. Click **Add** to choose a second Management Agent if required.

Note: Configuring multiple Management Agents to monitor the storage device provides you with a backup in the event that an host is down or the Management Agent is under blackout.

- Click **Submit** to register the storage server.

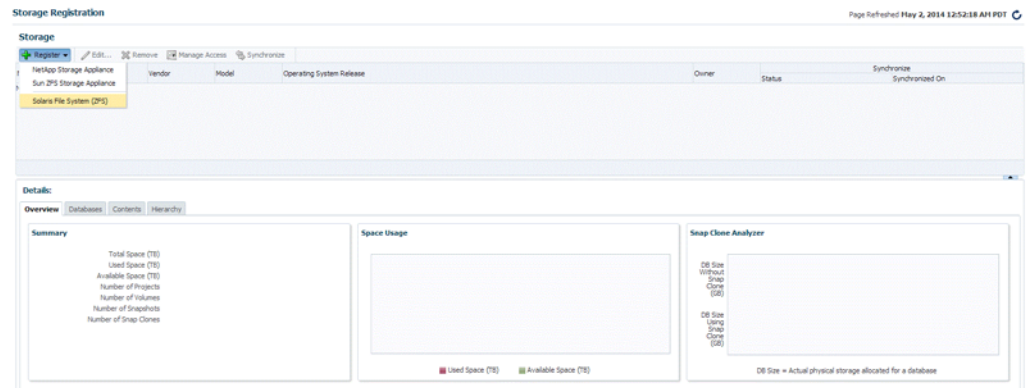


12.7.4.2 Registering a Solaris File System (ZFS) Storage Server

To register the storage server, follow these steps:

1. From the **Setup** menu, click on **Provisioning and Patching**, and then select **Storage Registration**.
2. On the Storage Registration page, in the Storage section, click on **Register**, and then select **Solaris File System (ZFS)**

Note: If you see a *No named credentials available* message, it means that no credentials are registered or the credentials are owned by another user.



Note: You need the EM_STORAGE_ADMINISTRATOR role to complete the storage registration.

3. On the Register File System (ZFS) page, in the Storage section, do the following:

- Enter the Solaris system name in the Name field. Ensure that the name is the valid host name or IP address and contains no spaces and invalid characters.
- Select the protocol.
- Select the Storage Credentials, or click on the green plus sign to add.

Note: These credentials will be used by the Management Agent to execute Solaris file system APIs.

Only credentials owned by the user are displayed here.

In the display box that appears, enter the storage server name and password. Confirm the password and click **OK**.

- Enter storage name aliases (optional).

The storage name alias should be in lowercase.

Note: A storage name alias is any name that may have been used when mounting a volume from the storage.

For example: IP address, FQDN, DNS alias, and the like.

Storage alias is necessary to identify the database targets on the storage. The database targets are identified by mapping the mount points to the files used by the database. For example, if the storage mystorage.com has an alias mystorage.net, and a database uses a data file mounted as mystorage.net:/u01, then mystorage.net must be added as an alias for the discovery to work.

When you register the storage, use the admin interface as the storage name. List the data interfaces in the storage alias section. The registered storage name will be used to perform registration operations and while mounting the volumes on target host, it will give preference to interfaces listed as storage aliases.

4. In the Synchronize Schedule section, specify the frequency to synchronize the storage details with the hardware.

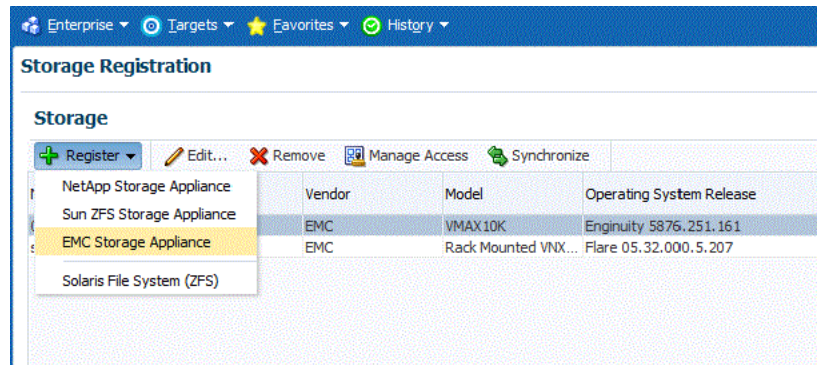
Ensure that the zpools setup is completed before clicking **Submit**. To setup the zpools, refer to [Configuring Solaris File System \(ZFS\) Users and Pools](#).

12.7.4.3 Registering an EMC Storage Server

To register the storage server, follow these steps:

Note: Before you register an EMC storage server, the storage server should be prepared. To prepare the storage server refer to [Configuring EMC Storage Servers](#).

1. From the **Setup** menu, click on **Provisioning and Patching**, and then select **Storage Registration**.
2. On the Storage Registration page, in the Storage section, click on **Register**, and then select **EMC Storage Appliance**.



Note: If you see a *No named credentials available* message, it means that no credentials are registered or the credentials are owned by another user.

Note: You need the EM_STORAGE_ADMINISTRATOR role to complete the storage registration.

3. On the Register **EMC Storage Appliance** page, in the Storage section, do the following:
 - Specify the storage server name in the Name field. Ensure that the name is the valid storage name and contains no spaces and invalid characters.
 - For EMC storage, the connection is over SMI-S protocol. Specify the SMI-S Provider URL.
 - Specify the SMI-S User Credentials, or click on the green plus sign to add.

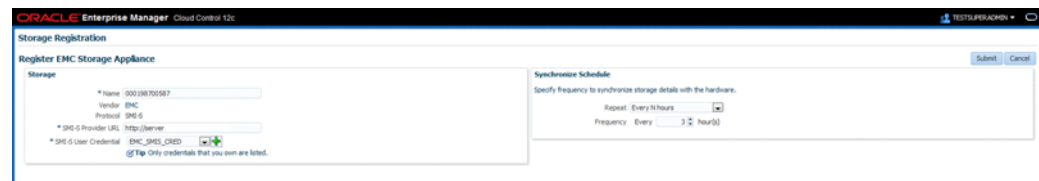
Note: These credentials are used by the Enterprise Manager to interact with the EMC storage appliance.

The credentials should be of the Administrator in the SMI-S provider and not that of the storage.

Only credentials owned by the user are displayed here.

In the display box that appears, enter the SMI-S User name and password. Confirm the password and click **OK**.

4. In the Synchronize Schedule section, specify the frequency to synchronize the storage details with the hardware.



Click **Submit**.

12.7.5 Administering the Storage Server

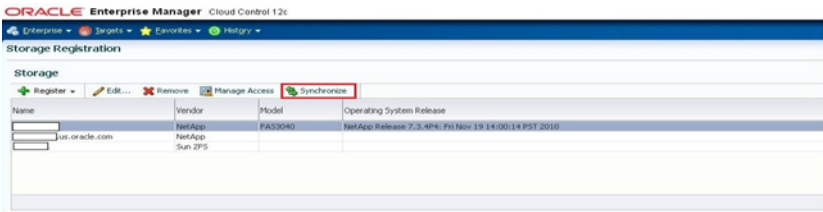
To administer the storage server, refer to the following sections:

- [Synchronizing Storage Servers](#)
- [Deregistering Storage Servers](#)

12.7.5.1 Synchronizing Storage Servers

When you register a storage server for the first time, a synchronize job is run automatically. However, to discover new changes or creations, you should schedule a synchronize job to run at a scheduled time, preferably during a quiet period when Snap Clone actions are not in progress. To do this, follow these steps:

1. On the Storage Registration page, in the Storage section, click **Synchronize**.

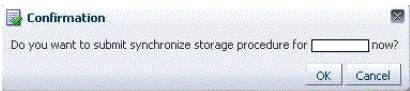


Note: When you click on Synchronize, a deployment procedure is submitted which discovers all databases monitored by Enterprise Manager Cloud Control which can be used for Snap Clone.

Windows databases are not discovered as part of storage discovery. This is because the Windows storage NFS collection does not happen at all. For further details please refer to the MOS note 465472.1

You need EM_STORAGE_OPERATOR role along with GET_CREDENTIAL privilege on the Storage Server and Storage Management Agent credentials to be able to synchronize the storage.

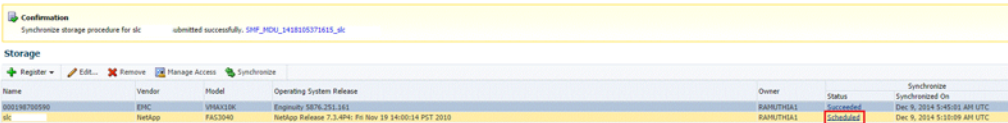
2. A confirmation box appears. Click **OK**.



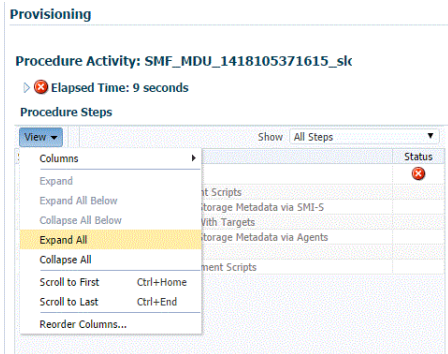
This action now submits a one-time synchronization job.

Note: The synchronization job fetches latest storage information, and recomputes the mapping between storage volumes and databases.

3. On the Storage Registration page, in the Storage section, to view the procedure details of the Management Agent host, click on the value (for example, Scheduled) in the Status column.

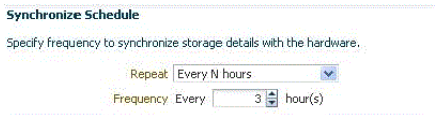


- On the Provisioning page, in the Procedure Steps section, click **View**, and then select **Expand All**. Keep clicking the Refresh button on the page to view the procedure activity as it progresses.



The synchronization status of the Management Agent on the Storage Registration page, changes to Succeeded once the synchronization process is complete.

- To update a synchronize schedule of a registered storage server, select a storage server on the Storage Registration page and then click on **Edit**. On the Edit Storage page, in the Synchronize Storage section, edit the repetition time and frequency of the synchronize job.



Note: The frequency of a synchronization job is set at 3 hours by default.

Click **Submit**.

Note: The *Associating Storage Volumes With Targets* step relies on both database target metrics and host metrics. The database target (oracle_database/rac_database) should have up-to-date metrics for the *Controlfiles*, *Datafiles* and *Redologs*. The File Systems metric should be up to date for the hosts on which the database is running.

12.7.5.2 Deregistering Storage Servers

To deregister a registered storage server, follow these steps:

Note: To deregister a storage server, you need FULL_STORAGE privilege on the storage along with FULL_JOB privilege on the Synchronization GUID of the storage server.

- From the **Setup** menu, click on **Provisioning and Patching**, and then select **Storage Registration**.
- On the Storage Registration page, in the Storage section, select a storage server from the list of registered storage servers.

3. Select **Remove.**

On the Remove Storage page, select the storage server that you want to deregister, and then click **Submit**.



The storage server is now deregistered.

Note: Once a storage is deregistered, the Snap Clone profiles and Service Templates on the storage will no longer be functional, and the relationship between these Profiles, Service Templates and Snap Cloned targets will be lost.

Note: It is recommended to delete the volumes created using Enterprise Manager before deregistering a storage. As a self service user, you should submit deletion requests for the cloned databases.

To submit these deletion requests, click **Remove** from the Hierarchy tab on the Storage Registrations page for deleting the volumes that were created by Enterprise Manager for hosting test master databases.

12.7.6 Managing Storage Servers

To manage the storage server, refer to the following sections:

- [Managing Storage Allocation](#)
- [Managing Storage Access Privileges](#)
- [Viewing Storage Registration Overview and Hierarchy](#)
- [Editing Storage Servers](#)

12.7.6.1 Managing Storage Allocation

You can manage storage allocation by performing the following tasks:

- [Editing the Storage Ceiling](#)
- [Creating Storage Volumes](#)
- [Resizing Volumes of a Database](#)
- [Creating Thin Volumes](#) (for EMC Storage Servers)
- [Understanding Space Utilization on EMC Storage Servers](#)

Editing the Storage Ceiling

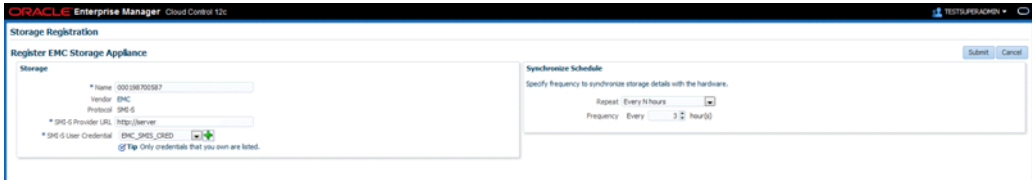
Storage Ceiling is the maximum amount of storage from a project, aggregate, or thin pool that Enterprise Manager is allowed to use. This ensures that Enterprise Manager creates clones in that project only till this limit is reached. When a storage project is discovered for the first time, the entire capacity of the project is set as the ceiling. In case of Sun ZFS, the quota set on the project is used.

Note: You must explicitly set quota property for the Sun ZFS storage project on the storage end. Also, the project should have a non zero quota set on the storage end. Else, Enterprise Manager will not be able to clone on it.

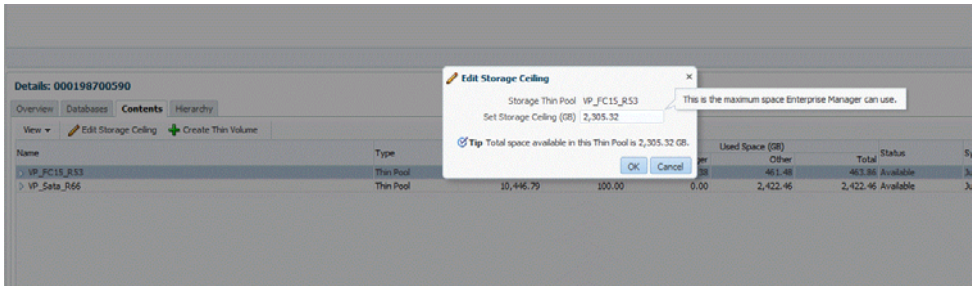
To edit the storage ceiling, do the following:

1. On the Storage Registration page, from the Storage section, select the storage server for which you want to edit the storage ceiling.
2. Select the **Contents** tab, select the aggregate, and then click **Edit Storage Ceiling**.

Note: *Edit Storage Ceiling* option enables you modify the maximum amount of storage that Enterprise Manager can use. You can create clones or resize volumes only till this limit is reached.



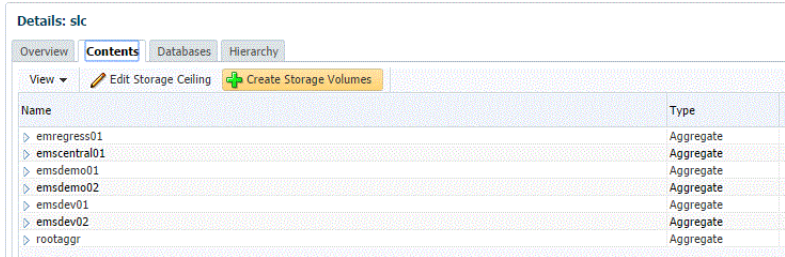
3. In the Edit Storage Ceiling dialog box, enter the storage ceiling, and then, click **OK**.



Creating Storage Volumes

To create storage volume, do the following:



1. On the Storage Registration page, from the Storage section, select the storage server for which you want to create storage volume.
2. Select the **Contents** tab, select the aggregate, and then select **Create Storage Volumes**.



3. On the Create Storage Volumes page, in the Storage Volume Details section, click **Add**.

Storage Volume Details

Select a storage and specify volume information.

 Add  Remove

Storage (Free Space GB)	Size (GB)	Mount Point

4. Select a storage and specify the size in GB (size cannot exceed the storage size). The specified size should be able to accommodate the test master database size, without consuming the entire storage size.

Next, specify a mount point starting with /.

For example,

If the storage is "lunpool", select the "lunpool".

The specified size under the size column should not exceed the storage space.



If the size of the "lunpool" is 100GB and the test master database is 10 GB, then specify size as 10GB.

The mount point should be a meaningful mount point starting with "/".

For example: /oracle/oradata

Storage Volume Details

Select a storage and specify volume information.

 Add  Remove

Storage (Free Space GB)	Size (GB)	Mount Point
emregress01 (1983.08 GB)	10	/oracle/oradata

5. In the Host Details section, specify the following:
 - **Host Credentials:** Specify the target host credentials of the Oracle software.
 - **Storage Purpose:** For using Snap Clone, the most important options are as follows:
 - Oracle Datafiles for RAC
 - Oracle Datafiles for Single Instance

Note: You can also store the *OCR and Voting disks and Oracle binaries* in the storage volume,

- **Platform:** Select the supported target platform. The volume will be mounted on the supported target platform.

- **Mount Options:** Mount options field is automatically filled based on the values specified for the storage purpose and the platform. Do not edit the mount options.
 - Select **NFS v3** or **NFS v4**.
6. Select one or more hosts to perform the mount operations by clicking **Add**.
- If you select **Oracle Datafiles for RAC**, you would normally specify more than one host. The volume is then mounted on the specified hosts automatically after the completion of the procedure activity.

7. Click **Submit**.

When you click Submit, a procedure activity is executed. On completion of the procedure activity, the volumes get mounted on the target system. You can now proceed to create a test master database on the mounted volumes on the target system.

Resizing Volumes of a Database

When a database runs out of space in any of its volumes, you can resize the volume according to your requirement. To resize volume(s) of a clone, follow these steps:

Note: This is not available for EMC storage servers.

Note: Resizing of volumes of a Test Master database cannot be done using Enterprise Manager, unless the volumes for the Test Master were created using the Create Volumes UI.

Note: You need the `FULL_STORAGE` privilege to resize volumes of a database or a clone. Also, ensure that the underlying storage supports quota management of volumes.

1. On the Storage Registration page, from the Storage section select the required storage server.
2. In the Details section, select the **Hierarchy** tab, and then select the target.

The Storage Volume Details table displays the details of the volumes of the target. This enables you to identify which of the volume of the target is running out of space.

3. In the Volume Details table, select **Resize**.

Name	Type	Writable Space (GB)
oracle.com	Database Instance	10.00
Profile details not available	Database Instance	5.00
Database	Profile	
Profile details not available	Profile	
Database	Database Instance	15.00
Profile details not available	Profile	
Database	Profile	
Profile details not available	Profile	
Target details not available		30.00
Target details not available		15.00
Target details not available		40.00

4. On the Resize Storage Volumes page, specify the New Writable Space for the volume or volumes that you want to resize. If you do not want to resize a volume, you can leave the New Writable Space field blank.

Storage Registration

Manage Storage for Target: prod2.us.oracle.com

Resize Storage Volumes

Enter the New Writable Space of the volumes you wish to resize. Leave the field unchanged if you do not wish to resize that volume.

Storage	Aggregate Name	Volume Name	Writable Space (GB)	Used Space (GB)	New Writable Space (GB)
slc1008nap	emregress01	smf_vol_1328	5.00	2.16	5
slc1008nap	emregress01	smf_vol_1329	5.00	1.51	5

Columns Hidden 1

5. You can schedule the resize to take place immediately or at a later time.

Schedule

Start ☒ Immediately ☐ Later (UTC+00:00) GMT

6. Click **Submit**.

Note: You can monitor the re-size procedure from the **Procedure Activity** tab.

Creating Thin Volumes

This section is only for EMC Symmetrix VMAX Family and EMC VNX Storage.

An EMC Symmetrix VMAX Family or an EMC VNX storage enables you to create thin volumes and ASM disks from the created thin volumes. To create thin volumes on an EMC Symmetrix VMAX Family or EMC VNX storage, follow these steps:

Note: Enterprise Manager enables you to create a thin volume from a thin pool after clusterware and ASM components are installed.

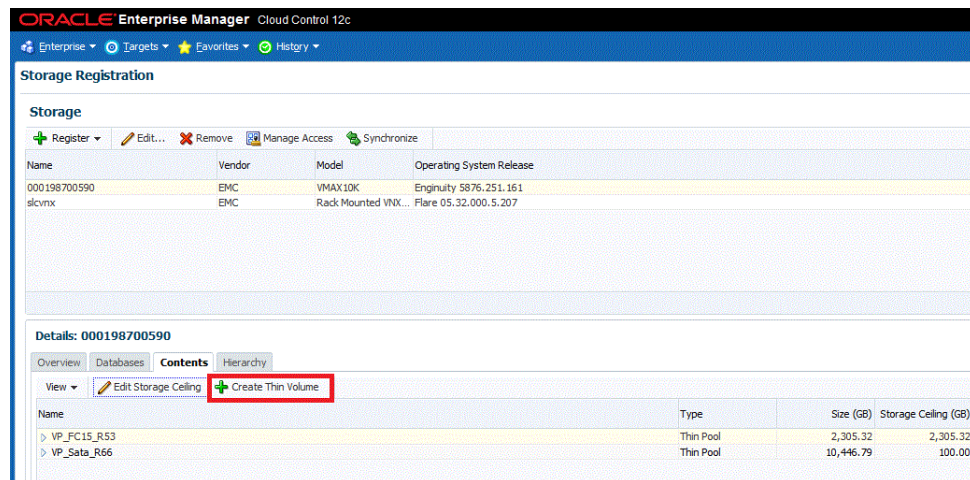
After you install the clusterware and ASM components, the `asm_diskstring` parameter may be set to Null. This could cause failure during creation of the thin pool.

To prevent this from happening, set the `asm_diskstring` parameter to a valid disk path and restart the ASM instance.

For example, set the `asm_diskstring` parameter as:

```
/dev/oracleasm/disks/*
```

1. On the Storage Registration page, in the Storage section, select the EMC Symmetrix VMAX Family or EMX VNX storage on which you want to create thin volumes.
2. In the Details section, select the **Contents** tab, and then click **Create Thin Volume**.



3. In the Storage Details section, the ASM Disk Group is set to **Create with External Redundancy**, by default. ASM Disk Group creation is optional. If you want to create an ASM Disk Group with redundancy you can skip this step for now by selecting **Do not create. I will create later**. You can then later create it using the Oracle Enterprise Manager ASM target home page or the ASM Configuration Assistant.
4. Click **Add** to create multiple LUNs of same size and create an ASM disk group with those volumes. You can create one or more disk groups at a time.
5. Select the thin pool/storage pool, and then specify the number of thin volumes, and the size for the thin volume.

Note: It is recommended to create larger LUNs and lesser number of LUNs.

For example, if you want a disk group of size 200 GB, create 1 LUN of size 200 GB and make a disk group out of it. Do not create 10 x 20 GB LUNs for it.

Note: A thin volume of size more than 240GB is not permitted by default on a VMAX storage. To create thin volumes of size more than 240GB, request the storage administrator to enable auto meta on the VMAX. The storage administrator can remove this restriction or in the alternative, create multiple thin volumes of size less than 240GB.

To create LUNs of size more than 240GB, contact the storage administrator to enable auto meta.

Do not create LUNs of size more than 2TB.

6. In the Host Details section, specify a host or a cluster, or select one by clicking the Search icon. The disks will be created on the ASM instance present on this host or cluster. A single disk partition is created on all the presented disks.

Note: Only Linux and Solaris hosts are supported.

7. Specify the root and grid infrastructure credentials. Only the credentials that you own are listed.

Click **Submit**.

Note: Once a Create Target request succeeds and a diskgroup has been created, you must manually set the attributes of the diskgroup in `compatible.asm` and `compatible.rdbms` depending on the version of the database that will be installed on the diskgroup.

Understanding Space Utilization on EMC Storage Servers

Writable space implementation on EMC Storage Server is different from NetApp, Sun ZFS SA, and Sun ZFS storage servers. In NetApp, Sun ZFS SA, and Sun ZFS storage servers, writable space defined in a service template will be allocated from the storage pool to the clone database even if data is not written to the volume. In EMC storage servers (VMAX and VNX) space is only reserved on the storage pool. The space is consumed only when data is written to the volume or LUN.

For example, if you define 10GB writable space in a service template, in NetApp, Sun ZFS SA, and Sun ZFS, space of 10GB will be allocated to the clone database from storage pool even if data is not written to the volume. In an EMC storage, space is consumed only when data is written to the volume or LUN.

In Enterprise Manager, to create thin volumes (ASM Disk groups/LUNS) up to the maximum size defined for the storage pool, select the **Contents** tab on the Storage Registration page, and then select **Create Thin Volume**. The test master database can then be created on ASM Disk groups or LUNs.

The following graphic shows the Test Master database and the created clone database:

Details: 000198700639

Overview Databases Contents **Hierarchy**

View ▾

Name	Type	Writable Space (GB)
oracle.com	Cluster Database	20.00
▶ oracle.com	Cluster Database	20.00
▲ oracle.com	Cluster Database	400.00
oracle.com	Cluster Database	400.00

The following graphic shows the storage volume of the Test Master database:

oracle.com

Storage Volume Details Procedure Activity

View ▾ Remove Resize Synchronize

Thin Volume Name	Contents	Source Snapshot Size (GB)	Writable Space (GB)	Space Usage
00EDB _p1_vo2161	Control Files, Data Files, Redo Log Files	0.00	200.00	<div></div>
00EDC _p1_vo2162	Control Files, Data Files, Redo Log Files	0.00	200.00	<div></div>
Total		0.00	400.00	

The following graphic shows storage volume of the clone database:

oracle.com

Thin Volume Name	Contents	Source Snapshot Size (GB)	Writable Space (GB)	Space Usage
00EDD _p1_vo2181	Control Files, Data Files, Redo Log Files	60.74	200.00	<div></div>
00EDE _p1_vo2182	Control Files, Data Files, Redo Log Files	60.74	200.00	<div></div>
Total		121.48	400.00	

Columns Hidden 3

Note: ASM disk groups, as discussed, can be created using the Create Thin Volumes option. However, they can also be created using other methods. The following example illustrates the space usage on EMC VMAX and VNX storage servers:

Let us assume the Storage Pool is of size 1 TB and Storage ceiling is set to 1 TB.

Scenario 1:

If an Enterprise Manager Storage Administrator creates 2 ASM disk groups, as an example, DATA and REDO of sizes 125GB and 75GB respectively through the Create Thin Volume method and the Test Master database is created on those disk groups, used space on DATA and REDO disk groups are 100GB and 50GB respectively (remaining free space on DATA and REDO disk groups are 25GB), then each clone database created by a self service user will be allocated 25GB of writable space on the DATA and REDO disk groups.

New data written to the cloned database is the actual used space and can grow up to 25GB on each disk group. The DATA and REDO disk groups in this scenario.

The Enterprise Manager Storage Administrator will be able to create 600GB LUNs through the Create Thin volume method, assuming a clone database is created from a 200GB Test Master database. The size of the clone database will also be deducted from available space. The Self Service User will be able to create multiple clones. The number of clone databases that can be created cannot be estimated as it depends on the amount of new data written to the initial clone database in that storage pool.

Scenario 2:

If an Enterprise Manager Storage Administrator creates 2 ASM disk groups, as an example, DATA and REDO of sizes 850GB and 150GB respectively through the Create Thin Volume method, and the Test Master database is created on those ASM disk groups, used space on the DATA and REDO disk groups are 750GB and 50GB respectively (remaining free space on DATA and REDO is 100GB), then each clone database created by a self service user will be allocated 100GB of writable space on DATA and REDO disk groups.

New data written to the cloned database is the actual used space and can grow up to 100GB on each disk group. The DATA and REDO disk groups in this scenario.

Similar to Scenario 1, the Self Service User will be able to create multiple clones, but number of clone databases cannot be estimated. The Enterprise Manager Storage Administrator will not be able to create additional disk groups in scenario 2. This is the major difference when compared to Scenario 1.

In both scenarios, only the actual used space of the clones will be subtracted from the Storage Ceiling. The general formula for writable disk space is the difference between the LUN size and the actual space occupied by data.

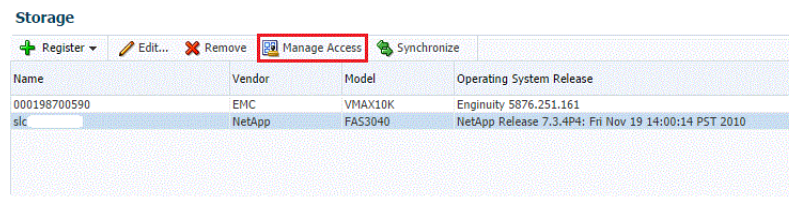
12.7.6.2 Managing Storage Access Privileges

To manage storage access privileges for a registered storage server, follow these steps:

1. On the Storage Registration page, in the Storage section, select a storage server from the list of registered storage servers.

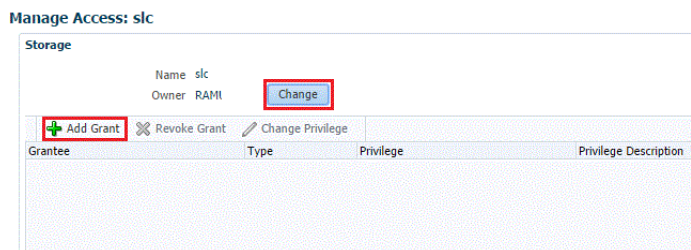
Note: The Storage Registration page displays only the databases which you have VIEW_STORAGE privilege on.

2. Click **Manage Access**.



3. On the Manage Access page, do the following:
 - Click **Change**, if you need to change the Owner of the registered storage server.

Note: The Owner of a registered storage server can perform all actions on the storage server, and grant privileges and roles to other Administrators.



- Click **Add Grant** to grant privileges to an Administrator, Role or both.
 - On the Add Grant page, enter an Administrator name or select the type, and then click **Go**.
 - Select an Administrator from the list of Administrators or Roles, and then click **Select**.
4. On the Manage Access page, you can change privileges of an Administrator or Role by selecting the Administrator or Role from the Grantee column, and then clicking **Change Privilege**.
 5. In the Change Privilege display box, you can select one of the three following privileges:
 - View Storage (ability to view the storage)
 - Manage Storage (ability to edit the storage)
 - Full Storage (ability to edit or remove the storage)

Click **OK**.

6. You can also revoke a grant to an Administrator by selecting the Administrator from the Grantee column, and then clicking **Revoke Grant**.
7. When you are done with granting, revoking, or changing privileges to Administrators or Roles, click **Submit**.

Note: To be able to use the storage server, you also need to specifically grant privileges to the storage server and storage Management Agent credentials to the user.

12.7.6.3 Viewing Storage Registration Overview and Hierarchy

To view the storage registration overview, on the Storage Registration page, in the Details section, select the **Overview** tab. The Overview section provides a summary of storage usage information. It also displays a Snap Clone Storage Savings graph that shows the total space savings by creating the databases as a Snap Clone versus without Snap Clone.

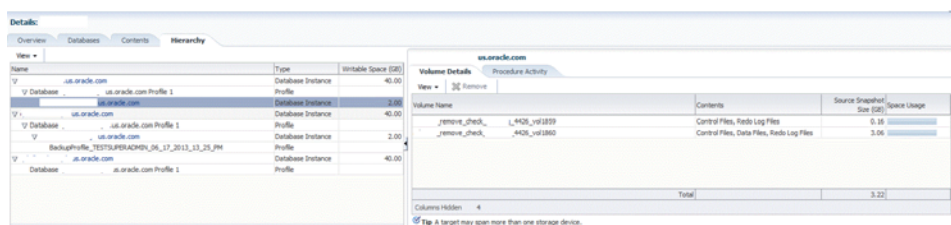
Note: If you have NetApp volumes with no space guarantee, you may see negative allocated space in the Overview tab. Set guarantee to 'volume' to prevent this.



To view the storage registration hierarchy, on the Storage Registration page, in the Details sections, select the **Hierarchy** tab. This displays the storage relationships between the following:

- Test Master Database
- Database Profile
- Snap Clone Database
- Snap Clone Database Snapshots

You can select a row to display the corresponding Volume or Snapshot Details.



If a database profile or Snap Clone database creation was not successful, and it is not possible to delete the entity from its respective user interface, click on the **Remove** button to access the Manage Storage page. From this page, you can submit a procedure

to dismount volumes and delete the snapshots or volumes created from an incomplete database profile or snap clone database.

Note: The Manage Storage page only handles cleanup of storage entities and does not remove any database profile or target information from the repository.

The **Remove** button is enabled only if you have the `FULL_STORAGE` privilege.

You can also select the **Procedure Activity** tab on the right panel, to see any storage related procedures run against that storage entity.

To view the NFS Exports, select the **Volume Details** tab. Select **View, Columns**, and then select **NFS Exports**.

The Volume Details tab, under the Hierarchy tab also has a **Synchronize** button. This enables you to submit a synchronize target deployment procedure. The deployment procedure collects metrics for a given target and its host, determines which volumes are used by the target, collects the latest information, and updates the storage registration data model. It can be used when a target has been recently changed, data files added in different locations, and the like.

12.7.6.4 Editing Storage Servers

To edit a storage server, on the Storage Registration page, select the storage server and then, click **Edit**. On the Storage Edit page, you can do the following:

- Add or remove aliases.
- Add, remove, or select an Agent that can be used to perform operations on the storage server.
- Specify a frequency to synchronize storage details with the hardware.

Note: If the credentials for editing a storage server are not owned by you, an Override Credentials checkbox will be present in the Storage and Agent to Manage Storage sections. You can choose to use the same credentials or you can override the credentials by selecting the checkbox.

Setting Up an MWaaS Cloud

This chapter covers the initial configuration required to set up and enable a Middleware as a Service Cloud which includes WebLogic as a Service, SOA as a Service, and OSB as a Service. It contains the following sections:

- [About Middleware as a Service](#)
- [New Features and Enhancements in this Release](#)
- [Getting Started with Middleware as a Service](#)

13.1 About Middleware as a Service

The Oracle Middleware as a Service (MWaaS) service family includes the following:

- WebLogic as a Service (WLaaS)
- SOA as a Service (SOaaS)
- Service Bus as a Service (SBaaS)
- Java Application Service (JVMaaS)

Oracle Enterprise Manager Cloud Control 12c offers a single management tool for creating, monitoring and managing a private MWaaS environment. MWaaS delivers a complete runtime environment comprised of all services necessary to deploy and run an enterprise-class application, including services such as application hosting, persistence store, application integration and APIs that enable programmatic access to additional computing services that might be required by an application. MWaaS facilitates deployment of applications without requiring the developer to deal with the complexity of underlying hardware and software components, thereby achieving cheaper and faster time-to-delivery.

Middleware as a Service provides:

- A shared, consolidated platform on which middleware services can be provisioned.
- A self service model for deploying and managing applications.
- Seamless integration with other services such as a Database as a Service (DBaaS) and Java Diagnostics as a Service (JDaaS).
- Ability to scale up and scale down resources manually and based on policies.
- Metering and Chargeback based on platform usage and the underlying infrastructure.

13.2 New Features and Enhancements in this Release

The following enhancements have been made in this release:

- A single consolidated script to perform create, delete, scale up, and scale down operations can be executed on the hosts on which the Administration Server and Managed Servers are running, and on external hosts.
- By default, the Domain Home Base Directory was created under the Middleware Home. The location of this directory can now be changed either by the self service administrator or the self service user.
 - The self service administrator must specify a different location while creating the middleware pool.
 - If the **Advanced Settings** option is enabled, the self service user can specify the Domain Home Base directory for each instance.

Note: The directory location specified by the self service user takes precedence over the location specified by the self service administrator.

- Placement Enhancements:
 - Rack Aware Exalogic Placement: If the middleware pool contains Exalogic host targets, the self service administrator can set the **Exalogic with Multiple Racks** field to **Yes** to ensure that servers from the same instance are distributed among available racks to ensure high availability.
 - Load Distribution Among Hosts: The self service administrator can set the **Distribute Load on Available Hosts** field to **Yes** to spread the server allocation among available hosts or set it to **No** to use the first available host fully before moving on to the next host.
- The self service administrator can choose to enable **Advanced Settings** option to the self service user. If these settings are enabled, the self service user can specify custom parameters such as instance base directory, JVM parameters, and so on.
- While creating a service instance, the self service user can now specify the minimum number of servers that must be maintained during the scale down operation.
- WebLogic Server 12.1.2 and 12.1.3 JRF profiles are now supported.
- Custom certificates are now supported. New profiles containing these certificates must be created. These certificates must be placed in the same location with same name on all the hosts in the middleware pool or placed in a NFS mounted location that is accessible to all the hosts in the middleware pool.
- Middleware pools can now contain member hosts without Oracle Homes when used in combination with Middleware Profiles with binaries. In this case, Oracle Homes will be created on the fly.

13.3 Getting Started with Middleware as a Service

This section helps you get started by providing a list of steps that must be performed to get started in setting a private middleware cloud. Before you set up MWaaS, you must have completed the common tasks listed in [Section 11.2, "Common Setup Tasks"](#).

Table 13–1 *Getting Started with Middleware as a Service*

Step	Task	Role
1	You may need to configure Privilege Delegation Settings on your managed hosts. See Section 3.5, "Configuring Privilege Delegation Settings" . Note: This is an optional step.	Super Administrator
2	Creating a Middleware Home. See Section 13.3.2, "Provisioning a Middleware Home" . Note: This is an optional step. It is required only if a shared middleware home (NFS location) is used. If middleware home is local, it is provisioned by the deployment procedure used to create SOA or Service Bus service.	Self Service Administrator
3	Load Middleware Provisioning Profiles into the Software Library. See Section 13.3.1, "Creating Provisioning Profiles" .	Self Service Administrator
4	If you are setting up WebLogic as a Service (WLaaS), you must create a WebLogic Domain Provisioning Profile. See Section 13.3.1.1, "Creating a WebLogic Domain Provisioning Profile" .	Self Service Administrator

13.3.1 Creating Provisioning Profiles

Provisioning profiles can be used to standardize deployments and help reduce errors when deployment procedures are configured. These provisioning profiles are used by operators for mass deployment. You can create a Middleware Provisioning Profile from a domain by using the Software Library. See [Section 13.3.1.1, "Creating a WebLogic Domain Provisioning Profile"](#) for details.

13.3.1.1 Creating a WebLogic Domain Provisioning Profile

A WebLogic Domain Provisioning Profile consists of the Middleware Home, binaries, and the domain configuration. You can create a profile, save it in the Software Library, and then use the saved profile as the source for creating new WebLogic domains. This will ensure that future WebLogic installations follow a standard, consistent configuration.

Before you create a WebLogic Domain Provisioning profile, ensure that the following prerequisites are met:

- The Management Agent must be running on the Administration Server.
- You must have the host credentials for the Administration Server running on the source machine.
- The WebLogic Domain for which the profile is being created must be a monitored target in Enterprise Manager.
- The disk space required to create a profile is calculated as follows:

Disk Space = Middleware Home Size + WebLogic Domain Size + Space for Temporary Scripts

- If Log Viewing support is required on the service instance, the self service administrator must do the following:
 - Configure the host credentials required for querying the log files. From the **Target** menu, select **Logs**, then select **Configure Log Location Settings** to

access the corresponding WebLogic domain target page and configure the credentials.

- Grant privileges to the self service user to access the host credentials specified in the Configure Log Location Settings page.
- Provide the view target privilege to the self service user to all the host targets associated with this WebLogic domain.
- If Fusion Middleware console access support is required, you must configure the WebLogic domain through Fusion Middleware Control. This ensures that the Fusion Middleware Control link is displayed in the Service Instance Home page in the Middleware Self Service Portal. See [Section 28.3, "Viewing the Middleware Service Home Page"](#).
- The WebLogic Domain that is used to create a profile must meet the following requirements:
 - The machine associated with the WebLogic Server must not be of Unix type.
 - The Administration Server must not be associated with a machine.
 - The Administration Server must be present on the same host as one of the Managed servers.
- The maximum Java heap size of all the servers must have an appropriate -Xmx setting in multiples of 256. For example, Xms1024m -Xmx1536m -XX:PermSize=512m -XX:MaxPermSize=1536m and so on. You must define the -Xmx server setting to ensure that the MWaaS memory metric and quota checking feature works properly. The value of the memory metric for a MWaaS service is the sum of the maximum heap available for all servers in the service.

For detailed instructions on how to create a WebLogic Domain Provisioning profile, see the Enterprise Manager Lifecycle Management Guide.

13.3.2 Provisioning a Middleware Home

A Middleware Home consists of one or more Oracle Homes. The Middleware Home must be created on the hosts that are part of the PaaS Infrastructure Zone. See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#) for details.

You can:

- Use pre-provisioned Oracle Homes: This is the recommended approach as it requires less turnaround time for instance creation and scale up operations.
- Create Oracle Homes on demand: If pre-provisioned Oracle Homes are not present, you can create an Oracle Home on the fly or on demand. To create an Oracle Home on the fly, you must use a profile that contains Oracle Home binaries. This option requires less administrator overhead but more turnaround time.
- Use a combination of both: You can have a combination of both (pre-provisioned Oracle Homes and hosts without Oracle Homes). In this case, Oracle Homes are created on the fly on hosts where they are not present.

If you are provisioning the Middleware Home on multiple hosts, you must specify a shared mount directory that is accessible by all destination hosts.

Note: You can also manually install the Middleware Home and use the **Discover Promote Oracle Home Target** job to discover it in Enterprise Manager.

To create a Middleware Home, you must run the **Provision from Oracle Middleware Home Gold Image** deployment procedure.

Prerequisites

Before running this deployment procedure, you must meet the following prerequisites:

- The user must have Write permissions on:
 - The Working Directory on all destination hosts.
 - The Middleware Home on all destination hosts.
- An Oracle Middleware Home Gold Image must be present in the Software Library. For details on creating this gold image. You can create an Oracle Middleware Home Gold Image and save it in the Software Library. You can then use this gold image as the source for future Middleware Home installations. For the detailed procedure on creating an Oracle Middleware Home Gold Image, see the Enterprise Manager Lifecycle Management Guide.

13.3.2.1 Provision from Oracle Middleware Home Gold Image Deployment Procedure

Note:

- If you have manually created and discovered a Middleware Home, this step can be ignored.
 - You cannot have more than one Middleware Home of the same WebLogic Server version on a single host.
-

You can clone a Middleware Home from a gold image present in the Software Library. This gold image must have been created earlier by pointing to an existing Middleware Home. For a detailed description on cloning a Middleware Home from a gold image, refer to the Enterprise Manager Lifecycle Management Guide.

Part VI

Provisioning New Database Artifacts

This section describes the procedures to provision new databases, schemas, and pluggable databases using Database as a Service.

It contains the following chapters

- [Chapter 14, "Getting Started with Database as a Service"](#)
- [Chapter 15, "Creating Databases Using Database Template"](#)
- [Chapter 16, "Creating Schemas"](#)
- [Chapter 17, "Provisioning Pluggable Databases"](#)

Getting Started with Database as a Service

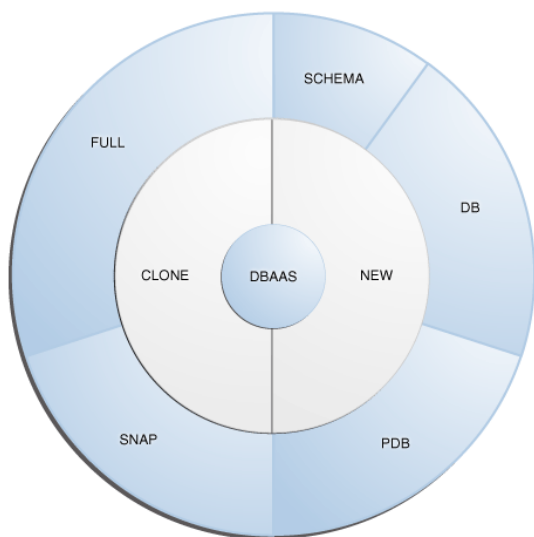
This chapter describes the procedure to different DBaaS use cases supported in this release. It contains the following sections:

- [Supported DBaaS Use Cases](#)
- [Getting Started with DBaaS](#)

14.1 Supported DBaaS Use Cases

The following figure provides an overview of the different flavors of Enterprise Manager DBaaS.

Figure 14–1 DBaaS Use Cases



This table lists the DBaaS use cases that are supported in this release and lists the different methods (GUI, EMCLI, and Rest API) that can be used to run these use cases.

Table 14–1 DBaaS Use Cases

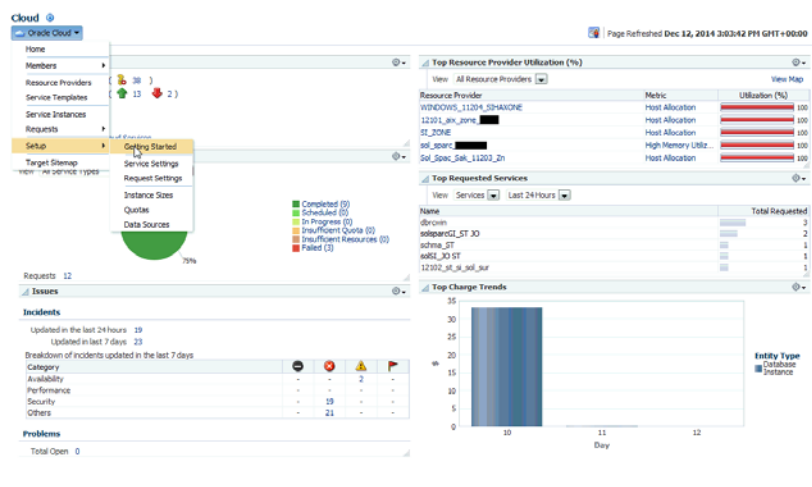
Service Type	Service Offering	Using Graphical User Interface	Using EMCLI	Using Rest API
New	Creating Databases Using Database Template.	Chapter 15, "Creating Databases Using Database Template"	Section 50.2, "Creating Databases Using Database Template With REST APIs and EM CLI Verbs"	Section 50.2, "Creating Databases Using Database Template With REST APIs and EM CLI Verbs"
	Schema <ul style="list-style-type: none"> ■ Creating an Empty Schema ■ Creating a Schema Based on Profile 	Chapter 16, "Creating Schemas"	Section 50.3, "Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs"	Section 50.3, "Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs"
	Pluggable Database <ul style="list-style-type: none"> ■ Creating an Empty Pluggable Database ■ Creating a Pluggable Database Based on Profile 	Chapter 17, "Provisioning Pluggable Databases"	Section 50.4, "Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs"	Section 50.4, "Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs"
Clone	Full Clone <ul style="list-style-type: none"> ■ Cloning Databases Using RMAN Backup ■ Cloning Databases Using RMAN Duplicate 	Chapter 19, "Creating Full Clones"	Section 50.7, "Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs"	Section 50.7, "Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs"
Snap Clone	<ul style="list-style-type: none"> ■ Software Solution <ul style="list-style-type: none"> Sun ZFS Clone DB ■ Hardware Solution <ul style="list-style-type: none"> ZFS File System NetApp EMC 	Section 20, "Creating Snap Clones for Databases"	Section 50.6, "Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs"	Section 50.6, "Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs"

14.2 Getting Started with DBaaS

To get started with database as a service, follow these steps:

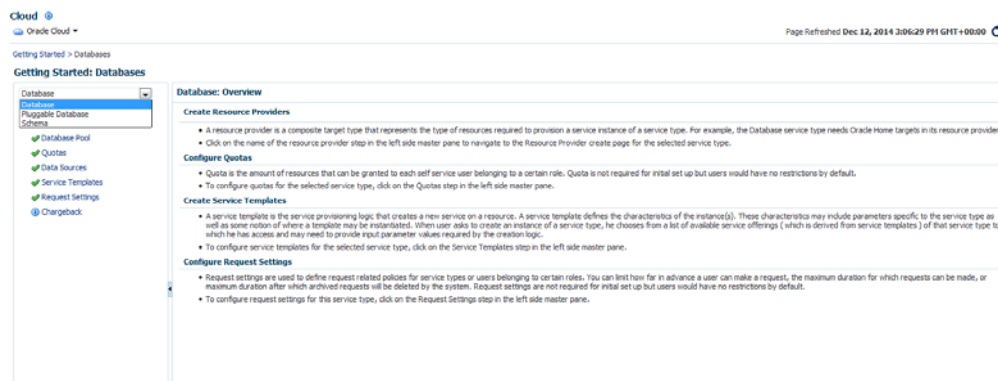
1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The following page appears:

Figure 14–2 Cloud Home Page



2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. You must first perform the common setup tasks as described in [Section 11.2, "Common Setup Tasks"](#). This page is the main entry point for setting up database as a service.
3. Click the **Setup** link next to the Database Service Family in the left panel. Select one of the service types (Database, Pluggable Database, or Schema) from the drop down list and perform the necessary tasks required for the selected service type.

Figure 14–3 Getting Started with DBaaS



4. Depending on your selection, the list of tasks can be different. Any step that has been configured is marked with a green check mark and the non-configured are listed as not configured.

Note: The service types you can access are based on your user role. For example, if you have logged in as a user (for instance DBAAS_ADMIN) who can access only Database service type, you will see only the tasks relevant to that service type. But if you have logged in as a user with the EM_SSA_ADMINISTRATOR role, you can view all the service types. See [Section 3.3, "Defining Roles and Assigning Users"](#) for more details.

5. Depending on the service type you wish to configure, you can perform the relevant tasks required to set up that service type.
 - See [Part VI, "Provisioning New Database Artifacts"](#)
 - See [Part VII, "Cloning Databases"](#)

Creating Databases Using Database Template

This chapter describes the process involved in creating single instance and cluster databases using database template based profiles. It contains the following sections:

- [Creating Databases Using Database Template](#)
- [Provisioning Standby Databases](#)

15.1 Creating Databases Using Database Template

The DBCA template supports both structure plus data and structure only types. This database provisioning profile is created from the production or source database registered with Enterprise Manager. It supports both structure plus data and structure only types. This option is recommended if the database size being created is less than 50 GB.

The table below shows the list of tasks that are involved in creating a database using the database template based profile.

Table 15–1 *Creating Databases Using Database Template*

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 12.1, "Getting Started"
2	Create resource providers. <ul style="list-style-type: none"> ■ Create one or more PaaS Infrastructure Zones. ■ Create one or more database pools. 	See Section 15.1.1, "Creating Resource Providers"
6	Create a DBCA template based database provisioning profile.	See Section 15.1.2, "Creating a Database Provisioning Profile Using Database Template"
4	Configure the request settings.	See Section 15.1.3, "Configuring Request Settings"
5	Define quotas for each self service user.	See Section 15.1.4, "Defining Quotas"
7	Create a service template based on the profile you have created.	See Section 15.1.5, "Creating a Service Template Using Database Template Profile"
8	Configure the Chargeback Service.	See Section 15.1.6, "Configuring Chargeback"
9	While creating a database, select the service template (associated with the database template based profile) you have created.	See Section 15.1.7, "Requesting a Database"

15.1.1 Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#)
- Database Pool: See [Section 11.2.2.2, "Creating a PaaS Pool"](#)

15.1.1.1 Creating a Database Pool for Database as a Service

To create a database pool for database as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, click the **Database Pool** link and click **Create**.

Figure 15–1 Create Database Pool

The screenshot shows the 'Create New Pool Setup' wizard. The 'Credentials' section is highlighted with a red box. It contains the following fields:

- Host:** Select a Credential
- Root:** Select a Credential
- Grid Infrastructure:** Select a Credential
- Automatic Storage Management:** Select a Credential

The 'Pool Details' section has fields for Name and Description. The 'Oracle Homes' section has fields for PaaS Infrastructure Zone, Platform, Database Configuration, and Version. The 'Standby Pools' section has an 'Add' button and a table with columns Name, Member, Target Type, Targets, and Description. The 'Placement Constraints' section has a 'Maximum Number of Database Instances per Host' field.

3. In the Credentials region, specify the following credentials:
 - **Host:** Required for creating and starting the database.
 - **Root:** This is an optional field. It is required if you plan to use this database pool for database requests based on snap clone profile.
 - **Grid Infrastructure:** This is an optional field. It is required for registering database services with credentials.
 - **Automatic Storage Management:** This is an optional field. It is required if you plan to use this database pool for live cloning on any database running on ASM.
4. Enter a name and description for the database pool.
5. Specify the following details:
 - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone into which the database instance is to be provisioned.

- **Database Configuration:** Specify the configuration of the database being provisioned. This can either be Single Instance or Cluster Database (RAC) but cannot be a combination of both.
 - **Platform and Version:** Specify the platform and version of the database being deployed.
6. Click **Add** and select one or more Oracle Homes to be added to the database pool.
 7. In the Maximum Number of Database Instances (per host), enter the maximum number of database instances that can be running on each host in the pool.

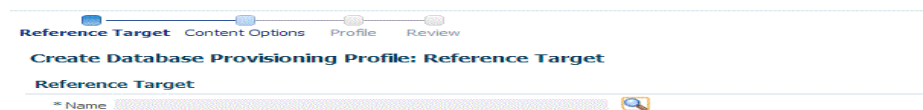
Note: For RAC databases, the value specified in this field is used to ensure that the nodes on which the database is created meets this criteria.

8. Click **Submit** to create a database pool. The newly created pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page. The database pool can now be added to the Service Template.

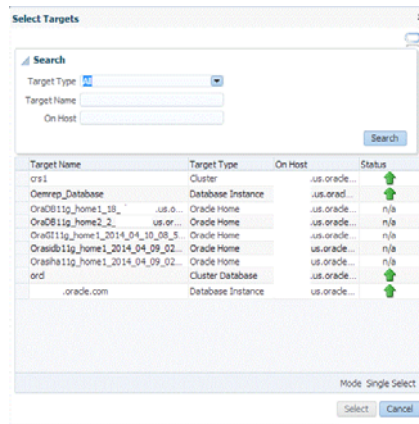
15.1.2 Creating a Database Provisioning Profile Using Database Template

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
 - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
 - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
 - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.

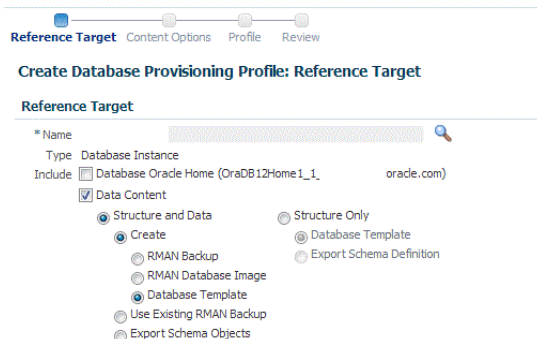


3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.

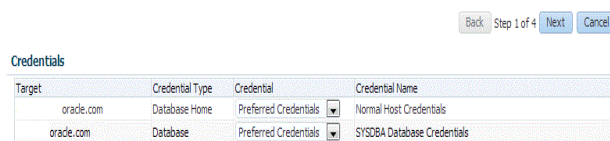


4. On the Reference Target page, select the following:

- **Data Content**
 - **Structure Only** to include only the structural files in the template.
- Note:** You can use the **Structure and Data** option if the database size is lesser than or equal to 5 GB.
- **Create**
 - **Database Template**



5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.



6. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:

- Specify or select a profile location in the software library where the database profile will be created.
- Specify a unique profile name.

For example:

Database Template for HR database

- Add a description for the profile.
- Verify the profile version and the vendor.
- Add any additional notes such as host name, database, data content, data content mode, and the like.

Create Database Provisioning Profile: Profile

Profile Information

* Profile Location Database Provisioning Profiles/12.1.0.1.0/linux_x64

* Profile Name Database Template for HR database

Description Database Reference Profile 09-12-2014 02:23 PM from database.example.com
Version : 12.1.0.1.0

Profile Version 12.1.0.1.0 Vendor Oracle

Notes Host Name: host.oracle.com
Database: database.example.com
Data Content: Structure and Data
Data Content Mode: Database Template

7. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
8. Specify or select a working directory. Click **Next**.
9. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Reference Target Content Options Profile Review

Create Database Provisioning Profile: Review

Reference Target

Target .oracle.com

Content Create Database Template

Database Home Credentials ADMIN@12C01019440

Database Credentials NC_ORCLYUAN_2014-04-11-000754019440

Profile Details

Profile Location Database Provisioning Profiles/12.1.0.1.0/linux_x64

Profile Name Database Template Provisioning Profile for HR database

Description Database Reference Profile 12-04-2014 02:23 PM from database.oracle.com version : 12.1.0.1.0

Profile Version 12.1.0.1.0 Vendor Oracle

Notes Host Name: example.us.oracle.com
Database: database.oracle.com
Data Content: Structure and Data

Schedule

Start Immediately

Working Directory

Path /tmp

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

15.1.3 Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Section 11.2.3, "Configuring Request Settings"](#)

15.1.4 Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Section 11.2.4, "Setting Up Quotas"](#)

15.1.5 Creating a Service Template Using Database Template Profile

A service template is a standardized service definition that is offered to self service users to create databases or schemas. Self service users can create one or more databases based on the service template definition.

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 15–2 Create Service Template: General (DBCA Template)

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. Click the **Search** icon next to the **Source Identification** field and select a DBCA template based profile from the list.
7. In the Database Definition region, specify the following:
 - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
 - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.

- **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the

new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.

- **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
 - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
 - **Enable Standby Database:** Select this checkbox if you want to provision standby databases using this service template. If this checkbox is selected, you have to add standby databases. See [Section 15.2.2, "Creating a Service Template"](#) for details.
8. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
 9. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
 10. Click **Next**. The Create Service Template: Database page appears.

Figure 15–3 Create Service Template: Database (DBCA Template)

Database Cloud Self Service Portal Setup: Database

Reference Host
The reference host is used to select the necessary database content values like ASM disk group, data file location, listener port that are available on the reference host.
Zone: LIN_SL048h_ZONE Pool: POOL_LINSLC_SHA Host: us.oracle.com

Storage type
Automatic Storage Management
Disk Group
File System
Location: /scratch/rman_bk/oradata

Fast Recovery
Specify the location where recovery related files (archived redo logs, RMAN backups and other related files) will be created.
Enable Fast Recovery Area
Automatic Storage Management
Disk Group
File System
Location: /scratch/rman_bk/ra
Fast Recovery Size(MB): 200
Enable Archiving: ☒

TIP To allow SSA users to schedule backups and perform restore operations, configure a Fast Recovery Area and select the Enable Archiving check box.

Listener Port
Port Number: 1521

Administrator Credentials
Specify passwords for the administrative users (SYS, SYSTEM and DBSNMP) in the new database. These users are used by the SSA Administrator to manage the database. The SSA User has no access to these users.
Use the same password
Password: ***** Confirm Password: *****
Use different passwords
User Name Password Confirm Password
SYS *****
SYSTEM *****
DBSNMP *****

Master Account Privileges
Name: ROLE_Nov_06_2014_09_59_AM
Description: New database role to be assigned to master account.
Privileges: CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY

11. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as a Automatic Storage Management (ASM) disk group, location of the file system, and listener port you select must be available on the reference host.

12. Specify the following:

- **Storage Type:** This can be:
 - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the Disk Group here.
 - **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System.
- **Fast Recovery (Optional):** To simplify the management of backup and recovery files, you can create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

To allow self service users to schedule backups and perform restore operations, configure a Fast Recovery Area and select the **Enable Archiving** check box.
- **Listener Port:** In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
- **Administrator Credentials:** Specify passwords for the system schemas of the new database. These schemas will not be available to the self service users. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the self service administrator can change them.
- **Non-Administrator Credentials:** Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the EM_SSA_USERS cannot access them. Click **Next**.

13. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
14. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
15. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
- Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.

16. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
17. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

15.1.6 Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chapter 43, "Chargeback Administration"](#).

15.1.7 Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Section 22.2, "Requesting a Database"](#).

15.2 Provisioning Standby Databases

A data guard configuration consists of one primary database and one or more standby databases. The databases in a Data Guard configuration are connected by Oracle Net and may be dispersed geographically. There are no restrictions on where the databases are located, provided they can communicate with each other.

Oracle Data Guard ensures high availability, data protection, and disaster recovery for enterprise data. It provides a comprehensive set of services that create, maintain, manage, and monitor one or more standby databases to enable production Oracle databases to survive disasters and data corruptions. Oracle Data Guard maintains these standby databases as copies of the production database. If the production database becomes unavailable due to a planned or an unplanned outage, the Oracle Data Guard can switch any standby database to the production role, minimizing the downtime associated with the outage.

The production database, also referred to as the primary database can be either a single-instance Oracle database or an Oracle Real Application Clusters (RAC) database. A standby database is a transactionally consistent copy of the primary database. Using a backup copy of the primary database, you can create one or more standby databases and incorporate them in a Data Guard configuration. Using Enterprise Manager Database as a Service, users with the EM_SSA_ADMINISTRATOR role can setup the DBaaS Cloud with single instance of RAC standby databases.

Table 15–2 Provisioning Standby Databases

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 12.1, "Getting Started"
2	Create resource providers. <ul style="list-style-type: none"> ■ Create one or more PaaS Infrastructure Zones. ■ Create one or more database pools for provisioning standby databases 	See Section 15.1.1, "Creating Resource Providers"

Table 15–2 (Cont.) Provisioning Standby Databases

Step	Task	Role
6	Create either of the following types of profiles: <ul style="list-style-type: none"> ■ DBCA template based database provisioning profile. ■ RMAN Backup based database provisioning profile. 	See: <ul style="list-style-type: none"> ■ Section 15.1.2, "Creating a Database Provisioning Profile Using Database Template" ■ Section 19.1.2.1, "Creating a Database Provisioning Profile Using RMAN Backup"
4	Configure the request settings.	See Section 15.1.3, "Configuring Request Settings"
5	Define quotas for each self service user.	See Section 15.1.4, "Defining Quotas"
7	Create a service template based on the profile you have created.	See Section 15.2.2, "Creating a Service Template"
8	Configure the Chargeback Service.	See Section 15.1.6, "Configuring Chargeback"
9	While deploying a database, select the service template (associated with the DBCA template based profile) you have created. Additionally, you can also specify the standby database information while requesting the database.	See Section 15.1.7, "Requesting a Database"

15.2.1 Defining Database Pools for Provisioning Standby Databases

A Data Guard configuration consists of one production database and one or more standby databases. To define a database pool for provisioning standby databases, you must follow these steps:

1. Create a database pool. See [Section 15.1.1.1, "Creating a Database Pool for Database as a Service"](#).
2. Associate the database pool with one or more pools that host standby databases. See [Section 15.2.1.1, "Associating a Standby Database Pool with a Primary Database Pool"](#).

15.2.1.1 Associating a Standby Database Pool with a Primary Database Pool

To include standby support, you must add one or more pre-created database pools on which the standby databases will be created by following these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Resource Providers**, and select the database pool that has been designated as the primary database pool and click **Edit**. The Edit Pool: Setup page appears.

Figure 15–4 Edit Database Pool

Database Pools

Edit Pool Setup Back Step 1 of 1 Submit Cancel

Pool Details

Name: Pool 3 and 8

Description:

Credentials

Specify the host credentials that will be used for performing database creation operations. Root credentials are optional. They are needed if you plan to use this pool for in-place cloning of database requests. Grid Infrastructure credentials are also optional. They are needed if you plan to use this pool for live cloning of a database using ASM.

* Host: ORACLE_WELCOME1_PWD [SSA_ADMIN] +

Root: Select a Credential +

Grid Infrastructure: ORACLE_WELCOME1_PWD [SSA_ADMIN] +

Oracle Homes

Add one or more Oracle Homes to the pool. All Oracle Homes must reside in the same PaaS infrastructure zone. Homogeneity is controlled by the target filters that cannot be modified once the pool is created.

PaaS Infrastructure Zone: Zone_0000 Platform: Oracle Solaris on SPARC (64-bit)

Database Configuration: Cluster Database Version: 11.2.0.4.0

Name	Location	Description	On Host
Oracle11g_home1_2_etc5mz	/u01/app/oracle/product/11.2.0.4/oth	Oracle11g_home1_2	ss.oracle.com
Oracle11g_home1_2_etc5mz	/u01/app/oracle/product/11.2.0.4/oth	Oracle11g_home1_2	ss.oracle.com

Standby Pool

Associate one or more Pools for provisioning the Physical Standby Database(s). The 'Add' list contains a filtered set of Pools based on the DataGuard compatibility matrix.

Name	Member Target Type	Targets	Description
No Standby Pools added.			

Placement Constraints

Placement policy constraints allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the database pool in terms of resource consumption. For example, a production database pool might enforce more conservative limits, whereas a development database pool might enforce more liberal limits.

* Maximum Number of Database Instances per Host: 99

- The pool details and the Oracle homes in the pool are displayed. You can now add one or more standby database pools and associate it with the primary database pool. Click **Add** in the Standby Pools region. The Add Standby Pools window appears.
- Select one or more standby pools and click **Select**. The selected pools appear in the Standby Pools region. These pools are now associated with the primary database pool and can be used to provision standby databases.

Note: The OS user name and password for the primary and standby database pool must be the same but the Named Credentials can be different.

- Specify the Placement Constraints that will allow the self service administrator to set the maximum limits for resource utilization. For example, if you are using the database pool to provision standby databases, you can specify a higher value in the Maximum Number of Database Instances Per Host field, since the standby database may not be used for active operations all the time.
- Click **Submit**. The primary pool is now associated with the standby database pool and can be used to provision standby databases.

15.2.2 Creating a Service Template

Service templates are standardized service definitions that allow self service users to create standby databases. Self service users can create one or more standby databases based on the service template definition. To create a database service template, follow these steps:

- Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
- From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.

3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.
5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. Click the **Search** icon next to the **Profile** field and select a database provisioning profile.
7. You can select the following types of profiles:
 - RMAN Backup Based Database Provisioning Profile.
 - DBCA Template Based Database Provisioning Profile.
8. In the Database Definition region, specify the following:
 - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
 - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
 - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.
 - **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
 - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
 - **Enable Standby Database:** Select this checkbox if you want to provision standby databases using this service template. The database lock icon and the Add Standby Database region appears. Click the database lock icon to lock the database. This forces the self service user to request standby databases. If unlocked, the self service user can deselect the standby database while submitting the database request.

Figure 15–5 Create Service Template: General (Standby Database)

9. Click **Add Standby Database**. In the Add Standby Database window that appears, specify the following details:

Figure 15–6 Add Standby Database

- Standby Name: The name used to identify the standby database.
- Type: This can be Single Instance or Real Application Cluster (RAC). If you select RAC, you must specify the Number of Nodes.
- Standby Domain Name: Enter a domain name for the new standby database that is to be created.
- Standby Protection Mode: Specify the protection mode which can be:
 - Maximize Protection: Provides the highest level of data protection with no data loss. If this mode is selected, you must set the SYNC Redo Transport Mode on at least one standby database.
 - Maximize Availability: Provides very high data protection. If this mode is selected, you must set the SYNC Redo Transport Mode on at least one standby database.
 - Maximize Performance: Provides high data protection with the ASYNC Redo Transport Mode. If you select this mode, there is no performance impact on the primary database.
- Enable Real Time Query: Select this option to enable real time data query on the database. This feature requires an active data guard license.

- **Apply Delay:** Specifies the delay period before which the archived redo log data is applied on the standby database. When the property is set to 0 minutes, the redo log data is applied immediately on the standby database.

Note: You can use a single service template to provision multiple standby databases.

10. In the Pools and Zones (Primary Pools) region, click **Add** to add one or more PaaS Infrastructure zones into which the database instance is to be provisioned. Click **Assign Pool** and select a database pool which will be the primary database pool for the standby database.
11. In the Standby Pools region, you will see the list of standby databases that you have defined. From the drop down list, select the standby pool with which the standby database is to be associated. You can associate multiple standby pools with one primary pool.

Note: If the Primary Pool is of single instance type, both single instance and RAC database pools are listed. But if the Primary Pool is RAC, only RAC database pools are listed in the Standby Pools region.

Figure 15–7 Create Service Template: General (Standby Database)

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Scripts Roles Review

Database Cloud Self Service Portal Setup: General

Number of nodes:

Database SID: Specified by user at request time

SID Prefix:

Domain Name:

☒ Enable Standby Database

Standby Name	Database Type	Number of Nodes	SID Prefix	Protection Mode	Apply Delay (Minutes)	Domain Name	Enabled Read Only Mode
stby1	N/A	1	db1	Maximum Performance	0	mycompany.com	
stby2	N/A	1	db2	Maximum Performance	0	mycompany.com	

Pools and Zones

A service template can be configured to provision databases in one or more pools. Select the zone and associated pools that this service template can provision databases into.

Primary Pools		Standby Pools	
Name	Resource Pool	Standby Name	Standby Pool
linux_zone	linux_primary_pool	stby1	linux_standby_pool
		stby2	linux_standby_pool

Reference Host:

Shared Location:

12. Click **Search** in the Reference Host field to select a host target.
13. Specify the Shared Location and click **Next** to continue to the Database Cloud Self Service Portal Setup: Database page.
14. The name of the Zone, Pool, and Reference Host you have selected is displayed. You can select the ASM Disk Group, File System Location, and Listener Port that is available on the Reference Host.

Note: The storage locations and listener ports must be identical on all the primary and standby pools.

- **Storage Type:** Storage type can be:
 - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups

the disks in your storage system into one or more disk groups. If you select ASM, specify the Disk Group here.

- **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify the Location of the File System.
- **Fast Recovery:** To simplify the management of backup and recovery files, you can create a fast recovery area for your database. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

To allow self service users to schedule backups and perform restore operations, configure a Fast Recovery Area and select the **Enable Archiving** check box.

15. In the Port Number field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
16. In the Location fields, specify the RMAN Duplicate Backup location. This directory must be present on all members of the Primary and Standby pools. The free space available in this location must be equal to or more than the size of the database from which the profile has been created.
17. Specify the Administrator Credentials. Specify passwords for the system schemas of the new database. These schemas will not be available to the EM_SSA_USERS. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the EM_ADMINISTRATOR can change them.
18. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the EM_SSA_USERS cannot access them.
19. Click **Next**. The Database Cloud Self Service Portal Setup: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click the **Set** icon to modify the value of the parameter.

Note: Database sizes that can be selected by the self service user while creating a service instance are defined globally using EMCLI commands. A subset of these global database sizes can be defined on the Initialization Parameters page and the self service user can choose one of these sizes while creating a database.

20. Click **Next**. The Database Cloud Self Service Portal Setup: Scripts page appears. Specify the custom scripts that need to be executed before and after the database is created.
21. Click **Next**. The Database Cloud Self Service Portal Setup: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template.

22. Click **Next**. The Database Cloud Self Service Portal Setup: Review page appears. Review the information you have entered so far and click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

Creating Schemas

You can create one or more schemas on a running database. Schemas can either be empty or based on a profile. This chapter covers the following sections:

- [Getting Started](#)
- [Creating Resource Providers](#)
- [Creating a Database Provisioning Profile Using Export Schema Objects](#)
- [Configuring Request Settings](#)
- [Defining Quotas](#)
- [Configuring Chargeback](#)
- [Requesting a Schema](#)

16.1 Getting Started

The data content of this database provisioning profile is compiled from an export dump created using the Data Pump tool. You can choose to export Schema objects (structure only) or the Schema with data (structure + data).

The table below shows the list of tasks that are involved in creating an empty schema or a schema based on profile.

Table 16–1 *Creating Databases Using Database Template*

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 12.1, "Getting Started"
2	Create resource providers. <ul style="list-style-type: none">■ Create one or more PaaS Infrastructure Zones.■ Create one or more database pools.	See Section 16.2, "Creating Resource Providers"
6	Create a database provisioning profile. This step is optional and is required if you are importing schemas from a profile.	See Section 16.3, "Creating a Database Provisioning Profile Using Export Schema Objects"
4	Configure the request settings.	See Section 16.4, "Configuring Request Settings"
5	Define quotas for each self service user.	See Section 16.5, "Defining Quotas"

Table 16–1 (Cont.) Creating Databases Using Database Template

Step	Task	Role
7	Create as service template based on: <ul style="list-style-type: none"> User Defined Schema: In this case, the service template is created with an empty schema. Schema from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications. 	See Section 16.6, "Creating a Service Template for Schema Based on Profile"
8	Configure the Chargeback Service.	See Section 16.8, "Configuring Chargeback"
9	While creating a database, select the service template (associated with the database template based profile) you have created.	See Section 16.9, "Requesting a Schema"

16.2 Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#)
- Schema Pool: See [Section 16.2.1, "Creating a Database Pool for Schema as a Service"](#)

16.2.1 Creating a Database Pool for Schema as a Service

You can create a database service with one or more schemas with or without seed data and database objects. To do so, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, select **Schema** from the drop down list, click **Schema Pool** and click **Create**.

Figure 16–1 Create Database Pool (Schema as a Service)

Database Pools

Create New Pool: Setup Back Step 1 of 2 Next Cancel

Pool Details

* Name:
 Description:

Credentials

Specify the database credentials that will be used for performing database operations like schema creation. The database credentials require SYSDBA privileges.

* Host: Select a Credential +
 Grid Infrastructure: Select a Credential +
 * Database: Select a Credential +

Databases

Add one or more databases to the pool. All databases must reside in the same PaaS infrastructure zone. Homogeneity is controlled by the target filters that cannot be modified once the pool is created.

* PaaS Infrastructure Zone: * Platform:
 * Target Type: * Version:

+ Add − Remove

Name	Location	Description	On Host	CPU	Memory (GB)
Select targets for the pool creation.					

TIP A target can only belong to one pool.
 * CPU is not caged.
 Where is my Database?

3. Enter a name and description for the schema pool.

4. In the Credentials region, specify the credentials that will be used for performing database operations. Specify the following credentials:
 - **Host:** Required for starting the database.
 - **Grid Infrastructure:** Required to register a database service with grid infrastructure credentials. These credentials are used when schema backups taken by the self service user from ASM need to be deleted.
 - **Database:** Required for creating schemas on the database. The database credentials must have SYSDBA privileges.
5. Specify the following details:
 - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone in which the databases are present. The schemas will be created on the databases selected for the pool.
 - **Target Type:** Specify the configuration of the target database on which the schema is being deployed. This can be Single Instance or Cluster Database (RAC).
 - **Platform and Version:** Specify the platform and version of the database being deployed.
6. Click **Add** and select one or more databases to be added to the pool. All databases you select must be present in the same PaaS Infrastructure Zone.

Note: You can search for database groups that meet your requirements by specifying a search string in the Groups field.

7. Click **Next**. The Create New Pool: Policies page appears.

Figure 16–2 Create Database Pool: Policies (Schema as a Service)

Database Pools

Create New Pool: Policies Back Step 2 of 2 Submit Cancel

Placement Constraints

Placement policy constraints allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the database pool in terms of resource consumption. For example, a production database pool might enforce more conservative limits, whereas a development database pool might enforce more liberal limits.

Constrain Placement on Each Database by ☒ Services

Maximum Number of Database Services

☐ Workloads associated with the service requests

Maximum CPU allocation never exceeds (%)

Maximum memory allocation never exceeds (%)

Resource Manager Settings

☐ Enable Resource Manager for CPU

TIP The service instance will be provisioned on the best member that satisfies the placement constraints.

Specify the placement policy constraints to set maximum ceilings for resource utilization on each database. Placement policy constraints for each database can be defined by services or workloads as follows:

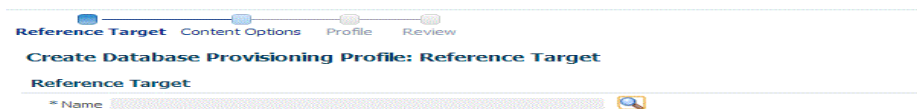
- **Services:** If you select this check box, you must specify the Maximum Number of Database Services that can be running on each database.
- **Workloads Associated with Service Requests:** The amount of resources (such as CPU and memory) to manage the workload can be specified here. Specify the total workload for each database.
 - **Maximum CPU Allocation:** Specify the maximum CPU that can be allocated to each database.

- **Maximum Memory Allocation:** Specify the maximum memory that can be allocated for each database.
8. If you have chosen to set the placement constraints by **Workloads Associated with Service Requests**, you can choose to enable the resource manager by selecting the **Enable Resource Manager for CPU** check box. You can use the resource manager to manage the CPU resource and ensure that `EM_SSA_USER` will not exceed the maximum allocated value.
 9. Click **Submit** to create a database pool. The newly created database pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page.

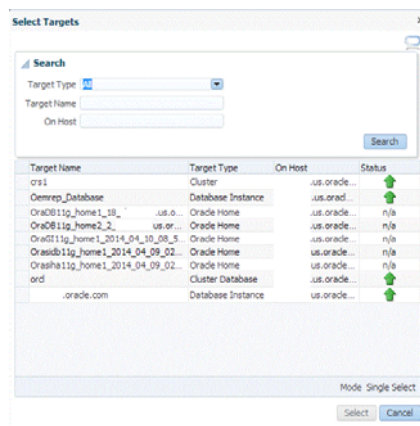
16.3 Creating a Database Provisioning Profile Using Export Schema Objects

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
 - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
 - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
 - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.



3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.



4. On the Reference Target page, select the following:
 - **Data Content**

- **Structure and Data** to include physical and structural files from the database or **Structure Only** to include only the structural files in the template.
- **Export Schema Objects**

5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Back Step 1 of 4 Next Cancel

Credentials

Target	Credential Type	Credential	Credential Name
oracle.com	Database Home	Preferred Credentials	Normal Host Credentials
oracle.com	Database	Preferred Credentials	SYSDBA Database Credentials

6. On the Content Options page, do the following:

- Select the schema you want to include in the profile by clicking on a schema in the Available Schema list and moving it to the Selected Schema list.

Note: When one or more schemas are selected, the database checks if the dependent schemas are also selected for export. If the dependent schemas are not exported, you will receive a warning. You can choose to go ahead with the selected schemas, or to include the schemas which were not initially selected.

The same warning is also displayed when you select a profile that does not have the dependent schemas exported.

Note: The Available Schemas section displays only the user created schemas that has data content in it. All the empty schemas are filtered out by default.

Note: System schemas such as SYS, SYSTEM, and DBSNMP will not be exported.

The user schemas which do not have their own tablespace are not shown in left side of the shuttle.

- In the Degree of Parallelism section, enter the number of threads required to perform the export operation.

Degree Of Parallelism

Select the number of threads to perform the export operation. Increasing the number of threads helps reduce the time to create the profile at the cost of using system resources.

* Maximum number of Threads in Export Job

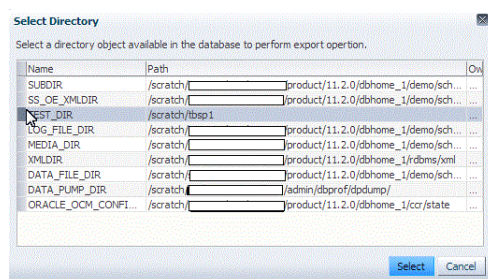
Note: Increasing the number of threads helps reduce the time required to create the profile at the cost of using system resources.

- In the Directory Locations section, click on **Add**. In the Select Directory window, select a directory object listed to perform the export operation, and then click **Select**.

Note: The number of export threads determines the number of parallel export processes that will run in parallel during export.

Hence, the dump file names should contain %U, to ensure the file names are auto generated with the running count to facilitate parallel operation along with the maximum size for the dump file. For example, 5GB. This means that the file rotation will start after 5GB limit is reached.

Note: Ensure that the directory location is accessible. The directory object that you select must refer to a location that is accessible across all the nodes. You can also create a directory object on ASM. However, it is not supported on ASM.



In the Log subsection, click on the search icon. In the Select Directory window, select the directory object you require to perform the export operation, and then click **Select**.

In the Log subsection, enter the file name, and then click on **Next**.

The screenshot shows the 'Directory Locations' window. It has two main sections: 'Dump' and 'Log'. The 'Dump' section has a title bar 'Dump' and a subtitle 'Specify the directory object, file name, and maximum size for the export files on the database server machine.' Below this are buttons for '+ Add' and 'X Delete...'. There is a table with three columns: 'Directory', 'File name', and 'Maximum file size(MB)'. The first row has 'TEST_DIR' in the 'Directory' column, 'export_dump1.dmp' in the 'File name' column, and an empty field in the 'Maximum file size(MB)' column. The 'Log' section has a title bar 'Log' and a subtitle '* Directory'. It has a text field with 'TEST_DIR' and a search icon. Below this is a text field for 'File Name' with 'log1.log'.

Note: You can make use of degree of parallelism with dump file names. The default value of dump files contain %U which creates a running count when degree of parallelism is greater than 1.

Also, this enables you to add multiple dump directories to distribute the storage if required.

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:

- Specify or select a profile location in the software library where the database profile will be created.
- Specify a unique profile name.

For example:

Export Schema Objects Provisioning Profile for HR database

- Add a description for the profile.
- Verify the profile version and the vendor.
- Add any additional notes such as host name, database, data content, data content mode, and the like.

The screenshot shows the 'Profile Information' section. It has several fields: '* Profile Location' with 'Database Provisioning Profiles/12.1.0.1.0/linux_x64', '* Profile Name' with 'Export Schema Objects Database Provisioning Profile', 'Description' with 'Database Reference Profile 09-12-2014 02:28 PM from database.example.com Version : 12.1.0.1.0', 'Profile Version' with '12.1.0.1.0', 'Vendor' with 'Oracle', and 'Notes' with 'Host Name: slc08uns.us.oracle.com Database: database.example.com Data Content: Structure and Data Data Content Mode: Schema Objects'.

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
9. Specify or select a working directory. Click **Next**.
10. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Create Database Provisioning Profile: Review Back Step 4 of 4 Submit Cancel

Reference Target		Profile Details	
Target	Schema Export	Profile Location	Database Provisioning Profiles\12.1.0.1.0\bin\p64
Content	Database Home Credentials: ADHE_2C00S	Profile Name	Export Schema Objects Database Provisioning Profile
Grid Infrastructure Home Credentials:	Database Credentials: PRDDB_CRED5	Description	Database Reference Profile 09-12-2014 02:28 PM from database.example.com Version : 12.1.0.1.0
Content Details		Profile Version	12.1.0.1.0 Vendor: Oracle
Content	Export: Full Database for migrating to Pluggable Database	Notes	Host Name: oracle.com Database: database.example.com Data Content: Structure and Data Data Content Mode: Schema Objects
Degree Of Parallelism	Maximum number of Threads in Export Job: 1	Schedule	Start: Immediately
Directory Locations		Working Directory	Path: /tmp
Dump			
Directory	File name	Maximum file size	
OPATCH_LOG_DIR	export_091214_02_28_160.dmp	(MB)	
Log			
Directory	File Name		
OPATCH_LOG_DIR	log_091214_02_28.log		

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

16.4 Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Section 11.2.3, "Configuring Request Settings"](#)

16.5 Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Section 11.2.4, "Setting Up Quotas"](#)

16.6 Creating a Service Template for Schema Based on Profile

One or more schemas can be created based on the service template definition. To create a service template for schema as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Schema** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 16–3 Create Service Template: Name (Schema)

The screenshot shows the 'Create New Service Template: General' page. It includes tabs for General, Configurations, Scripts, Roles, and Review. The 'General' tab is active. The page has a progress bar at the top right showing 'Step 1 of 5'. The main form contains the following sections:

- Name and Description:** Fields for 'Name' (pre-filled with 'schema_template') and 'Description'.
- Source:** Radio buttons for 'Create User Defined Schemas' and 'Import Schemas from Profile' (selected). A 'Maximum number of Schemas' field is set to 4.
- Profile:** A dropdown menu showing 'dev_profile' with a search icon.
- Master Account:** A dropdown menu showing 'mt' with a search icon.
- Pools and Zones:** A section with a note: 'A service template can be configured to provision schema's in one or more pools. Select the zone and associated pools that this service template can provision schema's into.' It includes buttons for '+ Add', '- Remove', and '+ Assign Pool'. Below is a table with columns 'Name' and 'Resource Pool'. One row is visible: 'zone_1c0d9gn' with 'schema_pool_0f9gn'.
- Reference Database:** A dropdown menu showing 'devd1121gn' with a search icon.
- Shared Location:** A dropdown menu showing 'scratch/zone1c0d9gn/1121adminshared' with a search icon.

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source region, select the **Import Schemas from Profile** option and select a database provisioning profile from which the schema is to be imported. Click the Search icon next to the Profile field and select an export schema objects based profile from the list. If a profile does not exist, you must create one. See [Section 16.3, "Creating a Database Provisioning Profile Using Export Schema Objects"](#).
7. After selecting the profile, you must select the Master Account that has privileges on all the schemas. If the Master Account is not selected, the self service user will have to select it when requesting a schema.
8. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the service instance is to be provisioned. Click **Assign Pool** to add a Database Pool for the zone.
9. After you have selected the zone and the pool, the host target is populated in the Reference Host field. If you have added multiple zones and pools, you must click the **Search** icon and select a host target from the list.
10. If you creating a service template based on an export schema objects profile, in the Shared Location region, specify the Path or the Shared Location in which the schema dumps are present. The Shared Location must be accessible by all the databases.
11. Click **Next**. The Create New Service Template: Configurations page appears. Specify the following details:
 - **Workload Size:** Workload represents the total CPU, memory, and storage requirements for each service. You can define workload sizes such as small, medium, and large for the schema service. Click **Create** and in the Create Workload window, enter the name, CPU, Memory, and Storage limit for each service. Select a workload size and click **Default** to designate it as the default workload size.
 - **Assign Schema Privileges:** You can select existing roles or create a role that will be assigned to all the schemas. All database privileges such as `CREATE_SESSION`, `CREATE_DIMENSION`, and so on can be granted to the role. Enter the name of the user, description, and the privileges that will be granted to the user.

Note:

- If the role with the name specified already exists in the database, the database privileges cannot be modified.
- The Master Account will have the CREATE SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE OPERATOR, CREATE PROCEDURE, CREATE SEQUENCE, CREATE TABLE, CREATE TRIGGER, CREATE TYPE, CREATE VIEW, and CREATE SYNONYM privileges over all the schemas created as part of this service request.

- **Tablespace:** Specify the tablespace storage configuration. Enter the following details:
 - **Maximum Size:** The maximum size of the tablespace can be **Unlimited** or **Specified by the workload size selected at request time**.
 - **Auto Extend:** Select this check box to automatically extend the new data file.

Note: If you are creating an empty schema, the tablespaces are not listed in the Tablespace Details section. In this case, you must specify the Initial Size and the Increment value for the tablespace and only one tablespace is created.

- **Tablespace Details:** Based on the profile you have selected, one or more tablespaces are listed here. You can edit the following values in the table:
 - **Initial Size:** If you selected **Specified by the workload size selected at request time** in the Maximum Size field, enter the initial size of the tablespace.
 - **Increment:** If you have selected the **Auto Extend** checkbox, specify the size by which the data file is to be automatically incremented.
 - **Maximum Size:** If the tablespace storage is Specified by workload size specified at request time, enter the maximum size here that can be distributed across tablespaces.

12. Click **Next**. The Create Service Template: Scripts page appears. Specify the custom scripts that need to be executed before and after the service instance has been created. See Pre and Post Scripts section for details.

Figure 16–4 Create Service Template: Scripts (Schema)

The screenshot shows the 'Service Templates' interface with the 'Customization' tab selected. The main heading is 'Create New Service Template: Customization'. Below this, there are two sections for custom scripts:

- Custom Scripts for Create:** Specify the custom scripts to be executed before and after creating the service instance. It includes input fields for 'Pre Script' and 'Post Script', each with a search icon.
- Custom Scripts for Delete:** Specify the custom scripts to be executed before and after deleting the service instance. It also includes input fields for 'Pre Script' and 'Post Script' with search icons.

At the bottom, there is a 'Target Properties' section with a table:

Name	Value	Required
Global Property		
Contact		
Location		

13. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a schema.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a schema.
14. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template.
15. Click **Next** to go to the Review page. Review the details entered so far and click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

16.7 Creating a Service Template with Empty Schema

One or more schemas can be created based on the service template definition. To create a service template that can be used to create empty schemas, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Schema** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 16–5 Create Service Template: Name (Empty Schema)

The screenshot shows the 'Create New Service Template: General' page. It includes tabs for General, Configurations, Customization, Roles, and Review. The 'General' tab is active, showing fields for Name (test), Description, Source (Create User Defined Schemas), Maximum number of Schemas (4), Profile, and Master Account. Below this is the 'Pools and Zones' section, which contains a table with columns Name and Resource Pool. The table lists 'zone_00000' and 'pool_schema_11204'. There are also buttons for Add, Remove, and Assign Pool.

Name	Resource Pool
zone_00000	pool_schema_11204

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source region, select the **Create User Defined Schemas** option to create empty schemas which can be configured by the user. If you select this option, you must specify the Maximum Number of Schemas that can be created.

7. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the service instance is to be provisioned. Click **Assign Pool** to add a Database Pool for the zone.
8. After you have selected the zone and the pool, the host target is populated in the Reference Host field. If you have added multiple zones and pools, you must click the **Search** icon and select a host target from the list.
9. Click **Next**. The Create New Service Template: Configurations page appears. Specify the following details:
 - **Workload Size:** Workload represents the total CPU, memory, and storage requirements for each service. You can define workload sizes such as small, medium, and large for the schema service. Click **Create** and in the Create Workload window, enter the name, CPU, Memory, and Storage limit for each service. Select a workload size and click **Default** to designate it as the default workload size.
 - **Assign Schema Privileges:** You can select existing roles or create a role that will be assigned to all the schemas. All database privileges such as `CREATE_SESSION`, `CREATE_DIMENSION`, and so on can be granted to the role. Enter the name of the user, description, and the privileges that will be granted to the user.

Note:

- If the role with the name specified already exists in the database, the database privileges cannot be modified.
 - The Master Account will have the `CREATE_SESSION`, `CREATE_DIMENSION`, `CREATE_INDEXTYPE`, `CREATE_OPERATOR`, `CREATE_PROCEDURE`, `CREATE_SEQUENCE`, `CREATE_TABLE`, `CREATE_TRIGGER`, `CREATE_TYPE`, `CREATE_VIEW`, and `CREATE_SYNONYM` privileges over all the schemas created as part of this service request.
-
- **Tablespace:** Specify the tablespace storage configuration. Enter the following details:
 - **Maximum Size:** The maximum size of the tablespace can be **Unlimited** or **Specified by the workload size selected at request time**.
 - **Auto Extend:** Select this check box to automatically extend the new data file. If this check box is selected, enter the following details:
 - Initial Size:** Enter the initial size of the tablespace.
 - Increment:** Specify the size by which the data file is to be automatically incremented.
 10. Click **Next**. The Create Service Template: Scripts page appears. Specify the custom scripts that need to be executed before and after the service instance has been created.

Figure 16–6 Create Service Template: Scripts (Empty Schema)

Service Templates

General Configurations Customization Roles Review

Create New Service Template: Customization Back Step 3 of 5 Next Cancel

Custom Scripts for Create

Specify the custom scripts to be executed before and after creating the service instance.

Pre Script

Post Script

Custom Scripts for Delete

Specify the custom scripts to be executed before and after deleting the service instance.

Pre Script

Post Script

Target Properties

Name	Value	Required
Global Property		
Contact		<input type="checkbox"/>
Location		<input type="checkbox"/>
LifeCycle Status		<input type="checkbox"/>
Department		<input type="checkbox"/>
Comment		<input type="checkbox"/>
Line of Business		<input type="checkbox"/>

11. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a schema.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a schema.
12. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template.
13. Click **Next** to go to the Review page. Review the details entered so far and click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

16.8 Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chapter 43, "Chargeback Administration"](#).

16.9 Requesting a Schema

The self service user can now select the service template based on the database template profile and create a database. See [Section 22.2.1, "Requesting a Schema"](#).

Provisioning Pluggable Databases

This chapter describes the process involved in provisioning pluggable databases. It contains the following sections:

- [Getting Started](#)
- [Creating Resource Providers](#)
- [Creating a Database Provisioning Profile Using Export Schema Objects](#)
- [Configuring Request Settings](#)
- [Defining Quotas](#)
- [Creating a Service Template for PDB Based on Profile](#)
- [Creating a Service Template for an Empty PDB](#)
- [Configuring Chargeback](#)
- [Requesting a Pluggable Database](#)

17.1 Getting Started

An Oracle Database can contain a portable collection of schemas, schema objects, and nonschema objects, that appear to an Oracle Net client as a separate database. This self-contained collection is called a pluggable database (PDB). A multi-tenant container database (CDB) is a database that includes one or more PDBs. Oracle Database 12c Release 1 (12.1) and later versions allow you to create many PDBs within a single CDB.

Table 17–1 Provisioning Pluggable Databases

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 12.1, "Getting Started"
2	Create one or more resource providers.	See Section 17.2, "Creating Resource Providers"
4	Configure the request settings.	See Section 17.4, "Configuring Request Settings"
5	Define quotas for each self service user.	See Section 17.5, "Defining Quotas"
6	Create a database provisioning profile. This step is optional and is not required if you are creating an empty pluggable database.	See Section 17.3, "Creating a Database Provisioning Profile Using Export Schema Objects"

Table 17–1 (Cont.) Provisioning Pluggable Databases

Step	Task	Role
7	<p>Create a service template. A service template can contain:</p> <ul style="list-style-type: none"> ■ Empty Pluggable Database: In this case, the service template is created with an empty schema. ■ Pluggable Database from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications. 	See Section 17.6, "Creating a Service Template for PDB Based on Profile"
8	Configure the Chargeback Service.	See Section 17.8, "Configuring Chargeback"
9	While deploying a database, select the service template that you have created.	See Section 22.2.2, "Requesting a Pluggable Database"

17.2 Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#)
- Database Pool: See [Section 17.2.1, "Creating a Database Pool for PDB as a Service"](#)

17.2.1 Creating a Database Pool for PDB as a Service

A Pluggable Database (PDB) is portable set of schemas, schema objects, and related structures that appears logically to an application as a separate database. This self-contained collection is called a pluggable database (PDB). Every PDB is owned by a SYS user.

A container is a collection of schemas, objects, and related structures in a container database (CDB) that appears logically to an application as a separate database. A container database (CDB) is an Oracle database that includes zero, one, or many user-created PDBs.

A database pool for PDB as a Service must contain a set of container databases. The container databases must meet the following guidelines:

- All CDBs in a database pool must be of the same version and platform.
- All CDBs in a database pool must either be single instance databases or RAC databases. Mix and match of database types is not supported.

To create a database pool for PDB as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, select **Pluggable Database** from the drop down link, click on the **Pluggable Database Pool** link and then click **Create**.

Figure 17–1 Create Database Pool: Setup Page (PDB)

Database Pools

Create New Pool: Setup Back Step 1 of 2 Next Cancel

Pool Details

* Name

Description

Credentials

Specify the database credentials that will be used for performing database operations like Pluggable Database creation. The database credentials require SYSDBA privileges.

* Host +

Grid Infrastructure +

* Database +

Container Database Wallet Password

Container Databases

Add one or more Container Databases to the pool from a single PaaS infrastructure zone. Homogeneity is controlled by the target filters that cannot be modified once the pool is created.

* PaaS Infrastructure Zone * Platform

* Target Type * Version

+ Add − Remove

Name	Location	Description	On Host	CPU	Memory (GB)
Select targets for the pool creation.					

TIP A target can only belong to one pool.

* CPU is not caged.

Where is my Container Database?

3. Enter a name and description for the database pool.
4. In the Credentials region, specify the credentials that will be used for performing database operations. Specify the following credentials:
 - **Host:** Required for performing remote host operations.
 - **Grid Infrastructure:** Required to register a database service with grid infrastructure credentials.
 - **Database:** Required for creating the pluggable database.
 - **Container Database Wallet Password:** If the PDB is to be encrypted, you must specify the password required to open the wallet from the keystore.
5. Specify the following details:
 - **PaaS Infrastructure Zone:** Select a PaaS Infrastructure Zone in which the container databases are present. The PDBs will be created on the databases selected for the pool. For details on creating container databases, see [Section 12.5, "Provision a Container Database for PDB as a Service"](#).
 - **Target Type:** Specify the configuration of the target database on which the PDB is being deployed. This can be Single Instance or Cluster Database (RAC).
 - **Platform and Version:** Specify the platform and version of the database being deployed.
6. Click **Add** and select one or more container databases to be added to the pool. All databases you select must be present in the same PaaS Infrastructure Zone.

Note: You can search for database groups that meet your requirements by specifying a search string in the Groups field.

7. Click **Next**. The Create New Pool: Policies page appears.

Figure 17–2 Create Database Pool: Policies (PDB)

Database Pools

Create New Pool: Policies Back Step 2 of 2 Submit Cancel

Placement Constraints

Placement policy constraints allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the database pool in terms of resource consumption. For example, a production database pool might enforce more conservative limits, whereas a development database pool might enforce more liberal limits.

Constrain Placement on Each Container Database by ☒ Pluggable Databases

Maximum Number of Pluggable Databases

☐ Workloads associated with the service requests

Maximum CPU allocation never exceeds (%)

Maximum memory allocation never exceeds (%)

Resource Manager Settings

☐ Enable Resource Manager for CPU

☒ **TIP** The service instance will be provisioned on the best member that satisfies the placement constraints.

Specify the placement policy constraints to set maximum ceilings for resource utilization on each database. Placement policy constraints for each database can be defined by services or workloads as follows:

- **Pluggable Database:** Select the Pluggable Database checkbox and specify the Maximum Number of Pluggable Databases that can be created inside each CDB.
- **Workloads Associated with Service Requests:** The amount of resources (such as CPU and memory) to manage the workload can be specified here. Specify the workload that is to be enforced for the pluggable database.
 - **Maximum CPU Allocation:** Specify the maximum CPU that can be allocated to each database.
 - **Maximum Memory Allocation:** Specify the maximum memory that can be allocated for each database.

For example: If a container database is caged to 2 CPUs with SGA of 4GB, and you specify the Maximum CPU Allocation and Maximum Memory Allocation as 80%:

- the maximum CPU limit for each pluggable database is 1.6
- the maximum SGA / memory limit for each pluggable database is 3.2

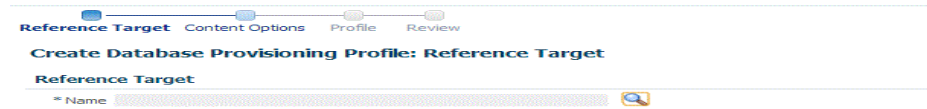
8. If you have chosen to set the placement constraints by **Workloads Associated with Service Requests**, you can choose to enable the resource manager by selecting the **Enable Resource Manager for CPU** check box. You can use the resource manager to manage the CPU resource and create Consumer Groups. A Consumer Group is used to ensure that the service gets the requested CPU cycles on a fully loaded system.
9. Click **Submit** to create a database pool for PDB as a service. The newly created database pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page.

17.3 Creating a Database Provisioning Profile Using Export Schema Objects

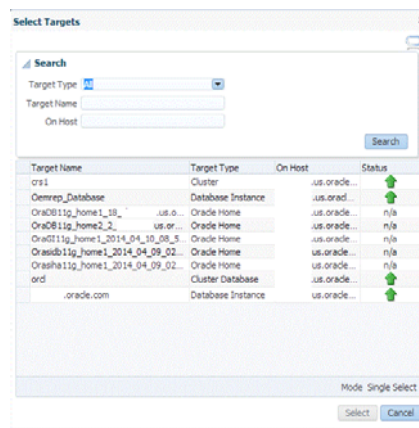
To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
 - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.

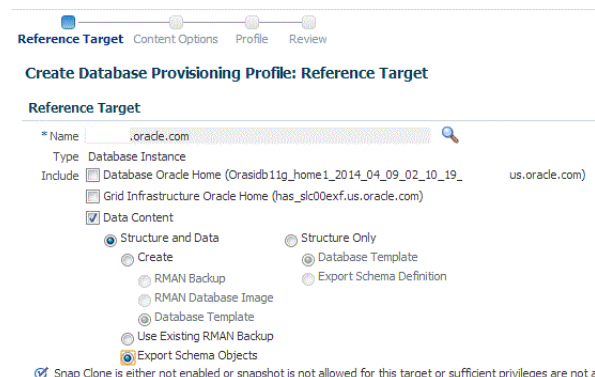
- From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
 - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.



3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.



4. On the Reference Target page, select the following:
 - **Data Content**
 - **Structure and Data** to include physical and structural files from the database or **Structure Only** to include only the structural files in the template.
 - **Export Schema Objects**



5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Back Step 1 of 4 Next Cancel

Target	Credential Type	Credential	Credential Name
oracle.com	Database Home	Preferred Credentials	Normal Host Credentials
oracle.com	Database	Preferred Credentials	SYSDBA Database Credentials

6. On the Content Options page, do the following:

- Select the schema you want to include in the profile by clicking on a schema in the Available Schema list and moving it to the Selected Schema list.

Note: When one or more schemas are selected, the database checks if the dependent schemas are also selected for export. If the dependent schemas are not exported, you will receive a warning. You can choose to go ahead with the selected schemas, or to include the schemas which were not initially selected.

The same warning is also displayed when you select a profile that does not have the dependent schemas exported.

Reference Target Content Options Profile Review

Create Database Provisioning Profile : Content Options

Content

Export ☐ Full Database for migrating to Pluggable Database ☒ Selected Schemas

Available Schemas		Selected Schemas
IX OE PM SH	<input type="button" value="➤"/> <input type="button" value="➤➤"/> <input type="button" value="➤➤➤"/> <input type="button" value="⬅"/> <input type="button" value="⬅⬅"/>	HR

Note: The Available Schemas section displays only the user created schemas that has data content in it. All the empty schemas are filtered out by default.

Note: System schemas such as SYS, SYSTEM, and DBSNMP will not be exported.

The user schemas which do not have their own tablespace are not shown in left side of the shuttle.

- In the Degree of Parallelism section, enter the number of threads required to perform the export operation.

Degree Of Parallelism

Select the number of threads to perform the export operation. Increasing the number of threads helps reduce the time to create the profile at the cost of using system resources.

* Maximum number of Threads in Export Job

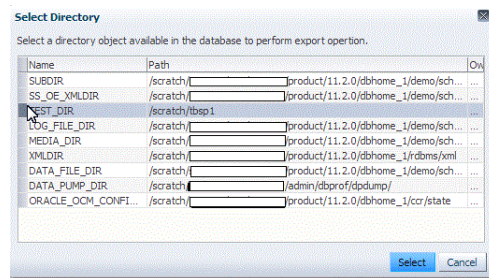
Note: Increasing the number of threads helps reduce the time required to create the profile at the cost of using system resources.

- In the Directory Locations section, click on **Add**. In the Select Directory window, select a directory object listed to perform the export operation, and then click **Select**.

Note: The number of export threads determines the number of parallel export processes that will run in parallel during export.

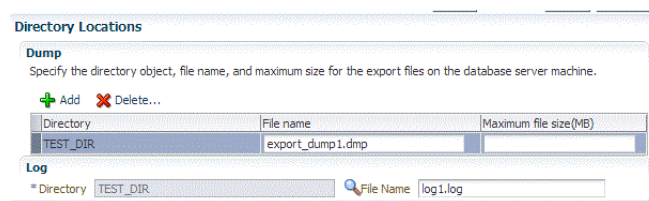
Hence, the dump file names should contain %U, to ensure the file names are auto generated with the running count to facilitate parallel operation along with the maximum size for the dump file. For example, 5GB. This means that the file rotation will start after 5GB limit is reached.

Note: Ensure that the directory location is accessible. The directory object that you select must refer to a location that is accessible across all the nodes. You can also create a directory object on ASM. However, it is not supported on ASM.



In the Log subsection, click on the search icon. In the Select Directory window, select the directory object you require to perform the export operation, and then click **Select**.

In the Log subsection, enter the file name, and then click on **Next**.



Note: You can make use of degree of parallelism with dump file names. The default value of dump files contain %U which creates a running count when degree of parallelism is greater than 1.

Also, this enables you to add multiple dump directories to distribute the storage if required.

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
 - Specify or select a profile location in the software library where the database profile will be created.

- Specify a unique profile name.

For example:

Export Schema Objects Provisioning Profile for HR database

- Add a description for the profile.
- Verify the profile version and the vendor.
- Add any additional notes such as host name, database, data content, data content mode, and the like.

Profile Information

* Profile Location Database Provisioning Profiles/12.1.0.1.0/linux_x64

* Profile Name Export Schema Objects Database Provisioning Profile

Description Database Reference Profile 09-12-2014 02:28 PM from database.example.com
Version : 12.1.0.1.0

Profile Version 12.1.0.1.0 Vendor Oracle

Notes Host Name: slc08uns.us.oracle.com
Database: database.example.com
Data Content: Structure and Data
Data Content Mode: Schema Objects

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
9. Specify or select a working directory. Click **Next**.
10. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Create Database Provisioning Profile: Review

Back Step 4 of 4 Submit Cancel

Reference Target	Profile Details										
<p>Target: Schema Export</p> <p>Content: Database Home Credentials: ADMIN_CREDENTIALS</p> <p>Grid Infrastructure Home Credentials: Database Credentials: PRODB_CREDENTIALS</p> <p>Content Details</p> <p>Content: Export Full Database for migrating to Pluggable Database</p> <p>Degree Of Parallelism</p> <p>Maximum number of Threads in Export Job: 1</p> <p>Directory Locations</p> <table border="1"> <thead> <tr> <th>Directory</th> <th>File name</th> <th>Maximum file size (MB)</th> </tr> </thead> <tbody> <tr> <td>OPATCH_LOG_DIR</td> <td>export_091214_02_28_10.dmp</td> <td>100</td> </tr> </tbody> </table> <p>Log</p> <table border="1"> <thead> <tr> <th>Directory</th> <th>File Name</th> </tr> </thead> <tbody> <tr> <td>OPATCH_LOG_DIR</td> <td>log_091214_02_28.log</td> </tr> </tbody> </table>	Directory	File name	Maximum file size (MB)	OPATCH_LOG_DIR	export_091214_02_28_10.dmp	100	Directory	File Name	OPATCH_LOG_DIR	log_091214_02_28.log	<p>Profile Location Database Provisioning Profiles/12.1.0.1.0/linux_x64</p> <p>Profile Name Export Schema Objects Database Provisioning Profile</p> <p>Description Database Reference Profile 09-12-2014 02:28 PM from database.example.com Version : 12.1.0.1.0</p> <p>Profile Version 12.1.0.1.0 Vendor Oracle</p> <p>Notes Host Name: slc08uns.us.oracle.com Database: database.example.com Data Content: Structure and Data Data Content Mode: Schema Objects</p> <p>Schedule</p> <p>Start Immediately</p> <p>Working Directory</p> <p>Path /tmp</p>
Directory	File name	Maximum file size (MB)									
OPATCH_LOG_DIR	export_091214_02_28_10.dmp	100									
Directory	File Name										
OPATCH_LOG_DIR	log_091214_02_28.log										

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

17.4 Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Section 11.2.3, "Configuring Request Settings"](#)

17.5 Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Section 11.2.4, "Setting Up Quotas"](#)

17.6 Creating a Service Template for PDB Based on Profile

One or more pluggable databases can be created based on the service template definition. To create a service template for PDB as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Pluggable Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 17–3 Create Service Template: General (PDB)

The screenshot displays the 'Create New Service Template: General' page. At the top, there's a breadcrumb trail: Service Templates > General > Configurations > Initialization Parameters > Customization > Roles > Review. Below this, the page title is 'Create New Service Template: General'. There are 'Back', 'Step 1 of 6', 'Next', and 'Cancel' buttons. The main form includes:

- Name:** NEWPDB_OLDPROF_APT_UPGRA
- Description:** (empty text area)
- Pluggable Database:** Two radio buttons: 'Create Empty Pluggable Database' (selected) and 'Create Pluggable Databases from Profile'. Below the second option is a text field for 'Profile' with the value 'pdb_pdb_10g_dump_profile' and a search icon.
- Pools and Zones:** A section with a note: 'A service template can be configured to provision pluggable databases in one or more pools. Select the zone and associated pools that this service template can provision pluggable databases into.' Below this is a table with columns 'Name' and 'Resource Pool'. It contains one row: 'zone_1base' with 'pdb_pool' as the resource pool. Above the table are buttons: '+ Add', '- Remove', and '+ Assign Pool'.
- Reference Container Database:** A text field with 'pdb10g' and a search icon.
- Shared Location:** A text field with 'jwzsch301stapodump1' and a search icon.
- Placement:** Two radio buttons: 'Provision Pluggable Database on the Container Database' (selected) and 'Selected by placement algorithm'. Below the second option is a radio button 'Selected by the user during request'.
- Identification:** A section with a note: 'Specify a prefix that should be used to generate a unique Pluggable Database name at the time of database creation. The prefix helps to identify Pluggable Databases, which are created using this service template. Prefix cannot exceed more than 15 characters, rest of the characters will be auto-generated.' Below this is a text field for 'Pluggable Database Name Prefix' with the value 'nestpdb_olgr'.

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Pluggable Database region, select the **Create Pluggable Databases** from Profile option and select a database provisioning profile that is to be used to create the pluggable database. Click the **Search** icon next to the Profile field and select an export schema objects profile from the list. If a profile does not exist, you must create one. See [Section 16.3, "Creating a Database Provisioning Profile Using Export Schema Objects"](#) for details.

Note: You can also create a PDB from an unplugged PDB. To do so, follow these steps:

- Unplug the PDB from the container database and specify the location in the Software Library which the PDB template (contains data files and the metadata XML file) is to be stored.
 - In the Service Template Creation wizard, specify the PDB template location in the Shared Location field. The PDB is created with the specified data files.
-
-

7. In the Pools and Zones region, click **Add** to select a PaaS Infrastructure Zone into which the pluggable database instance is to be provisioned. Click **Assign Pool** to add a Database Pool (for Pluggable Databases) for the zone.

Note: A database pool (for PDBs) must be present in the PaaS Infrastructure Zone that you select here.

8. After the database pool has been assigned, the container database into which the pluggable database is to be added is displayed in the Reference Container Database field. All the validations for the service template will be performed against this database.
9. If you have selected **Create Pluggable Databases from Profile** in the Pluggable Database region, in the Shared Location field, specify the Path or the shared location on all hosts in which the schema dumps are present. The Dump File Location must be accessible by all the databases.
10. In the Placement region, the pluggable database can be provisioned on the container database using one of the following options:
 - Selected by placement algorithm: If this option is selected, the container database will be selected based on the placement algorithm.
 - Selected by user during request: If this option is selected, while requesting a new PDB, the self service user can select the container database on which the PDB is to be provisioned.
11. In the Identification region, in the Pluggable Database Prefix Name field, specify the prefix that is to be used to generate a unique Pluggable Database name at the time of database creation. The prefix helps to identify the PDBs that are created using this service template.
12. Click **Next**. The Create New Service Template: Configurations page appears.

Figure 17–4 Create Service Template: Configurations (PDB)

Service Templates

General **Configurations** Initialization Parameters Customization Roles Review

Edit Service Template: Configurations Back Step 2 of 6 Next Cancel

Workloads

Workload represents the expected CPU, memory and storage requirements for each service.

Name	Description	CPU (cores)	Memory (GB)	Sessions (units)	Storage (GB)
medium		0.5	0.5	25	0.6
small		0.8	1	20	1.5

Pluggable Database Administrator Privileges

Select existing roles or create a role which will be assigned to the Pluggable Database Administrator.

Assign Pluggable Database Administrator Privileges ☐ From existing Database Roles ☒ By creating a new Database Role

* Role Name: PDBAAS_DEC_09_2014_01_09_AH
Description: New db role to be assigned to pluggable database administrator.

* Privileges for administrator: CREATE SESSION, ALTER SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY SYNONYM, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY

Pluggable Database Storage

Specify the Pluggable Database Storage configurations.

Maximum Size ☐ Unlimited ☒ Specified by the workload size selected at request time

Tablespace Details

Following list provides tablespace as per profile selection. Rows can be selected to edit values in the table.

Name	Initial Size(GB)
DUMPTEMP1	0.0049
USERS	0.0313
DUMPTEMP3	0.0313
DUMPTEMP2	0.0313

Specify the following details:

- **Workload Size:** Workload represents the total CPU, memory, number of sessions, and storage requirements for each service. You can define workload sizes such as small, medium, and large. The workload sizes defined here will be the default workload sizes available to the users with the `EM_SSA_USER` role.
- Click **Create** and in the Create Workload window, enter the name, CPU, Memory, and Storage limit for each service.
- **Pluggable Database Administrator Privileges:** You can assign privileges to the Pluggable Database Administrator by:
 - **From Existing Database Roles:** If you select this option, click **Add Roles** to add one or more existing roles from which the privileges will be assigned to the Pluggable Database Administrator.
 - **Creating a new Database Role:** If you select this option, you must specify the Role Name, Description, and the Privileges such as `CREATE_SESSION`, `ALTER_SESSION`, `CREATE ANY OPERATOR`, `CREATE ANY PROCEDURE` and so on that will be assigned to the administrator.
 - **Pluggable Database Storage:** The maximum size of the PDB storage can either be **Unlimited** or **Specified by the workload size selected at request time**.
 - **Tablespace:** The tablespaces in the profile are displayed. You can edit the value of the Initial Size of the tablespace.

Note: You can create encrypted tablespaces by specifying a Tablespace Data Encryption (TDE) key. This encrypts and decrypts the data in the tablespace. If you are using a profile with encrypted tablespaces, you will be prompted for the wallet password here.

13. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click the Set icon to modify the value of the parameter.

14. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
15. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
16. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the EM_SSA_USER roles to which this service template will be available. All users belonging to the selected role can use this service template.
17. Click **Next**. The Create Service Template: Review page appears where you can review the details entered so far.
18. Click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

17.7 Creating a Service Template for an Empty PDB

One or more pluggable databases can be created based on the service template definition. To create a service template for PDB as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Pluggable Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 17–5 Create Service Template: General (PDB)

Service Templates

General | Configurations | Initialization Parameters | Customization | Roles | Review

Back Step 1 of 6 Next Cancel

Create New Service Template: General

*Name: test_pdb

Description:

Pluggable Database: ☒ Create Empty Pluggable Database ☐ Create Pluggable Databases from Profile

Profile:

Pools and Zones

A service template can be configured to provision pluggable databases in one or more pools. Select the zone and associated pools that this service template can provision pluggable databases into.

Name	Resource Pool
zone_uk5fag	pdb_pool_1234

Reference Container Database: cdb1234

Placement

Provision Pluggable Database on the Container Database: ☒ Selected by placement algorithm ☐ Selected by the user during request

Identification

Specify a prefix that should be used to generate a unique Pluggable Database name at the time of database creation. The prefix helps to identify Pluggable Databases, which are created using this service template. Prefix cannot exceed more than 15 characters, rest of the characters will be auto generated.

Pluggable Database Name Prefix:

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Pluggable Databases region, select the **Create Empty Pluggable Database** option to create an empty PDB that can be configured by the user.
7. In the Pools and Zones region, click **Add** to select a PaaS Infrastructure Zone into which the pluggable database instance is to be provisioned. Click **Assign Pool** to add a Database Pool (for Pluggable Databases) for the zone.

Note: A database pool (for PDBs) must be present in the PaaS Infrastructure Zone that you select here.

8. After the database pool has been assigned, the container database into which the pluggable database is to be added is displayed in the Reference Container Database field. All the validations for the service template will be performed against this database.
9. In the Placement region, the pluggable database can be provisioned on the container database using one of the following options:
 - Selected by placement algorithm
 - Selected by user during request
10. In the Identification region, in the Pluggable Database Prefix Name field, specify the prefix that is to be used to generate a unique Pluggable Database name at the time of database creation. The prefix helps to identify the PDBs that are created using this service template.
11. Click **Next**. The Create New Service Template: Configurations page appears.

Figure 17–6 Create Service Template: Configurations (PDB)

Service Templates

General **Configurations** Initialization Parameters Customization Roles Review

Create New Service Template: Configurations Back Step 2 of 6 Next Cancel

Workloads

Workload represents the expected CPU, memory and storage requirements for each service.

View Create... Edit Delete Set as default workload

Name	Description	CPU (cores)	Memory (GB)	Sessions (limit)	Storage (GB)
small		0.5	0.5	25	0.6

Pluggable Database Administrator Privileges

Select existing roles or create a role which will be assigned to the Pluggable Database Administrator.

Assign Pluggable Database Administrator Privileges From existing Database Roles For creating a new Database Role

* Role Name: PDBADMIN
Description: New db role to be assigned to pluggable database administrator.

* Privileges for administrator: CREATE SESSION, ALTER SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY, SELECT ANY TABLE

Pluggable Database Storage

Specify the Pluggable Database: Specified by the workload size selected at request time

Maximum Size: Unlimited Specified by the workload size selected at request time

Number of Tablespaces: 1

Specify the following details:

- **Workload Size:** Workload represents the total CPU, memory, number of sessions, and storage requirements for each service. You can define workload sizes such as small, medium, and large. The workload sizes defined here will be the default workload sizes available to the users with the EM_SSA_USER role.

Click **Create** and in the Create Workload window, enter the name, CPU, Memory, and Storage limit for each service.

- **Pluggable Database Administrator Privileges:** You can assign privileges to the Pluggable Database Administrator by:
 - **From Existing Database Roles:** If you select this option, click **Add Roles** to add one or more existing roles from which the privileges will be assigned to the Pluggable Database Administrator.
 - **Creating a new Database Role:** If you select this option, you must specify the Role Name, Description, and the Privileges such as `CREATE_SESSION`, `ALTER_SESSION`, `CREATE ANY OPERATOR`, `CREATE ANY PROCEDURE` and so on that will be assigned to the administrator.
 - **Pluggable Database Storage:** The maximum size of the PDB storage can either be **Unlimited** or **Specified by the workload size selected at request time**.
 - **Tablespace:** Specify the number of tablespaces that should be present in the new empty PDB.
12. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click the Set icon to modify the value of the parameter.
 13. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
 14. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
 15. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the `EM_SSA_USER` roles to which this service template will be available. All users belonging to the selected role can use this service template.
 16. Click **Next**. The Create Service Template: Review page appears where you can review the details entered so far.
 17. Click **Submit**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

17.8 Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chapter 43, "Chargeback Administration"](#).

17.9 Requesting a Pluggable Database

The self service user can now select the service template and create a pluggable database. See [Section 22.2.2, "Requesting a Pluggable Database"](#)

Part VII

Cloning Databases

This section describes how you can create full clones or snap clones either by using profiles or from a live database.

This section contains the following chapters:

- [Chapter 18, "Supported Cloning Options"](#)
- [Chapter 19, "Creating Full Clones"](#)
- [Chapter 20, "Creating Snap Clones for Databases"](#)
- [Section 21, "Creating Snap Clones for Pluggable Databases"](#)

Supported Cloning Options

This chapter describes the different options offered by Enterprise Manager to clone a database. It contains the following sections:

- [About Data Lifecycle Management](#)
- [Supported Cloning Options](#)

18.1 About Data Lifecycle Management

The Data Lifecycle Management (DLM) is a complete end-to-end solution offered by Enterprise Manager that enables administrators to refresh production databases after they are masked and instantly clone large databases on demand. The DLM solution:

- Supports creation of full and thin database clones.
- Is technology agnostic (storage and vendor agnostic).
- Integrates masking of production data and inline patching.
- Can be accessed through the Cloud Self Service Portal and the Database Provisioning dashboard.
- Is available through EMCLI and Rest APIs.

18.2 Supported Cloning Options

IT environments typically require multiple copies of production databases for application development and testing purposes. When an application developer or tester needs a database clone, he or she must typically go through an approval cycle, which then initiates a cumbersome and time-consuming cloning process that may span days. Clones are shared by multiple users and applications, which results in degraded performance due to increased sharing by multiple users.

In such an environment, refreshing test data to reflect changes made to a production database is typically done on a fixed schedule, and may not be done as often as needed. As a result, it may often not be feasible to ensure that developers and testers are testing with the latest data.

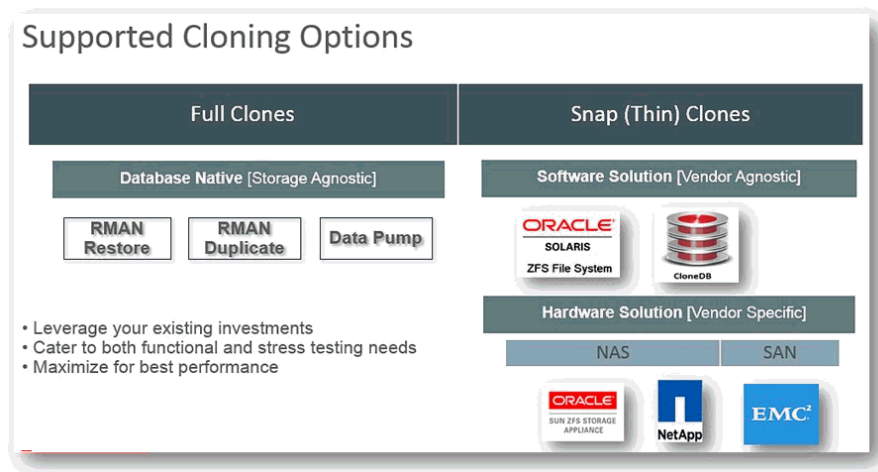
Creating database clones with the latest data involves the following steps:

- Identifying the production database that is to be cloned.
- Taking periodic backups using RMAN Backup, RMAN Image, and so on.
- Masking the sensitive data.
- Mask and Subset Data on the Test Master Database

- Creating a test master which is a sanitized copy of the production database or creating a standby database.
- Creating full clones for performance or stress testing, and snap clones for functional testing.
- Refreshing the clones to keep them in sync with the changes in the production database.

Using Enterprise Manager, you can create full clones or snap clones either from the Administration Dashboard or from the Self Service Portal. The figure below shows the cloning options supported in Enterprise Manager.

Figure 18–1 Supported Cloning Options



Enterprise Manager allows you to create:

- **Full Clones:** You can make a full or complete copy of the production database using one of the following methods:
 - RMAN Backup
 - RMAN Duplicate
 - Data Pump

For more details, see [Chapter 19, "Creating Full Clones"](#).

- **Snap Clones:** You can make a snap clone or a thin clone using copy on write technology of the database. This model requires minimal space, provides instantaneous cloning, and is ideal for functional testing. You can create snap clones using one of the following solutions:

- Software Solution
- Hardware Solution

For more details, see [Chapter 20, "Creating Snap Clones for Databases"](#).

Creating Full Clones

This chapter describes how to create a full database clone. It contains the following sections:

- [Creating a Full Database Clone Using RMAN Backup from the Self Service Portal](#)
- [Creating a Full Database Clone Using RMAN Duplicate from the Self Service Portal](#)

19.1 Creating a Full Database Clone Using RMAN Backup from the Self Service Portal

Database backups created by RMAN (Recovery Manager) are stored as image copies or backup sets. You can create profiles using these backups and use these profiles to create full database clones.

Table 19–1 *Creating a Full Database Clone Using RMAN Backup*

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 12.1, "Getting Started"
2	Create one or more resource providers.	See Section 19.1.1, "Creating Resource Providers"
4	Configure the request settings.	See Section 11.2.3, "Configuring Request Settings"
5	Define quotas for each self service user.	See Section 11.2.4, "Setting Up Quotas"
6	Create one of the following types of profiles: <ul style="list-style-type: none"> ■ RMAN Backup ■ Existing RMAN Backup 	See: <ul style="list-style-type: none"> ■ Section 19.1.2.1, "Creating a Database Provisioning Profile Using RMAN Backup" ■ Section 19.1.2.2, "Creating a Database Provisioning Profile Using Existing RMAN Backup"
8	Create a service template based on the profile you have created.	See Section 19.1.5, "Create Service Template Using RMAN Backup Profile"
9	Configure the Chargeback Service.	See Section 19.1.6, "Configuring Chargeback"
10	While deploying a database, select the service template you have created.	See Section 22.2, "Requesting a Database"

19.1.1 Creating Resource Providers

You must create one or more resource providers which include:

- **PaaS Infrastructure Zones:** See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#)
- **Database Pool:** See [Section 19.1.1.1, "Creating a Database Pool for Database as a Service"](#)

19.1.1.1 Creating a Database Pool for Database as a Service

To create a database pool for database as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, click the **Database Pool** link and click **Create**.

Figure 19–1 Create Database Pool

Database Pools

Create New Pool: Setup Back Step 1 of 1 Submit Cancel

Pool Details

* Name

Description

Credentials

Specify the host credentials that will be used for performing database creation operations. Root credentials are optional. They are needed if you plan to use this pool for snap cloned database requests. Grid Infrastructure credentials are also optional. They are needed if you plan to use this pool for live cloning of a database using ASM.

* Host Select a Credential

* Root Select a Credential

* Grid Infrastructure Select a Credential

* Automatic Storage Management Select a Credential

Oracle Homes

Add one or more Oracle Homes to the pool. All Oracle Homes must reside in the same PaaS Infrastructure zone. Homogeneity is controlled by the target filters that cannot be modified once the pool is created.

* PaaS Infrastructure Zone * Platform

* Database Configuration * Version

Name	Location	Description	On Host
Select targets for the pool creation.			

☒ **TIP** A target can only belong to one pool.

Where is my Oracle Home?

Standby Pools

Associate one or more Pools for provisioning the Physical Standby Database(s). The 'Add' list contains a filtered set of Pools based on the Dataguard compatibility matrix.

Name	Member	Target Type	Targets	Description
No Standby Pools added.				

Placement Constraints

Placement policy constraints allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the database pool in terms of resource consumption. For example, a production database pool might enforce more conservative limits, whereas a development database pool might enforce more liberal limits.

* Maximum Number of Database Instances per Host

3. In the Credentials region, specify the following credentials:
 - **Host:** Required for creating and starting the database.
 - **Root:** This is an optional field. It is required if you plan to use this database pool for database requests based on snap clone profile. See [Section 20, "Creating Snap Clones for Databases"](#).
 - **Grid Infrastructure:** This is an optional field. It is required if you plan to use this database pool for live cloning using of a database using ASM.
4. Enter a name and description for the database pool.
5. Specify the following details:
 - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone into which the database instance is to be provisioned.

- **Database Configuration:** Specify the configuration of the database being provisioned. This can either be Single Instance or Cluster Database (RAC) but cannot be a combination of both.
 - **Platform and Version:** Specify the platform and version of the database being deployed.
6. Click **Add** and select one or more Oracle Homes to be added to the database pool.
 7. In the Maximum Number of Database Instances (per host), enter the maximum number of database instances that can be running on each host in the pool.

Note: For RAC databases, the value specified in this field is used to ensure that the nodes on which the database is created meets this criteria.

8. Click **Submit** to create a database pool. The newly created pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page. The database pool can now be added to the Service Template.

19.1.2 Creating a Database Provisioning Profile

You can create either of the following types of profiles:

- RMAN Backup. See [Section 19.1.2.1, "Creating a Database Provisioning Profile Using RMAN Backup"](#).
- Existing RMAN Backup. See [Section 19.1.2.2, "Creating a Database Provisioning Profile Using Existing RMAN Backup"](#).

Note: It is recommended that you create the profile from a database that is designated as the test master database. For details on setting up the test master, see [Section 20.4.7, "Enabling the Test Master for Snap Clone"](#).

19.1.2.1 Creating a Database Provisioning Profile Using RMAN Backup


To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using any of the following ways:
 - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
 - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
 - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.

Reference Target Content Options Profile Review

Create Database Provisioning Profile: Reference Target

Reference Target

* Name 

- In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.

Select Targets





Search

Target Type

Target Name

On Host

Search

Target Name	Target Type	On Host	Status
ora1	Cluster	us.oracle...	
Oemrep_Database	Database Instance	us.oracle...	
Orad011g_home1_18_...	Oracle Home	us.oracle...	n/a
Orad011g_home2_2_...	Oracle Home	us.oracle...	n/a
Orad011g_home1_2014_04_08_5	Oracle Home	us.oracle...	n/a
Orad011g_home1_2014_04_09_02	Oracle Home	us.oracle...	n/a
Orad011g_home1_2014_04_09_02	Oracle Home	us.oracle...	n/a
ord	Cluster Database	us.oracle...	
...oracle.com	Database Instance	us.oracle...	


Mode: Single Select

Select Cancel

- On the Reference Target page, select the following:
 - Data Content**
 - Structure and Data** to include physical and structural files from the database.
 - Create**
 - RMAN Backup**

Create Database Provisioning Profile: Reference Target

Reference Target

* Name 

Type Database Instance

Include ☐ Database Oracle Home (Orad012Home1_1_...

☒ Data Content

☒ Structure and Data
 ☐ Structure Only

☒ Create
 ☐ Database Template

☒ RMAN Backup
 ☐ Export Schema Definition

☐ RMAN Database Image

☐ Database Template

☐ Storage Snapshots

☐ Use Existing RMAN Backup

☐ Export Schema Objects

- In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Back Step 1 of 4 Next Cancel

Credentials

Target	Credential Type	Credential	Credential Name
oracle.com	Database Home	Preferred Credentials	Normal Host Credentials
oracle.com	Database	Preferred Credentials	SYSDBA Database Credentials

6. On the Content Options page, do the following:

- Select **Online Backup** or **Offline Backup**.
- Enter the number of channels.

Note: A channel is the connection between the RMAN and the database. The usage of channels in RMAN backups sets the degree of parallelism. Each channel represents one stream of data to the device type. The more number of channels you allocate, the faster the backup jobs run. The maximum number of channels you can use is 25.

- (optional) Select **Compress files** and then select **High**, **Medium**, or **Low** strength of compression.
- (optional) Select **Use File Encryption** and then, enter the password and confirm the password.
- Select **Directory** for the Backup location, and enter the directory path (or) select **Fast Recovery Area**, which already contains a backup location.

Note: Ensure that the given location is accessible to the nodes in the database pool.

- Enter the backup file name format. This will be used to generate backup files. backup file tag, control file name, and control file tag.
- Enter the backup file tag. Backup files will be tagged with this tag.
- Enter the control file name. The control file backup will be generated with this name.
- Click **Next**.

Reference Target **Content Options** Profile Review

Create Database Provisioning Profile: Content Options

Oracle Database Backup Using Recovery Manager (RMAN)

Type ☐ Online backup ☒ Offline backup

Channels

☐ Compress files

Strength ☒ High ☐ Medium ☐ Low

☐ Use file encryption

Password

Confirm Password

Backup location ☒ Fast Recovery Area ☐ Directory

+data

☐ Keep local backup

Until ☐ Date keep utility

Backup file name format

Backup file tag

Control file name

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
 - Specify or select a profile location in the software library where the database profile will be created.
 - Specify a unique profile name.

For example:

RMAN Backup Profile for HR database
 - Add a description for the profile.
 - Verify the profile version and the vendor.
 - Add any additional notes such as host name, database, data content, data content mode, and the like.

Create Database Provisioning Profile: Profile

Profile Information

* Profile Location

* Profile Name

Description

Profile Version Vendor

Notes

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.

Note: If a periodic RMAN profile is being used in a Service Template, then as an SSA_admin, you need to devise a way to synchronously transfer all the backup pieces to a shared location among the Pool. Else, you need to take the backup on a shared nfs directory.

9. In the Purge Policy section, you have three options:

- **None.** Select this option you do not want to purge any data collected.
- **Snapshots.** This option enables you to specify the maximum number of snapshots that can be purged.
- **Day(s).** This option enables you to specify the number of days after which the data component should be purged.

Schedule

Start: ☒ Immediately ☐ Later (UTC+00:00) GMT

Repeat:

Purge Policy

Purge: None

Working Directory

* Path:

10. Specify or select a working directory. Click **Next**.

11. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Create Database Provisioning Profile: Review

Reference Target: ☐ Content Details: ☐ Profile: ☐ Review: ☒

Reference Target

Target: oracle.com
Content: RMAN Backup
Database Home Credentials: ADHE_MTHU_ROOT@EXAMPLE.COM
Database Credentials: NC_ORCTMAN_20140411-00075457@EXAMPLE.COM

Content Details

Oracle Database Backup Using Recovery Manager (RMAN)

Type: Offline
Channels: 2
Compress files: No
Use file encryption: No
Backup location: /scratch/orcl_backup
Keep local backup: No
Backup file name format: backup_%.n
Backup file tag: data_backup_1397200184736
Control file name: control01.ctl

Profile Details

Profile Location: Database Provisioning Profiles/11.2.0.3.0/linux_x64
Profile Name: RMAN Provisioning Profile for RDB database
Description: Database Reference Profile 11-04-2014 12:14 AM from database.oracle.com version: 11.2.0.3.0
Profile version: 11.2.0.3.0 Vendor: Oracle
Notes: Host Name: example.us.oracle.com
Database: database.oracle.com
Data Content: Structure and Data

Schedule

Start: Immediately

Working Directory

Path: /tmp

Back Step 4 of 4 Submit Cancel

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

19.1.2.2 Creating a Database Provisioning Profile Using Existing RMAN Backup

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:

- From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
 - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
 - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.

3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.

4. On the Reference Target page, select the following:
 - **Data Content**
 - **Structure and Data** to include physical and structural files from the database.
 - **Use Existing RMAN Backup**

Create Database Provisioning Profile: Reference Target

- In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Back Step 1 of 4 Next Cancel

Credentials

Target	Credential Type	Credential	Credential Name
oracle.com	Database Home	Preferred Credentials	Normal Host Credentials
oracle.com	Database	Preferred Credentials	SYSDBA Database Credentials

- On the Content Options page, select an existing RMAN backup from the list provided.

Note: The list of existing RMAN backups are fetched from the database. Backups with multiple tags are supported.

Back Step 2 of 4 Next Cancel

Create Database Provisioning Profile: Content Options

Existing Backups

Select an existing backup to create the profile

Backup Name	Start Time	Type	Status
BRUP_120814075913	December 07, 2014	FULL	completed
2014-12-08T03:31:31	December 08, 2014	FULL	completed

Backup Details : BRUP_120814075913

Backup Set	Tag	Name	Completion Time	Device
55	BRUP_120814075913	/mnt2/ra1/flash_recovery_area/PROD2/backups/2014_12_08/v1_mf_nconf_brup_120814075913_mfprod8_bkp	December 08, 2014	DISK
56	BRUP_120814075913	/mnt2/ra1/flash_recovery_area/PROD2/backups/2014_12_08/v1_mf_nconf_brup_120814075913_mfprod8_bkp	December 08, 2014	DISK
57	BRUP_120814075913	/mnt2/ra1/flash_recovery_area/PROD2/backups/2014_12_08/v1_mf_nconf_brup_120814075913_mfprod8_bkp	December 08, 2014	DISK

Click **Next**.

- On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
 - Specify or select a profile location in the software library where the database profile will be created.
 - Specify a unique profile name.
For example:
Existing RMAN Backup Profile for HR database
 - Add a description for the profile.
 - Verify the profile version and the vendor.
 - Add any additional notes such as host name, database, data content, data content mode, and the like.

Create Database Provisioning Profile: Profile

Profile Information

* Profile Location	Database Provisioning Profiles/12.1.0.1.0/linux_x64
* Profile Name	RMAN Backup Profile for HR database
Description	Database Reference Profile 09-12-2014 10:05 AM from test.example.com Version : 12.1.0.1.0
Profile Version	12.1.0.1.0
Vendor	Oracle
Notes	Host Name: host.example.com Database: test.example.com Data Content: Structure and Data Data Content Mode: RMAN Backup Includes: Database gold image.

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.

Note: If a periodic RMAN profile is being used in a Service Template, then as an SSA_admin, you need to devise a way to synchronously transfer all the backup pieces to a shared location among the Pool. Else, you need to take the backup on a shared nfs directory.

9. In the Purge Policy section, you have three options:
 - **None.** Select this option you do not want to purge any data collected.
 - **Snapshots.** This option enables you to specify the maximum number of snapshots that can be purged.
 - **Day(s).** This option enables you to specify the number of days after which the data component should be purged.

Schedule

Start	<input checked="" type="radio"/> Immediately <input type="radio"/> Later	(UTC+00:00) GMT
Repeat	Do not repeat	

Purge Policy

Purge	None
Working Directory	/tmp

10. Specify or select a working directory. Click **Next**.
11. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

The screenshot displays the 'Review' step of a 'Create Database Provisioning Profile' process. It is divided into two main sections: 'Reference Target' and 'Profile Details'.

Reference Target:

- Target: oracle.com
- Content: RMAN Backup
- Database Home Credentials: ADHE_WITH_ROOT@PSMAN
- Database Credentials: RCU_ORCTOOLN_2014-04-21-00075402@PSMAN

Content Details:

Oracle Database Backup Using Recovery Manager (RMAN)

- Type: Offline
- Channels: 2
- Compress files: None
- Use file encryption: No
- Backup location: /scratch/061_backup
- Keep local backup: None
- Backup file name format: backup_%.d
- Backup file tag: data_backup_1397203435469
- Control file name: control01.ctl

Profile Details:

- Profile Location: Database Provisioning Profiles\11.2.0.3.0linux_x64
- Profile Name: Existing RMAN Provisioning Profile.mvdb.example.com
- Description: Database Reference Profile 11-04-2014 01:04 AM from database.oracle.com version: 11.2.0.3.0
- Profile Version: 11.2.0.3.0
- Vendor: Oracle
- Hosts: Host Name: example.us.oracle.com
- Database: database.oracle.com
- Data Contents: Structure and Data

Schedule:

- Start: Immediately

Working Directory:

- Path: /tmp

At the top right, there are navigation buttons: 'Back', 'Step 4 of 4', 'Submit', and 'Cancel'.

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

19.1.3 Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Section 11.2.3, "Configuring Request Settings"](#).

19.1.4 Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Section 11.2.4, "Setting Up Quotas"](#).

19.1.5 Create Service Template Using RMAN Backup Profile

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 19–2 Create Service Template (RMAN Backup)

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Customization Roles Review

Database Cloud Self Service Portal Setup: General

Back Step 1 of 6 Next Cancel

Describe

Name: RMAN backup

Description:

Source Identification

Create Database ☒ Using Profile ☐ Using existing Database

Profile: RAC prod2 RMAN backup2

Profile Version: ☐ Latest ☒ Selected by user at request time

Database Definition

Type: ☒ Single Instance ☐ Real Application Clusters (RAC)

Number of nodes: 2

Database SID: ☒ Specify Prefix ☐ Specified by user at request time

SID Prefix: prod2c

Domain Name:

☐ Enable Standby Database

Pools and Zones

A service template can be configured to provision databases in one or more pools. Select the zone and associated pools that this service template can provision databases into.

Name	Resource Pool
Austin Data Center	SI Database Pool

Reference Host: d.oracle.com

Shared Location: /search/backups

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source Identification section, select the **Using Profile** radio button, click the **Search** icon and select a RMAN Backup profile from the list.
7. In the Profile Version field, you can select either of the following:
 - **Latest:** This ensures that the latest profile is always used by the self service user.
 - **Selected by user at request time:** If this option is selected, the self service user can select a revision of the profile that is to be used when creating a service request.
8. In the Database Definition region, specify the following:
 - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
 - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
 - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.

- **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
 - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
 - **Enable Standby Database:** Select this checkbox if you want to provision standby databases using this service template. If this checkbox is selected, you have to add standby databases.
9. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
 10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
 11. Specify a Shared Location and click **Next**.
 12. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number. Click **Next**. The Create Service Template: Database page appears.

Figure 19–3 Create Service Template: Database (RMAN Backup)

The screenshot displays the 'Database Cloud Self Service Portal Setup: Database' page, which is part of a multi-step process (Step 2 of 6). The page is divided into several sections for configuring the database instance:

- Reference Host:** This section allows selecting the necessary database content values like ASM disk group, data file location, listener port, etc. It shows a 'Zone' (Austin Data Center), a 'Pool' (SI Database Pool 1), and a 'Host' (us-oracle.com).
- Storage type:** This section allows selecting the storage type (Automatic Storage Management or File System) and the disk group location. The 'File System' option is selected, with the location set to '(ORACLE_BASE)/oradata'.
- Fast Recovery:** This section allows enabling the Fast Recovery Area. The 'Enable Fast Recovery Area' checkbox is checked, and the 'Automatic Storage Management' option is selected for the disk group. The 'Fast Recovery Size (MB)' is set to 500, and the 'Enable Archiving' checkbox is also checked.
- Listener Port:** This section allows specifying the listener port number. The 'Port Number' is set to 1531.
- Administrator Credentials:** This section allows specifying passwords for the administrative users (SYS, SYSTEM, and DBSNMP). The 'Use the same password' option is selected, and the password is masked with asterisks.
- Non Administrator Credentials:** This section allows selecting users that should not be accessible to the SSA User. The 'Available Users' list includes OUTLN, ORACLE_OCM, APPQOSSYS, VMSYS, EMFSYS, CTXSYS, XDB, ORDSYS, ORDDATA, ORDPLUGINS, SLI_INFORM_SCHEMA, MDSYS, and OLAPSYS. The 'Selected Users' list is currently empty.
- Master Account Privileges:** This section allows specifying the master account name and description. The 'Name' is set to 'MASTER_ACCOUNT', and the 'Description' is 'New database role to be assigned to master account.'

13. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as a Automatic Storage Management (ASM) disk group, location of the file system, and listener port you select must be available on the reference host.

14. Specify the following:

- **Storage Type:** This can be:
 - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the Disk Group here.
 - **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System.
- **Fast Recovery (Optional):** To simplify the management of backup and recovery files, you can create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

 If the **Enable Archiving** check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
- 15. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
- 16. Specify the **Administrator Credentials**. Specify passwords for the system schemas of the new database. These schemas will not be available to the EM_SSA_USERS. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the EM_ADMINISTRATOR can change them.
- 17. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the EM_SSA_USERS cannot access them.
- 18. Enter the name of the Master Account. You can specify the privileges that are to be provided to the master account user by specifying them in the Privileges field. Click **Next**.
- 19. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can specify the following:
 - **Database Sizes:** Select the database sizes that are to be supported by this service template. You can select sizes such as small, medium, and large. Each database size has a specific memory, storage, CPU cores, and units. Select a size and select **Include in Template** to associate it with the service template. Click **Default** to designate it as the default database size.
 - **Initialization Parameters:** You can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
- 20. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.

You can also specify a custom Post SQL Script and select the user who can run the script. For more details, see [Section 24.1.1, "Post SQL Script"](#).

21. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. These properties will be applied to the database clones that are created. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
22. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
23. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

19.1.6 Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chapter 43, "Chargeback Administration"](#).

19.1.7 Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Section 22.2, "Requesting a Database"](#).

19.2 Creating a Full Database Clone Using RMAN Duplicate from the Self Service Portal

You can use the RMAN Duplicate feature to create a test master and use the test master to create a full database clone.

Table 19–2 *Creating a Full Database Clone Using a Live Standby Database*

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 12.1, "Getting Started" .
2	Create one or more resource providers	See Section 19.1.1, "Creating Resource Providers" .
3	Create the test master by using a live standby database.	See Section 19.2.1, "Creating a Service Template Using RMAN Duplicate" .
4	Configure the request settings.	See Section 19.1.3, "Configuring Request Settings" .
5	Define quotas for each self service user.	See Section 19.1.4, "Defining Quotas" .
6	Create a service template based on the live standby database.	See Section 19.2.1, "Creating a Service Template Using RMAN Duplicate" .
7	Configure the Chargeback Service.	See Section 19.1.6, "Configuring Chargeback" .

Table 19–2 (Cont.) Creating a Full Database Clone Using a Live Standby Database

Step	Task	Role
8	While deploying a database, select the service template you have created.	See Section 22.2, "Requesting a Database" .

19.2.1 Creating a Service Template Using RMAN Duplicate

To create a service template using an existing database, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select **Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 19–4 Create Service Template: General: RMAN Duplicate

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Customization Roles Review

Database Cloud Self Service Portal Setup: General Back Step 1 of 6 Next Cancel

Describe

* Name live_clone

Description

Source Identification

Create Database ☐ Using Profile ☒ Using existing Database

* Database ps3db1.us.oracle.com

* Host Credential NC_HOST_2014-11-07-212143 (SSUBBURAI)

* Database Credential NC_ORACLE_D_2014-11-09-015220 (SSUBBURAI)

Database Definition

Create ☒ SnapClone Database ☐ Full Clone Using RMAN Duplicate

Type ☒ Single Instance ☐ Real Application Clusters (RAC)

Number of nodes 2

Database SID ☒ Specify Prefix ☐ Specified by user at request time

SID Prefix db

Domain Name

Pools and Zones

A service template can be configured to provision databases in one or more pools. Select the zone and associated pool that this service template can provision databases into.

Name	Resource Pool
ADZone	akpool

Reference Host us.oracle.com

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source Identification section, select the **Using Existing Database** radio button, click the **Search** icon and select the test master database that you had created earlier.
7. Specify the host and database credentials.
8. In the Database Definition region, specify the following:
 - **Create:** Select **Full Clone Using RMAN Duplicate**. This option is used to create a full database clone using an existing database.
 - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.

- **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
 - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.
 - **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
 - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
9. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
 10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
 11. Specify a Shared Location and click **Next**.
 12. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number. Click **Next**. The Create Service Template: Database page appears.
 13. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as a Automatic Storage Management (ASM) disk group, location of the file system, and listener port you select must be available on the reference host.
 14. Specify the following:
 - **Storage Type:** This can be:
 - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the Disk Group here.
 - **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database

tables. If you select this option, you must specify or select the Location of the File System.

- **Fast Recovery** (Optional): To simplify the management of backup and recovery files, you can create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

If the **Enable Archiving** check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.

15. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
16. Specify the **Administrator Credentials**. Specify passwords for the system schemas of the new database. These schemas will not be available to the EM_SSA_USERS. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the EM_ADMINISTRATOR can change them.
17. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the EM_SSA_USERS cannot access them. Click **Next**.
18. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can specify the following:
 - **Database Sizes**: Select the database sizes that are to be supported by this service template. You can select sizes such as small, medium, and large. Each database size has a specific memory, storage, CPU cores, and units. Select a size and select **Include in Template** to associate it with the service template. Click **Default** to designate it as the default database size.
 - **Initialization Parameters**: You can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
19. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
20. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
21. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.

22. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

Creating Snap Clones for Databases

This chapter describes how to create snap clones. It contains the following sections:

- [About Snap Clones](#)
- [Cloning and Refreshing Databases](#)
- [Creating Snap Clones from the Cloning Dashboard](#)
- [Creating Snap Clones from an In-Sync Test Master](#)
- [Creating Snap Clones from a Discretely Synchronized Test Master](#)
- [Creating a CloneDB Database](#)

20.1 About Snap Clones

Snap Clone provides a storage agnostic approach to creating rapid and space efficient clones of large databases. Clones of the production database are often required for test and development purposes, and it is difficult and time consuming to create these clones, especially if the databases are huge.

Enterprise Manager offers Snap Clone as a way to address this issue, so that thin clones can be created from production databases by using the copy on write technology available in some storage systems. This means that these clones take up little space initially (about 2 GB of writable space required for a thin clone of a multi-terabyte database), and will grow as inserts, updates and deletes are performed. Enterprise Manager offers two solutions with snap clone:

- **Hardware Solution:** Vendor specific hardware solution which supports NetApps, Oracle Sun ZFS storage appliance, EMC VMAX, and VNX.
- **Software Solution:** Storage agnostic software solution that supports all NAS and SAN storage devices. This is supported through use of the ZFS file system, and the CloneDB feature.

The main features of snap clone are:

- **Self Service Driven Approach:** Empowers the self service user to clone databases as required on an ad-hoc basis.
- **Rapid Cloning:** Databases can be cloned in minutes and not in days or weeks.
- **Space Efficient:** This features allows users to significantly reduce the storage footprint.

20.2 Cloning and Refreshing Databases

The Enterprise Manager Data Lifecycle Management solution provides a complete end to end automated flow to move data from the production environment to the test environment.

In a production environment, the database administrator will first take a backup of this production database, create a test master database from the backup, then mask the sensitive data, and finally create clones from the test master. The clones then need to be refreshed as required to ensure that the data is in sync with the production data. With the Data Lifecycle Management solution, this process is completely automated and can be performed either from the Cloning Dashboard or through the Self Service Portal. The following options are available:

- [Creating Snap Clones from the Cloning Dashboard](#)
- [Creating Snap Clones from an In-Sync Test Master](#)
- [Creating Snap Clones from a Discretely Synchronized Test Master](#)

20.3 Creating Snap Clones from the Cloning Dashboard

You can create a snap clone from the Administration Dashboard and promote the snap clone as the Test Master Database. This section outlines the following procedures which you can use to create and manage snap clone databases:

- [Creating a Snap Clone Database](#)
- [Creating an Exadata Test Master Database](#)
- [Creating a Snapshot Clone of an Exadata Test Master Database](#)
- [Enabling a Test Master Database](#)
- [Disabling a Test Master Database](#)
- [Creating a CloneDB Database](#)
- [Managing Clone Databases](#)
- [Refreshing Clone Databases](#)

20.3.1 Creating a Snap Clone Database

To create a Database Snap Clone, follow these steps:

1. On the Databases page, you can access the Database Snap Clone wizard by following any one method:
 - Select the database that you want to clone from the list of the databases displayed. On the Database homepage, click the **Database** menu, select **Cloning**, and then select **Create Snap Clone**.
 - Right click on the database target name, select **Database**, select **Cloning**, and then select **Create Snap Clone**.
 - Right click on the database target name, select **Database**, select **Cloning**, and then select **Clone Management**. On the Clone Management page, in the Snap Clone Databases box, click **Create**.
2. On the Create Snap Clone Database: Source and Destination page, do the following:

- In the Source section, launch the credentials selector by clicking the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
- In the Data Time Series section, select **Now** or **Prior Point in Time**.

If you selected Now, specify or search and select the SYSASM ASM Credentials. Now refers to Live Clone.

In the Database Snapshot section specify the location, name, description, version, and vendor of the snapshot profile which will be created as part of the clone database job. You can add additional notes, such as host name, database, data content, and data content mode.

Create Snap Clone Database: Source and Destination

Source

Global Database Name: snapl
Type: Single Instance Database
Version: 11.2.0.4.0

* SYSDBA Database Credentials: SYS_WEL_SNPSI

* Database Host Credentials: AIME_ZCOOL

Data Time Series

☒ Now
☐ Prior Point in Time

Database Snapshot

Specify details of the snapshot profile which will be created as part of the clone database job.

* Location: Database Provisioning Profiles/11.2.0.4.0/Linux64_64

* Name: Database snap: Profile 29-06-2015 03:44 AM

Description: Database Reference Profile 29-06-2015 02:44 AM from snapl

Version: 11.2.0.4.0 Vendor: Oracle

Notes: Host Name: adf
Database: snapl
Data Content: Structure and Data

- If you selected Prior Point in Time, a carousel of Storage Snapshot images appear. Select the appropriate RMAN backup by clicking **Select** on the image.
- You can create snap clones by selecting a storage snapshot from the carousel. You can modify this in case you have to create a new clone between these two time periods. Similarly, you can do the same for SCN by selecting the **Select SCN** option.

Data Time Series

☐ Now
☒ Prior Point in Time

Snapshot

Time: 29-Jun-2015 12:20:26 AM
SCN: 958530
Owner: RMAN

Select

1 of 1

Selected Backup: Snapshot 29-Jun-2015 12:20:26 AM

Modify Date and SCN

☒ Select Time
2015/06/29 12:20:26 AM

☐ Select SCN

3. In the Destination Database Definition section, do the following:

- Specify a display name.
- Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.

- Select one of the following types of databases:

– **Single Instance Database.**

In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Host credentials and the SYS-ASM ASM credentials.

– **RAC Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

– **RAC One Node Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

Click **Next**.

Note: Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

4. On the Create Snap Clone Database: Configuration page, do the following:
 - In the Configure Volumes, configure the volumes that will be used by the clone database, by specifying the following:
 - **Mount Point Prefix:** Specify a new mount point for the database being cloned. This value would be prefixed to an auto-generated mount point where a clone of this volume will be mounted. The volume will be mounted on /<mount-prefix> <unique-suffix-generated-by-EM> /<source-path>. The mount point prefix can be the **Same for All Volumes** or **Different for Each Volume**.

Note: the volumes must be pre-created.

- **Writable Space:** Specify the amount of space required for block changes. The value specified here cannot exceed the Storage Ceiling specified for the server. For example, for minimal data changes, you specify the value as 1% of the original volume size. The writable space can be the Same for All Volumes or Different for Each Volume.

- The storage details of the selected database are displayed in the Volume Content Information section. Click **Show Files** to view the layout of the database files in the volumes.
- In the Listener Configuration section, select the listener targets running under the new Oracle Home, to register the clone database. You can add new listeners by clicking Add, and specifying the listener name and port.
- In the Database Credentials section, specify passwords for the SYS, SYSTEM, and DBSNMP administrative users in the clone database. You can choose to have the same password for all the three users or a different password for each.

Click **Next**.

- On the Create Snap Clone Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click **Edit** to modify the value of the parameter.

Click **Next**.

- On the Create Snap Clone Database: Post Processing page, specify the following:

- **Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned.

Note: The masking definition can be used only when you have a Subset-Masking license pack.

- **Custom Scripts:** Specify the custom scripts that need to be executed before and after the database is created.

Click **Next**.

- On the Create Snap Clone Database: Schedule page, specify a unique deployment procedure instance name. You can choose to start the deployment procedure immediately or at a later time.

In the Notification Details section, you can choose to set the following notifications:

- Scheduled
- Running
- Action Required
- Suspended
- Succeeded
- Problems

Click **Next**.

- On the Create Snap Clone Database: Review page, verify the details of the source database, the data source of the clone, and the destination database.

Click **Submit**.

The screenshot shows the 'Create Snap Clone Database: Review' page. It is divided into several sections:

- Source:**
 - Database: SNPS
 - Host: adf
 - Oracle Home Location: /scratch/app/empg/product/11.2.0/dbhome_1
 - Database Credentials: SYS_VEL_SNPS (RMAN/TH64)
 - Database Home Credentials: ADME_2000L (RMAN/TH64)
 - Database Release: 11.2.0.4.0
- Destination:**
 - Display Name: snps_clone-09-29-2019-2
 - Global Database Name: scsnps2
 - SID: scsnps2
 - Type: Single Instance Database
 - Host: adf
 - Oracle Home Location: /scratch/app/empg/product/11.2.0/dbhome_1
 - Database Home Credentials: ADME_2000L (RMAN/TH64)
 - Privileged Host Credentials: ADME_2000L (RMAN/TH64)
- Backup Details:**
 - Clone Type: Snap clone using live data
- Post Processing:**
 - Masking Definition: HCH_Masking_Defn
 - Pre Script: HCH pre-clone
 - Post Script: HCH pre-clone
 - Post SQL Script: SQL_Scripts.sql
 - Create as Test Master: No
 - Create Data Profile: No
- Initialization Parameters:**

Parameter Name	Value
spn_clone	2
background_dump	/scratch/app/empg/diag/rdmp/snpss/trace
db_cache_size	0 Byte(s)
undo_tablespace	UNDOTBS1
processes	150
large_pool_size	0 Byte(s)
sga_target	53795432 Byte(s)
streams_pool_size	0 Byte(s)
audit_file_dest	/scratch/app/empg/admin/snpss/adump
remote_login_out	EXCLUSIVE
- Working Directory:**
 - Path: /tmp
- Schedule:**
 - Start: Immediately

20.3.2 Creating an Exadata Test Master Database

A test master database is a sanitized version of the production database. Production data can be optionally masked before the test master is created. A test master can be created from a snapshot or an RMAN Backup profile taken at a prior point in time and refreshed at specific intervals. This option is useful if the source data has to be masked to hide sensitive data.

To create a test master, follow these steps:

- On the Databases page, you can access the Full Clone database wizard by following any one method:
 - Select the database that you want to clone from the list of the databases displayed. On the Database home page, click the **Database** menu, select **Cloning**, and then select **Create Test Master**.
 - Right click on the database target name, select **Database**, select **Cloning**, and then select **Create Test Master**.
 - Right click on the database target name, select **Database**, select **Cloning**, and then select **Clone Management**. On the Clone Management page, in the Test Master Databases box, click **Create**.
- On the Create Test Master Database: Source and Destination page, do the following:
 - In the Source section, launch the credentials selector by selecting the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
 - In the Data Time Series section, select **Now** or **Prior Point in Time**.

If you selected **Now**, specify or search and select the SYSASM ASM Credentials. Now refers to Live Clone.

If you selected **Prior Point in Time**, a carousel of RMAN Backup images appear. Select the appropriate RMAN backup by clicking **Select** on the image.

Select a specific time between the selected backup or snapshot and the next (or latest point of source). The backups or dumps are created at specific intervals and the test master that is based on these will reflect the production database at specific points in time. To reflect the latest data in the production database, the test master needs to be periodically refreshed.

- In the Destination Database Definition section, do the following:
 - Specify a display name.

- Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.

- Select one of the following types of databases:

- **Single Instance Database.**

In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Host credentials and the SYS-ASM ASM credentials.

- **RAC Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

- **RAC One Node Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

Note: Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

Click **Next**.

The screenshot displays the 'Create Test Master Database: Source and Destination' configuration page. The 'Source' section includes fields for Global Database Name (dbprod), Type (RAC Database), Version (12.1.0.2.0), SYSDBA Database Credentials (SYS_CRM_PROD), and Database Host Credentials (Shuffled Credentials). The 'Destination' section includes fields for Display Name (CRM_PROD_TestMaster 06-02-2015-4), Global Database Name (dbprod), Type (Single Instance Database), and Credentials (SYS_CRM_PROD). The 'Hosts' section includes fields for Cluster (dbcm), Database Host Credentials (SYS_CRM_PROD), and SYSASM ASM Credentials (SYS_ASM1). The 'Nodes' section includes a table with columns for Host, Oracle Home, and Select, showing two nodes with Oracle Home paths like 'C:\ORACLE\home\1_2_0\bin'.

4. On the Create Test Master Database: Configuration page, do the following.
 - Database Files Location: Specify the location in which the data files, temporary files, redo log files, and control files will be created.

- **Access Controls and Permissions:** Specify the data files owner and group that should be given read-only permissions on the datafiles.
- **Listener Configuration:** Select the listener with which the test master will be registered.
- **Database Credentials:** Specify the passwords for the administrative users (SYS, SYSTEM and DBSNMP) of the new database being cloned. You can choose to use the same password for all the schemas or different passwords for each schema.
- **Click Next.**

Create Test Master Database: Configuration

Database Files Location
Specify the location where datafiles, tempfiles, redo log files, and control files will be created.
Disk Group: DATA1

Access Controls and Permissions
Specify the owner and group that should be given read-only permissions on the datafiles.
Data File Owner: oracle
Data File Group: dba

Listener Configuration
Specify the listener with which the test master will be registered.

Listener Name	Port	Status	Grid	Oracle Home Location	Select
LISTENER_SCAN2	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LISTENER_PXE1	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LISTENER	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LISTENER_JDK	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LISTENER_JOC	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_JSD	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE1	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE2	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE3	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE4	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE5	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE6	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE7	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE8	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE9	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>
LIST_PXE10	1521	✓	✓	A01 Linux12.1.0.2.0grid	<input type="radio"/>

Database Credentials
Specify passwords for the administrative users (SYS, SYSTEM and DBSNMP) in the test master. Passwords for all other users will remain same as in source database.
☒ Use the same administrative password for all accounts
Password: ***** Confirm Password: *****
☐ Use different administrative passwords

User Name	Password	Confirm Password
SYS		
SYSTEM		
DBSNMP		

5. On the Create Test Master Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the operation of the database instance.

Select the parameter and click **Edit** to modify the value of the parameter. Some values such as `db_block_size` cannot be modified.

Click **Next**.

Create Test Master Database: Initialization Parameters

You may modify the initialization parameters of the test master. These will be used as the defaults while creating clones from this test master.

Name	Value	Editable	Modified	Description
audit_trail	DB	Yes		audit_trail enables or disables database auditing.
db_cache_size	0MB	Yes		db_cache_size specifies (in bytes) the size of Oracle database cache blocks.
processes	300	Yes		
remote_login_passwordfile	EXCLUSIVE	Yes		Password file usage parameter which specifies whether Oracle checks for a password file.
open_cursors	300	Yes		open_cursors specifies the maximum number of open cursors (handles to private SQL areas) a session can have at once.
open_links	12.1.0.2.0	No		Corresponds to the environment in which Oracle Database product runs.
db_block_size	8192	No		db_block_size specifies (in bytes) the size of Oracle database blocks.
sga_target	15489MB	Yes		sga_target specifies the total size of all SGA components.
pga_aggregate_target	5160MB	Yes		pga_aggregate_target specifies the target aggregate PGA memory available to all server processes attached to the instance.
cpu_count	32	Yes		cpu_count specifies the number of CPUs for each instance.
large_pool_size	0MB	Yes		large_pool_size specifies (in bytes) the size of the large pool allocation heap.
streams_pool_size	0MB	Yes		Oracle's Automatic Shared Memory Management feature manages the size of the Streams pool when the SGA_TARGET initialization parameter is set to a nonzero value.
java_pool_size	0MB	Yes		java_pool_size specifies (in bytes) the size of the Java pool, from which the Java memory manager allocates most Java state during runtime execution.
shared_pool_size	0MB	Yes		shared_pool_size specifies (in bytes) the size of the shared pool.
undo_management	UNDO	No		undo_management specifies the undo tablespace to be used when an instance starts up.

6. On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify

the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

- On the Create Test Master Database: Schedule page, specify the schedule for the creation of the test master. It can be created immediately (if physical standby used, it is created immediately and automatically refreshed) or can be created at a later date / time and refreshed at specified intervals.

Click **Next**.

- On the Create Test Master Database: Review page, review and verify the information specified and click **Submit** to create the test master. After the Test Master has been created, you can refresh the Test Master as required to create a new version of the profile on which the Test Master is based.

20.3.3 Creating a Snapshot Clone of an Exadata Test Master Database

To create a snapshot clone of an Exadata Test Master database, follow these steps:

- From the **Targets** menu, select **Databases**.

2. On the Databases page, you can access the Database Snap Clone wizard by following any one method:
 - Select the test master database that you want to clone from the list of the databases displayed. On the Database homepage, click the **Database** menu, select **Cloning**, and then select **Create Snapshot Clone**.
 - Right click on the test master database target name, select **Database**, select **Cloning**, and then select **Create Snapshot Clone**.
3. On the Create Exadata Snapshot Clone Database: Source and Destination page, do the following:
 - In the Source section, launch the credentials selector by clicking the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
 - In the Data Time Series section, **Now** is selected by default.
Now refers to Live Clone.
Specify or select the SYSASM ASM credentials.



4. In the Destination Database Definition section, do the following:
 - Specify a display name.
 - Specify a global database name and SID.
A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.
 - Select one of the following types of databases:
 - **Single Instance Database.**
In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Home credentials and the SYSASM ASM credentials.
 - **RAC Database**
In the Hosts section, the cluster field is auto selected from the parent database and disabled. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.
 - **RAC One Node Database**
In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

Click **Next**.

Back Step 1 of 6 Next Cancel

Destination

Database Definition

* Display Name: Dem_PFD_Clone-06-29-2015-3

* Global Database Name: dclone3 * SID: dclone3

Type: Single Instance Database

Hosts

* Oracle Home Location: /u01/app/oracle/product/12.1.0.2 Host: slon

* Database Host Credentials: Preferred Credentials

* SYS/ASM Credentials: SYS_ASM2

Note: Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

5. On the Create Exadata Snapshot Clone Database: Configuration page, do the following:
- In the Database Files Location, specify the Sparse disk group and the redo log file size.
 - In the Recovery Files location, specify the location where you want the recovery files, such as archived redo logs, RMAN backups, and other related files to be created. You can choose to use the fast area recovery by selecting **Use Fast Recovery Area**. If you do, specify the fast recovery area size. The fast recovery area size is defaulted to that of source.
 - In the Listener Configuration section, select the listener targets running under the new Oracle Home, to register the clone database.
 - In the Database Credentials section, specify passwords for the SYS, SYSTEM, and DBSNMP administrative users in the clone database. You can choose to have the same password for all the three users or a different password for each.

Click **Next**.

Back Step 2 of 6 Next Cancel

Create Exadata Snapshot Clone Database: Configuration

Database Files Location

* Sparse Disk Group: SPARSE01

* Redo Log File Size (MB): 50

Recovery Files Location

Specify the location where recovery related files (archived redo logs, RMAN backups, and other related files) will be created. The storage type of Fast Recovery Area will be same as that of database files location.

☒ Use Fast Recovery Area

Location: SPARSE01

Size (MB): 50

☐ Enable Archiving

Listener Configuration

Specify the listener with which the clone database will be registered.

Listener Name	Port	Status	Grid	Oracle Home Location	Select
LIST_JAG	1521	✓	✓	/u01/app/12.1.0.2/gnd	⊗
LISTENER_SCAN1	1521	✓	✓	/u01/app/12.1.0.2/gnd	⊗
LISTENER	1521	✓	✓	/u01/app/12.1.0.2/gnd	⊗
LIST_OPMO	29021	✓	✓	/u01/app/12.1.0.2/gnd	⊗

Database Credentials

Specify passwords for the administrative users (SYS, SYSTEM and DBSNMP) in the clone database. Passwords for all other users will remain same as in source database.

☒ Use the same administrative password for all accounts

Password: ***** Confirm Password: ***** Confirm Password

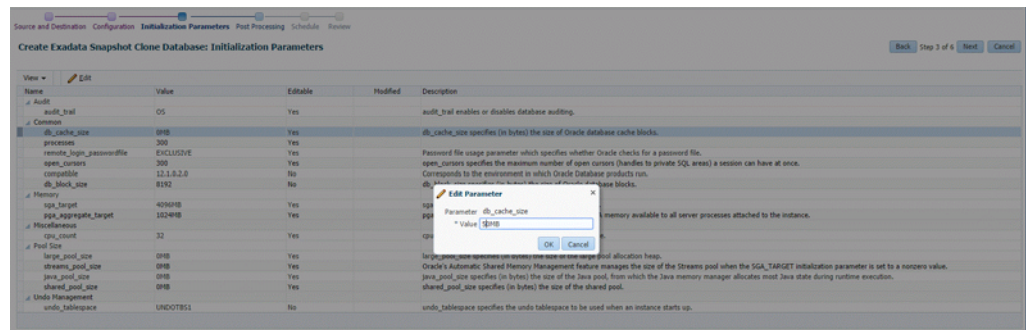
☐ Use different administrative passwords

User Name	Password	Confirm Password
SYS		
SYSTEM		
DBSNMP		

6. On the Create Exadata Snapshot Clone Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the

operation of the database instance. Select the parameter and click **Edit** to modify the value of the parameter.

Click **Next**.



7. On the Create Exadata Snapshot Clone Database: Post Processing page, specify the following:

- **Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned.

Note: The masking definition can be used only when you have a Subset-Masking license pack.

- **Custom Scripts:** Specify the custom scripts that need to be executed before and after the database is created.

Click **Next**.



8. On the Create Exadata Snapshot Database: Schedule page, specify a unique deployment procedure instance name. You can choose to start the deployment procedure immediately or at a later time.

In the Notification Details section, you can choose to set the following notifications:

- Scheduled
- Running
- Action Required
- Suspended
- Succeeded
- Problems

Click **Next**.

- On the Create Exadata Snapshot Database: Review page, verify the details of the source database, the data source of the clone, and the destination database.

Click **Submit**.

20.3.4 Enabling a Test Master Database

To convert a database to a test master database, follow these steps:

- From the Targets menu, select Databases.
- On the Databases page, right click on the database target that you want to enable as a test master database. From the menu that appears, select **Oracle Database**, select **Cloning**, and then select **Enable Test Master**.
- On the Enable as a Test Master Database page, specify or search and select the SYSDBA database and database host credentials.
- Specify or search and select the parent database from which the database has been cloned. This provides better lineage tracking.
- Specify or select a data masking definition if you want to mask data in the cloned database before enabling it as a test master.
- In the Custom Scripts section, you can select Software Library components that contain post cloning scripts. The clone database can also be customized by executing the post cloning SQL script.
- In the Access Controls and Permissions section, specify the owner and group that should be given read-only permissions on the datafiles.
- Click **Submit**.

Enable as a Test Master

This process will help you convert the selected database into a test master by setting the necessary access controls and marking the datafiles as read-only files. For better lineage tracking, you may also identify the parent database from which the database has been cloned. If not already done, you may also choose to de-sensitize the data by applying masking templates or by running additional scripts of your choice.

Credentials

* SYSDBA Database Credentials

* Database Host Credentials

Source

Parent Database

Data Masking

Do you want to mask data in this cloned database before enabling it as a test master? ☐

Masking Definition

Custom Scripts

Select the Software Library components which contain post cloning scripts. The clone database can also be customized by executing the post cloning SQL script.

Post Script

SQL Script

Run As User

Access Controls and Permissions

Specify the owner and group that should be given read-only permissions on the datafiles.

Data files Owner

Data files Group

20.3.5 Disabling a Test Master Database

To disable a test master database, follow these steps:

1. From the Targets menu, select Databases.
2. On the Databases page, right click on the database target that you want to disable as a test master database. From the menu that appears, select **Oracle Database**, select **Cloning**, and then select **Disable Test Master**.
3. On the Disable Test Master page, specify or search and select the SYSDBA database and database host credentials.
4. The Exadata Snapshot Clone Databases sections lists the database snapshot clones that will be deleted as part of the process of disabling the test master.
5. Click **Submit**. This action resets the datafiles to read-write mode and restarts the database in open mode. You can later make further changes to the database and then enable it as test master again, if you choose to.

Disable Test Master

This process will reset the datafiles to read-write mode and restart the database in open mode. You may make further changes to the database and then enable it as a test master again.

Credentials

* SYSDBA Database Credentials Preferred Credentials

* Database Host Credentials

Exadata Snapshot Clone Databases

The below databases will be deleted as part of the process of disabling test master.

Clone Name	Status	Database Version	Data Masked	Cloud Target	Owner
There are no Exadata Snapshot Clone databases created.					

20.3.6 Creating a CloneDB Database

You can create CloneDB databases only when you have RMAN Image backups.

To create a CloneDB database, follow these steps:

1. On the Databases page, you can access the CloneDB wizard by following any one method:
 - Select the database that you want to clone from the list of the databases displayed. On the Database home page, click the **Database** menu, select **Cloning**, and then select **Create CloneDB**.
 - Right click on the database target name, select **Database**, select **Cloning**, and then select **Create CloneDB**.

- Right click on the database target name, select **Database**, select **Cloning**, and then select **Clone Management**. On the Clone Management page, in the CloneDB Databases box, click **Create**.
2. On the Create CloneDB Database: Source and Destination page, do the following:
 - In the Source section, launch the credentials selector by selecting the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
 - In the Source Data Time Series, **Prior Point in Time** is selected automatically. Select the appropriate RMAN Image backup by clicking **Select** on the image. You can create full clones by selecting a backup and optionally modify the time and SCN to do a point in time restore.

The **Select Time** option has the minimum limit set to the current backups time and maximum time limit set to the next backup time. You can modify this in case you have to create a new clone between these two time periods. Similarly, you can do the same for SCN by selecting the **Select SCN** option.
3. In the Destination Database Definition section, do the following:
 - Specify a display name.
 - Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.
 - The Single Instance database type is selected by default.

In the Hosts section, specify the Oracle Home location, the host, and the database host credentials.

In the Backups Location, specify the shared location.

Note: Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

Click **Next**.

4. On the Create CloneDB Database: Configuration page, do the following:

- In the Database Files Location, specify the location where you want the data files, temp files, redo log files, and control files to be created. The **File System** option is selected by default.
- In the Recovery Files location, specify the location where you want the recovery files, such as archived redo logs, RMAN backups, and other related files to be created. You can choose to use the fast area recovery by selecting **Use Fast Recovery Area**. If you do, specify the fast recovery area size. The fast recovery area size is defaulted to that of source.
- In the Listener Configuration section, select the listener targets running under the new Oracle Home, to register the clone database.
- In the Database Credentials section, specify passwords for the SYS, SYSTEM, and DBSNMP administrative users in the clone database. You can choose to have the same password for all the three users or a different password for each.

Click **Next**.

Create CloneDB Database: Configuration

Database Files Location
Specify the location where datafiles, tempfiles, redo log files, and control files will be created.

☒ File System
Location:

☐ Automatic Storage Management (ASM)

Recovery Files Location
Specify the location where recovery-related files (archived redo logs, RMAN backups, and other related files) will be created. The storage type of Fast Recovery Area will be same as that of database file location.

☒ Use Fast Recovery Area
Location:
Size (MB):
☐ Enable Archiving

Listener Configuration
Specify the listener with which the clone database will be registered.

Listener Name	Port	Status	Grid	Oracle Home Location	Select
LISTENER_SCAN2	1521	✓	✓	/u01/app/12.1.0.2/grid	<input type="radio"/>
LISTENER	1521	✓	✓	/u01/app/12.1.0.2/grid	<input checked="" type="radio"/>
LISTENER	1521	✓	✓	/u01/app/12.1.0.2/grid	<input type="radio"/>
LISTENER_SCAN1	1521	✓	✓	/u01/app/12.1.0.2/grid	<input type="radio"/>

Database Credentials
Specify passwords for the administrative users (SYS, SYSTEM and DBSNMP) in the clone database. Passwords for all other users will remain same as in source database.

☒ Use the same administrative password for all accounts
Password: Confirm Password:

☐ Use different administrative passwords

User Name	Password	Confirm Password
SYS	<input type="text"/>	<input type="text"/>
SYSTEM	<input type="text"/>	<input type="text"/>
DBSNMP	<input type="text"/>	<input type="text"/>

- On the Create CloneDB Database: Initialization Parameters page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click **Edit** to modify the value of the parameter.

Click **Next**.

Create CloneDB Database: Initialization Parameters

View ☒ Edit

Name	Value	Editable	Modified	Description
audit_trail	db	No		audit_trail enables or disables database auditing.
db_block_size	8192	No		db_block_size specifies (in bytes) the size of Oracle database blocks.
db_cache_size	122240KB	No		db_cache_size specifies (in bytes) the size of Oracle database cache blocks.
compatible	12.1.0.2.0	No		Corresponds to the environment in which Oracle Database products run.
open_cursors	300	No		open_cursors specifies the maximum number of open cursors (handles to private SQL areas) a session can have at once.
remote_login_passwordfile	exclusive	No		remote_login_passwordfile specifies the location of the password file.
sga_target	154000KB	No		sga_target specifies the total size of the System Global Area (SGA).
sga_max_size	512000KB	No		sga_max_size specifies the maximum size of the SGA.
shared_pool_size	0	Yes		shared_pool_size specifies the size of the shared pool.
large_pool_size	19520KB	No		large_pool_size specifies (in bytes) the size of the large pool allocation heap.
java_pool_size	67392KB	No		java_pool_size specifies (in bytes) the size of the Java pool.
db_recovery_file_dest_size	563200KB	No		db_recovery_file_dest_size specifies (in bytes) the hard limit on the total space to be used by target database recovery files created in the fast recovery area.

Edit Parameter
Parameter: db_cache_size
Value: 122240KB
OK Cancel

- On the Create CloneDB Database: Post Processing page, specify the following:

- **Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned.

Note: The masking definition can be used only when you have a Subset-Masking license pack.

- Custom Scripts: Specify the custom scripts that need to be executed before and after the database is created.
- Create Data Profile: This option enables you to automatically take a backup of the new cloned instance once it is created. When the clone or the Test Master is refreshed, this section displays the existing profiles created for the database. You can select the profile that has to be refreshed along with the database.
- Create as Test Master: This option if you want to create the cloned database as a Test Master database.

Click **Next**.

7. On the Create CloneDB Database: Schedule page, specify a unique deployment procedure instance name. You can choose to start the deployment procedure immediately or at a later time.

In the Notification Details section, you can choose to set the following notifications:

- Scheduled
- Running
- Action Required
- Suspended
- Succeeded
- Problems

Click **Next**.

8. On the Create CloneDB Database: Review page, verify the details of the source database, the data source of the clone, and the destination database.

Click **Submit**.

Create CloneDB Database: Review

Source

Database: dbrprod
 Oracle Home Location: /u01/app/oracle/product/12.1.0.2/dbhome_1
 Database Credentials: NC_DBPROD_2015-06-02-015228 (SYSMAN)
 Database Home Credentials: Preferred Credentials
 Database Release: 12.1.0.2.0

Destination

Clone Name: CRM_PRD_Clone-06-29-2015-17
 Global Database Name: dbrprod17
 SID: dbrprod17
 Type: Single Instance Database
 Host: dbprod1
 Oracle Home Location: /u01/app/oracle/product/12.1.0.2/dbhome_1
 Database Home Credentials: Preferred Credentials

Backup Details

Clone Type: CloneDB clone using prior point in time data
 Backup Type: RMAN Database Image Profile

Configuration

Storage Type: File System
 Use OFA: No
 Location: /u01/app/oracle/oradata
 Use Fast Recovery Area: No
 Listener Port: 1521

Initialization Parameters

Parameter Name	Value
shared_pool_size	1951 MB
large_pool_size	672 MB
db_block_size	8192
streams_pool_size	0 MB
audit_trail	DB
instance_number	2
cpu_count	0
cluster_database	True
sga_target	15488 MB
diagnostic_dest	/u01/app/oracle

Post Processing

Masking Definition: NCH_Masking_Defn
 Pre Script: NCH Pre-clone
 Post Script: NCH Post-clone
 Post SQL Script: SQL_Script.sql
 Create as Test Master: No
 Create Data Profile: No

Working Directory

Path: /tmp

Schedule

Start: Immediately

20.3.7 Managing Clone Databases

The Clone Management page enables you to manage clone databases by adding clone databases, removing clone database, and promoting the clone databases as Test Master.

To access the Clone Management page, navigate to an Oracle database target home page. On the home page, click **Oracle Database**, select **Cloning**, and then select **Clone Management**.

Adding Clone Databases

The **Add** button can be used to add the clones of the current databases which have already been created.

To add a database clone instance, click on **Add**. In the Select Targets dialog box that opens, select a database target, and click **Select**. The database instance gets added to the Clones section in the Database Cloning page.

Removing Clone Databases

Only the databases that are added using the **Add** button can be removed using the **Remove** button. To remove a database clone instance, select the database clone instance that you want to remove, from the Clones section. Click **Remove**.

Promoting Clone Databases as Test Master

To promote a database clone database instance as Test Master, select the clone instance that you want to recreate from the Clone section. Click **Promote as Test Master**.

You can also remove the clone database instance from Test Masters, by selecting the clone database instance from the Clones section, and clicking **Remove from Test Masters**.

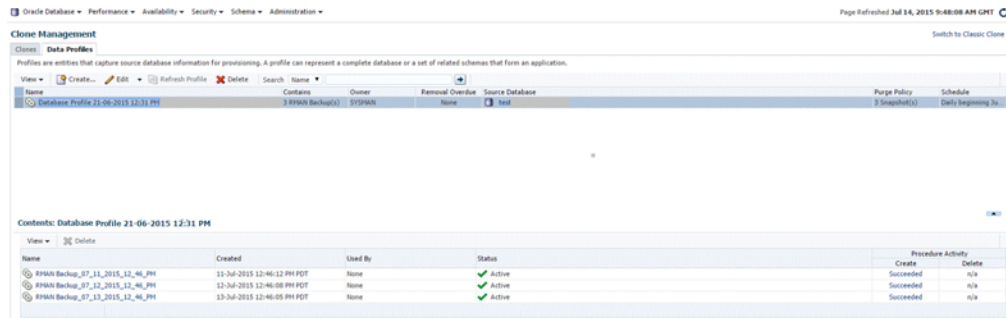
Refresh Clone Databases

To refresh a clone database, select the clone database instance from the Clone section, and then click **Refresh**. See [Section 20.3.8, "Refreshing Clone Databases"](#).

Add Remove Promote as Test Master Remove from Test Masters Refresh									
Name	Status	Database Version	Type	Test Master	Data Masked	Cloud Target	Owner	Name	Data Source of Clone
testdb1		12.1.0.1.0	Full Clone		-	-	RAPRITHDA1	n/a	Type: RMAN Duplicate Created: Dec 6, 2014 Purge Status: n/a
testdb2		12.1.0.1.0	Full Clone		-	-	RAPRITHDA1	n/a	Type: RMAN Duplicate Created: Dec 6, 2014 Purge Status: n/a

Creating Data Profiles

The Data Profiles tab on the Clone Management page displays the data profiles that you have created from the clone database. On the Data Profiles page, you can view the contents of existing data profiles. You can also **Edit** and **Refresh** these data profiles.



You can also create a new data profile by clicking **Create**. This takes you to the Create Provisioning Profile wizard. Refer to *Enterprise Manager Cloud Control Administrator's Guide* for information on how to create a provisioning profile using this wizard.

20.3.8 Refreshing Clone Databases

To refresh a clone database, navigate to the Clone Management page by following these steps:

1. From the **Targets** menu, select **Databases**.
2. On the databases home page, select the database clone instance that you want to refresh from the list of databases.
3. On the database target home page, click **Oracle Database**, select **Cloning**, and then select **Clone Management**.
4. On the Clone Management page, select the **Refresh** tab.

The Refresh page displays the following sections:

- **Drift from Source Database**

This section displays the name of the source database from which this database has been cloned. It shows the number of days since the clone database has been refreshed. Click **Refresh** to refresh the clone database.

- **Database Volume Details**

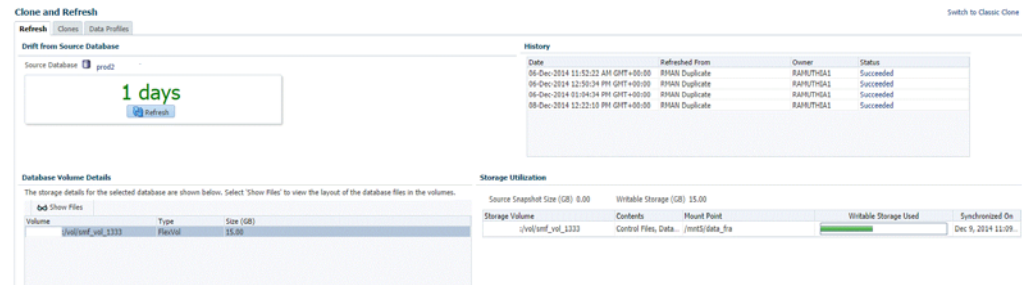
This section displays the storage details for the selected databases. Click Show files to view the layout of the database files in the volumes. A display box appears that shows the storage layout and file layout of the selected database.

- **History**

This section displays the past refreshes of the database. It shows the date and time of the refresh, where it has been refreshed from, the owner of the database, and the status of the refresh action.

- **Storage Utilization**

This section displays the storage volume of the database, the storage contents, the mount point, the amount of writable storage used, and the synchronization date.



20.4 Creating Snap Clones from an In-Sync Test Master

You can create snap clones using a standby database that is designated as the test master database. The test master database is always current and in sync with the production database. To create snap clones using this approach, follow these steps:

Table 20–1 Creating Snap Clone (Continuous Flow)

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 20.4.1, "Getting Started" .
2	Register storage servers.	See Section 20.4.2, "Registering Storage Servers" .
3	Create one or more resource providers.	See Section 20.4.3, "Creating Resource Providers" .
4	Configure the request settings.	See Section 20.4.4, "Configuring Request Settings" .
5	Define quotas for each self service user.	See Section 20.4.5, "Defining Quotas" .
7	Add a standby database and designate it as the test master.	See Section 20.4.6, "Using a Physical Standby Database as a Test Master" . Note: This standby database must be present on a registered storage server (such as NetApp, Sun ZFS, or EMC) that allows creation of snap clones.
6	Enable the test master for snap clone.	See Section 20.4.7, "Enabling the Test Master for Snap Clone" .
	Create snapshot profiles from the test master.	Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots" .
8	Create a service template.	See Section 20.4.9, "Creating Service Template Using Snap Clone Profile" .
9	Configure the Chargeback Service. (this step is optional)	See Section 20.4.10, "Configuring Chargeback" .
10	While deploying a database, select the service template you have created.	See Section 22.2, "Requesting a Database" .

20.4.1 Getting Started

See [Section 12.1, "Getting Started"](#).

20.4.2 Registering Storage Servers

To register storage servers for:

- NetApp and Sun ZFS Storage Server: See [Section 12.7.4.1, "Registering a NetApp or a Sun ZFS Storage Server"](#).
- Solaris File System (ZFS): See [Section 12.7.4.2, "Registering a Solaris File System \(ZFS\) Storage Server"](#).
- EMC Storage Server: See [Section 12.7.4.3, "Registering an EMC Storage Server"](#).

20.4.3 Creating Resource Providers

You must create one or more resource providers which include:

- PaaS Infrastructure Zones: See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#).
- Database Pool: See [Section 20.4.3.1, "Creating a Database Pool for Database as a Service"](#).

20.4.3.1 Creating a Database Pool for Database as a Service

To create a database pool for database as a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the Database service family, click the **Database Pool** link and click **Create**.

Figure 20–1 Create Database Pool

Database Pools

Create New Pool: Setup Back Step 1 of 1 Submit Cancel

Pool Details

* Name
 Description

Credentials

Specify the host credentials that will be used for performing database creation operations. Root credentials are optional. They are needed if you plan to use this pool for snap cloned database requests. Grid Infrastructure credentials are also optional. They are needed if you plan to use this pool for live cloning of a database using ASM.

* Host: Select a Credential +
 Root: Select a Credential +
 Grid Infrastructure: Select a Credential +
 Automatic Storage Management: Select a Credential +

Oracle Homes

Add one or more Oracle Homes to the pool. All Oracle Homes must reside in the same PaaS Infrastructure zone. Homogeneity is controlled by the target filters that cannot be modified once the pool is created.

* PaaS Infrastructure Zone: * Platform:
 * Database Configuration: * Version:

Name	Location	Description	On Host
Select targets for the pool creation.			

☒ **TIP** A target can only belong to one pool.

Where is my Oracle Home?

Standby Pools

Associate one or more Pools for provisioning the Physical Standby Database(s). The 'Add' list contains a filtered set of Pools based on the Dataguard compatibility matrix.

Name	Member	Target Type	Targets	Description
No Standby Pools added.				

Placement Constraints

Placement policy constraints allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the database pool in terms of resource consumption. For example, a production database pool might enforce more conservative limits, whereas a development database pool might enforce more liberal limits.

* Maximum Number of Database Instances per Host

3. In the Credentials region, specify the following credentials:
 - **Host:** Required for creating and starting the database.
 - **Root:** Users with these credentials can perform privileged actions like executing root scripts. For snap clone databases, the snapshots must be mounted by a root user. To facilitate this, privileged credentials must be set up to perform typical root user actions with SUDO privileges.

- **Grid Infrastructure:** This is an optional field and is required only for creating snap clones on EMC storage to create ASM disks.
 - **Automatic Storage Management:** This is an optional field. It is required if you plan to use this database pool for live cloning on any database running on ASM.
4. Enter a name and description for the database pool.
 5. Specify the following details:
 - **PaaS Infrastructure Zone:** Select the PaaS Infrastructure Zone into which the database instance is to be provisioned.
 - **Database Configuration:** Specify the configuration of the database being provisioned. This can either be Single Instance or Cluster Database (RAC) but cannot be a combination of both.
 - **Platform and Version:** Specify the platform and version of the database being deployed.
 6. Click **Add** and select one or more Oracle Homes to be added to the database pool.
 7. In the Maximum Number of Database Instances (per host), enter the maximum number of database instances that can be running on each host in the pool.

Note: For RAC databases, the value specified in this field is used to ensure that the nodes on which the database is to be created meets this criteria.

8. Click **Submit** to create a database pool. The newly created pool will appear in the Database Cloud Self Service Portal Setup: Database Pools page. The database pool can now be added to the Service Template.

20.4.4 Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. See [Section 11.2.3, "Configuring Request Settings"](#) for details.

20.4.5 Defining Quotas

After configuring the request settings, you must define quotas for each self service user. See [Section 11.2.4, "Setting Up Quotas"](#) for details.

20.4.6 Using a Physical Standby Database as a Test Master

A test master database is a sanitized version of the production database. A test master can be created from a live standby database by using the Oracle Data Guard feature. Profiles or snapshots can be created from the test master (see [Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"](#)) and these profiles can be used to create snap clones (see [Section 22.2, "Requesting a Database"](#)). Since the test master is a physical standby database with live data, you must schedule and create profiles and snapshots on a periodic basis to ensure that the latest data is captured in the profile (see [Section 20.4.8.1, "Creating and Refreshing Snapshots of the Test Master"](#)). Self service users can create multiple snap clones from each profile and refresh their snap clones (see [Section 22.3, "Refreshing a Database"](#)) when a new profile or snapshot become available.

To create a test master, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click the **Test Master Databases** tab.
2. To create a test master from a live standby database, click **Add** and select a standby database that is to be designated as the test master. The newly added database appears in the Test Master Database page and can be used to create the snap clone database instances.

20.4.7 Enabling the Test Master for Snap Clone

After the test master database has been created, you must enable snap clone on the database.

Note: You need `SNAP_CLONE_TARGET` or `FULL_TARGET` privilege on the database to enable snap clone.

To enable snap clone, follow these steps:

1. On the Storage Registration page, in the Details section, select the **Databases** tab, and then select the database from the table which you want to use for Snap Clone, and then click **Enable Snap Clone**.

The Supported column in the table shows if the databases listed support Snap Clone or not.

Note: If a database listed shows the **Not Supported** icon in the Supported column, you can view the Message column from the **View** menu. This column displays the reason. A possible reason is that the data files are missing on the storage server and may be located on either local disk or some other unregistered storage server. Another reason could be that the data files reside on another storage that is not synchronized.

2. Once snap clone has been successfully enabled, a confirmation message appears. Click **OK**.

To view all the files located on the storage server, click **Show Files**. To view all the projects (aggregates), volumes, and snapshots in the storage server, select the **Contents** tab.

20.4.8 Creating a Database Provisioning Profile Using Snapshots

Prerequisites for Creating a Database Provisioning Profile Using Snapshots

Before you create a database provisioning profile, follow these prerequisites:

- Ensure that the storage server you want to register for storage is available on the network. To register a storage server, refer to [Section 12.7, "Registering and Managing Storage Servers"](#).

Note: NetApp, Sun ZFS, Solaris ZFS, and EMC storage servers are supported in Enterprise Manager Cloud Control 12c.

- Ensure that the storage server is connected to a Management Agent installed and monitored in Enterprise Manager Cloud Control for communication.

- Ensure that the storage server is registered, and at least one database should be present which is enabled for Snap Clone.
- To create the profile, you must have the `EM_STORAGE_OPERATOR` or `EM_STORAGE_ADMINISTRATOR` privileges.

Creating a Database Provisioning Profile Using Snapshots

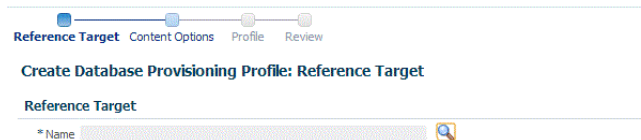
To create a database provisioning profile, follow these steps:

Note: When a snapshot is used by a database, it cannot be deleted. When you remove a snapshot, it becomes obsolete.

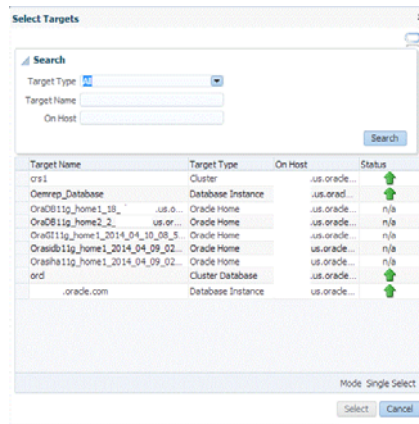
This means that you cannot request any new databases using the obsolete snapshot. This is indicated by the red pushpin against the database, which means that the snapshot is pinned and cannot be used.

When the database using that snapshot is deleted, it gets automatically purged in the next run.

1. You can access the Database Provisioning page using any of the following ways:
 - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
 - From the **Enterprise** menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
 - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.
2. On the Reference Target page, click the search icon to select a target.



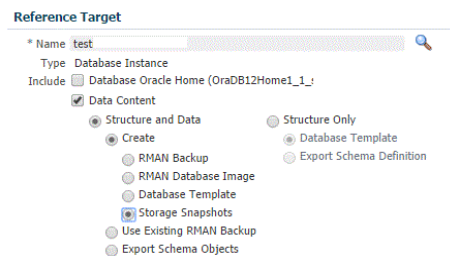
3. In the Search and Select:Targets display box, select the database you want to create a profile for, and then, click **Select**.



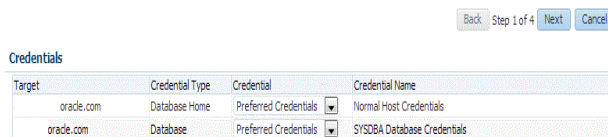
Note: Ensure that the database you select is enabled for Snap Clone. For information refer to *Enabling or Disabling Snap Clone*.

4. On the Reference Target page, select the following:
 - **Data Content**
 - **Structure and Data** to include physical and structural files from the database
 - **Create**
 - **Storage Snapshots**

Create Database Provisioning Profile: Reference Target



5. In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.



6. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
 - Specify or select a profile location in the software library where the database profile will be created.
 - Specify a unique profile name.

For example:

Snap Clone Profile for HR database

- Add a description for the profile.
- Verify the profile version and the vendor.
- Add any additional notes such as host name, database, data content, data content mode, and the like.

Profile Information

* Profile Location: Database Provisioning Profiles/12.1.0.1.0/linux_x64

* Profile Name: Snap Clone Profile for HR database

Description: Database Reference Profile 09-12-2014 09:24 AM from test.example.com
Version : 12.1.0.1.0

Profile Version: 12.1.0.1.0 Vendor: Oracle

Notes: Host Name: host.example.com
Database: test.example.com
Data Content: Structure and Data
Data Content Mode: Database Snapshot
Includes: Database gold image.

- In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
- In the Purge Policy section, you have three options:
 - **None.** Select this option you do not want to purge any data collected.
 - **Snapshots.** This option enables you to specify the maximum number of snapshots that can be purged.
 - **Day(s).** This option enables you to specify the number of days after which the data component should be purged.

Schedule

Start: ☒ Immediately ☐ Later (UTC+00:00) GMT

Repeat: Do not repeat

Purge Policy

Purge: **None**

Working Directory: **Day(s)**

* Path: /tmp

- Specify or select a working directory. Click **Next**.
- On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Reference Target Content Options Profile **Review**

Create Database Provisioning Profile : Review

Back Step 4 of 4 Submit Cancel

Reference Target

Target: us.oracle.com
Content: Create Snapshot for Thin Provisioning
Host Credentials: ADME@DBAAS_ADM@H

Content Details

The storage details for the selected database is shown below. Please select 'Show Files' to view the layout of the database files in the volumes

Volume	Mount Point	Type	Size (G)
central_env_bugdemo_redo	/mnt/bugdb_demo_redo	Full volume	200.00
central_env_bugdemo_data	/mnt/bugdb_demo_data	Full volume	1100.0

Profile Details

Profile Location: Database Provisioning Profiles/11.2.0.3.0/linux_x64
Profile Name: Profile for 750 GB Bug DB Database
Description: Database Reference Profile 21-09-2012 02:13 AM from
Profile Version: 11.2.0.3.0 Vendor: Oracle
Notes: This is the profile created for bug database. The size of database is around 750 GB.

Schedule

Start: Immediately

Working Directory

Path: /tmp

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View

Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

20.4.8.1 Creating and Refreshing Snapshots of the Test Master

After the snapshot profile has been created, you can refresh the profile at scheduled intervals and create new versions of the profile.

To create a snapshot profile of the test master (or the physical standby database), follow the steps listed in [Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"](#). To refresh a snapshot profile, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click the **Data Profiles** tab.
2. Select the snapshot profile that is to be refreshed.

Figure 20–2 Refresh Data Profile

The screenshot displays the Oracle Enterprise Manager Cloud Administration console. On the left, the 'Getting Started: Databases' sidebar is visible. The main area shows the 'Data Profiles' tab for 'Test Master Databases'. Below this, there is a table for 'Data Profiles' and a table for 'Contains: HRMS Application Test Master Snapshots'.

Name	Created	Used By	Status	Procedure Activity
Snapshot_12_12_2014_01_AM	12-Dec-2014 01:08:19 AM PST	1 database	Removal is 4 day(s) Overdue	Succeeded
Snapshot_12_15_2014_01_AM	15-Dec-2014 01:08:22 AM PST	None	Active	Succeeded
Snapshot_12_16_2014_01_AM	16-Dec-2014 01:08:23 AM PST	None	Active	Succeeded
Snapshot_12_17_2014_01_AM	17-Dec-2014 01:08:24 AM PST	None	Active	Succeeded
Snapshot_12_18_2014_01_AM	18-Dec-2014 01:08:25 AM PST	None	Active	Succeeded
Snapshot_12_19_2014_01_AM	19-Dec-2014 01:11:04 AM PST	1 database	Active	Succeeded
Snapshot_12_19_2014_06_AM	19-Dec-2014 06:55:06 AM PST	None	Active	Succeeded

Click **Refresh**. You will see a message indicating that a new snapshot (version) of the profile will be created. Click **Yes** to submit the refresh profile job and create a new snapshot.

20.4.8.1.1 Snapshot Purge Policy

Snapshots can be refreshed at regular intervals to ensure that the latest production data is available to the users. Every time a snapshot is refreshed, a new version of the snapshot is created. When the self service user refreshes his database to a newer version of the snapshot, the older versions can be deleted. You can delete them manually or define a purge policy while creating the snapshot.

Purge Policy Example:

In [Figure 20–2](#), you can see that for the HRMS Application Test Master Snapshots, the Purge Policy has been defined is 6 Snapshots. This means that when the 7th version of the snapshot is being created, the 1st one will be purged. At any point in time, only 6 snapshot versions can exist for the HRMS Application test Master Snapshots profile.

In this figure, you can also see in the **Contains** column, that 7 snapshots are available and the **Removal Overdue** column shows 1. This indicates that 1 snapshot version has been marked for deletion but is still available.

In the Contents region, you can see that in the Used By column, this snapshot cannot be deleted as it is being used by 1 database. You can drill down to the database page to identify the self service user who is using the snapshot version. You can then inform the self service user that he must refresh his database to the latest version. Once the database has been refreshed, the snapshot will be purged.

20.4.9 Creating Service Template Using Snap Clone Profile

To create a snap clone based service template, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role. The EM_SSA_ADMINISTRATOR role you select must also have the EM_STORAGE_OPERATOR privileges.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 20–3 Create Service Template: General (Snap Clone)

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Customization Roles Review

Database Cloud Self Service Portal Setup: General Back Step 1 of 6 Next Cancel

Describe

* Name Snap Clone

Description

Enter between 1 and 256 characters.

Create Database Using Profile Using existing Database

* Profile Snapshot Profile of prod33tb database

Profile Version Latest

Selected by user at request time

Database Definition

Type Single Instance Real Application Clusters (RAC)

Number of nodes 2

Database SID Specify Prefix Specified by user at request time

SID Prefix db

Domain Name db

Enable Standby Database

Pools and Zones

A service template can be configured to provision databases in one or more pools. Select the zone and associated pools that this service template can provision databases into.

Name	Resource Pool
Austin Data Center	SI Database Pool1

Reference Host us.oracle.com

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source Identification section, select the **Using Profile** radio button, click the **Search** icon and select the test master database based on the snap clone profile you created.
7. In the Profile Version field, you can select either of the following:
 - Latest: This ensures that the latest profile is always used by the self service user.
 - Selected by user at request time: If this option is selected, the self service user can select the profile to be used when creating a service request.

8. In the Database Definition region, specify the following:
 - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the number of nodes.
 - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
 - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.
 - **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
 - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
9. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
11. Click **Next**. The Database Cloud Self Service Portal Setup: Database page appears.

Figure 20–4 Create Service Template: Database (Snap Clone)

Database Cloud Self Service Portal Setup: Database

Reference Host
The reference host is used to select the necessary database content values like ASM disk group, data file location, listener port that are available on the reference host.

Zone: Austin Data Center Pool: SI Database Pools Host: [redacted].is.oracle.com

Storage
Configure the volumes that will be used by the database

Volume (Size in GB)	Mount Point Prefix	Writable Space (GB)
[redacted]_smf_vol_1301 (4,74 GB)	/SubhTst1	1

Tip: Any new changes such as addition or modification of files from the new volumes are accounted under the Writable Space provided.

Enable Archiving ☐

Snapshot Policy
☒ Allow the user to take snapshots for the new database
Maximum number of snapshots: 7

Listener Port
Port Number: 1531

Administrator Credentials
Specify passwords for the administrative users (SYS, SYSTEM and DBSNMP) in the new database. These users are used by the SSA Administrator to manage the database. The SSA User has no access to these users.

☒ Use the same password
Password: [redacted] Confirm Password: [redacted]

☐ Use different passwords

User Name	Password	Confirm Password
SYS	[redacted]	[redacted]
SYSTEM	[redacted]	[redacted]
DBSNMP	[redacted]	[redacted]

Non Administrator Credentials
Select users that should not be accessible to the SSA User.

Available users: [empty list]
Selected users: [empty list]

Password: [redacted] Confirm Password: [redacted]

Master Account Privileges
Name: QA Role
Description: New database role to be assigned to master account.

12. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as the location of the file system and the listener port you select must be available on the reference host.

13. Specify the following details:

- **Storage:** You can configure the volumes that will be used by the database:
 - **Mount Point Prefix:** The mount point prefix can be the **Same for All Volumes** or **Different for Each Volume**.

Specify the prefix for the new mount point for the database being provisioned. This value would be prefixed to an auto-generated mount point where a clone of this volume will be mounted. The volume will be mounted on `<mount-prefix>_<unique-suffix-generated-by-EM>/<source-path>`. If the Mount Point Prefix is different for each volume, specify a different value for each volume,

- **Writable Space:** The Writable Space can be the **Same for All Volumes** or **Different for Each Volume**.

Specify the amount of space required for block changes. The value specified here cannot exceed the Storage Ceiling specified for the server. For example, for minimal data changes, you specify the value as 1% of the original volume size.

- **Enable Archiving:** If this check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
- **Snapshot Policy:** Snapshots are sets of historical data for specific time periods. By default, Oracle Database automatically generates snapshots of the performance data once every hour and retains the statistics in the workload repository for 8 days. **Select the Allow the user to take snapshots for the new**

database checkbox and specify the **Maximum Number of Snapshots** that can be taken.

Snapshots can be created for a specific point in time. The number of snapshots is determined by the value specified by the self service administrator in the Maximum Number of Snapshots field. Once the snapshot has been taken, the database can be restored to a specific snapshot taken a particular point in time. For example, if there are several snapshots such as *snap1*, *snap2*, and *snap3*, if the database is restored to *snap2*, *snap3* will be deleted.

- In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
- **Administrator Credentials:** Specify passwords for the system schemas of the new database. These schemas will not be available to the EM_SSA_USERS. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the EM_ADMINISTRATOR can change them.
- **Non Administrator Credentials:** Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password.
- **Master Account Privileges:** Enter the name of the Master Account. You can specify the privileges that are to be provided to the master account user by specifying them in the Privileges field.

14. Click **Next**. The Create Service Template: Initialization Parameters page appears.

Figure 20–5 Create Service Template: Initialization Parameters (Snap Clone)

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Customization Tables Services

Database Cloud Self Service Portal Setup: Initialization Parameters

Database Sizes

Select the database sizes that you want this service template to support. You cannot choose sizes containing different sets of attributes.

☒ Set as default

Name	Include in Template	Default	Description	CPU (cores)	Memory (GB)	Processes (units)	Storage (GB)
Medium	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Medium size database	2	4	40	40
Small	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Small size database	1	2	20	20
Large	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Large size database	4	6	60	60

☒ TIP Values from the selected database size will override the respective initialization parameters.

Initialization Parameters

View

Name	Value	Editable	Modified	Description
Common				
db_block_size	8192	No		Size of database block in bytes. Multiple of 512. Example 8192.
compatible	11.2.0.4.0	No		Database will be completely compatible with this software version.
remote_login_passwordfile	exclusive	Yes		Password file usage parameter. Valid values are EXCLUSIVE,NONE,INTERNAL_SHARED.
Memory				
Miscellaneous				
Recovery				
Undo Management				

15. In this page, you can specify the following:

- **Database Sizes:** Select the database sizes that are to be supported by this service template.

Note: The database size definitions must have already been defined using the `emcli create_database_size` command. See [Section 47.5, "Database Size EM CLI Verbs"](#) for details.

You can select sizes such as small, medium, and large. Each database size has a specific memory, storage, CPU cores, and units. Select a size and select **Include in Template** to associate it with the service template. Click **Default** to designate it as the default database size.

- Initialization Parameters: You can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
16. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
You can also specify a custom Post SQL Script and select the user who can run the script. For more details, see [Section 24.1.1, "Post SQL Script"](#).
 17. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. These properties will be applied to the database clones that are created. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
 18. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
 19. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

20.4.10 Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chapter 43, "Chargeback Administration"](#).

20.4.11 Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Section 22.2, "Requesting a Database"](#).

20.4.12 Example: Creating Snap Clones from an In-Sync Test Master

The following example shows how you can create a snap clones from a physical standby database.

1. First, you must make sure that all the prerequisites are met. See [Section 12.1, "Getting Started"](#).
2. The next step is to identify the production database and the physical standby database. The production database is **prod1** and the standby database as **prod1stb**.
3. Next, you must register the storage server. This step validates the storage and discovers **prod1stb** on the storage server. See [Section 20.4.2, "Registering Storage Servers"](#).

4. You must then create one or more PaaS Infrastructure Zones and one or more database pools. See [Section 20.4.3, "Creating Resource Providers"](#)
5. Then, you must define the quota that you wish to allocate to the self service users. See [Section 20.4.5, "Defining Quotas"](#).
6. The next step is to designate the standby database, **prod1stb** as the test master.
7. Next, you must enable **prod1stb** for snap clone. This allows creation of snap clones using snapshot technology. See [Section 20.4.7, "Enabling the Test Master for Snap Clone"](#).
8. The next step is to create a snapshot profile from **prod1stb**. See [Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"](#)

While creating the profile, specify the **Start Date** as **05/15/2015**, the **Repeat** schedule as **Every N Days** and the Frequency as Every 1 day. Specify the **End By** date as **05/20/2015**. A new version of the snapshot profile will be created every day from the Start date of **05/15/2015**.

In the Purge Policy field, specify the **Number of Snapshots** as **5**. This will ensure that after 5 versions of the snapshot are created, the first or oldest one will be purged.

9. To make this profile available to the self service user, you must create a service catalog entry or a service template. Create a template called **Snap Clone Template**. See [Section 20.4.9, "Creating Service Template Using Snap Clone Profile"](#). Set the Profile Version field to **Selected by user at request time**. The self service user can choose the profile version that is to be used to create the snap clone.
10. The self service user can then use the **Snap Clone Template**, select a version of the profile and use it to create the snap clone. See [Section 22.2, "Requesting a Database"](#). As and when a new version of the profile is available (see [Section 20.4.8.1, "Creating and Refreshing Snapshots of the Test Master"](#)), the self service user can choose to refresh the profile to the latest version. See [Section 22.3, "Refreshing a Database"](#).

Based on the Purge Policy which is set to 5 snapshots, the older versions of the snapshots will be deleted. But if the self service user has a database that is using that snapshot, the profile cannot be deleted until the self service user has refreshed the profile to the latest version.

20.4.13 Creating a Service Template for EMC Snap Clone

Note: This option can be used only for snapshots created on EMC storage.

Prerequisites

Before you can create snap clones on EMC storage, you must ensure that the prerequisites described in [Configuring EMC Storage Servers](#) are met.

To create a service template using an existing database, follow these steps:

1. Log into Enterprise Manager as a user with the **EM_SSA_ADMINISTRATOR** role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.

3. Click the **Setup** link next to the Databases option in the left panel. Select **Database** from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 20–6 Create Service Template: General: EMC Snap Clone

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Customization Roles Review

Database Cloud Self Service Portal Setup: General Back Step 1 of 6 Next Cancel

Describe

Name live_clone

Description

Source Identification

Create Database Using Profile Using existing Database

Database ps3db1.us.oracle.com

Host Credential NC_HOST_2014-11-07-212143 (SSUBBURA1)

Database Credential NC_ORACLE_D_2014-11-09-015220 (SSUBBURA1)

Database Definition

Create SnapClone Database Full Clone Using RMAN Duplicate

Type Single Instance Real Application Clusters (RAC)

Number of nodes 2

Database SID Specify Prefix Specified by user at request time

SID Prefix db

Domain Name

Pools and Zones

A service template can be configured to provision databases in one or more pools. Select the zone and associated pool that this service template can provision databases into.

Add Remove Assign Pool

Name	Resource Pool
AdZone	allpool

Reference Host us.oracle.com

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Source Identification section, select the **Using Existing Database** radio button, click the **Search** icon and select the test master database that you had created earlier. See [Section 20.4.6, "Using a Physical Standby Database as a Test Master"](#) for more details.
7. Specify the host and database credentials.
8. In the Database Definition region, the **Create Snap Clone Database** option is selected. Enter the following details:
 - **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.
 - **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.
 - **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if

the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.

- **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
 - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
9. In the Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
 10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
 11. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number. Click **Next**. The Create Service Template: Database page appears.
 12. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.

The database values such as a Automatic Storage Management (ASM) disk group, location of the file system, and listener port you select must be available on the reference host.

13. Specify the following:
 - **Storage Type:** Select Automatic Storage Management (ASM). The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select the Disk Group here.
 - **Fast Recovery (Optional):** To simplify the management of backup and recovery files, you can create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

If the **Enable Archiving** check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
14. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
15. Specify the **Administrator Credentials**. Specify passwords for the system schemas of the new database. These schemas will not be available to the EM_SSA_USERS. You can choose to use the same password for all the schemas or different passwords

for each schema. If these values are not specified, default values will be used and the EM_ADMINISTRATOR can change them.

16. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the EM_SSA_USERS cannot access them. Click **Next**.
17. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can specify the following:
 - Database Sizes: Select the database sizes that are to be supported by this service template.

Note: The database size definitions must have already been defined using the emcli create_database_size command. See [Section 47.5, "Database Size EM CLI Verbs"](#) for details.

 You can select sizes such as small, medium, and large. Each database size has a specific memory, storage, CPU cores, and units. Select a size and select **Include in Template** to associate it with the service template. Click **Default** to designate it as the default database size.
 - Initialization Parameters: You can configure the values of various initialization parameters that affect the operation of the database instance. Select a parameter and click the **Set** icon to modify the value of the parameter.
18. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
19. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
20. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
21. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

20.5 Creating Snap Clones from a Discretely Synchronized Test Master

You can create snap clones from a discretely synchronized test master if the test master is present on a NAS storage device. This table lists the steps involved in creating a snap clone using a snapshot profile.

Table 20–2 Creating Snap Clone - Discrete Flow

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 20.5.1, "Getting Started"

Table 20–2 (Cont.) Creating Snap Clone - Discrete Flow

Step	Task	Role
2	Register storage servers.	See Section 20.5.2, "Registering Storage Servers"
3	Create one or more resource providers.	See Section 20.5.3, "Creating Resource Providers" .
4	Configure the request settings.	See Section 20.5.4, "Configuring Request Settings" .
4	Define quotas for each self service user.	See Section 20.5.5, "Defining Quotas"
5	Create a test master database from an RMAN Backup.	See Section 20.5.6, "Creating a Discretely Synchronized Test Master" .
6	Enable the test master for snap clone	See Section 20.4.7, "Enabling the Test Master for Snap Clone"
6	Create a snap clone profile from the test master.	See Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"
9	Create a service template based on the profile you have created.	See Section 20.5.7, "Creating a Service Template Using Snap Clone Profile" .
10	Configure the Chargeback Service. (this step is optional)	See Section 20.5.8, "Configuring Chargeback" .
11	Select the service template you have created and request a database.	See Section 20.5.9, "Requesting a Database"
12	Refresh the test master and the database instance: <ul style="list-style-type: none"> Refresh the test master. Refresh the snap shot profile. Refresh the snap clone database instance. 	See: <ul style="list-style-type: none"> Section 20.5.10, "Refreshing the Test Master Database" Section 20.5.11, "Refreshing the Snap Shot Profile". Section 22.3, "Refreshing a Database"

20.5.1 Getting Started

See [Section 12.1, "Getting Started"](#).

20.5.2 Registering Storage Servers

See [Section 12.7, "Registering and Managing Storage Servers"](#).

20.5.3 Creating Resource Providers

See [Section 20.4.3, "Creating Resource Providers"](#).

20.5.4 Configuring Request Settings

See [Section 11.2.3, "Configuring Request Settings"](#).

20.5.5 Defining Quotas

See [Section 20.4.5, "Defining Quotas"](#).

20.5.6 Creating a Discretely Synchronized Test Master

A test master database is a sanitized version of the production database. Production data can be optionally masked before the test master is created. A test master can be created from a snapshot or an RMAN Backup profile taken at a prior point in time and refreshed at specific intervals. This option is useful if the source data has to be masked to hide sensitive data.

To create a test master, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Select **Data Sources** and click on the **Test Master Databases** tab.
2. To create a new test master, click on the **Create** menu. Select a production database from which the test master is to be created and click **Select**. The Clone Database: Source and Destination page appears.
3. On the Create Test Master Database: Source and Destination page, do the following:

- In the Source section, launch the credentials selector by selecting the search icons for SYSDBA Database and Database Host credentials. Click **OK**.
- In the Data Time Series section, select **Now** or **Prior Point in Time**.

If you selected **Now**, specify or search and select the SYSASM ASM Credentials. **Now** refers to Live Clone.

If you selected **Prior Point in Time**, a carousel of RMAN Backup images appear. Select the appropriate RMAN backup by clicking **Select** on the image.

Select a specific time between the selected backup or snapshot and the next (or latest point of source). The backups or dumps are created at specific intervals and the test master that is based on these will reflect the production database at specific points in time. To reflect the latest data in the production database, the test master needs to be periodically refreshed.

4. In the Destination Database Definition section, do the following:

- Specify a display name.
- Specify a global database name and SID.

A database is uniquely identified by a Global Database Name. The typical form of a name is name.domain. A database is referenced by at least one Oracle instance which is uniquely identified by SID.

- Select one of the following types of databases:
 - **Single Instance Database.**

In the Hosts section, specify the Oracle Home location. The host gets specified by default. Next, select the Database Home credentials and the SYS-ASM ASM credentials.

- **RAC Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

– **RAC One Node Database**

In the Hosts section, specify or select the cluster target. The Oracle Home location gets specified by default. Next, specify the Database Host credentials, and the SYSASM ASM credentials.

In the Nodes section, select the cluster and Oracle Home to display one or more hosts on which the administrator managed Oracle RAC database will be created.

Note: Oracle supports inline patching as part of clones. When the destination home selected has patches applied such as the latest CPU or PSU, then the cloned database is automatically brought up with that level.

Click **Next**.

5. On the Create Test Master Database: Configuration page, do the following.
 - **Database Files Location:** Specify the location in which the data files, temporary files, redo log files, and control files will be created. You must specify a mount point which must be present on a registered storage volume so that the self service administrator can enable this test master for snap clone.

You can select:

 - **File System:** The Oracle Database File System creates a standard file system interface on top of files and directories that are stored in database tables. If you select this option, you must specify or select the Location of the File System. You can specify a common location for all the files or you can select the **Use Oracle Optimal Flexible Architecture-compliant directory structure (OFA)** checkbox and specify different locations for data files, redo log files, and so on.
 - **Automatic Storage Management:** The Oracle Automatic Storage Management (ASM) is a volume manager and a file system for database files that supports single-instance and RAC configurations. ASM groups the disks in your storage system into one or more disk groups. If you select ASM, select a common location for the database files.
 - **Recovery Files Location:** To simplify the management of backup and recovery files, a fast recovery area can be created for your database. The fast recovery area can be a ASM disk group or a file system that provides a centralized disk location for backup and recovery file. To allow self service users to schedule backups and perform restore operations, you can select the Use Fast Recovery Area checkbox and specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.
 - **Listener Configuration:** Click **Add** to add one or more listener targets that are to be associated with the new database.
 - **Database Credentials:** Specify the passwords for the administrative users (SYS, SYSTEM and DBSNMP) of the new database being cloned. You can choose to use the same password for all the schemas or different passwords for each schema.
6. Click **Next**. Some values such as `db_block_size` cannot be modified.
7. Click **Next**. The Create Test Master Database: Post Processing page appears.

Figure 20–7 Test Master Setup: Post Processing

prod2.us.oracle.com

Source and Destination Configuration Initialization Parameters Post Processing Schedule Review

Create Test Master Database: Post Processing

Data Masking
Select the masking definition which should be applied after cloning the database.

Masking Definition

Custom Scripts
Select the Software Library components which contain pre cloning and post cloning scripts. The cloned database can also be customized by executing the post cloning SQL script.

Pre Script
Post Script
SQL Script
Run As User: SYS

Data Profiles
☒ Create Data Profile

Content
Create: RMAN Backup
Backup Mode: Online backup
Backup location: /u01/app/oracle/flash_recovery_area
Backup file tag: data_backup_1438079720771
Purge Policy Type: None

Schedule
Start: Immediately
Interval: 60 sec

Describe
* Location: Database Provisioning Profile (12.1.0.1.0.0.pv0006_04)
* Name: Database prod2.us.oracle.com Profile 08-12-2014 11:02 PM
Description: Database Reference Profile 08-12-2014 11:02 PM from prod2.us.oracle.com
Version: 12.1.0.1.0
Vendor: Oracle
Notes: Host Name: prod2.us.oracle.com
Database: prod2.us.oracle.com
Data Content: Structure and Data

In the Post Processing page, specify the following:

- **Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned. After selecting the masking definition, select the In-Place Masking option to generate a script to replace the sensitive data in-place with masked data on the cloned database. For more details on creating a masking definition, see the *Enterprise Manager Database Testing Guide*.

Note: The masking definition can be used only when you have the Oracle Data Masking and Subsetting license pack.

- Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
- Specify the path for the SQL script which allows you to run the script against the newly cloned database as a user such as SYS, SYSTEM, or any other specified user. The SQL script allows you to customize the cloned database. For more details, see [Section 24.1.1, "Post SQL Script"](#).
- Select the **Create Data Profile** check box if you wish to create a database provisioning profile that is based on the test master. These profiles can be refreshed automatically or at specified intervals. Different versions of the profile are saved and are available to the self service user until they are purged. This ensures that the test master is periodically updated and the latest data can be used by the self service user. You can create a database provisioning profile if:
 - This version of the test master must be available for cloning in future, even after the test master has been refreshed.

Enter the following details for the profile:

- Profile Type: Select RMAN Backup or RMAN Image.
 - Backup Mode: If you select the RMAN Backup profile type, you can select one of the following: Select **Online Backup** to make a backup while the database is up and running. Select **Offline Backup** to shutdown the database for the duration of backup and bring it back once the backup is complete.
 - Backup Location: Enter the directory path that already contains a backup location.
 - Backup File Tag: Backup files will be tagged with the tag specified here.
 - Location: Select the directory for the backup location.
 - Enter the name, description, version number, vendor, and additional notes.
 - Purge Policy Type: This can be None, Snapshots, or Days. If you select **None**, the profiles will need to be manually deleted as required. If you select **Snapshots**, specify the maximum number of snapshots that can be retained. If you select Day(s), specify the number of days the profile can be retained.
 - Schedule: Specify whether the profile needs to be created immediately or at a later date.
8. Click **Next**. Specify the schedule for the creation of the test master. It can be created immediately (if physical standby used, it is created immediately and automatically refreshed) or can be created at a later date / time and refreshed at specified intervals.
 9. Click **Next**. Review the information entered so far and click **Submit** to create the test master. After the test master has been created, you can refresh the test master as required to create a new version of the profile on which the test master is based.

Note: You can also use the `emcli create_clone` command to create the test master. See [Section 47.9, "Creating a Database Clone Using EM CLI Verbs"](#) for more details.

20.5.7 Creating a Service Template Using Snap Clone Profile

See [Section 20.4.9, "Creating Service Template Using Snap Clone Profile"](#).

20.5.8 Configuring Chargeback

Optionally, you can configure the chargeback service. See [Chapter 43, "Chargeback Administration"](#).

20.5.9 Requesting a Database

The self service user can now select the service template based on the database template profile and create a database. See [Section 22.2, "Requesting a Database"](#).

20.5.10 Refreshing the Test Master Database

The test master database is created from an RMAN Backup profile of the production database taken at a particular point in time. Since the production database is

constantly updated, to ensure that the latest production data is available in the test master, it has to be refreshed at periodic intervals.

To refresh the test master database, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click the **Test Master Databases** tab.
2. Select the test master that is to be refreshed and click **Refresh**. The Refresh Database: Source and Destination page appears.
3. Select the **Prior Point in Time** option and select the backup to which the test master is to be refreshed. You can modify the source and destination credentials.
4. If you select the **Now** option, you will see the following screen.

Figure 20–8 Test Master Refresh: Source and Destination (Now)

Click **Next**. The Configuration page appears.

Figure 20–9 Test Master Refresh: Configuration

5. Specify the Mount Point Prefix for the storage volume that will be used by the clone database and the database credentials. Click **Next**.
6. In the Initialization Parameters page, edit the values of various initialization parameters that affect the operation of the database instance. Click **Next**.
7. In the Post Processing page, specify the following:

- **Masking Definition:** Data masking is the process of masking sensitive data in test or non-production databases. The masking definition defines the columns to be masked in the format of the masked data. Specify the masking definition to be applied after the database is cloned. After selecting the masking definition, select the In-Place Masking option to generate a script to replace the sensitive data in-place with masked data on the cloned database. For more details on creating a masking definition, see the *Enterprise Manager Database Testing Guide*

Note: The masking definition can be used only when you have the Oracle Data Masking and Subsetting license pack.

- Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
 - Specify the path for the SQL script which allows you to run the script against the newly cloned database as a user such as SYS, SYSTEM, or any other specified user. The SQL script allows you to customize the cloned database. For more details, see [Section 24.1.1, "Post SQL Script"](#).
8. Click **Next**. Specify the schedule for the creation of the test master. It can be created immediately (if physical standby used, it is created immediately and automatically refreshed) or can be created at a later date / time and refreshed at specified intervals.
 9. Click **Next**. Review the information entered so far and click **Submit** to refresh the test master.

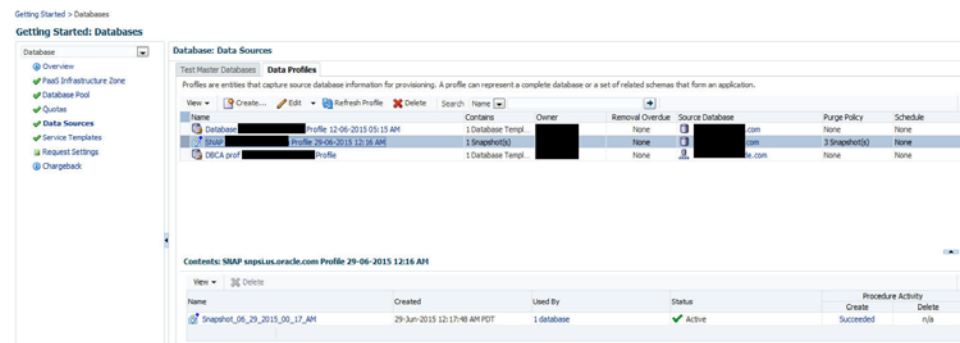
Note: You can use the `emcli refresh_database` command to refresh the database. See [Section 47.6, "Database Profile EM CLI Verbs"](#) for details.

When the test master is refreshed, you can create a new profile based on the updated test master. The self service user can choose to refresh the database instances to the latest profile. The storage space that was used by the older version of the test master will be reclaimed by the updated (refreshed) test master.

20.5.11 Refreshing the Snap Shot Profile

After the test master has been refreshed, you must create a new revision of the snap shot profile. To do so, you must refresh the snap shot profile by following these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Setup**, then select the Database Service family on the left panel. Click **Data Sources**.
2. In the Data Sources page, click the **Data Profiles** tab. The list of the profiles is displayed.

Figure 20–10 Refresh Snap Shot Profile

3. Select the profile to be refreshed and click **Refresh Profile**. A confirmation message is displayed. Click **Yes** to submit the refresh profile job.

20.5.12 Example: Creating Snap Clones from Discretely Synchronized Test Master

The following example shows how you can create snap clones from a test master database that is refreshed at discrete intervals.

1. First, you must make sure that all the prerequisites are met. See [Section 12.1, "Getting Started"](#).
2. Next, you must register the storage server. See [Section 20.4.2, "Registering Storage Servers"](#).
3. You must then create one or more PaaS Infrastructure Zones and one or more database pools. See [Section 20.4.3, "Creating Resource Providers"](#).
4. Then, you must define the quota that you wish to allocate to the self service users. See [Section 20.4.5, "Defining Quotas"](#).
5. The next step is to identify the production database (**prod1**) and create an RMAN backup **prod1_backup**.
6. Create a test master (**testmaster1**) based on **prod1_backup**. See [Section 20.5.6, "Creating a Discretely Synchronized Test Master"](#).
7. Next, you must enable **testmaster1** for snap clone. This allows creation of snap clones using snapshot technology. See [Section 20.4.7, "Enabling the Test Master for Snap Clone"](#).
8. Next, you must create a profile (**snap_profile**) that is based on **testmaster1**. See [Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"](#).
9. To make this profile available to the self service user, you must create a service catalog entry or a service template. Create a template called **Snap Clone Template1**. See [Section 20.5.7, "Creating a Service Template Using Snap Clone Profile"](#). In the Service Template, the **Profile Version** field is set to **Latest**. This will ensure that the self service user will always use the latest version of the profile to create database instances.
10. The self service user can then use the **Snap Clone Template1** to create the snap clone. See [Section 22.2, "Requesting a Database"](#).
11. To get the latest production data, the self service administrator refreshes **TestMaster1**. See [Section 20.5.10, "Refreshing the Test Master Database"](#).

12. Since the test master now contains updated data, a new revision of the profile must be created. See [Section 20.5.11, "Refreshing the Snap Shot Profile"](#).
13. Now that a new revision of the profile (**snap_profile**) is available, the self service user can refresh his database instance to get the latest production data. See [Section 22.3, "Refreshing a Database"](#). The storage space that was used by the older version of the test master will be reclaimed by the refreshed test master.

20.6 Creating a CloneDB Database

The CloneDB feature allows you to clone a database multiple times without copying the data into different locations. Instead Oracle Database creates the files in the Clone DB database using copy-on-write technology, so that only the blocks that are modified in the Clone DB database require additional storage on disk. Clone DB reduces the amount of storage required for testing purposes and enables rapid creation of multiple database clones. Clone DB is supported for database 11.2.0.3 or later versions.

You can create CloneDB databases by using a discretely synchronized test master by following these steps:

Table 20–3 Creating Snap Clone - Discrete Flow

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 20.5.1, "Getting Started"
3	Create one or more resource providers.	See Section 20.5.3, "Creating Resource Providers" .
4	Configure the request settings.	See Section 20.5.4, "Configuring Request Settings" .
5	Define quotas for each self service user.	See Section 20.5.5, "Defining Quotas"
6	Create a database provisioning profile using snapshots from an RMAN Image Backup.	See Section 20.6.1, "Creating a Database Provisioning Profile Using RMAN Database Image"
9	Create a service template based on the profile you have created.	See Section 20.6.2, "Creating a Service Template Using RMAN Image Profile" .
10	Configure the Chargeback Service. (this step is optional)	See Section 20.5.8, "Configuring Chargeback" .
11	Select the service template you have created and request a database.	See Section 20.5.9, "Requesting a Database"

20.6.1 Creating a Database Provisioning Profile Using RMAN Database Image

To create a database provisioning profile, follow these steps:

1. You can access the Database Provisioning page using either of the following ways:
 - From the **Enterprise** menu, select **Cloud**, and then select **Cloud Home**. On the Cloud home page, click **Oracle Cloud**, select **Setup**, and then select **Data Sources**. On the Database: Data Sources page, in the Data Profiles tab, click **Create**.
 - From the Enterprise menu, select **Provisioning and Patching**, and then select **Database Provisioning**. On the Database Provisioning page, in the Profiles section, click **Create**.
 - From the database target home page, click **Oracle Database**, select **Provisioning**, and then select **Create Provisioning Profile**.

- On the Reference Target page, click the search icon to select a target.

- In the Search and Select: Targets display box, select the database you want to create a profile for, and then, click **Select**.

Target Name	Target Type	On Host	Status
crs1	Cluster	us.oracle...	Green arrow
Genrep_Database	Database Instance	us.oracle...	Green arrow
Orad011g_home1_18	Oracle Home	us.oracle...	n/a
Orad011g_home2_2	Oracle Home	us.oracle...	n/a
Orad011g_home1_2014_04_10_09_5	Oracle Home	us.oracle...	n/a
Orasidb11g_home1_2014_04_09_02	Oracle Home	us.oracle...	n/a
Orasidb11g_home1_2014_04_09_02	Oracle Home	us.oracle...	n/a
ord	Cluster Database	us.oracle...	Green arrow
.oracle.com	Database Instance	us.oracle...	Green arrow

Mode: Single Select

Select Cancel

- On the Reference Target page, select the following:
 - Data Content**
 - Structure and Data** to include physical and structural files from the database or **Structure Only** to include only the structural files in the template.
 - Create**
 - RMAN Database Image**

- In the Credentials section, select the database. In the Credentials column, you can select **Named Credentials** and then select a credential name from the Credential Name column (or) select **Preferred Credentials**. Click **Next**.

Back Step 1 of 4 Next Cancel

Target	Credential Type	Credential	Credential Name
oracle.com	Database Home	Preferred Credentials	Normal Host Credentials
oracle.com	Database	Preferred Credentials	SYSDBA Database Credentials

6. On the Content Options page, specify the backup location for the RMAN image mode. By default, the backup location selected is **Offline Backup**. You can choose **Online Backup** only if it is enabled.

Then, select **Directory** for the backup location and enter the directory path, or select **Fast Recovery Area**, which already contains a backup location.

Create Database Provisioning Profile: Content Options

RMAN Database Image Profile Contents

RMAN Image Mode ☐ Online Backup ☒ Offline Backup

Backup Location ☒ Fast Recovery Area ☐ Directory

Note:

- Ensure that the specified location is accessible to all the nodes in the database pool.
- Depending on the database version, the profile (image) may need to be manually staged on an NFS shared location.

Click **Next**.

7. On the Create Database Provisioning Profile: Page, in the Profile Information section, do the following:
- Specify or select a profile location in the software library where the database profile will be created.
 - Specify a unique profile name.
- For example:
RMAN Database Image for HR database
- Add a description for the profile.
 - Verify the profile version and the vendor.
 - Add any additional notes such as host name, database, data content, data content mode, and the like.

Create Database Provisioning Profile: Profile

Profile Information

* Profile Location

* Profile Name

Description

Profile Version Vendor

Notes

8. In the Schedule section, you can choose to start the profile creation immediately, or you can schedule it for a later time. You can also choose to repeat the creation of the provisioning profile, and set a repeat time.
9. In the Purge Policy section, you have three options:
 - **None.** Select this option you do not want to purge any data collected.
 - **Snapshots.** This option enables you to specify the maximum number of snapshots that can be purged.
 - **Day(s).** This option enables you to specify the number of days after which the data component should be purged.

Schedule

Start ☒ Immediately ☐ Later

Repeat

Purge Policy

Purge

Working

* Path

10. Specify or select a working directory. Click **Next**.
11. On the Review page, ensure that the selections you have made in the previous pages are correctly displayed and click **Submit**. Otherwise, click **Back** repeatedly till you reach the page where you want to make changes. Click **Cancel** to abort the provisioning profile creation.

Create Database Provisioning Profile: Review

Back Step 4 of 4 Submit Cancel

Reference Target	Profile Details
<p>Target: Create RMAN Database Image Profile</p> <p>Database Home Credentials: ADHE_CCOO</p> <p>Grid Infrastructure Home Credentials: PRODB_CRED</p> <p>Database Credentials: PRODB_CRED</p>	<p>Profile Location: Database Provisioning Profiles/12.1.0.1.0/tnmp_v44</p> <p>Profile Name: RMAN Database Image for H8 Database</p> <p>Description: Database Reference Profile 09-12-2024 02:38 PM from database.example.com Version: 12.1.0.1.0</p> <p>Profile Version: 12.1.0.1.0 Vendor: Oracle</p> <p>Notes: Host Name: host.example.com</p> <p>Database: database.example.com</p> <p>Data Content: Structure and Data</p> <p>Data Content Mode: RMAN Database Image Backup</p>

Content Details

RMAN Database Image Profile Contents

RMAN Image Mode: Offline Image Backup

Backup Location: /mnt2/Real/Recovery_area

Schedule

Start: Immediately

Purge Policy

None

Working Directory

Path: /tmp

Once you have submitted the provisioning profile creation job, manually refresh the page if View Data has been set to Real Time: Manual Refresh. Else, set View Data to reload after a specific period of time, and then select an execution step from the Procedure Steps tree on the left pane to view the details.

To view the submitted jobs, select the **Procedure Activity** link in the **Data Profiles** tab.

20.6.2 Creating a Service Template Using RMAN Image Profile

To create a service template using RMAN Image Profile, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.
3. Click the **Setup** link next to the Databases option in the left panel. Select Database from the drop down menu.
4. Click the **Service Templates** link. The Service Templates page appears. Click **Create**. The Create Service Template: General page appears.

Figure 20–11 Create Service Template: General (CloneDB)

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Configuration Roles Settings

Database Cloud Self Service Portal Setup: General

Back Step 1 of 6 Next Cancel

Describe

Name: clone_db_template

Description:

Source Identification

Create Database: Using Profile Using existing Database

Profile: RMAN@ORCL: RAC@1124.us.oracle.com/Profile: 12-10-2014 00:06:00

Profile Version: Latest

Selected by user at request time

Database Definition

Create: CloneDB Database Full Copy of the Database

Type: Single Instance Real Application Clusters (RAC)

Number of nodes: 2

Database SID: Specify Prefix Specified by user at request time

SID Prefix: db

Domain Name:

Enable Standby Database

Pools and Zones

A service template can be configured to provision databases in one or more pools. Select the zone and associated pools that this service template can provision databases into.

+ Add - Remove + Assign Pool

Name	Resource Pool
SI_ZONE	SI_DBPOOL

5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. Click the **Search** icon next to the **Profile** field and select the test master database based on the RMAN Image profile.
7. In the Profile Version field, you can select either of the following:
 - **Latest:** This ensures that the latest profile is always used by the self service user.
 - **Selected by user at request time:** If this option is selected, the self service user can select the profile to be used when creating a service request.
8. In the Database Definition region, select the following:
 - **Create:** Select **CloneDB Database** option. Each file is copied as an image copy which is a bit-for-bit copy of a database file created on disk. Image copies are identical to copies created with operating system commands such as cp on Linux or COPY on Windows, but are recorded in the RMAN repository and so are usable by RMAN. This option allows you reduce the amount of storage and enables rapid creation of multiple databases.

If you are doing an online backup, you must ensure that your Test Master database is in ARCHIVELOG mode and that all of the necessary archived redo log files are saved and accessible to the CloneDB database environment.

If you are doing an offline backup, you must ensure that the backup copies are accessible to the CloneDB database environment.

- **Type:** This can be Single Instance or Real Application Cluster (RAC). If you select RAC, specify the Number of Nodes.

- **Database SID:** This is an optional field. You can select **Specify Prefix** or **Specified by User at Request Time**.

- **Specify Prefix:** If you choose this option, enter a prefix that is to be used to generate a unique System Identifier (SID) at the time of database creation. The prefix helps to identify databases created using this service template. The prefix can be a maximum of 6 characters.

The new database name generated will be based on the SID Prefix specified here. For example, if the prefix is specified as MYDB, the SID for the new database is generated as MYDB0000, MYDB0001, MYDB0002, and so on.

For existing databases (running databases and in progress requests), a unique SID name is generated for single instance databases, or a unique name is generated for real application cluster databases. For example, if the existing SIDs running on a host are MYDB0000, MYDB0001, MYDB0002 And In progress are MYDB0003, MYDB0004, the new SID or database name generated for the new request is MYDB0005.

- **Specified by User at Request Time:** If you choose this option, you can leave this field blank and specify the SID when you are making a database request.
 - **Domain Name:** This is an optional field. Enter a Domain Name to be used for the new database being created. You must ensure that the domain name does not contain a preceding "." (dot).
9. In the Pools and Zones region, click **Add** to select a PaaS Infrastructure Zone into which the database instance is to be provisioned. Click **Assign Pool**. Select a pool from the list and assign this pool to the PaaS Infrastructure Zone. The database will be provisioned into this pool.
 10. After you have selected the zone and the pool, the host target is populated in the Reference Host field.
 11. In the Reference Host region, the name of the PaaS Infrastructure zone, the database pool, and the reference host you have selected in the Database Cloud Self Service Portal Setup: General page are displayed.
 12. In the Location field, specify the location for the database files. This must be an NFS location.
 13. To simplify the management of backup and recovery files, you can optionally create a fast recovery area for your database. Select the **Enable Fast Recovery Area** checkbox to specify the location in which recovery related files must be stored. The fast recovery area can be a file system that provides a centralized disk location for backup and recovery file. Specify the location of the Fast Recovery Area and the Fast Recovery Size. The amount of disk space to allocate for the fast recovery area depends on the size and activity levels of your database.

If the **Enable Archiving** check box is selected, the database will not be shut down during a refresh. This allows self service users to schedule backups and restore operations without shutting down the database.
 14. If you have chosen to create a CloneDB database, you can optionally allow the user to take a backup copy of the database. Select the **Allow the user to take backup copy for the new database** checkbox. Specify the maximum number of backups allowed and the backup location.
 15. In the Listener Port field, specify listener port number that is to be associated with the new database. If you have selected a 11.2 or later RAC database, you must specify the scan port number.
 16. Specify the **Administrator Credentials**. Specify passwords for the system schemas of the new database. These schemas will not be available to the EM_SSA_USERS. You can choose to use the same password for all the schemas or different passwords for each schema. If these values are not specified, default values will be used and the EM_ADMINISTRATOR can change them.
 17. Apart from the system schemas, if you want to restrict access to other schemas, you can select them in the Non-Administrator Credentials region and specify the password. These schemas will be locked and the EM_SSA_USERS cannot access them. Click **Next**.

18. Click **Next**. The Create Service Template: Initialization Parameters page appears. In this page, you can configure the values of various initialization parameters that affect the operation of the database instance. Select the parameter and click the Set icon to modify the value of the parameter.
19. Click **Next**. The Create Service Template: Customization page appears. Specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.
20. In the Target Properties region, you can specify global target properties such as Location, Department, Line of Business, and so on. You can do the following:
 - Mark a property as mandatory by selecting the **Required** check box. If a property is marked as mandatory, the self service user must specify a value for this property while requesting a database.
 - Lock a property. When a property is locked, the self service user cannot modify the value of this property while requesting a database.
21. Click **Next**. The Create Service Template: Roles page appears. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
22. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

Creating Snap Clones for Pluggable Databases

This chapter provides the following different solutions of creating a test master pluggable database and snapshot clones of pluggable databases. It contains the following sections:

- [Creating Test Master Pluggable Databases](#)
- [Creating Snapshot Clones of Test Master Pluggable Databases](#)
- [Enabling a Test Master Pluggable Database](#)
- [Disabling a Test Master Pluggable Database](#)

21.1 Creating Test Master Pluggable Databases

This section provides the different solutions of creating a test master pluggable database using the Pluggable Database Cloning wizard. It contains the following subsections:

- [Creating a Test Master Pluggable Database](#)
- [Creating an Exadata Test Master Pluggable Database](#)
- [Creating an ACFS Test Master Pluggable Database](#)

Note: To create a test master pluggable database using EM CLI, see [Section 47.15, "Creating a Test Master Pluggable Database."](#)

21.1.1 Creating a Test Master Pluggable Database

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a test master PDB from a source PDB, using the new Clone PDB Wizard.

To create a test master PDB from a source PDB, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source PDB is a part of) in the list, then click the name of the PDB from which you want to create a test master PDB.
4. From the **Oracle Database** menu, select **Cloning**, then select **Create Test Master**.

Alternatively, in Step 3, you can right click the name of the PDB from which you want to create a test master PDB, select **Oracle Database**, select **Cloning**, then select **Create Test Master**.

5. On the Create Test Master Pluggable Database: Source and Destination page, do the following:
 - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
 - In the Pluggable Database Definition section, specify a name, and a display name for the test master PDB. Enterprise Manager uses the display name to identify the test master PDB target.
 - In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.
 - In the Container Database section, specify the destination CDB (the CDB that the test master PDB must be a part of).
 - In the Credentials section, specify the SYSDBA credentials for the destination CDB, and the host credentials for the destination CDB. Also, if the destination CDB is using Automatic Storage Management (ASM) to manage disk storage, you must specify the ASM credentials.

Click **Next**.

The screenshot shows the 'Create Test Master Pluggable Database: Source and Destination' page. The 'Source' tab is active, displaying details for the source CDB (PROD_PDB1) and its credentials. The 'Destination' tab is also visible, showing details for the destination CDB (PROD_PDB1) and its credentials. The page includes sections for 'Pluggable Database Definition', 'PDB Administrator Credentials', 'Container Database', and 'Credentials'.

6. On the Create Test Master Pluggable Database: Configuration page, do the following:

In the Database Files Location section, specify the storage location where the datafiles of the test master PDB must be stored. If the destination CDB is using ASM to manage disk storage, specify the disk group where the datafiles of the test master PDB must be stored.

To ensure that only the source PDB data model definition is cloned (and the source PDB data is not cloned), select **Exclude User Data**.

In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.

In the Advanced Configuration section, specify the storage limits for the maximum size of the test master PDB, and the maximum size of a shared tablespace within the test master PDB. By default, no limits are placed on the values for these attributes. In the Miscellaneous section, select the logging option that you want to use for the tablespaces created within the test master PDB.

Note that if the destination CDB is part of an Exadata machine, the Access Controls and Permissions section is displayed in place of the Advanced Configuration section. In this case, you must specify the owner and the group that must be granted *read only* permissions on the datafiles.

Click **Next**.

7. On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

8. Specify an instance name for the deployment procedure. Also, specify the point in time when you want the deployment procedure to begin.

In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the deployment procedure is scheduled, and when it succeeds.

Click **Next**.

9. Review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a test master PDB from the source PDB.

PROD_PDB1

Source and Destination Configuration Pool Processing Schedule Review

Create Test Master Pluggable Database: Review [Back] [Step 5 of 5] [Close] [Cancel]

Source	Destination
Pluggable Database Name: PROD0001 Container Database Name: PROD0001 SYSDBA Container Database Credentials: Preferred Credentials	Pluggable Database Name: PROD_TestMaster_05-27-2015 Display Name: PROD_TestMaster_05-27-2015 PDB Administrator: PDBADMIN Container Database Name: PROD0001 SYSDBA Container Database Credentials: Preferred Credentials
Configuration Location: /scratch/ Exclude User Data: No	Pool Processing Pooling Definition: MCH_Hosting_Defn Pre Script: MCH Pre-clone Post Script: MCH Pre-clone Post SQL Script: SQL_Scripts.sql
Schedule Start: Immediately	

21.1.2 Creating an Exadata Test Master Pluggable Database

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a test master PDB from a source PDB, using the new Clone PDB Wizard.

To create a test master PDB from a source PDB, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source PDB is a part of) in the list, then click the name of the PDB from which you want to create a test master PDB.
4. From the **Oracle Database** menu, select **Cloning**, then select **Create Test Master**.

Alternatively, in Step 3, you can right click the name of the PDB from which you want to create a test master PDB, select **Oracle Database**, select **Cloning**, then select **Create Test Master**.

5. On the Create Test Master Pluggable Database: Source and Destination page, do the following:
 - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
 - In the Pluggable Database Definition section, specify a name, and a display name for the test master PDB. Enterprise Manager uses the display name to identify the test master PDB target.
 - In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.
 - In the Container Database section, specify the destination CDB (the CDB that the test master PDB must be a part of).
 - In the Credentials section, specify the SYSDBA credentials for the destination CDB, and the host credentials for the destination CDB. Also, if the destination CDB is using Automatic Storage Management (ASM) to manage disk storage, you must specify the ASM credentials.

Click **Next**.

- On the Create Test Master Pluggable Database: Configuration page, do the following:

In the Database Files Location section, specify the disk group where the data files of the test master PDB will be created.

To ensure that only the source PDB data model definition is cloned (and the source PDB data is not cloned), select **Exclude User Data**.

In the Access Controls and Permissions section, specify the owner and the group that must be granted *read-only* permissions on the data files.

Click **Next**.

- On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

- Specify an instance name for the deployment procedure. Also, specify the point in time when you want the deployment procedure to begin.

In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the deployment procedure is scheduled, and when it succeeds.

Click **Next**.

- Review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a test master PDB from the source PDB.

21.1.3 Creating an ACFS Test Master Pluggable Database

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a test master PDB from a source PDB, using the new Clone PDB Wizard.

To create a test master PDB from a source PDB, follow these steps:

- From the **Targets** menu, select **Databases**.
- For **View**, select **Search List**. From the **View** menu, select **Expand All**.
- Look for the source CDB (the CDB that the source PDB is a part of) in the list, then click the name of the PDB from which you want to create a test master PDB.

- From the **Oracle Database** menu, select **Cloning**, then select **Create Test Master**.

Alternatively, in Step 3, you can right click the name of the PDB from which you want to create a test master PDB, select **Oracle Database**, select **Cloning**, then select **Create Test Master**.

- On the Create Test Master Pluggable Database: Source and Destination page, do the following:
 - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
 - In the Pluggable Database Definition section, specify a name, and a display name for the test master PDB. Enterprise Manager uses the display name to identify the test master PDB target.

- In the PDB Administrator Credentials section, specify the credentials of the admin user account that you want to use to administer the test master PDB.
- In the Container Database section, specify the destination CDB (the CDB that the test master PDB must be a part of).
- In the Credentials section, specify the SYSDBA credentials for the destination CDB, and the host credentials for the destination CDB. Also, if the destination CDB is using Automatic Storage Management (ASM) to manage disk storage, you must specify the ASM credentials.

Click **Next**.

6. On the Create Test Master Pluggable Database: Configuration page, in the Database Files Location section, specify the ACFS mount point storage location where the data files of the test master PDB will be created.

To ensure that only the source PDB data model definition is cloned (and the source PDB data is not cloned), select **Exclude User Data**.

Click **Next**.

7. On the Create Test Master Pluggable Database: Post Processing page, in the Data Masking section, specify the data masking definition that you want to apply after creating the test master PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before, and after creating the test master PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after creating the test master PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

PROD_PDB1

Source and Destination Configuration Post Processing Schedule Review

Create Test Master Pluggable Database: Post Processing

Back Step 3 of 5 Next Close Cancel

Data Masking

Select the masking definition which should be applied after cloning the database.

Masking Definition: HCH_Masking_Defn

Custom Scripts

Select the Software Library components which contain pre and post cloning scripts. The clone database can also be customized by executing the post cloning script.

Pre Script: HCH Pre-clone
Post Script: HCH Post-clone
SQL Script: SQL_Scripts.sql

Run As User: sys

- Specify an instance name for the deployment procedure. Also, specify the point in time when you want the deployment procedure to begin.

In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the deployment procedure is scheduled, and when it succeeds.

Click **Next**.

PROD_PDB1

Source and Destination Configuration Post Processing Schedule Review

Create Test Master Pluggable Database: Schedule

Back Step 4 of 5 Next Close Cancel

Deployment Procedure Instance

* Deployment Procedure Instance Name: Create_Test_Master_PDB_SYSMAN_05_27_2015_23_4

Schedule

Start: Immediately Later (UTC+05:30) Calcutta - India Time (IT)

Notification

Status for Notification: ☒ Scheduled ☒ Running ☒ Action Required ☒ Suspended ☒ Succeeded ☒ Problems

- Review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a test master PDB from the source PDB.

PROD_PDB1

Source and Destination Configuration Post Processing Schedule Review

Create Test Master Pluggable Database: Review

Back Step 5 of 5 Close Cancel

Source	Destination
Pluggable Database Name: PRODCDB1_PROD_PDB1	Pluggable Database Name: PRODCDB1
Container Database Name: PRODCDB1	Display Name: PRODCDB1_05-27-2015
SYSDBA Container Database Credentials: Preferred Credentials	PDB Administrator: PDBADMIN
	Container Database Name: PRODCDB1
	SYSDBA Container Database Credentials: Preferred Credentials

Configuration

Location: /u01/app/oracle/softmount/PDB_1TH3
Exclude User Data: No

Schedule

Start: Immediately

Post Processing

Masking Definition: HCH_Masking_Defn
Pre Script: HCH Pre-clone
Post Script: HCH Post-clone
Post SQL Script: SQL_Scripts.sql

21.2 Creating Snapshot Clones of Test Master Pluggable Databases

This section provides the different solutions of creating snapshot clones of test master pluggable databases using the Pluggable Database Cloning wizard. It contains the following subsections:

- Creating a Snapshot Clone of an Exadata Test Master PDB
- Creating a Snapshot Clone of an ACFS Test Master PDB

Note: To create a snapshot clone of a pluggable database using EM CLI, see [Section 47.14.2, "Pluggable Database Snapshot Clone Types."](#)

21.2.1 Creating a Snapshot Clone of an Exadata Test Master PDB

Important: You can create snapshot clones of only those test master PDBs that are of version 12.1.0.2.0 or higher.

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a snapshot clone of a test master PDB using the new Clone PDB Wizard.

To create a snapshot clone of an exadata test master PDB, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source test master PDB is a part of) in the list, then click the name of the test master PDB that you want to clone.
4. From the **Oracle Database** menu, select **Cloning**, then select **Create Snapshot Clone**.

Alternatively, in Step 3, you can right click the name of the test master PDB that you want to clone, select **Oracle Database**, select **Cloning**, then select **Create Snapshot Clone**.

5. On the Source and Destination: Create Snapshot Clone Pluggable Database, do the following:
 - Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
 - In the Credentials section, specify the SYSDBA credentials of the CDB.
 - In the Pluggable Database Definition section, specify the name of the PDB, and a display name of the PDB snapshot clone. Enterprise Manager uses the display name to identify the PDB snapshot clone target.
 - In the PDB Administrator Credentials section, specify the credentials of the Admin user account that you want to use to administer the PDB snapshot clone.

To clone the test master PDB to a CDB different from the source CDB, select **Clone the Pluggable Database into a different Container Database**, then specify the destination CDB.

- In the Credentials section, specify the CDB host credentials. Also, specify the ASM credentials of the ASM that will be used to manage disk storage.

6. If you do not need to specify anymore details, click **Clone**. This submits the deployment procedure to clone a PDB to a CDB that is deployed in a public cloud setup.

To specify other configuration details, mask data, as well as schedule the cloning process, click **Advanced**.

Follow the rest of the steps, if you have selected the Advanced option. The option to **Clone** is available on each page.

7. On the Create Snapshot Clone Pluggable Database: Source and Destination page, verify the details specified, and then click **Next**.

8. On the Create Snapshot Clone Pluggable Database: Configuration page, do the following:
 - In the Database Files Location section, specify the name of the Sparse disk group where the data files of the PDB snapshot clone will be created.
 - In the Advanced Configuration section, specify the storage limits for the maximum size of the PDB snapshot clone, and the maximum size of a shared tablespace within the PDB snapshot clone. By default, no limits are placed on the values for these attributes.
 - In the Miscellaneous section, select the default logging option for the tablespaces created within the PDB snapshot clone.
 - Click **Next**.

9. On the Create Snapshot Clone Pluggable Database: Post Processing section, in the Data Masking section, specify the data masking definition that you want to apply after cloning the PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before cloning, and after cloning the PDB respectively. Also, for **SQL Script**, specify the

SQL scripts that you want to run after cloning the PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

- On the Create Snapshot Clone Pluggable Database: Schedule page, specify an instance name for the cloning deployment procedure. Also, specify the point in time when you want the cloning procedure to begin.

In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the cloning deployment procedure is scheduled, and when it succeeds.

Click **Next**.

- On the Create Snapshot Clone Pluggable Database: Review page, review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a snapshot clone of the exadata test master PDB.

21.2.2 Creating a Snapshot Clone of an ACFS Test Master PDB

Important: You can create snapshot clones of only those test master PDBs that are of version 12.1.0.2.0 or higher.

If you have the 12.1.0.8 Enterprise Manager for Oracle Database plug-in deployed in your system, you can create a snapshot clone of a test master PDB using the new Clone PDB Wizard.

To create a snapshot clone of an exadata test master PDB, follow these steps:

1. From the **Targets** menu, select **Databases**.
2. For **View**, select **Search List**. From the **View** menu, select **Expand All**.
3. Look for the source CDB (the CDB that the source test master PDB is a part of) in the list, then click the name of the test master PDB that you want to clone.
4. From the **Oracle Database** menu, select **Cloning**, then select **Create Snapshot Clone**.

Alternatively, in Step 3, you can right click the name of the test master PDB that you want to clone, select **Oracle Database**, select **Cloning**, then select **Create Snapshot Clone**.

5. On the Source and Destination: Create Snapshot Clone Pluggable Database, do the following:

- Specify the SYSDBA credentials for the source CDB. You can choose to use the preferred credentials, use a saved set of named credentials, or specify a new set of credentials.
- In the Credentials section, specify the SYSDBA credentials of the CDB.
- In the Pluggable Database Definition section, specify the name of the PDB, and a display name of the PDB snapshot clone. Enterprise Manager uses the display name to identify the PDB snapshot clone target.
- In the PDB Administrator Credentials section, specify the credentials of the Admin user account that you want to use to administer the PDB snapshot clone.

To clone the test master PDB to a CDB different from the source CDB, select **Clone the Pluggable Database into a different Container Database**, then specify the destination CDB.

- In the Credentials section, specify the CDB host credentials. Also, specify the ASM credentials of the ASM that will be used to manage disk storage.

6. If you do not need to specify anymore details, click **Clone**. This submits the deployment procedure to clone a PDB to a CDB that is deployed in a public cloud setup.

To specify other configuration details, mask data, as well as schedule the cloning process, click **Advanced**.

Follow the rest of the steps, if you have selected the Advanced option. The option to **Clone** is available on each page.

7. On the Create Snapshot Clone Pluggable Database: Source and Destination page, verify the details specified, and then click **Next**.

8. On the Create Snapshot Clone Pluggable Database: Configuration page, do the following:
- In the Database Files Location section, specify the name of the Sparse disk group where the data files of the PDB snapshot clone will be created.
 - In the Advanced Configuration section, specify the storage limits for the maximum size of the PDB snapshot clone, and the maximum size of a shared tablespace within the PDB snapshot clone. By default, no limits are placed on the values for these attributes.
 - In the Miscellaneous section, select the default logging option for the tablespaces created within the PDB snapshot clone.
 - Click **Next**.

9. On the Create Snapshot Clone Pluggable Database: Post Processing section, in the Data Masking section, specify the data masking definition that you want to apply after cloning the PDB. Data masking masks sensitive data in a database.

For information on how to create a data masking definition, see *Oracle Data Masking and Subsetting Guide*. Note that you can apply a data masking definition only if you have the Subset-Masking license pack.

In the Custom Scripts section, for **Pre Script** and **Post Script**, specify the Oracle Software Library components that contain the scripts that you want to run before cloning, and after cloning the PDB respectively. Also, for **SQL Script**, specify the SQL scripts that you want to run after cloning the PDB. For **Run As User**, select the user account that you want to use to run the SQL scripts.

Click **Next**.

- On the Create Snapshot Clone Pluggable Database: Schedule page, specify an instance name for the cloning deployment procedure. Also, specify the point in time when you want the cloning procedure to begin.

In the Notification section, select the deployment procedure states for which you want to receive e-mail notifications. For example, if you select **Scheduled** and **Succeeded** for **Status for Notification**, you will receive e-mail notifications when the cloning deployment procedure is scheduled, and when it succeeds.

Click **Next**.

- On the Create Snapshot Clone Pluggable Database: Review page, review all the details you provided. If you want to edit certain details, click **Back** to navigate to the required page.

Click **Clone** to submit the deployment procedure to create a snapshot clone of the exadata test master PDB.

21.3 Enabling a Test Master Pluggable Database

To convert a pluggable database into a test master, follow these steps:

- Right click on the pluggable database target name that you want to enable as a test master, select **Oracle Database**, select **Cloning**, and then select **Enable as a Test Master**.
- On the Enable as a Test Master page, in the Credentials section, specify the credentials for the container database of the pluggable database, and the credentials of the Oracle Home.
- In the Source section, specify or search for the parent database from which the database has been created. This provides better lineage tracking.

4. In the Data Masking section, you can choose to desensitize the data by applying masking templates or by running additional scripts of your choice.
5. In the Custom Scripts section, you can select the Software Library components which contain post cloning scripts. The clone database can also be customized by executing the post cloning SQL script.
6. Click **Submit**.

FIN_PROD

Enable as a Test Master

This process will help you convert the selected pluggable database into a test master by setting the necessary access controls and marking the datafiles as read-only files. For better lineage tracking you may also identify the parent database from which the database has been cloned. If not already done, you may also choose to de-sensitize the data by applying masking templates or by running additional scripts of your choice.

Credentials

* Container Database Preferred Credentials

* Oracle Home Preferred Credentials

Source

Parent Database

Data Masking

Do you want to mask data in this cloned database before enabling it as a test master?

☒ Yes, apply masking on this cloned pluggable database.

Masking Definition

☐ No, it is already masked.

☐ No, I do not need any masking on this test master.

Custom Scripts

Select the Software Library components which contain post cloning scripts. The clone database can also be customized by executing the post cloning SQL script.

Post Script

SQL Script

Run As User

Submit **Cancel**

21.4 Disabling a Test Master Pluggable Database

Disabling a test master pluggable database, resets the data files to read-write mode and restarts the pluggable database in open mode. You can make further changes to the database and then enable it as a test master again.

To disable a test master pluggable database, follow these steps:

1. Right click on the test master pluggable database, select **Oracle Database**, select **Cloning**, and then select **Disable as a Test Master**.
2. On the Disable Test Master page, specify the credentials of the container database of the test master pluggable database. Also, specify the credentials of the Oracle Home.
3. Click **Submit**.

FIN_TM

Disable Test Master

This process will reset the datafiles to read-write mode and restart the pluggable database in open mode. You may make further changes to the database and then enable it as a test master again.

Credentials

* Container Database Preferred Credentials

* Oracle Home Preferred Credentials

Submit **Cancel**

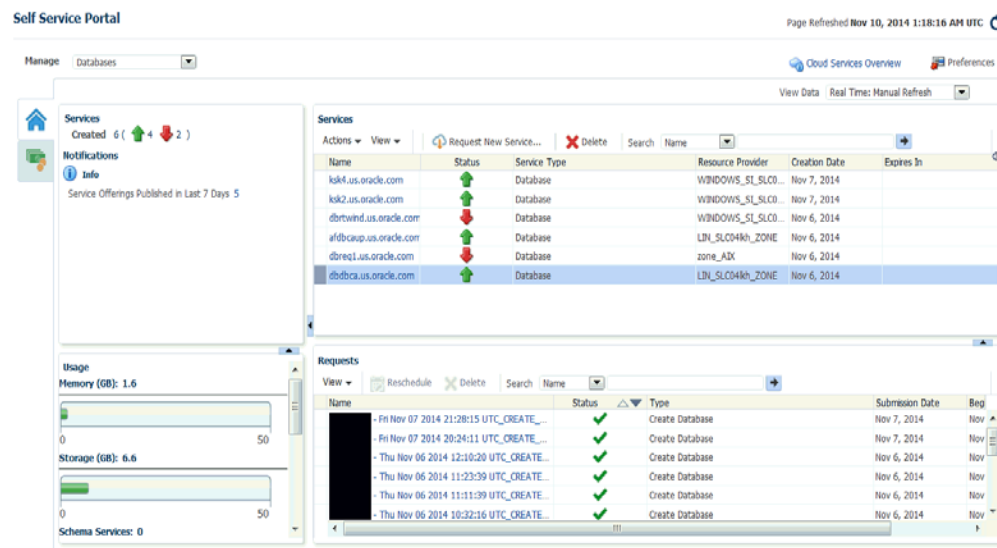
Using the DBaaS Self Service Portal

This chapter provides self service users with instructions on using the Database Cloud Self Service Portal to request, monitor, and manage database services. It contains the following sections:

- [Using the Database Cloud Self Service Portal](#)
- [Requesting a Database](#)
- [Viewing the Database Service Home Page](#)
- [Viewing the Database Instance Home Page](#)
- [Viewing the Cluster Database Home Page](#)
- [Viewing the Pluggable Database Home Page](#)

22.1 Using the Database Cloud Self Service Portal

The Database Self Service Portal allows self service users to view, monitor and deploy databases on selected zones, as well as create schemas on running databases. To view the Database Cloud Self Service Portal, log in to Enterprise Manager as a user with EM_SSA_USER role or an user with the EM_SSA_USER_BASE role. Users with these roles must be part of the DBAAS Cloud Service Family and must have privileges for the DB, Schema, or PDB service types. The Self Service Portal appears. Select **Databases** from the **Manage** drop down list.

Figure 22–1 Database Cloud Self Service Portal

The Database Self Service Portal allows SSA users to view, monitor, deploy databases on selected zones, and create schemas on running databases.

The following details are displayed:

- **Home:** This is the Home page for the Database Self Service Portal. It contains the following sections:
 - **Notifications:** This section shows the number of databases that are expiring in the next 7 days.
 - **Usage:** This region displays the quota that you currently have and how much has been used for the following:
 - * **Databases:** The number of databases requested so far and the maximum number of databases that can be requested.
 - * **Schema Services:** The number of schemas requested so far and the maximum number of schemas that can be requested.
 - * **Pluggable Databases:** The number of PDBs requested so far and the maximum number of PDBs that can be requested.
 - * **Memory:** The total amount of memory allocated to the user and the memory used by all databases and schemas requested so far.
 - * **Storage:** The total storage volumes allocated to the user and the storage used by all databases requested so far.
 - **Services:** This table lists the services that you currently own. You can request more databases, schemas, or PDBs by selecting the appropriate option from the **Request New Service** menu. You can also delete any databases you own to release it prior to expiration. Click on the service instance name to drill down to the database details page. This page provides basic monitoring capabilities and provides life cycle operations for the service.

From the **Actions** menu, you can do the following:

- * **Start / Stop a Service Instance:** You can start a service instance that has been stopped or stop a service instance that is running.

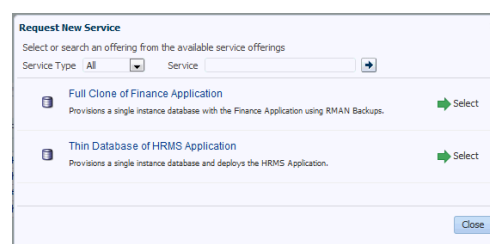
- * **View History:** Select a service instance and click View History to view the history of operations performed on the service instance.
- * **Grant:** You can grant view or full privileges over the service instance to other users or roles. See [Section 29.4.1, "Granting, Revoking, and Reassigning Privileges to Service Instances"](#).
- * **Revoke:** You can revoke privileges that you have granted to other users or roles. See [Section 29.4.1, "Granting, Revoking, and Reassigning Privileges to Service Instances"](#).
- **Requests:** This table tracks the requests that you have created, deleted, or refreshed. For each request, the status, request type, service type, and submission date of the request is displayed. You can select a scheduled such as a Create or Delete request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**. If a request that is scheduled such as **Create** gets canceled, all other associated requests are also canceled.
- **Chargeback:** This page displays all the chargeback break-up data for the databases and pricing for different zones. The charge incurred will be calculated from the database requested date to current date. This page contains the following sections:
 - **Charge Trend:** This graph show the usage and charge trends over time.
 - **Aggregate By:** You can aggregate the charge back data for the database by resources or metrics. You can export this data to an external application such as a spreadsheet.
 - **Charge Plans:** The charge plans that have been assigned to each are displayed. Select a zone to view the pricing. The rate for each metric in the database zone for a specific time period is displayed.
- **Preferences:** Click this link to set up your preferences such as your default service portal, default PaaS Infrastructure Zone, default email address for notifications, and so on.

22.2 Requesting a Database

To request a new database, follow these steps:

1. Click the **Request New Service** link on the Database Cloud Self Service Portal. The service offerings window is displayed.
2. In the Service Type drop down, select **All** to view all the service offerings available for the Database Service Family. You can select Database, Pluggable Database, or Schema to view service offerings only for the selected service type.

Figure 22–2 Request New Service



3. Select a service template from the list and click **Select**. The service template you select can be based on RMAN backup profile, physical standby database, or snapshot based profile. Select the appropriate template according to your requirement.
4. The New Database Service Request page appears.

Figure 22–3 Create Database

Enter the following details:

- **Request Name:** Enter the name of the request.
- **Zone:** Select a PaaS Zone on which the database is to be deployed.
- **Database SID:** This field is displayed if the service template you have selected allows you to specify the database SID at request time. Enter a unique Database SID.
- **Database Service Name:** Enter a unique database service name. The name you specify must be unique across all database, pluggable database, and schema service requests.

You cannot use the same database service name that has been used for future scheduled requests. If a Delete operation failed, you cannot use the name specified in the failed request.

Note:

- You can create a standby database only if the service template you select contains a database pool with standby databases.
 - If the service template supports standby databases, depending on the preferences set up the self service administrator, you can choose to create a standby database if required. You can also select from one or more standbys (a subset of what is defined in the service template). If you do not wish to create a standby database and you select only a subset of the topology supported by the service template, you can request one or more of the remaining standbys at a later point in time after the current request has been completed.
-
- **Deployment Input:** Specify the user name and password for the database. If you have selected an RMAN or snap clone based service template, and you are allowed to choose from the active data points, you can select an RMAN backup or snap shot here.
 - **Schedule Request:** Specify the schedule for the request.

- **Service Instance Properties:** Any mandatory and optional target properties are displayed here. If a property is marked mandatory, you must enter a value for that property.
5. If the service template you selected is based on a RMAN Backup, Snapshot or RMAN Image profile, the list of available backups, snapshots, or images are listed in the Snapshot region. These snapshots reflect the state of the test master database at any point in time.

Figure 22–4 Create Database (Snapshots)

Select a snapshot from the list and click **Submit** to deploy the database to the selected zone. The new database that is created will be based on the selected snapshot.

22.2.1 Requesting a Schema

You can create a database service with one or more schemas and populate the schema with the required data.

Requesting an Export Profile Based Schema

You can create a schema based on a service template with a schema export profile or an empty service template. To create a schema based on a schema export profile, follow these steps:

1. Log in to Enterprise Manager as a user with EM_SSA_USER role or any role that includes EM_SSA_USER role.
2. The Database Cloud Self Service Portal page appears. Select **Databases** from the Manage drop down list to navigate to the Database Cloud Self Service Portal.
3. Click **Request New Service** in the Services region.
4. Choose a Schema Service Template with an schema export profile from the list and click **Select**. The Create Schema page appears. The name and description of the service template you have selected is displayed. Enter the following details:
 - **Request Name:** Enter a name for the schema service request.
 - **Zone:** Select the zone in which the schema is to be created.
 - **Database Service Name:** Enter a unique name for the database service.
 - **Workload Size:** Specify the workload size for the service request.

- **Schema Prefix:** Enter a prefix for the schema. For clustered databases, the service is registered with Grid Infrastructure credentials.
- 5. Click **Rename Schema** to enter a new name for the schema. If you wish to retain the source schema name, ensure that the Schema Prefix field is blank.
- 6. Specify the password for the schema. Select the **Same Password for all Schemas** checkbox to use the same password for all the schemas.
- 7. The Master Account for the schema is displayed. The schema with Master Account privileges will have access to all other schemas created as part of the service request.
- 8. In the Tablespace Details region, the names of all the tablespaces in the schema are displayed. You can modify the tablespace name and specify a new name in the New Tablespace Name box.
- 9. Specify the schedule for the request and click **Submit** to create the schema.

Requesting an Empty Schema

To create a schema with an empty schema template, follow these steps:

1. Follow **steps 1 to 3** listed above and in the Select Service Template window, select an empty schema template from the list.
2. Specify the details of the schema as listed in **steps 4 to 7**.
3. In the Tablespace Details region, you can specify a separate tablespace for each schema or use the same tablespace for all the schemas.
4. Specify the schedule for the schema request and click **Submit** to create the schema.

22.2.2 Requesting a Pluggable Database

You can request a pluggable database based on a selected service template. To request a pluggable database, follow these steps:

1. Login to Enterprise Manager as a user with EM_SSA_USER role or any role that includes EM_SSA_USER role.
2. The Infrastructure Cloud Self Service Portal page appears. Select **Databases** from the Manage drop down list.
3. Click **Request New Service** in the Services region. In the Request New Service window that appears, select **Pluggable Database** from the Service Type drop down.
4. Choose a service template from the list and click **Select**. The Create Pluggable Database page appears.

Figure 22–5 New Pluggable Database Service Request

The screenshot shows the 'Create Pluggable Database' form in the Database Cloud Self Service Portal. The form is organized into three main sections:

- General:** Contains fields for 'Service Template' (with a dropdown), 'Request Name' (with a text input), 'User' (with a text input), 'Password' (with a text input), and 'Database Service Name' (with a text input). There is also a 'Schedule Request' section with a 'Start Date' and 'End Date'.
- Administrator Credentials:** Contains fields for 'Administrator Name', 'Password', and 'Confirm Password'.
- Service Instance Properties:** Contains a table with columns for 'Name', 'Location', 'Location Status', 'Database Name', 'Comment', and 'Line of Business'.

5. Specify the following details:

- **Request Name:** Enter the name of the request.
- **Zone:** Select a PaaS Infrastructure Zone with the container databases into which the pluggable database is to be deployed.
- **PDB Name:** Enter a unique pluggable database name.

Note:

- The database service name you specify must be unique across all database, pluggable database, and schema service requests.
 - You cannot use the same database service name that has been used for future scheduled request.
 - If a Delete operation failed, you cannot use the name specified in the failed request.
-

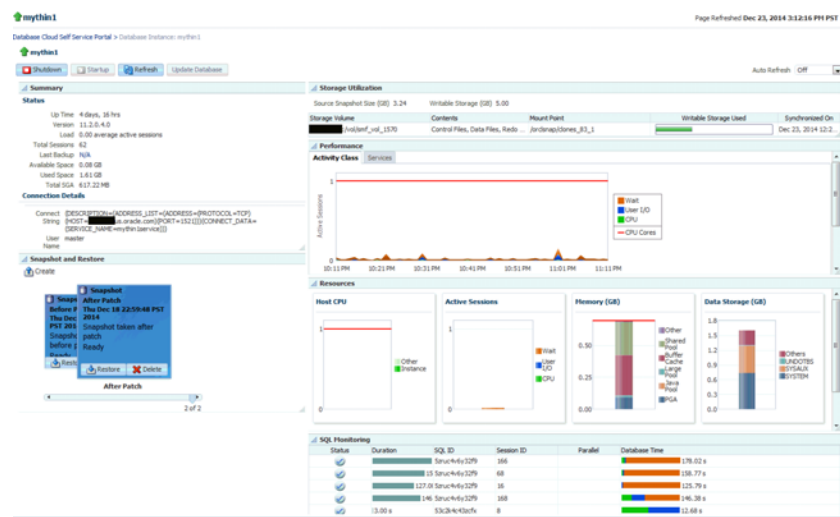
- **Database Service Name:** Enter a unique database service name.
- **Workload Size:** Workload represents the total CPU, memory, and storage requirements for each service. Select the Workload Size from the drop down list.
- **Deployment Input:** Specify the pluggable database administrator user name and password.
- **Schedule Request:** Specify the schedule for the request.
- **Service Instance Properties:** Any mandatory and optional target properties are displayed here. If a property is marked mandatory, you must enter a value for that property.

6. Click **Submit** to deploy the database to the selected zone.

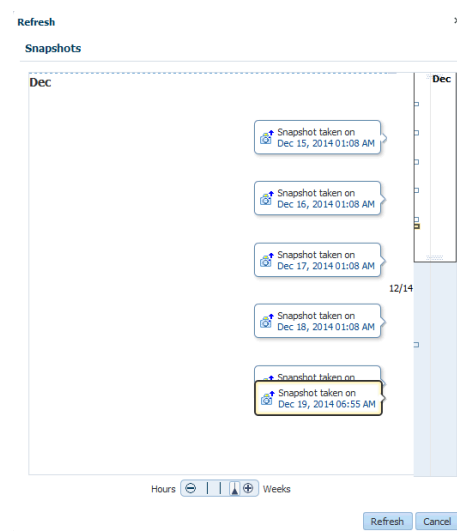
22.3 Refreshing a Database

After you have created a database, you can keep the data current and consistent with the production database by refreshing it on a regular basis. To refresh a database, follow these steps:

1. In the Database Self Service Portal Home page, click on the Name link in the Services region to drill down to the Database Home page.

Figure 22–6 Refresh Database

2. Click **Refresh**. The list of available snapshots or RMAN backups is displayed.

Figure 22–7 Snapshots

Select a snapshot profile from the list and click **Refresh**. You will see a message that the database will be refreshed to the selected snapshot version and older snapshots will be deleted. Click **Yes** to submit the Refresh Database Request job. On successful completion of the request, the database is refreshed and will be consistent with the selected snapshot profile.

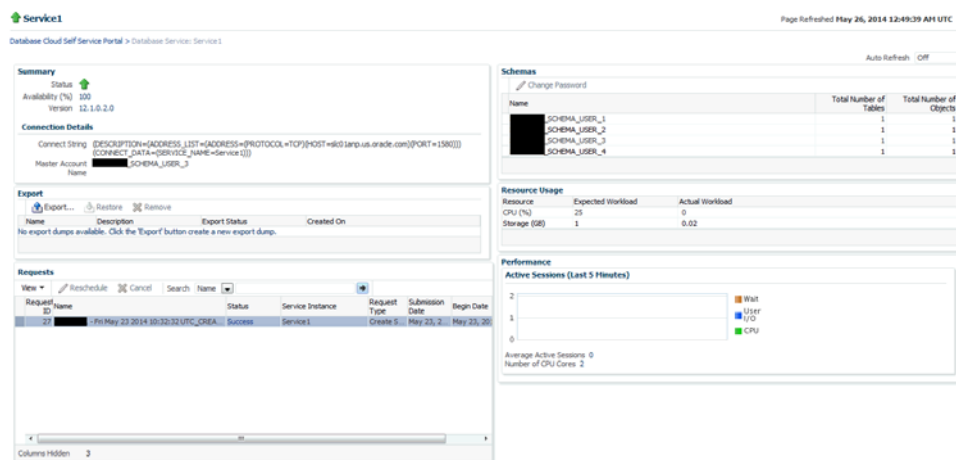
22.4 Viewing the History of a Request

To view the history for a database instance, select the row in the Services column and select **History** from the **Actions** menu. All the requests that have been submitted for the database instance and the status of each request is displayed.

22.5 Viewing the Database Service Home Page

Database services are logical abstractions for managing workloads in Oracle Database. Services divide workloads into mutually disjointed groupings. Each service represents a workload with common attributes, service-level thresholds, and priorities. The Database Service Home page provides a detailed view of the database service.

Figure 22–8 Database Service Home



It contains the following regions:

- **Summary:** Displays the status of the database service and the database version.
- **Connection Details:** Shows the database connection details including the Connect String and the Master Account Name.
- **Export:** You can do the following:
 - **Export:** Click **Export** to take export dumps of all the schemas that are part of the service. In the Export window, enter the name, description, and specify when the export dump should be scheduled and click **Schedule**.
 - **Import:** Click **Restore** to restore schemas from the selected export dump.
 - **Remove:** Select an export dump and click **Remove** to delete it.
- **Requests:** This region shows the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.
- **Schemas:** Displays the name of the schema and tablespace associated with the database service.
- **Resource Usage:** This region displays the workloads associated with the schema. This includes the CPU, Memory, and Storage allocated to the database service.
- **Performance:** This region displays a graph showing the Average Number of Active Sessions over the last 5 minutes.

22.6 Viewing the Database Instance Home Page

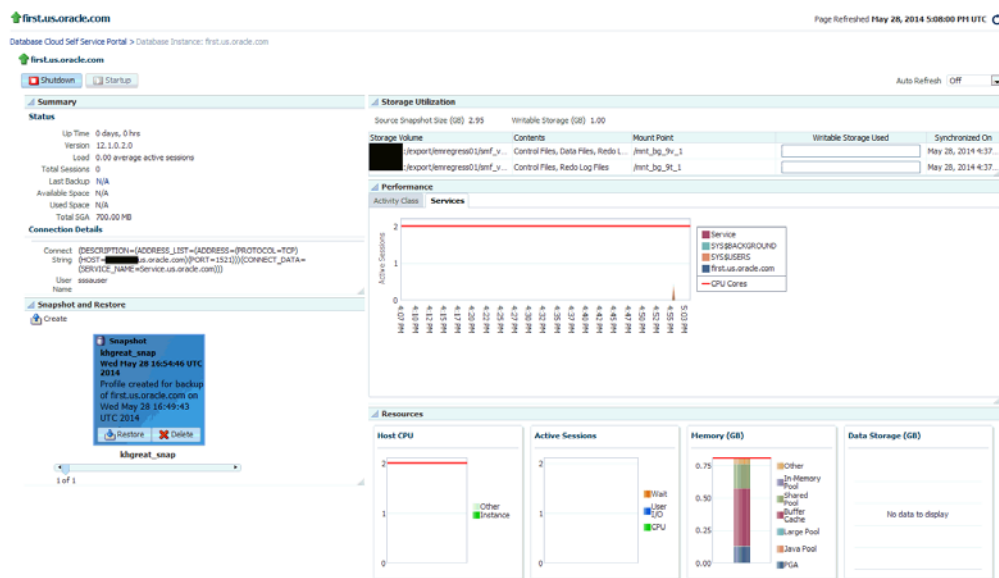
The Database Instance Home page provides a detailed view of the database instance.

This page contains the following regions:

- **Summary:** The region of the Database Instance Home page provides a quick overview of the database status and provides basic information about the database. It shows the current status of the database and includes details such as the time stamp of instance start time, database version, date of the last backup, and so on.
- **Connection Details:** Shows the database connection details including the Connect String and the name of the user accessing the database.
- **Backup and Restore:** If the fast recovery area is configured for the database, you can schedule a daily backup for this database. Click **Schedule Backup** to perform this task. Once backups are available, you can click **Restore** to restore the database to a specific point in time. If the fast recovery area is not configured, your Database Administrator can configure the fast recovery area or publish a new service template that allows you to request databases with fast recovery area configured at the time of request fulfillment.

Note: If the database instance has been created using a snap clone based profile, instead of the Backup and Restore region, you will see the Snapshot and Restore region with a list of snapshots. You can click Restore to restore data from a snapshot. See

Figure 22–9 Database Instance Home Page (Snap Clone)



- **Performance:** Shows the performance monitoring information for the database. Click on the **Active Class** tab to view a bar chart showing the amount of time spent either waiting for a resource or consuming CPU.
- **Resources:** Shows graphs indicating the resource consumption and include Host CPU, Active Sessions, Memory, and Data Storage.
- **SQL Monitoring:** Shows the SQL Response Time chart that shows the current response of the tracked set of SQL versus the reference collection response.

- **Requests:** This region shows the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.

Starting and Stopping the Database

Depending on the state of the database, you can click **Shutdown** to shut down the database if the database is open, the **Startup** button if the database is shut down, or the **Shutdown** button if the state of the database is unknown or in a Status Pending state.

22.7 Viewing the Standby Database Home Page

The home page for a standby database instance contains the following regions:

- **Summary:** The region provides a quick overview of the database status and provides basic information about the database. It shows the current status of the database and includes details such as the time stamp of instance start time, database version, date of the last backup, and so on.
- **Connection Details:** Shows the database connection details for the primary database, and one or more standby databases. It includes the Connect String and the name of the user accessing the database.
- **Data Guard Summary:** This region shows the Protection Mode for all the databases (primary and standby) and the details of each database such as the type of database, role, redo transport mode, and so on. For more details, see [Section 15.2.2, "Creating a Service Template"](#).
- **Performance:** Shows the performance monitoring information for the database. Click on the **Active Class** tab to view a bar chart showing the amount of time spent either waiting for a resource or consuming CPU.
- **Resources:** Shows graphs indicating the resource consumption and include Host CPU, Active Sessions, Memory, and Data Storage.
- **SQL Monitoring:** Shows the SQL Response Time chart that shows the current response of the tracked set of SQL versus the reference collection response.
- **Requests:** This region shows the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.

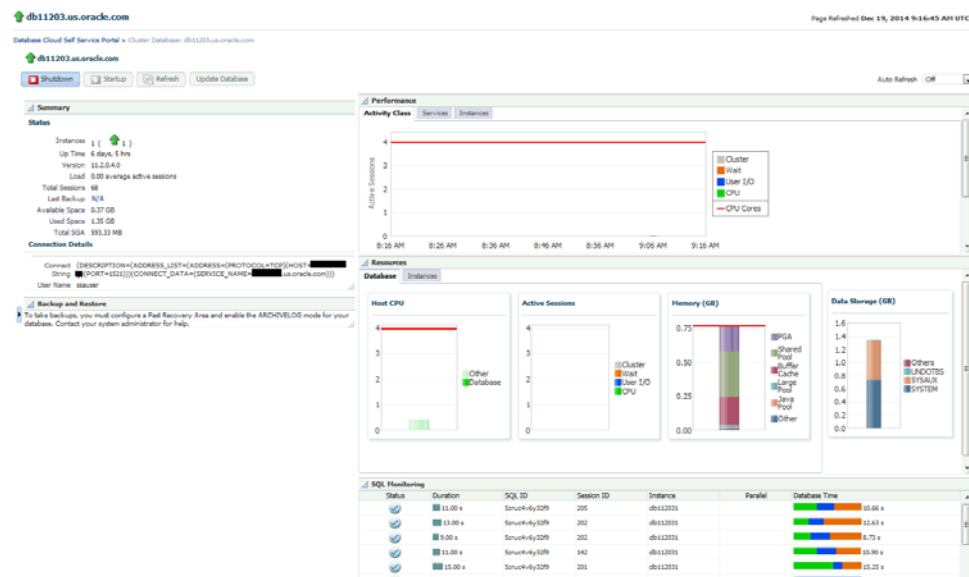
22.8 Viewing the Cluster Database Home Page

Use the Cluster Database Home Page to:

- Determine the current status of the Oracle Real Application Clusters database by viewing a series of metrics.
- Start or stop the cluster database.
- Schedule daily backups and perform a point-in-time-restore of the database.

Note: The Home Page presents a high level view of the cluster database. Click the arrow key on the left margin to expand the master panel and view the Target Navigation pane. You can select a Database Instance from the left panel to view details for that instance. You can then perform operations such as Startup and Shutdown for the Database Instance.

Figure 22–10 Cluster Database Home Page



Home Page Sections

The Cluster Database Home page displays information for the following sections:

- Summary
- Performance
- Configuration Changes
- Resources
- Jobs Running
- SQL Monitor
- Issues

Summary

The Summary section displays the status and diagnostics information about the cluster database.

Status

This section provides a quick view of the status of the cluster database and provides basic information about the cluster database. The status can be Up, Down, Under Blackout, Unmonitored, or Unknown, and the status is mirrored in the arrow icon that appears to the left.

The number of database instances in the cluster, the Up Time, Version, Load, Total Sessions, Available Space and other details are displayed. Following are the fields displayed in this section:

- Instances: Displays the number of cluster database instances that are up.
- Up Time: Displays the total elapsed time since the cluster database was started.
- Availability: Displays the percentage of time that the cluster database was available.
- Version: Displays this version of the Oracle Database.
- Load: Displays the number of average active sessions since this cluster database was started.
- Total Sessions: Displays the total cluster database sessions running.
- Latest Backup: Displays when the last backup of the database was performed.
- Available Space: Displays space available on the cluster database.
- Total SGA: Displays total system global area.
- Problem Services: Displays the services that have problems

Note: QoS Status on Cluster Database Home page shows if the database is enabled for QoS Management. The possible states are:

- Enabled: Indicates that this database is enabled for QoS monitoring.
- Disabled: Indicates that this database is disabled for QoS monitoring.
- Active: Indicates that this database is enabled and monitored by QoS.

The QoS Status shown on the Cluster Database Home page is different from status shown on Quality of Service Dashboard. QoS Dashboard shows overall status of QoS itself in the Cluster.

Jobs Running

This table displays a report of the job executions that shows the scheduled, running, suspended, and problem (stopped/failed) executions for all Enterprise Manager jobs on the cluster database, ordered by submission of the job to the cluster database or to any member instance. If a value other than 0 appears in a field, you can click the number to go to the Job Activity page where you can view information about all scheduled, currently running, and past jobs.

Note: The four job status categories displayed group together job executions of similar status. For a complete list of job status values, refer to About Job Status. Use the Jobs tab to view all jobs or search for jobs of a certain status.

Performance

The Performance section shows active sessions during a one-hour window for activity classes and top services.

Activity Class

The Active Sessions chart shows potential problems inside the database. Categories, called wait classes, show how much of the database is waiting for a resource, such as CPU or disk I/O. The chart displays the load on the instance and identifies bottlenecks in performance.

To quickly identify problem areas, the chart displays a larger block of color to indicate more severe problems. Click the largest wait class on the highest peak, or alternatively click the corresponding wait class (indicated in yellow highlighting). Either action

takes you to the Active Sessions Waiting page for the wait class selected, which shows top SQL, sessions, files, and objects for the wait class and also shows the associated wait events.

Services

The Active Sessions chart shows the top services waiting for the corresponding wait event during the time period shown. Only active services are shown. Click on one of the service legends to the right of the chart to go to the Service Activity page, where you can view real-time data showing the sessions load for all wait classes associated with the service.

Resources

The Resources section displays a bar chart showing relative CPU utilization of the Oracle host. This instantaneous value is refreshed every minute from the host by the Agent. The 100% represents the total CPU that the host system provides. The Instances tab is a break down of instance-wise measure of the resources, and the Database tab presents the overall measure.

Host CPU

This section displays a bar chart showing the relative CPU utilization across all hosts in the cluster. This instantaneous value is refreshed every minute by the Agent. The 100% represents the total CPU across all hosts in the cluster. Two values appear in the bar chart. The bottom, darker color corresponds to the Database legend and represents how much of the CPU is consumed by all the instances of this database. Click the Database link to go to the Top Activity page to display all wait classes and related statistics. The upper, lighter color corresponds to the Other legend and represents all other processes. Click the Other link to go to the Host Performance page for a quick glimpse of the utilization statistics (CPU, Memory, Disk I/O, and Program Resource Utilization) for this host.

The Load number is unrelated to the Host CPU chart. The Load number relates to the sum of the current CPU load for all cluster hosts. Click the Load link to go to the Host Performance page for a quick glimpse of the utilization statistics (CPU, Memory, Disk I/O, and Program Resource Utilization) for this host.

Note: The Host CPU section does not appear for pre-10g databases.

Active Sessions

The bar chart shows the amount of time all instances consumed using I/O and CPU, and the amount of time it consumed in bottlenecks. The number shown beside the bar chart is a literal number representing the number of active sessions, rather than the total number of sessions. The chart shows the latest value instead of a historical value. The three session categories are always CPU, User I/O, and Wait.

The **Wait** category represents the value for all wait classes combined, excluding User I/O. All of the links go to the Cluster Database Performance page.

User I/O displays the average active sessions spent on waiting for user I/O. User I/O means that the workload originating from the user causes the database to read data from the disk or write data to the disk. Click the User I/O link to go to the Performance page to view potential problems inside and outside of the current database.

CPU displays the average active sessions spent on using CPU. Click the CPU link to go to the Top Activity page to display all wait classes and related statistics.

The **Maximum CPU** number is the total CPU count across all the cluster database hosts.

Note: The Active Sessions section does not appear for pre-10g databases.

Memory

The chart shows the memory used by the database in GB.

Shared Pool displays various constructs that can be shared among users. For example:

- SQL statements that users implement are cached so that they can be reused if the same statement is used again.
- Information from the data dictionary is cached for quick access and reusability.
- Stored procedures, which are executable code that is stored in the database, can be cached for faster access.

Buffer Cache caches blocks of data retrieved from the database. If a piece of data can be found in the buffer cache, then there is no need to read it from disk. There are subcaches for multiple block sizes, if used.

Large Pool displays optional area used for buffering large I/O requests for various server processes.

Java Pool used for all session-specific Java code and data within the Java Virtual Machine (JVM).

Other SGA displays shared memory area that contains data and control information for the instance. Multiple users can share data within this memory area (controlled by Oracle), and information stored in the SGA can avoid repeated access from physical disk, a time consuming operation.

Data Storage

The chart shows data storage details for tablespaces UNDOTBS, SYSAUX, and SYSTEM.

SQL Monitor - Last Hour

This section lists the SQL monitoring details for the last hour. The real-time SQL monitoring feature of Oracle Database enables you monitor the performance of SQL statements while they are executing. By default, SQL monitoring automatically starts when a SQL statement runs parallel, or when it has consumed at least 5 seconds of CPU or I/O time in a single execution. It lists the status, duration, SQL ID, Session ID, Parallel, and Database Time.

Instances

The Instances table lists the instances for the cluster database, their availability, incidents, compliance score, ASM instance information, and ADDM findings. Click an instance name on the left hand panel to go to the home page for that instance. Click the links in the table to get more information about that particular incident.

22.9 Viewing the Pluggable Database Home Page

To view the Pluggable Database Home page, click on the PDB name link in the Databases region of the Database Cloud Self Service Portal.

This page contains the following regions:

- **Summary:** The region of the Database Instance Home page provides a quick overview of the database status and provides basic information about the database. It shows the current status of the database and includes details such as the time stamp of instance start time, database version, date of the last backup, and so on.

- **Connection Details:** Displays the connect string used to connect to the database.
- **Resource Usage:** Shows the usage details such as Expected Workload and Actual Workload.
- **Backup and Restore:** If the fast recovery area is configured for the database, you can schedule a daily backup for this database. Click **Schedule Backup** to perform this task. Once backups are available, you can click **Restore** to restore the database to a specific point in time. If the fast recovery area is not configured, your Database Administrator can configure the fast recovery area or publish a new service template that allows you to request databases with fast recovery area configured at the time of request fulfillment.
- **Performance:** Shows the performance monitoring information for the database. Click on the **Active Class** tab to view a bar chart showing the amount of time spent either waiting for a resource or consuming CPU.
- **SQL Monitoring:** Shows the SQL Response Time chart that shows the current response of the tracked set of SQL versus the reference collection response.
- **Requests:** This table tracks the requests that you have created. For each request, the status, type, start date, and submission date of the request is displayed. You can select a scheduled request and click **Reschedule** to reschedule the request. To delete a scheduled request, select the request and click **Cancel**.

Starting and Stopping the Database

Depending on the state of the database, you can use the Shutdown button to shut down the database if the database is open, the Startup button if the database is shut down, or the Shutdown button if the state of the database is unknown or in a Status Pending state.

Part VIII

Maintaining and Customizing Databases

This section contains chapters on how to maintain a database pool and how to customize a database. It contains the following chapters:

- [Chapter 23, "Maintaining the Database Pool"](#)
- [Chapter 24, "Customizing Database as a Service"](#)

Maintaining the Database Pool

This chapter covers the database pool maintenance feature. It contains the following sections:

- [About Database Pool Maintenance](#)
- [Creating a Database Gold Image](#)
- [Subscribing to an Image](#)
- [Deploying the Image](#)
- [Updating the Database](#)
- [Performing Ongoing Image Updates](#)

23.1 About Database Pool Maintenance

Enterprise Manager offers a subscription based software maintenance feature that allows self service administrators to maintain the cloud by applying database updates which include:

- Minor Updates: Interim one-off patches including quarterly security patch updates (SPUs/CPU) and Patchset Updates (PSUs).
- Major Updates: Patchsets such as (11.2.0.2 to 11.2.0.4) and major version upgrades 11.2.0.x to 12.1.0.x.

Any new database patches, patchsets, or updates are made available in the form of images. An *image* (also referred to as *gold image*) represents the software binary that is patched to the required level. Each newly created image from a new patch or patchset for a specific database version is a new version. For example, an image for Oracle Database version 11.2.0.4 contains gold images (such as Ver. 1, Ver. 2, and so on) at different patch or patchset levels.

A standalone database pool contains databases along with its Oracle Home infrastructure. A RAC database pool contains RAC databases along with Grid Infrastructure Instances and its associated Oracle Homes. Maintaining a database pool involves the following:

- Subscribe the database pool to an image that has been patched to the required level. This task has to be performed by a user with the EM_SSA_ADMINISTRATOR role.
- Deploy the image and switch the database from the old Oracle Home to a new Oracle Home. This task has to be performed by a user with the EM_SSA_ADMINISTRATOR role.

- Update the database. This task can be performed by a user with either the EM_SSA_ADMINISTRATOR role or EM_SSA_USER role.

This maintenance activity can be performed as and when a new patch or patchset update is available. A database pool is considered to be fully compliant if the targets in the pool are associated with the latest version of an image. If the targets are still associated with an older version of the image, the database pool is considered to be non compliant. The goal of the self service administrator is to ensure all targets in the database pool are 100% compliant.

Note:

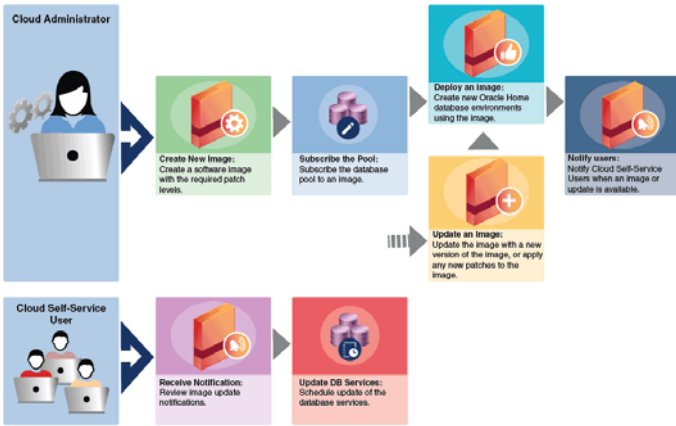
- For database upgrades, such as 11.2.0.x to 12.1.0.x, follow the steps in the Enterprise Manager Lifecycle Management Guide to perform maintenance activities.
- Database pool maintenance can also be performed for Grid Infrastructure targets.

The database pool maintenance feature is useful in:

- Reducing the number of different database software versions and patches in the pool.
- Standardizing the database software versions and patches across the enterprise.
- Streamlining and automating software upgrades and patches.
- Enabling the self service users to move to the new software version and update the database on their own terms.

Note: You can use EMCLI commands to perform pool maintenance activities. For details, see [Section 47.12, "Database Fleet Maintenance EM CLI Verbs"](#).

Figure 23–1 Database Pool Maintenance Workflow



The following table shows the list of tasks involved in updating and maintaining a database pool.

Table 23–1 Database Pool Maintenance Tasks

Step	Task	Role
1	Creating a Database Gold Image	EM_SSA_ADMINISTRATOR
2	Subscribing to an Image	EM_SSA_ADMINISTRATOR
3	Deploying the Image	EM_SSA_ADMINISTRATOR
4	Updating the Database	EM_SSA_ADMINISTRATOR EM_SSA_USER
5	Performing Ongoing Image Updates	EM_SSA_ADMINISTRATOR

23.2 Creating a Database Gold Image

An *image* is the software binary for the target (say Oracle database) on a given platform and release containing the required patch levels. For example, Image DB_11203_Linux represents Database software for 11.2.0.3 release applicable to Linux x86_64 platform containing patches like PSUs and other one-off patches at the needed level. Whenever there is a new patch, you must create a new version of the image from a reference target that contains a zipped up Oracle Home that has been brought to a certain certified or tested patch level.

To maintain the database pool, you must subscribe to an image which contains the latest patches or patchset. If no images exist, you must first create an image and then subscribe the database pool to the image.

To create an image, follow these steps:

1. Log in as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu select **Cloud**, then select **Cloud Home**. From the Oracle Cloud menu, select Resource Providers, and click on a Database Pool in the list to navigate to the Database Pool Home page.
3. From the Database Pool menu, select Members, and then click **Maintenance**. The Maintenance page appears. Click **Manage Subscriptions**.
4. The Manage Subscriptions page appears.
5. Click **Create a New Database Home Image**. The following dialog box appears:

Figure 23–2 Creating a New Image

6. In the Create a New Image dialog box, in the Reference Target section, specify the following details:

- **Name** of the reference target. You can select the Search icon to select a target from the list provided. Once you select a target, the Oracle Home and Host Name details get automatically added.
 - **Oracle Home credentials.** You can click on the search icon to select existing Oracle Home credentials. Click **OK**. Next, you can click the **Test** button to check if the credentials are valid.
 - **Working Directory.** Specify the working directory or click the Search icon to select one.
7. In the Software Library Upload Location, specify the location, type, and upload file location. These details are already specified by default. You can verify them or change them.
8. In the Image Information section, specify the following details:
- **Image Name.** Specify a new and unique name for the image. For example, DB11203_Linux_SALES_XYZ.
 - **Description** of the image. For example:

DB Image for 11.2.0.3 Database software on Linux x86_64 starting with Oct PSU 2014 patch level
 - **Version:** The display name used to refer to the version. For example, based on the description of the image, the version name can be specified as OCT PSU 2014.
 - **Platform:**
 - **Version Name.** Specify a new and unique version name.
 - **Notes:** Specify additional description for the image. For example, you can specify a description as:

Database Patchset Update (PSU) October 2014 with additional 5 one-off patches for the Database Software.
9. Click **Create**. The newly created image will appear in the Oracle Database Home Images table and you will be subscribed to the newly created image. At this point, the database pool compliance is 0%. To make the database pool 100% compliant, you must do the following:
- Deploy the image. See [Section 23.4, "Deploying the Image"](#)
 - Update the image. See [Section 23.4.3, "Updating the Database"](#)

23.3 Subscribing to an Image

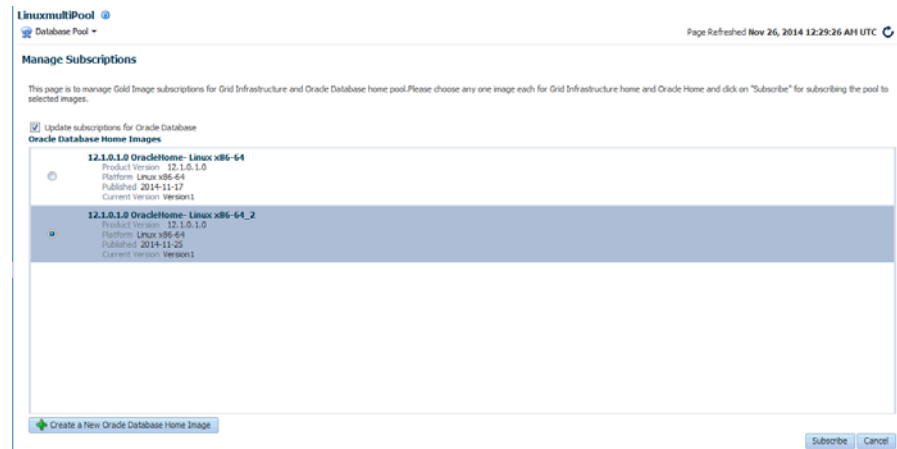
When a new image is created, the database pool is automatically subscribed to the image. To begin maintenance, start by deploying the image. Follow steps listed in [Section 23.4.1, "Deploying the Oracle Home"](#).

If you want to maintain the database pool with another image, you must subscribe to the image. To subscribe to an existing image, follow these steps:

1. Login as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. Click on the Resource Providers link on the page. A list of database pools and PaaS Infrastructure zones are displayed.
3. Click on a **Database Pool** to view the Database Pool page.

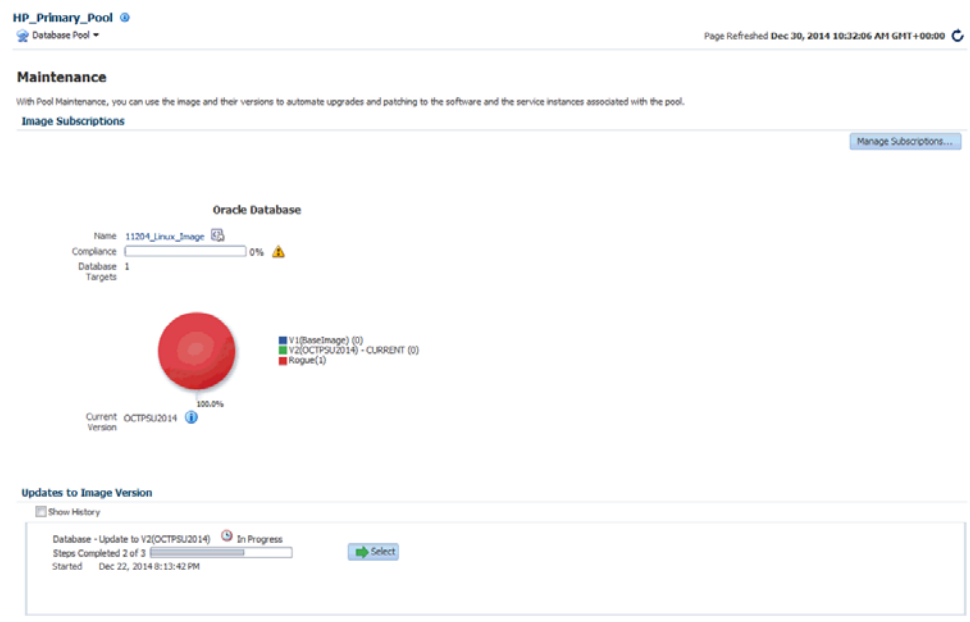
4. From the **Database Pool** menu, select **Members**, then select **Maintenance**.
5. Click **Manage Subscriptions**. You will see a list of available and applicable images for Oracle Database. Select the **Update Subscriptions for Oracle Database** checkbox, select an image from the list and click **Subscribe**.

Figure 23–3 Manage Subscriptions Page



A message is indicating that pool is successfully subscribed to the image appears. The newly subscribed image is now available to the database pool and the database pool is 0% compliant. In the **Updates to Image Version** region of the Image Subscriptions page, the actions that need to be performed are listed. To make the database pool 100% compliant, you must deploy the image and update the database.

Figure 23–4 Image Subscriptions Page



The pie chart shows the ratio of distribution of the targets in the database pool with respect to the image and the different versions of the image. Each version is represented as follows:

- System Version Number (Version Display Name) (Number of targets in the version). For example V1 (DEC PSU 2014) (2)
- Each version can have one of the following states:
 - Draft: This is a test version.
 - Restricted: This represents a Beta version that is released to a restricted set of targets.
 - Current: This represents the latest version of the image.

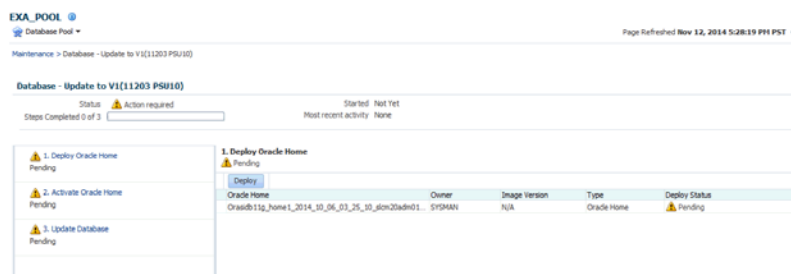
The maintenance goal of the administrator is to move all targets in the pool to the **Current** version of the image to keep the pool is up-to-date and compliant.

23.4 Deploying the Image

After the self service administrator has subscribed the database pool to a new image, the new image must be deployed. To deploy the image, follow these steps:

1. Navigate to the Image Maintenance page. Click the **Select** button in the **Updates to Image Version** region of the page. The following page appears:

Figure 23–5 Deploying the Image



To complete the maintenance process and update the database, 3 steps are required:

- **Deploy:** See [Section 23.4.1, "Deploying the Oracle Home"](#).
 - **Activate:** See [Section 23.4.2, "Activating the New Oracle Home"](#)
 - **Update:** See [Section 23.4.3, "Updating the Database"](#)
2. Specify the schedule for the deployment and click **Submit** to submit the job.

23.4.1 Deploying the Oracle Home

This option copies the image binaries to each of the hosts in the database pool and create new Oracle Homes on all them. When you navigate to this page, the **Deploy** step is highlighted and the status is **Pending**. The list of targets on which the image is to be deployed, the target owner, and the image version is displayed. To deploy the image, follow these steps:

1. Click **Deploy**. The following dialog box appears:

Figure 23–6 Maintenance Activity

2. Specify the name, description, the new Oracle Home location, Working Directory, and Dispatcher Location.
3. Click **Submit** to deploy the image and create new Oracle Homes.

23.4.2 Activating the New Oracle Home

This step sends notifications to the self service users that a new update is available. Activating the newly deployed Oracle Homes also updates the self service template associated with the database pool and redirects any new database service requests to be created from the new Oracle Home. Click **Activate** to activate the Oracle Homes that have been successfully deployed.

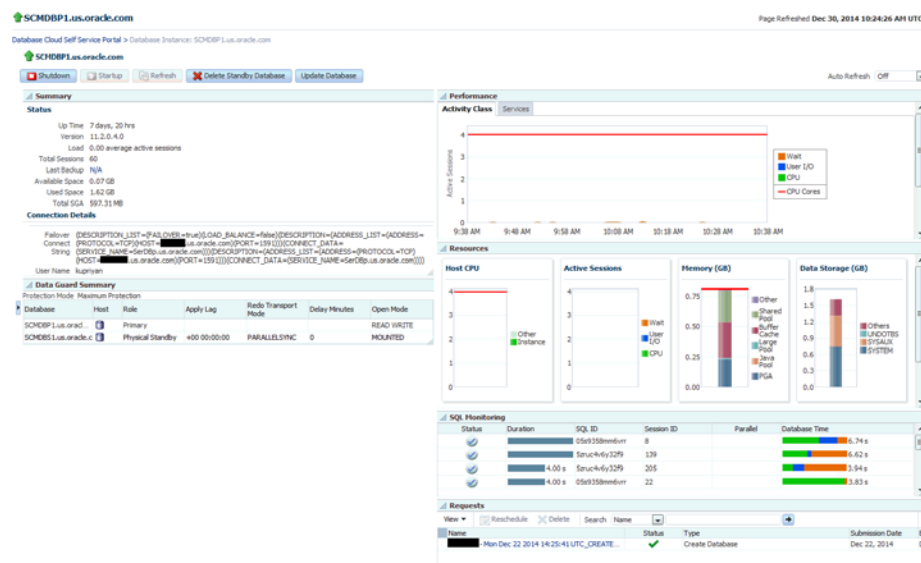
23.4.3 Updating the Database

This step switches the database from the old Oracle Home to the new Oracle Home and completes the post install steps for all the patches related to the image. This step can either be performed by the self service administrator or the self service user.

After deploying the latest version of the image, the self service administrator can do either of the following:

- Apply the latest version and update the database. To update the database targets associated with the pool, select the **Update** option shown in [Figure 23–5](#) and click **Update**. The latest patch will be applied on all the database targets in the pool. The database pool will now be 100% compliant.
- Notify the self service user about the updates by clicking **Yes** in the **Delegate the Responsibility to the Self Service User** field. The self service user can then choose to apply the updates by following these steps:
 1. Log in as a user with the `EM_SSA_USER` role.
 2. In the Self Portal Page, select **Databases** from the **Manage** drop down list. Click on a database for which updates are available to drill down to the Home page.

Figure 23–7 Updating the Database



3. Click **Update** to switch the database to the new Oracle Home.

Note:

- When all the tasks (deploy, activate, and update) have been performed, the pool is successfully subscribed to the new image.
 - When the database pool is subscribed to a newer version of an image, the compliance status of the pool changes will be at 0%. After the new version is deployed and all databases associated with the database pool are updated, the compliance will be at 100%.
-

23.5 Performing Ongoing Image Updates

When a new patch or patchset is available, to deploy the new patch on the database pool, you must ensure that the following tasks are performed:

- [Creating a New Version of the Image](#)
- [Deploying the Image](#)
- [Updating the Database](#)

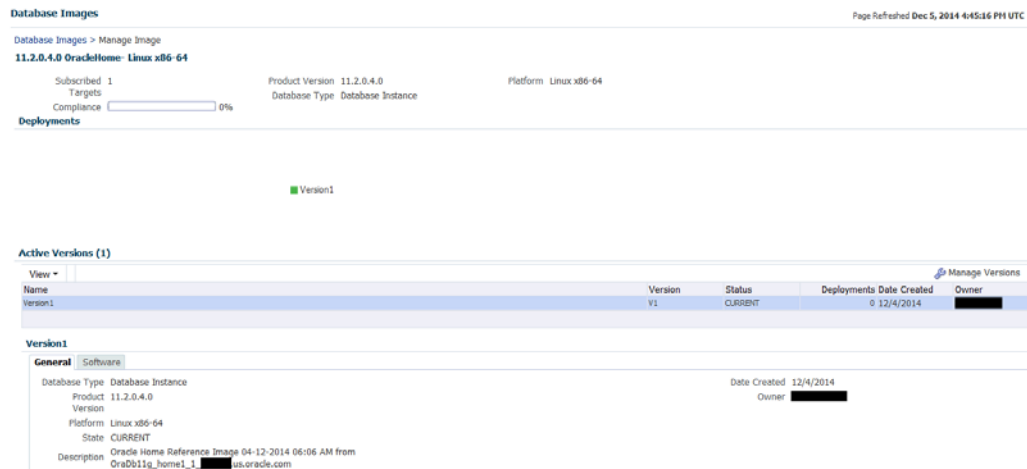
23.5.1 Creating a New Version of the Image

To create a new version of an image, follow these steps:

1. Login as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. Click on the Resource Providers link on the page. A list of database pools and PaaS Infrastructure zones are displayed.
3. Click on a **Database Pool** to view the Database Pool page.

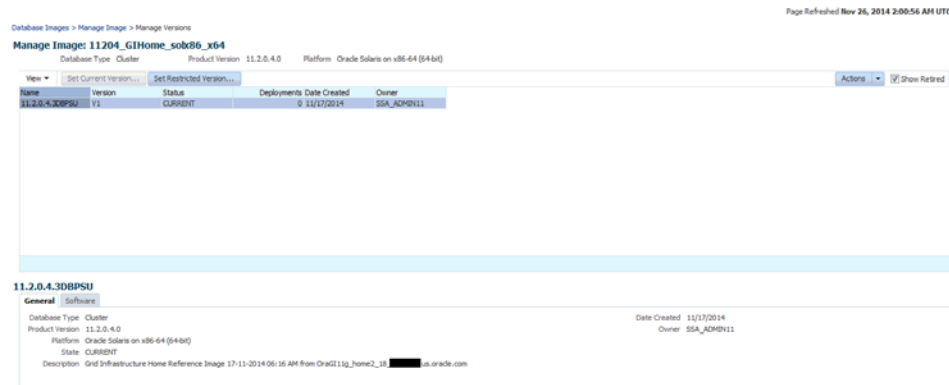
4. From the **Database Pool** menu, select **Members**, then select **Maintenance**. The Image Subscriptions page appears.
5. Click the **Manage Image** link on the page. The Manage Images page appears.

Figure 23–8 Manage Images



This page contains the following details:

- **Database Images:** This region displays the name of the image, number of subscribed targets, compliance score, product version, database type, and platform.
 - **Deployments:** This region shows a piechart that consists of the percentage of deployments for each version in the image.
 - **Active Versions:** This region lists the number of active versions, the name of the versions, the version number, the status of the version (Current or Active), the number of deployments for each version, the creation date of each version, and the SSA owner of the version.
 - **General:** The General tab lists the database type, product version, platform, state, description, creation date, and owner of the image. The Software tab lists the location of the Oracle Home, the product name, and the host name. If you have saved a snapshot of the image, you can view it by clicking **View**.
6. Click **Manage Versions** to manage the image versions.

Figure 23–9 Manage Database Image Versions

This page consists of a table that lists the name of each version, the version number, the status of the version, the number of deployments of each version, the creation date of the version, and the owner of the version.

When you select a version, the General and Software tabs automatically displays the general and software details of the version.

7. From the **Actions** menu, select **Create** to create a new version of the image. The Create New Image dialog box appears.
8. Follow the steps listed in [Section 23.2, "Creating a Database Gold Image"](#) to create the new image version. The database pool will now be subscribed to the new version.

After the new version has been created, you can click **Set Current Version** to set this version as the current version of the image. You can restrict the users who can use this version by clicking **Set Restricted Version**. If you set the version status as Restricted, no other user can access the version.

Editing an Image

To edit an image version, select the image and click **Edit** from the **Actions** menu. This option allows you to change the name of the image version.

Deleting an Image

To delete a database image, in the Images section, select the image that you want to delete, and then click **Delete**. Click Yes to confirm and delete the image.

Customizing Database as a Service

This chapter describes how to customize Database as a Service. It contains the following sections:

- [Pre and Post Request Creation / Deletion Scripts](#)

24.1 Pre and Post Request Creation / Deletion Scripts

You can run custom scripts before and after a service instance has been created. These requests can range from some additional host commands on the machine on which the database was created or commands to perform additional book activities and other operations on the newly provisioned database.

Similarly, you can run scripts after a service instance has been deleted if you need to undo the changes made during service cleanup.

The custom script must follow certain guidelines and consists of four parts:

- **Response File:** The response file contains the service template and request specific information. Before the custom script is executed, the request procedure, the request procedure generates a response file (file with name-value pairs) containing the data from the service template as well as the request-specific data such as the SID that is auto computed, the hosts on which the database will be deployed, and so on.
- **Driver Script:** This is the key driver script that will be invoked by the request procedure. The driver script accepts only one argument which specifies the location of the response file.
- **Other Scripts:** Apart from the driver script, you can specify other perl or sql scripts. These scripts must be invoked from the driver script.
- **Additional Variables:** You can include a file containing additional variables that can be used by the custom script as applicable.

After the scripts have been created, they must be uploaded as a directive into the Software Library. The directive details are shown below:

Figure 24–1 Pre or Post Database Script: Describe

The screenshot shows the 'Describe' tab of the 'Create Generic Component' wizard. The 'Name' field contains 'Post SQL SCRIPT' and the 'Description' field is empty. Below these fields is a table for 'Other Attributes' with columns 'Name', 'Value', and 'Description'. The table has three rows: 'Product Version', 'Product', and 'Vendor'. The 'Attachments' section shows a table with columns 'File Name', 'Type', and 'Size'. The 'Notes' section shows a table with columns 'Name', 'Added By', and 'Date'.

In the Describe page, the name of the directive and the description is displayed. Click the **Configure** tab.

Figure 24–2 Pre or Post Database Script: Configure

The screenshot shows the 'Configure' tab of the 'Create Generic Component' wizard. The 'Name' field contains 'Post SQL SCRIPT' and the 'Description' field is empty. Below these fields is a table for 'Other Attributes' with columns 'Name', 'Value', and 'Description'. The table has three rows: 'Product Version', 'Product', and 'Vendor'. The 'Attachments' section shows a table with columns 'File Name', 'Type', and 'Size'. The 'Notes' section shows a table with columns 'Name', 'Added By', and 'Date'.

The driver script accepts one command line argument which must be in the INPUT_ FILE format. This variable will be used at run-time to specify the location of the generated response file. Click the **Select Files** tab.

Figure 24–3 Pre or Post Database Script: Select Files

The screenshot shows the 'Select Files' tab of the 'Create Generic Component' wizard. The 'Name' field contains 'Post SQL SCRIPT' and the 'Description' field is empty. Below these fields is a table for 'Other Attributes' with columns 'Name', 'Value', and 'Description'. The table has three rows: 'Product Version', 'Product', and 'Vendor'. The 'Attachments' section shows a table with columns 'File Name', 'Type', and 'Size'. The 'Notes' section shows a table with columns 'Name', 'Added By', and 'Date'.

Specify any additional files that are required by the custom script. You can run the script from the same host on which the database instance or the database service was created or deleted.

Note: if you need to change the content of the script, you must upload a newer version of the script to the Software Library. To use the latest version of the script, you must launch the Edit Service Template wizard and select the updated version of the script and save the template. This ensures that the latest version of the script will be used.

24.1.1 Post SQL Script

A post SQL script can be created and uploaded to the Software Library. The self service administrator can select the script during service template creation. To specify the script, follow these steps:

1. Log in as a user with EM_SSA_ADMINISTRATOR role.
2. From the Enterprise menu, select Cloud. From the Cloud Home menu, select Service Template and then Create.
3. Select the Service Template type as Database and click Create.
4. Navigate to the Configuration page. Click the Search icon next to the Post SQL Script field and select the script from the Software Library.
5. In the Run As User drop down, the SYS user is selected by default.

If this user is selected, the SYS password provided on Database page in the wizard is used to run the post database creation SQL script.

If any other user is selected including Master Account, the password provided by the self service user for the Master Account while creating a service request will be used.

Note: If the user account is locked, an error message is displayed. The user account must be open in the source database.

24.1.2 Sample Scripts

Sample scripts are available in the Software Library. To view the sample scripts, from the **Enterprise** menu, select **Provisioning and Patching**, then select **Software Library**. Select the **DBaaS** folder, then select **Directives**, and click the **Samples** folder to see the custom scripts.

24.1.3.1 Input Parameters for DBaaS Pre and Post Request Creation Scripts

Table 24–1 DBaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	Example
ssaRequestId	The Request ID of the SSA user request.	3
ssaUser	The SSA user name.	Ssa_user1
ssaTargetName	The zone target name.	Myzone1
ssaTargetType	The zone target type.	Self_service_zone
zoneTargetName	The zone target name.	Myzone1
zoneTargetType	The zone target type.	Self_service_zone
DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

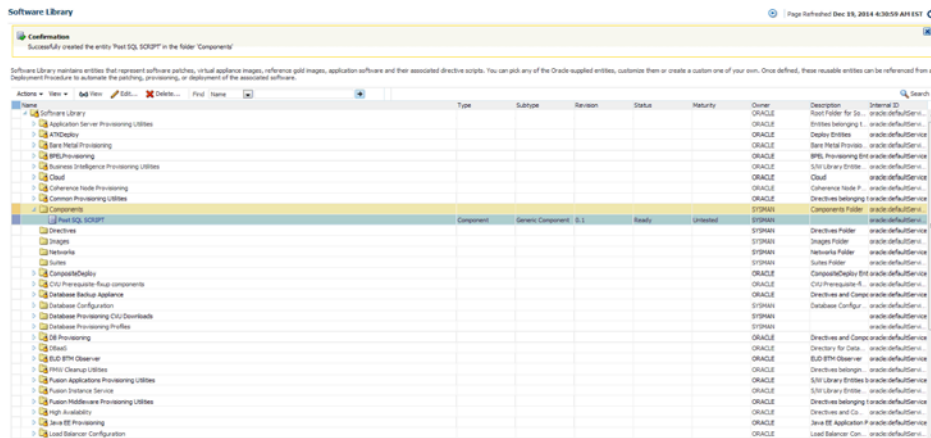


Table 24–1 (Cont.) DBaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	Example
DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
SEL_HOST	The host selected as part of placement where the new database will be created.	Myhost.oracle.com
MEM_SIZE	The memory size of the requested database. This shall be the sum of sga and pga aggregate size or the total memory size.	2324
STORAGE_SIZE	The total storage size of the requested database	2324
HOST_CREDS	The credentials of the host where the database will be created.	Mycred1:dbaas_admin
PROFILE_COMPONENT_URN	The profile component URN.	oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:E9C8A650EFA5291DE04354B2F00AFF3E:0.1
WORK_DIR	The temporary working directory used for staging provisioning related files	/tmp
DB_ADMIN_PASSWORD_SAME	Indicates if the password provided for the sys, system and db snmp are same or different	true
DB_ORACLE_HOME_LOC	The oracle home in the selected host, from where the new Database will be created.	/scratch/aime/oraclehomes/dbbase/112030/dbhome1
DB_ORACLE_BASE_LOC	The oracle base of the selected oracle home.	/scratch/aime/oraclehomes/dbbase
TOTAL_MEMORY	The total memory for the chosen database if the memory management type is AMM.	0
SGA_MEMORY	The SGA memory value set for the database.	1744
PGA_MEMORY	The PGA target value set for the database.	580

Table 24–1 (Cont.) DBaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	Example
INIT_PARAMS	The list of initialization parameter values that are set in the service template. The values are stored as paramName=paramValue[,paramName=paramValue]	processes=150,cluster_database=FALSE,db_name=,open_cursors=300,sga_target=1828716544,db_block_size=8192,audit_file_dest={ORACLE_BASE}/admin/{DB_UNIQUE_NAME}/adump,diagnostic_dest={ORACLE_BASE}/*.cpu_count=0,db_recovery_file_dest={ORACLE_BASE}/fast_recovery_area,log_archive_format=%t_%s_%r.dbf,compatible=11.2.0.0.0,audit_trail=DB,remote_login_passwordfile=EXCLUSIVE,undo_tablespace=UNDOTBS1,db_recovery_file_dest_size=4322230272,control_files=("{ORACLE_BASE}/oradata/{DB_UNIQUE_NAME}/control01.ctl", "{ORACLE_BASE}/fast_recovery_area/{DB_UNIQUE_NAME}/control02.ctl"),pga_aggregate_target=608174080
DATABASE_TYPE	Type of database that will be provisioned as part of the request.	oracle_database or rac_database
USER_NAME	User Name (cannot be any of Oracle default accounts) which will be treated as the master account and will be used to login to the requested database.	Useracct1
INSTANCE_COUNT	Number of database instances that will be created in case if the request is for a RAC Database.	1
COMMON_DB_SID	The SID Prefix that has been provided in the Service Template with which a unique database name will be generated.	db000000
COMMON_DOMAIN_NAME	The Database Domain name provided in the Service Template which will be used to create the Database Target in Enterprise Manager.	Mycompany.com
LISTENER_PORT	The port number of the listener in the host to which the database will be attached.	1521
REF_ZONE	The reference zone used for the validations.	Myzone1
REF_POOL	The pool selected on the reference zone.	Mypool1
REF_HOST	The reference host chosen from the pool.	Myhost1.oracle.com
REF_TGT	The reference host chosen from the pool	Myhost1.oracle.com
COMMON_GLOBAL_DB_NAME	The global database domain name.	db000000.myhost.oracle.com

24.1.3.2 Input Parameters for DBaaS Pre and Post Request Deletion Scripts

This table lists the input parameters for DBaaS pre and post request deletion scripts.

Table 24–2 DBaaS: Input Parameters for Pre and Post Request Deletion Scripts

Variable Name	Description	ExampleDB
DB_SID	The database SID of the database which is chosen for deletion. This can be used to connect to the database.	db000000
HOST_NAME	The host name where the DB chosen for deletion, resides.	Myhost.oracle.com
DATABASE_TGT_GUID	The guid of the database which is chosen for deletion	E9C5A1149C266846E04354B2F00A9D7B
HOST_CREDS	The credentials to login to the database host to access the oracle home.	MYCREDS:DBAAS_ADMIN
ROOT_CREDS	The root credentials to login to the host as super user as specified in the pool.	MYROOTCREDS:DBAAS_ADMIN
TARGET_GUID	The guid of the database which is chosen for deletion.	E9C5A1149C266846E04354B2F00A9D7B
BACKUP_ENABLED	If the backup has been enabled for snap clone database target.	True
WORK_DIR	Temporary working directory used for deletion.	/tmp/workdir1
CUSTOM_DEL_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the deletion of the Schema.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
CUSTOM_DEL_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the deletion of the Schema.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

24.1.3.3 Input Parameters for SchaaS Pre and Post Request Creation Scripts

This table lists the input parameters for schema as a service pre and post request creation scripts.

Table 24–3 SchaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	ExampleDB
ssaRequestID	The Request ID of the SSA User request.	3
ssaUser	The SSA user name.	Ssa_user1
ssaTargetName	The zone target name.	Myzone1
ssaTargetType	The zone target type.	Self_service_zone
zoneTargetName	The zone target name.	Myzone1
zoneTargetType	The zone target type.	Self_service_zone
SCHAAS_CUSTOM_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the creation of the schema target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

Table 24–3 (Cont.) SchaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	ExampleDB
REQUEST_NAME	The name of the request	SYSMAN - Tue Oct 29 02:04:21 PDT 2013_CREATE_4_41
SERV_TEMPLATE_GUID	The service template guid.	E9C5A1149C266846E04354B2F00A9D7B
CREATE_SCHEMA_OPTION	Option to differentiate between creating empty schemas or schemas from profile. Possible values, EMPTY_SCHEMAS/SCHEMAS_FROM_PROFILE	EMPTY_SCHEMAS
MAX_NUMBER_OF_SCHEMAS	Maximum number of schemas permissible if the user does not select a profile. Applicable only when the Create Empty Schemas option is selected.	4
MASTER_ACCOUNT	The master account from the list of schemas selected.	MySchema
ROLE_NAME	Name of the database role which will assigned to all the schemas.	Mynewrole1
SCHEMA_PRIVILEGES	List of schema privileges that will be applied on the user accounts.	CREATE VIEW, CREATE DIR
ENFORCE_STORAGE_CONSTRAINT	Enforces the storage constraint on the service request. Possible values true/false	True
INITIAL_BLOCK_SIZE	The initial size of the tablespace.	2048M
AUTO_EXTEND_BLOCK_SIZE	The auto extend block size.	100M
TABLESPACE_ENCRYPTION_ALGORITHM	The algorithm used for tablespace encryption	AES128
SHARED_STORAGE_LOCATION	Shared staging location where the dump files are location across the hosts in the selected pool. Will be specified only if the create schema option is from an existing profile.	/oradbnfs/dumpfiles/
DBSERVICE_NAME	Database service name that will be provided during the request.	Service_88A370FC0FC1
DB_ORACLE_HOME_LOC	The Oracle Home for the Database where the new schema is created.	/scratch/aime/app/aime/11.2.0/dbhome_1
COMMON_DB_SID	The service name with which the Database can be connected in the host.	Mydb1
REMAP_SCHEMA_LIST	The list of schemas will that will be created on the target.	MySchema

24.1.3.4 Input Parameters for SchaaS Pre and Post Request Deletion Scripts

This table lists the input parameters for schema as a service pre and post request deletion scripts.

Table 24–4 SchaaS: Input Parameters for Pre and Post Request Deletion Scripts

Variable Name	Description	Example
DB_CONNECT_STRING	The connection string to establish a connection to the database.	DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = myhost.oracle.com)(PORT = 1521)) (CONNECT_DATA = (SERVER = DEDICATED)(SID= Myservice1)))
SCHEMA_NAME	Schema name selected for deletion.	Myservice1
PERM_TABLESPACE_NAME	The primary table space.	Myschema1
HOST_NAME	The host name where the DB chosen for deletion, resides.	Myhost.oracle.com
DATABASE_CREDS	The named credentials used for connecting to the database.	MYDBCREDS:DBAAS_ADMIN
GI_CREDS	The named credentials used for connecting to the Grid Infrastructure in case of RAC.	MYHOSTCREDS:DBAAS_ADMIN
WORK_DIR	Temporary working directory	/tmp/myworkdir1
CUSTOM_DEL_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the deletion of the Schema	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
CUSTOM_DEL_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the deletion of the Schema	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

24.1.3.5 Input Parameters for PDBaaS Pre and Post Request Creation Scripts

This table lists the input parameters for PDB as a service pre and post request creation scripts.

Table 24–5 PDBaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	Example
ssaRequestId	The Request ID of the SSA User request.	3
ssaUser	The SSA user name.	Ssa_user1
ssaTargetName	The zone target name.	Myzone1
ssaTargetType	The zone target type.	Self_service_zone
PDBAAS_CUSTOM_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
PDBAAS_CUSTOM_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the creation of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

Table 24–5 (Cont.) PDBaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	Example
CREATE_PDB_OPTION	Option for creating Pluggable Database that includes empty PDB or PDB from profile. Possible values, EMPTY_PDB/PDB_FROM_PROFILE	EMPTY_PDB
PDB_CONNECT_STRING	The connection string to establish a connection to the pluggable database.	(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=myhost.mycompany.com)(PORT=1531)))(CONNECT_DATA=(SERVICE_NAME=svc_mypdb)(INSTANCE_NAME=CDB01)(UR=A)(SERVER=DEDICATED)))
PDB_NAME	Name of the PDB target being created.	mypdb
CDB_CONNECT_STRING	The connection string to establish a connection to the container database.	(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=myhost.mycompany.com)(PORT=1531)))(CONNECT_DATA=(SID=CDB01)))
MAX_TABLESPACE_ALLOWED	Maximum number of tablespaces allowed for pluggable database as a service.	10
ENFORCE_STORAGE_CONSTRAINT	Enforces the storage constraint on the service request. Possible values true/false.	True
TABLESPACE_ENCRYPTION_ALGORITHM	The algorithm used for tablespace encryption.	AES128
TABLESPACE_SIZE	The SID Prefix that has been provided in the Service Template with which a unique database name will be generated.	mydb
PDB_SID_PREFIX	SID Prefix for the new pluggable database.	Mypdb1
SHARED_STAGE_LOCATION	Shared staging location where the dump file are location across the hosts in the selected pool.	/oradbnfs/dumpfiles/
PDB_ADMIN_USER_NAME	Administrator user name for the new pluggable database.	Myadmin
PDB_SERVICE_NAME_PREFIX	The service name prefix for the pluggable database.	Service
PDBSERVICE_NAME	Pluggable database service name.	Service_000
DB_ORACLE_HOME_LOC	The Oracle Home for the Database where the new schema is created.	/scratch/aime/app/aime/11.2.0/dbhome_1
COMMON_DB_SID	The service name with which the Database can be connected in the host.	Mydb1
ROLE_OPTION	Role Option Custom New Role/ Existing Roles which will assigned to Pluggable database administrator.	CUSTOM_NEW_ROLE

Table 24–5 (Cont.) PDBaaS: Input Parameters for Pre and Post Request Creation Scripts

Variable Name	Description	Example
INIT_PARAMS	The list of initialization parameter values that are set in the service template. The values are stored as paramName=paramValue[,paramName=paramValue].	*.open_cursors 300,*.cursor_sharing EXACT
CUSTOM_ROLE_NAME	The name of the database role which will assigned to Pluggable database administrator.	PDBAAS_OCT_29_2013_02_27_AM
CUSTOM_ROLE_DESC	The description for the new role to be created.	New db role to be assigned to pluggable database administrator.
PRIVILEGES	List of privileges of custom new role that will be applied on pluggable database administrator.	CREATE SESSION, ALTER SESSION, CREATE DIMENSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY
ROLES	Name of the database role which will assigned to all the schemas.	Mynewrole1
DB_ORACLE_HOME_LOC	The oracle home of the chosen Container database.	/scratch/aime/oraclehomes/dbbase/121010/dbhome1
COMMON_DB_SID	The Database sid for the selected Container Database where the new PDB will be created.	cdb

24.1.3.6 Input Parameters for PDBaaS Pre and Post Request Deletion Scripts

This table lists the input parameters for PDB as a service for pre and post request deletion scripts.

Table 24–6 SchaaS: Input Parameters for Pre and Post Request Deletion Scripts

Variable Name	Description	Example
DB_CONNECT_STRING	The connection string to establish a connection to the database.	DESCRIPTION = (ADDRESS = (PROTOCOL = TCP)(HOST = myhost.oracle.com)(PORT = 1521)) (CONNECT_DATA = (SERVER = DEDICATED)(SID= mypdb0001)))
PDB_NAME	PDB target name selected for deletion.	Mypdb001
HOST_NAME	The host name where the PDB chosen for deletion, resides.	Myhost.oracle.com
DATABASE_CREDS	The named credentials used for connecting to the database.	MYDBCREDS:DBAAS_ADMIN

Table 24–6 (Cont.) SchaaS: Input Parameters for Pre and Post Request Deletion Scripts

Variable Name	Description	Example
GI_CREDS	The named credentials used for connecting to the Grid Infrastructure in case of RAC.	MYHOSTCREDS:DBAAS_ADMIN
WORK_DIR	Temporary working directory	/tmp/myworkdir1
CUSTOM_DEL_PRE_SCRIPTS_URN	The URN of the directive in the software library which will be executed before the deletion of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
CUSTOM_DEL_POST_SCRIPTS_URN	The URN of the directive in the software library which will be executed after the deletion of the PDB target.	oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1

24.1.3.7 Sample Input Files

This section contains a few sample input files for DBaaS, Schema as Service, and PDB as a Service.

Example 24–1 Sample Input File for DBaaS

```

ssaRequestId=2
ssaUser=ssa_user1
ssaTargetName=My Zone
ssaTargetType=self_service_zone
zoneTargetName=My Zone
zoneTargetType=self_service_zone
SEL_HOST=myhost.oracle.com
MEM_SIZE=2324
STORAGE_SIZE=2324
HOST_CREDS=AIME:SYSMAN
INIT_PARAMS=processes=150,cluster_database=FALSE,db_name=,open_cursors=300,
sga_target=1828716544,db_block_size=8192,audit_file_dest={ORACLE_BASE}/admin/
{DB_UNIQUE_NAME}/adump,diagnostic_dest={ORACLE_BASE},*.cpu_count=0,db_recovery
_file_dest={ORACLE_BASE}/fast_recovery_area,log_archive_format=%t_%s
_%r.dbf,compatible=11.2.0.0.0,audit_trail=DB,remote_login
_passwordfile=EXCLUSIVE,undo_tablespace=UNDOTBS1,db_recovery_file_dest
_size=4322230272,control_files=("{ORACLE_BASE}/oradata/{DB_UNIQUE
_NAME}/control01.ctl", "{ORACLE_BASE}/fast_recovery_area/{DB_UNIQUE
_NAME}/control02.ctl"),pga_aggregate_target=608174080
PROFILE_COMPONENT_URN=oracle:defaultService:em:provisioning:1:cmp:COMP
_Component:SUB_DbProfile:E9C8A650EFA5291DE04354B2F00AFF3E:0.1
DATABASE_TYPE=oracle_database
WORK_DIR=/tmp
DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP
_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
USER_NAME=rv
INSTANCE_COUNT=2
DB_ADMIN_PASSWORD_SAME=true
COMMON_DB_SID=db000000
COMMON_DOMAIN_NAME=mycompany.com
LISTENER_PORT=1527
COMMON_GLOBAL_DB_NAME=db000000.myhost.oracle.com
DB_ORACLE_HOME_LOC=/scratch/aime/oraclehomes/dbbase/112030/dbhome1
DB_ORACLE_BASE_LOC=/scratch/aime/oraclehomes/dbbase
TOTAL_MEMORY=0
SGA_MEMORY=1744

```

```

PGA_MEMORY=580
MEM_SIZE=2324
STORAGE_SIZE=2324
REF_ZONE=My Zone
REF_POOL=dbpool1
REF_HOST=myhost.oracle.com
REF_TGT= myhost.oracle.com

```

Example 24–2 Sample SQL Script

```

REM --- your custom sql script ---
REM --- sample: select * from v$database ---
REM --- If there are more than one sql file all files can be uploaded to the same
component, and be called from the main script using
@/<staging location>/sqlfile1.sql ----

```

Example 24–3 Sample Input File for Schema as a Service

```

ssaRequestId=1
ssaUser=SYSMAN
ssaTargetName=My Zone
ssaTargetType=self_service_zone
zoneTargetName=My Zone
zoneTargetType=self_service_zone
REQUEST_NAME=SYSMAN - Tue Oct 29 02:04:21 PDT 2013_CREATE_4_41
SERV_TEMPLATE_GUID=E9C5A1149C266846E04354B2F00A9D7B
CREATE_SCHEMA_OPTION=EMPTY_SCHEMAS
MAX_NUMBER_OF_SCHEMAS=4
REMAP_SCHEMA_LIST=MySchema
MASTER_ACCOUNT=MySchema
ROLE_NAME=schtemplate1_Oct_29_2013_02
SCHEMA_PRIVILEGES=CREATE SESSION,CREATE DIMENSION,CREATE INDEXTYPE,CREATE
OPERATOR,CREATE PROCEDURE,CREATE SEQUENCE,CREATE TABLE,CREATE TRIGGER,CREATE
TYPE,CREATE VIEW,CREATE SYNONYM
ENFORCE_STORAGE_CONSTRAINT=false
SCHAAS_CUSTOM_PRE_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP
_Directives:none:E9DE463D356E7433E04354B2F00A56C6:0.1
DBSERVICE_NAME=Service_88A370FC0FC1
DB_ORACLE_HOME_LOC=/scratch/aime/oraclehomes/dbbase/112030/dbhome1
COMMON_DB_SID=refdb

```

Example 24–4 Sample Input File for PDB as a Service

```

ssaRequestId=3
ssaUser=SYSMAN
ssaTargetName=My Zone
ssaTargetType=self_service_zone
zoneTargetName=My Zone
zoneTargetType=self_service_zone
CREATE_PDB_OPTION=EMPTY_PDB
MAX_TABLESPACE_ALLOWED=2
ENFORCE_STORAGE_CONSTRAINT=true
TABLESPACE_ENCRYPTION_ALGORITHM=None
PDBAAS_CUSTOM_POST_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:0008270085383BBDE0535C56F20AB27E:0.5
PDB_SID_PREFIX=PDB
PDB_ADMIN_USER_NAME=oracle
PDB_SERVICE_NAME_PREFIX=svc_pdbps1
PDBSERVICE_NAME=svc_pdbps1
ROLE_OPTION=CUSTOM_NEW_ROLE
INIT_PARAMS=*.open_cursors=300,*.cursor_sharing=EXACT

```

```
CUSTOM_ROLE_NAME=PDBAAS_JUN_12_2014_23_16_PM
CUSTOM_ROLE_DESC=New db role to be assigned to pluggable database administrator.
PRIVILEGES=CREATE SESSION,ALTER SESSION,CREATE DIMENSION,CREATE INDEXTYPE,CREATE
ANY OPERATOR,CREATE ANY PROCEDURE,CREATE ANY SEQUENCE,CREATE ANY INDEX,CREATE
JOB,CREATE ANY MATERIALIZED VIEW,CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY
DB_ORACLE_HOME_LOC=/scratch/12c_rdbms/product/12.1.0/dbhome_1
COMMON_DB_SID=CDB06
PDB_NAME=pdbps1
PDB_CONNECT_STRING=(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=xx.example.com) (PORT=1531))) (CONNECT_
DATA=(SERVICE_NAME=svc_pdbps1) (INSTANCE_NAME=CDB06) (UR=A) (SERVER=DEDICATED)))
CDB_CONNECT_STRING=(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=xx.example.com) (PORT=1531))) (CONNECT_
DATA=(SID=CDB06)))
```

24.1.3.8 Sample PDBaaS Post Scripts

This section includes sample perl and sql scripts for PDBaaS.

Example 24–5 Sample PDBaaS Perl Script

```
use Getopt::Long;
use File::Path;
use File::Spec;

#Store the passed input file path in a variable
my $fileName = $ARGV[0];

#Print the input file content as it is...
print "Printing the variable values received from cloud request ...\n";
open IN,"<",$fileName or die "Can't open file due to :$!";
while(<>){
    print $_;
}
close IN;

#Reads a text file with var=values pairs line delimited
#Setting the values in the environment
sub readDat {
    #Grab the passed parameter
    my $filename = $_[0];
    my @Data;

    #The ubiquitous $i counter
    my $i = 0;

    #Register a filehandle
    local (*DATFILE);

    #Open the file for read
    open (DATFILE, $filename) or print ( "Can't open $filename: $!");

    #Read through the file one line at a time
    FORA:while (<DATFILE>) {

        #Skip over any comments
        if ( /#.* / ) {
            next FORA;
        }
    }
}
```

```

#Clean up any extraneous garbage
chomp;
# no newline
s/^\s+//;
# no leading white
s/\s+$//;
# no trailing white

#If clean up eliminated any data worth reading

#lets skip to the next line
next unless length;

#We can't load the lines with $VARS as we will
#loose any values so we'll make sure to escape them
#(the $'s that is)
s/\$/\\$/g;

#localizing $var and $value to make sure
# they are clean out on every read.
my ($var, $value) = split(/=/,$_);

#Load variable into enviroment
$ENV{$var}="$value";

$i++;
}

}

print "Loading custom variables into ENV..\n";
readDat("custom_sample_variables.txt");
print "Print custom variables...\n";
print "VAR1=" . $ENV{'VAR1'} . "\n" ;
print "VAR2=" . $ENV{'VAR2'} . "\n";
print "VAR3=" . $ENV{'VAR3'} . "\n";

print "Loading cloud variables into ENV..\n";
readDat($fileName);

my $service_name="$ENV{'COMMON_DB_SID'}";
$ENV{'ORACLE_HOME'}="$ENV{'DB_ORACLE_HOME_LOC'}";

#find sid by parsing pmon process.
my $pmon_ora = ".*pmon_".$service_name.*";
my $process = `ps -eaf |grep $pmon_ora |grep -v grep`;
chomp($process);
my $sid = ( split "pmon_", $process )[-1 ];

$ENV{"ORACLE_SID"}= $sid;

print "Executing attached SQL ...\n";
my $CMD = $ENV{'ORACLE_HOME'} . "/bin/sqlplus / as sysdba \@sample.sql $ENV{'PDB_
NAME'}";

print "Firing SQL ...\n";
print "$CMD\n";
system($CMD);
my $ERROR_CODE = $?;

```

```
print "Error code is $ERROR_CODE \n";
if ( $ERROR_CODE == 0 )
{
print "Script Completed\n";
}
else
{
print "Error occurred while executing \n";
}
```

Example 24–6 Sample PDBaaS SQL Script

```
alter session set container=&1;
REM --- you custom sql goes here ---
select name, con_id from v$pdb;
exit;
```

Example 24–7 Sample PDBaaS RAC Script

```
alter session set container=&1;
REM --- you custom sql goes here ---
select name, con_id from gv$pdb;
exit;
```

Part IX

Setting Up Middleware as a Service

This section describes how to set up and use WebLogic as a Service (WLaaS), SOA as a Service (SOAaaS) and OSB as a Service (OSBaaS) service types. It contains the following chapters:

- [Chapter 25, "Setting Up the WebLogic Self Service Portal"](#)
- [Chapter 26, "Setting Up the SOAaaS or the OSBaaS Self Service Portal"](#)
- [Chapter 28, "Using the MWaaS Self Service Portal"](#)

Setting Up the WebLogic Self Service Portal

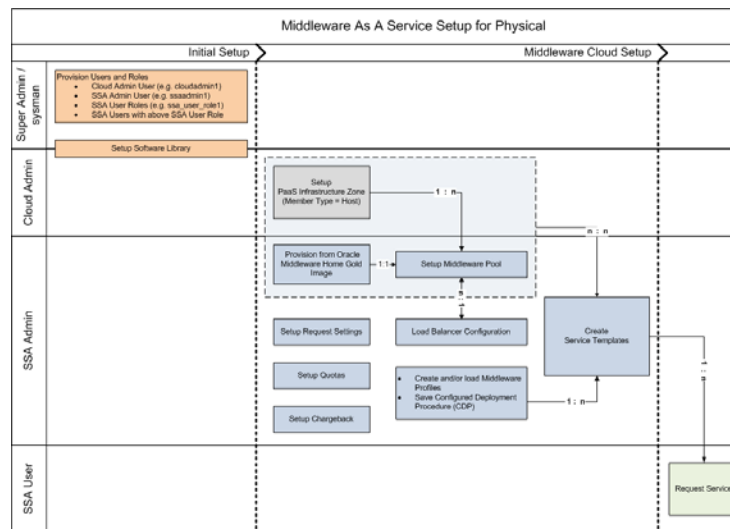
This chapter describes the procedure to set up the Middleware Self Service Portal for WebLogic as a Service. It contains the following sections:

- [Setting Up the WebLogic Self Service Portal](#)
- [Creating a Middleware Pool](#)
- [Configuring Request Settings](#)
- [Creating a Load Balancer Configuration](#)
- [Setting Up Quotas](#)
- [Creating a WebLogic Service Template](#)
- [Configuring Chargeback](#)

25.1 Setting Up the WebLogic Self Service Portal

The EM_SSA_ADMINISTRATOR can configure and set up the WebLogic Cloud Self Service Portal by creating middleware pools, setting up quotas, defining request settings, configuring the load balancer, creating service templates, and configuring chargeback.

[Figure 25–1](#) diagram shows the initial setup and the relationship between the various entities involved in setting up the WebLogic Middleware Self Service Portal.

Figure 25–1 Setting Up WebLogic as a Service**Prerequisites**

- One or more PaaS Infrastructure zones must have been created. See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#) for details.

To set up the WebLogic as a Service, follow these steps:

- Set up one or more PaaS Infrastructure zones. See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#) for details.
- Create a Middleware Pool. See [Section 25.2, "Creating a Middleware Pool"](#).
- Optionally, you can configure an external load balancer. See [Section 25.3, "Creating a Load Balancer Configuration"](#).
- Configure request settings. See [Section 25.4, "Configuring Request Settings"](#).
- Define quotas for each self service user role. See [Section 25.5, "Setting Up Quotas"](#).
- Create service templates. You can create service templates that can be used to provision an instance of a service in a set of selected zones. See [Section 25.6, "Creating a WebLogic Service Template"](#).
- Optionally, you can configure the Chargeback Service. See [Section 25.7, "Configuring Chargeback"](#).

25.2 Creating a Middleware Pool

A Middleware Pool contains a set of resources that can be used to provision a service instance within a PaaS Infrastructure Zone.

Note: A middleware pool must be configured only if you setting up MWaaS for the physical flow scenario. See [Section 25.1, "Setting Up the WebLogic Self Service Portal"](#).

To create a Middleware Pool, follow these steps:

- Log in to Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.

2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. The common tasks that need to be performed before setting up a specific service family is displayed. Click the **Setup** link next to Middleware service family in the left panel.
4. Select **WebLogic** from the service type drop down list.
5. Click **Middleware Pools**. The existing middleware pools are listed on the Middleware Pools page.
6. Click **Create**. The Create Middleware Pool: General page appears. Enter a name and description for the Middleware Pool. Select the PaaS Infrastructure Zone in which the middleware pool is to be created.

Note: You can also navigate to this page by selecting **Resource Providers** from the **Cloud Home** menu. The Resource Provides Home page appears. Click **Create** and select Middleware Pool as the type of the resource provider to be created to launch the Create Middleware Pool wizard.

Figure 25–2 Create Middleware Pool: General

7. Click **Next**. In the Members page, specify the following:
 - Exalogic: Select **Yes** if all the member host targets are on Exalogic.
 - Exalogic with Multiple Racks: If the hosts are on Exalogic, select **Yes** if the host targets are from multiple Exalogic racks thereby providing high availability across the racks.
 - Operating System and Platform: Specify the operating system and platform.
8. Click **Add** to add one or more hosts to the middleware pool. Click **Next**.
9. The Create Middleware Pool: Placement Constraints page appears. The placement constraints are used to set maximum limits on resource utilization for each host. In the Maximum Number of Java Servers (per host) field, enter the maximum number of Java Server instances that can be running on each host in the pool. Click **Next**.

Note: If you are using a Shared Oracle Home, you must ensure that Write permissions are available on the `$WL_HOME/common/lib` directory. This is applicable for WebLogic Server versions 12.1.1 or earlier.

10. In the Characteristics region, specify the following:

- Domain Home Base Directory: This is a mandatory field. Specify the base directory in which the domain or the instances provisioned with this middleware pool are to be placed.
 - Middleware Home Base Directory: This is a mandatory field. Specify the directory under which the Oracle Homes are to be created. Oracle Homes will be shared across services of the same type and version.
 - Shared Oracle Home: If this field is set to **Yes**, all hosts in this middleware pool will use this Shared Oracle Home even if other Oracle Homes are present on these hosts.
11. In the Target Properties region, specify the characteristics that will be used to tag and identify the target properties. Click **Next**.
 12. Review the information and click **Submit** to create the middleware pool. The newly created pool middleware pool can now be used to create Middleware Service Templates.

25.3 Creating a Load Balancer Configuration

You can configure external pre-configured load balancers such as Oracle HTTP Server (versions 11x are supported but it is recommended that you use 11g PS6), Oracle Traffic Director (versions 11x are supported but it is recommended that you use OTD 11x PS6) or a third party load balancer.

Note: If you are using a 11g PS6 managed or collocated OHS load balancer, you must ensure that no change is done through the Admin / MBean interfaces. The as-a-service solution modifies the OHS files directly on the file system, so any changes made on a collocated OHS may not be replicated to the Administration Server. Additionally, any changes made through the Admin interfaces (such as MBean, WLST, and so on), may override the changes made directly to the *.conf files.

If you want to configure a third party load balancer, you must use a custom script to update the load balancer configuration. For more details on this script, see [Section 25.3.1, "Creating a Custom Script"](#). A Middleware Pool or a Deployment Plan can be associated with only one of the load balancer configurations.

Note: Setting up the Load Balancer Configuration is an optional step.

Prerequisites

- OTD and OHS load balancers being configured must be installed on an Enterprise Manager monitored host and is used to route Web traffic to one or more MWaaS service instances. When a MWaaS service instance is created, updated (scaled up or scaled down), or deleted, the load balancer configuration is automatically updated.
- To route HTTPS Web traffic, you must do the following:
 - Create an OTD configuration (This is required only if you are configuring an Oracle Traffic Director type of load balancer).
 - Create or install a certificate.

For more details configuring SSL authentication, refer to the Oracle Traffic Director Administrator's Guide and the Oracle HTTP Server Administrator's Guide.

To configure a load balancer, follow the steps below:

1. Log into Enterprise Manager as an user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. The common tasks that need to be performed before setting up a specific service family is displayed. Click the **Setup** link next to Middleware service family in the left panel.

Note: You can use a different navigation path to reach this page. From the **Cloud Home** menu, select **Setup**, **Service Settings**, then click **Middleware**.

4. Select **WebLogic** from the service type drop down list and click the **Load Balancer Configuration** link.
5. Click **Create** to create a new load balancer configuration.

Figure 25–3 Load Balancer Configuration: General

The screenshot shows the 'Create Load Balancer Configuration: General' form. At the top, there are tabs for 'General', 'Properties', 'Targets', and 'Review'. Below the tabs is a progress bar indicating 'Step 1 of 4'. The form fields are as follows:

- Name:** OTD_11g
- Type:** Oracle Traffic Director (OTD) (selected)
- Description:** (empty text area)
- Load Balancer Host:** (empty text field with a search icon)
- Routing Protocol:** HTTP (selected)
- Routing Port Range (HTTP):** 8000-9000
- Monitoring Agent:** (empty text field with a search icon)
- Named Credential for Monitoring Agent:** (empty text field with a search icon)

6. Enter the following details:
 - Name of the load balancer configuration.
 - Select the type of load balancer being configured. This can be Oracle HTTP Server (OHS), Oracle Traffic Director (OTD), or a Third Party Load Balancer.
 - If you are using OHS and OTD, select the host on which the load balancer is installed. This must be an Enterprise Manager monitored host. If you are using the OTD load balancer, you must enter **OTD 11g Admin Server** here.

Note: If you are using another third party load balancer, select a host on which the load balancer can be configured either locally or remotely.

- Specify the Routing Protocol (HTTP, HTTPS, or both) and the Free Routing Port Range.
- Select the Monitoring Agent (Management Agent) and specify the Named Credentials.

Note:

- For OTD and OHS, the Monitoring Agent must be present on the same host on which the OTD/OHS load balancer instance is running. For third party load balancers, the Monitoring Agent must be present on the host on which the load balancer is being configured.
- For third party load balancers, the Monitoring Agent may not be present on the same host on which the load balancer is running. In this case, you can select any other monitoring agent (which is available on other host) from which the third party load balancer can be accessed or configured by executing the custom script.

7. Click **Next**. The Create Load Balancer Configuration: Properties page appears.

Figure 25–4 Create Load Balancer Configuration: Properties

The screenshot shows the 'Create Load Balancer Configuration: Properties' window. It has a tabbed interface with 'General', 'Properties', 'Targets', and 'Review'. The 'Properties' tab is selected. The title bar says 'Create Load Balancer Configuration: Properties'. In the top right corner, there are buttons for 'Back', 'Step 2 of 4', 'Next', and 'Cancel'. The main area contains the following fields:

- Oracle Home: [text box]
- Admin Protocol: [radio buttons for HTTPS and HTTP, with HTTPS selected]
- Admin Listen Port: [text box with value 8080]
- SNMP Listen Port: [text box with value 11161]
- Instance Node: [text box]
- Configuration Name: [text box with value config]
- Certificate Name: [text box]
- Virtual Server Name: [text box]

At the bottom, there is a note: '* Privileged Named Credentials/No Named Credentials available.' with a green plus icon.

If you have selected the Load Balancer Type as:

- **Oracle HTTP Server:** Enter the following details:
 - **Instance Home:** The directory in which the configuration data and binary files pertaining to Oracle HTTP Server instance is stored.
 - **Component Name:** The component in the specific instance that is to be configured.
- **Oracle Traffic Director:** Enter the following details:
 - **Oracle Home:** The directory in which the Oracle Traffic Director binaries are installed.
 - **Admin Protocol:** Specify the protocol (HTTP or HTTPS) to be used by the Oracle Traffic Director Administration Server to forward requests. By default, this is HTTPS.
 - **Admin Listen Port:** Specify the Administration Server listen port number.
 - **SNMP Port:** The SNMP port configured for Oracle Traffic Director. The default port number is 11161.
 - **Instance Node:** Specify the Oracle Traffic Director Instance node name.
 - **Configuration Name:** This field is optional and is required only if you have selected HTTPS or HTTP_HTTPS as the Routing Protocol in the Load Balancer Configuration: General section. If you select the HTTP Admin Protocol, and do not specify a value in this field, the OTD Configuration Name is created as config1 by default. If the OTD Configuration has already been created, it must be a managed target in Enterprise Manager.

Note: If you select the HTTP protocol, it is recommended that an OTD Configuration is created manually and discovered as a managed target in Enterprise Manager.

- **Certificate Name:** This field is optional. If you selected HTTPS or HTTPS or HTTP_HTTPS as the Routing Protocol in the Load Balancer Configuration: General section, enter the name of the self signed certificate.
 - **Virtual Server Name:** The name of the virtual server. If the virtual server does not exist, a virtual server with the name specified here will be created. In this release, host patterns are not defined for each virtual server in the configuration.
 - **Privileged Named Credentials:** Specify the Named Credentials for the Administration Server.
 - **Third Party Load Balancer:** Select a script to configure the load balancer. This script must have been uploaded to the Software Library and the Software Library Directive URN must be specified as the input for the script.
8. Click **Next**. The Create Load Balancer Configuration: Targets page appears.
 9. Click **Add** to add one or more middleware pools (See [Section 25.2, "Creating a Middleware Pool"](#)) with which the load balancer will be associated.

Note: A Middleware Pool can be associated with only one load balancer configuration.

10. Click **Next**. Review the configuration and click Submit to create the Load Balancer Configuration. The newly created load balancer configuration appears in the Load Balancer Configurations table. Click the **Load Balancer Name** link in the table to view the load balancer configuration details. This shows the targets associated with the load balancer configuration and middleware service instances that are using the configuration.

25.3.1 Creating a Custom Script

You can use a custom script to configure the load balancer. This script must be present in the Software Library as a directive. The directive must follow these guidelines:

- **LBR_WORK_DIRECTORY:** Specifies the directory in which the `lbr.properties` file will be staged. The name-value pairs present in the `lbr.properties` file are extracted by the custom script and these values are used to configure the load balancer.
- The following properties must be present in the `lbr.properties` file:
 - **THIRDPARTY_ROUTING_PROTOCOL:** This can be HTTP, HTTPS, or HTTP_HTTPS.
 - **HTTP_PORT_RANGE:** The range of ports (separated by hyphen '-') that can be used to configure for HTTP protocol. For example, 5000-6000.
 - **HTTPS_PORT_RANGE:** The range of ports (separated by hyphen '-') that can be used to configure for HTTPS protocol. For example, 7000-8000.
 - **LBR_HOST:** The host on which the load balancer is installed.
 - **UNIQUE_URI_REFERENCE:** This is the Service Instance Id (which is an unique value). This maps to the service instance (WebLogic Domain). If required, it

can be used to uniquely identify an entity, such as the virtual server, route, and so on.

- **CONFIGURATION_ACTION:** The actions that can be performed are:
 - * **CREATE:** To create a service instance.
 - * **ADD_SERVERS:** To scale up or add one or more servers.
 - * **DELETE_SERVERS:** To scale down or delete one or more servers.
 - * **REMOVE:** To delete a service instance.
- **HTTP_WLS_MANAGED_SERVER_PORT_LIST:** A comma separated host:port (Managed Servers) list where port is a http port. For example, abc:123, xyz:456.
- **HTTPS_WLS_MANAGED_SERVER_PORT_LIST:** A comma separated host:port (Managed Servers) list where port is an SSL port. For example, abc:123, xyz:456.

25.3.1.1 Sample Script (Oracle Cloud Application 12.1.0.8 or Earlier)

This sample script is applicable if are using 12.1.0.8 or earlier versions of the Oracle Cloud Application plugin.

Example 25–1 Sample Script I

```
#!/usr/bin/perl
use File::Path;
#use File::Spec();
use File::Spec;
use Cwd;

my $dir = getcwd();
my $WORK_DIR = $ARGV[0];

print "The Input Parameters to the Third Party Script are as follows : ".$'\n';
print "lbrWorkDirectory = ".$WORK_DIR.$'\n';
print
"===== ".$'\n';
print "The lbr.property file contents accessible to this script are as follows
".$'\n';
my $textfile = "lbr.properties";

my @prop;
chdir($WORK_DIR) or die "Can't chdir to $WORK_DIR $!";
#Create Hash from properties
open FILE, "<$textfile" or die("Could not open text file '$' . $textfile . '$':
$!");
my %hash;
while ($line4 = <FILE>)
{
  chomp($line4);
  my ($key, $val) = split(/=/,$line4);
  print $key."= ".$val.$'\n';
  $hash{$key}=$val;
}
close FILE;
print
"===== ".$'\n';
my $ACTION          = $hash{'CONFIGURATION_ACTION'};
```



```

if ( $ACTION eq "CREATE" ) {
    print " The Configuration Action is Create \n";
} elsif ( $ACTION eq "ADD_SERVERS" ) {
    print " The Configuration Action is Scale Up \n";
} elsif ( $ACTION eq "DELETE_SERVERS" ) {
    print " The Configuration Action is Scale Down \n";
} elsif ( $ACTION eq "REMOVE" ) {
    print " The Configuration Action is Remove \n";
} else {
    print " Unsupported Configuration Action". $ACTION. "\n";
}
print
"====="." \n";
#
# logic to configure the LBR goes here
#

```

25.3.1.2 Sample Script (Oracle Fusion Middleware 12.1.0.7 or Later)

This sample script is applicable if you are using 12.1.0.7 or later versions of the Oracle Fusion Middleware plugin.

Example 25–2 Sample Script II

```

#!/usr/bin/perl
use File::Path;
#use File::Spec();
use File::Spec;
use Cwd;

my $dir = getcwd();
my $WORK_DIR = $ARGV[0];

print "The Input Parameters to the Third Party Script are as follows : ". "\n";
print "lbrWorkDirectory = ".$WORK_DIR. "\n";
print
"====="." \n";
print "The lbr.property file contents accessible to this script are as follows
". "\n";
my $textfile = "lbr.properties";

my @prop;
chdir($WORK_DIR) or die "Can't chdir to $WORK_DIR $!";
#Create Hash from properties
open FILE, "<$textfile" or die("Could not open text file '" . $textfile . "' :
$!");
my %hash;
while ($line4 = <FILE>)
{
    chomp($line4);
    my ($key, $val) = split(/=/,$line4);
    print $key."= ".$val. "\n";
    $hash{$key}=$val;
}
close FILE;

print "TP OUTPUT:FRONT_END_HOST_VALUE=example.host.com#FRONT_END_HTTP_PORT_
VALUE=9000#FRONT_END_HTTPS_PORT_VALUE=9090#URI_PREFIX=app1#". "\n";
#
# logic to configure the LBR goes here

```

```
#
print
"===== ". "\n";
```

Note: If you are using Oracle Fusion Middleware 12.1.0.7 or later, the script must meet the following guidelines:

- After successfully completing the configuration, you must exit the program with command status '0'.
- If the configuration fails, you must exit the program with a 'non-zero' command status.
- Print the following information in the exact format as given below:

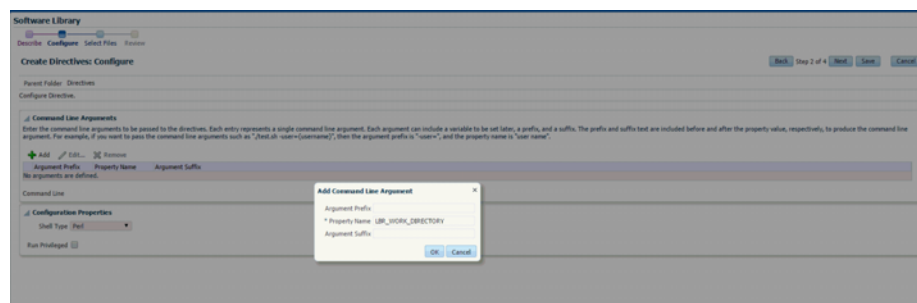
```
print "TP OUTPUT:FRONT_END_HOST_VALUE=<host-name>#FRONT_
END_HTTP_PORT_VALUE=<http_port>#FRONT_END_HTTPS_PORT_
VALUE=<https_port>#URI_
PREFIX=<uri-prefix-if-applicable>#". "\n";
```

25.3.2 Adding the Third Party LBR Configuration to the Software Library

To add the third party LBR configuration script as a directive in the Software Library, follow these steps:

1. From the **Enterprise** menu, select **Provisioning and Patching**, then select **Software Library**.
2. From the **Actions** menu, select **Create Entity** and click **Directive** to launch the Create Entity: Directives wizard.
3. On the Describe page, enter the Name and Description. Click **Next**.
4. On the Configure page, click **Add** and specify the command line arguments that will be used configure the directive. The Add Command Line Arguments dialog box appears.
5. In the Add Command Line Arguments dialog box, enter LBR_WORK_DIRECTORY in the Property Name field and leave the other two fields (Argument Prefix and Argument Suffix fields) blank.

Figure 25–5 Software Library: Configure Page



6. In the Configuration Properties section, select either Bash or Perl as defined in the script. Click **Next**.

7. On the Select Files page, you can select one or more files to be associated with the entity. Select the Upload Files option and select the Upload Location.
8. In the Specify Source section, select Local Machine, and click **Add**. In the Add File dialog box, click **Browse** to select the third party LBR configuration script file from the source location, and give a unique name, and click **OK**.

Figure 25–6 Software Library: Select Files Page

9. On the Review page, review all the details, and click **Save and Upload** to create the directive and upload it on the Software Library.

The third party LBR configuration script is now present as a directive in the Software Library. This directive can be selected as the third party Directive URN parameter in the Load Balancer Configuration Create page. For more details on creating a Software Library directive, see the Enterprise Manager Cloud Control Administrator's Guide.

Note: If the third party load balancer is used for more than one service (WLaaS, SBaaS, or SOAaaS), you must set the following properties to ensure that a unique identity is maintained for each service type:

- SVC_INST_ID: Unique service instance ID.
- SVC_Name: Name of the service.

25.4 Configuring Request Settings

You can configure the request settings by specifying when a request can be made, its duration, and so on. To configure the request settings, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. The common tasks that need to be performed before setting up a specific service family is displayed. Click the **Setup** link next to Middleware service family in the left panel.

Note: You can use a different navigation path to reach this page. From the **Cloud Home** menu, select **Setup**, **Request Settings**, then select **Middleware**, and click **WebLogic**.

4. Select **WebLogic** from the service type drop down list and click **Request Settings**.
 5. You can specify the following parameters to set the global settings or settings for a specific role.
 - **Future Reservation:** How far in advance can a request be made.
 - **Request Duration:** Maximum duration for which a service can exist.
 - **Archive Policy:** Maximum duration after which archived requests are automatically deleted.
 - **Service Instance Approval:** Select this checkbox if all requests need to be approved by the self service administrator.
 - **Service Instance Share Settings:** A service instance can be shared with another user or a role. You can select either or both the checkboxes:
 - Enable SSA User to share service instances with other Users.
 - Enable SSA User to share service instances with Roles.
- See [Section 11.2.3, "Configuring Request Settings"](#) for details on how to set these parameters.
6. Click **Apply**.

25.5 Setting Up Quotas

Quota is the aggregate amount of resources that can be granted to each self service user belonging to a certain role. This quota applies only to the service instances provisioned through the Middleware Self Service Portal. Each service instance that is provisioned including new service requests and scale up of existing service instances is subject to the quota allocated to the self service user. When the self service user has used up his allocated quota, he cannot make new service requests until a higher quota is allocated or his existing service instances have been reclaimed.

To define a quota, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.

Note: You can use a different navigation path to reach this page. From the **Cloud Home** menu, select **Setup, Quotas**, then click **Middleware**.

3. Click on the **Setup** link next to the Middleware Service family and select the WebLogic service type from the drop down list.
4. Click the **Quotas** link and then click **Create**.

Note: Quota validation ensures that a request is executed only if the user's current usage is within the limits specified for the roles to which the user belongs. Only the direct roles are considered for the quota determination, and not nested ones.

5. In the Create Quota window, select the Role Name for which the quota is to be granted. Specify the quota limits for the role as follows:
 - **Memory:** The maximum memory that can assigned to the instances owned by a specific user.
 - **Java Servers:** The number of Java Servers that can be owned by a user at any point in time.
 - **Number of Non Oracle JVMs:** Specify the number of Non Oracle JVMs.

Note: Only users that have the Cloud Self Service Portal privileges (users belonging to the EM_SSA_USER_BASE role) are displayed in the Select Roles dialog box.

25.6 Creating a WebLogic Service Template

A service template can be used to provision an instance of a service into a set of selected PaaS Infrastructure zones.

Prerequisites

- Set up and enable MWaaS as described in [Section 13.3, "Getting Started with Middleware as a Service"](#).
- A PaaS Infrastructure Zone must have been created.
- A WebLogic domain provisioning profile (see [Section 13.3.1.1, "Creating a WebLogic Domain Provisioning Profile"](#)) with appropriate values must be present in the Software Library.
- A middleware pool must have been created.
- Named Credentials must be created and the user creating the service template must be the owner of the Named Credentials.

Note: You can edit a service template that has active instances and modify the configuration parameters. When a service template is modified:

- New instances created after the changes have been made will use the new parameters.
 - Old instances or instances created before the template was modified will use the earlier values.
 - Changes made to zones and roles will be applicable to both old and new instances.
-

To create a WebLogic Service Template, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**.

Note: You can use a different navigation path to reach this page. Select **Service Templates** from the **Oracle Home** menu, click **Create** and select **WebLogic** service type.

3. Click on the **Setup** link next to the Middleware Service family and select the **WebLogic** service type from the drop down list.
4. Click the **Service Templates** link. You can create service templates that can be used to provision an instance of a service in a set of selected zones. Click **Create**.
5. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
6. In the Provisioning Profile field, click the **Search** icon and select a WebLogic Domain Provisioning profile. The WebLogic Domain Provisioning Profile you select can contain either of the following:
 - One cluster with one or more WebLogic Servers. You can scale up or scale down by adding or deleting WebLogic servers to this cluster.
 - One WebLogic Server. In this case, the Scale Up and Scale Down options are not available.
7. Click **Next**.

Figure 25–7 Create WebLogic Service Template: Characteristics

Create Service Template

General Characteristics Resource Providers Configuration Rules Review

Create WebLogic Service - Physical Characteristics

Back Step 2 of 6 Next Cancel

Service Characteristics

Name	Value
Distribute WebLogic servers of a service?	No
Distribute load on available hosts?	Yes
Enable Load Balancer?	No
Expose Advanced Settings to SSA User?	No
Expose WebLogic Admin Console and Fusion	No
JSP Enabled Profile?	No

Target Properties

These characteristics will be applied to the service instances as target properties

Name	Value
Contact	
Cost Center	
Department	
Lifecycle Status	
Line of Business	
Location	
Site	

In the Service Characteristics region, specify the following:

- **Distribute WebLogic Servers of a service instance on hosts from different Exalogic Racks:** Select **Yes** if the WebLogic Servers in a service instance are to be uniformly distributed on available Exalogic racks. Select **No** if the hosts are to be placed on the first available rack.
- **Distribute Load on Available Hosts:** Select **Yes** if the WebLogic Servers are to be uniformly distributed on available hosts. If you select **No**, the maximum number of servers possible will be provisioned on the first available host before provisioning on other hosts.
- **Enable Load Balancer:** Select **Yes** to enable the load balancer configuration for all the service instances that are created with this service template.

Note: Based on your selections in the Service Characteristics region, the relevant middleware pools will be displayed.

- **Expose Advanced Settings for the SSA User:** When set to **Yes**, the self service user will have access to advanced options such as Operating System, Enable

sharing Service Instances with other SSA Users, Setting Target Properties for Monitoring Templates, and so on.

- **Expose WebLogic Admin Console and Fusion Middleware Control to SSA User:** If you select **Yes**, the users with the `EM_SSA_USER` role will have access to the WebLogic Admin Console and Fusion Middleware Control for each service instance created using this service template.

Note: This field must be set to **Yes** only if the `EM_SSA_USER` needs to have complete control over the WebLogic Server and Fusion Middleware Control consoles. The `EM_SSA_USER` will then be able to perform all configuration changes and life cycle management operations from each console.

- **JRF Enabled Profile:** Indicates if the selected profile is JRF enabled. If set to **Yes** for WebLogic Server 12.1.2 and 12.1.3 instances, the self service user will be prompted for the database connection string and schema password while requesting a service. The database whose connection string you specify must be a clone of the source profile.

The self service user can either use a database that has been cloned using DBaaS RMAN Backup option, or a database which is cloned outside DBaaS but discovered in Enterprise Manager. In the case of the latter option, after discovering the database, you must grant view privileges on the Database target to the self service user.

Note: A JRF enabled profile cannot be used to create a non-JRF WebLogic domain. If the value for this field has been set to **Yes**, it is recommended that you do not change it.

8. In the Target Properties region, specify the characteristics that will be used to tag and identify the target properties. Service instances created from the template will have the characteristics.
9. Click **Next**. In the Create Middleware Service Template: Resource Providers page, click **Add** to select the Middleware Pool into which that the service instances are to be provisioned. The PaaS Infrastructure Zone with which the middleware pool is associated is displayed.
10. Click **Next**. The Configuration page appears.

Figure 25–8 Create WebLogic Template: Configuration

Name	Value	Description
WebLogic Administration User Credentials		Administration User Credentials for the domain to be created
WebLogic Username *		Username for the WebLogic Server.
WebLogic Password *		Password for the WebLogic Server.
Re-enter WebLogic Password *		Re-enter Password for the WebLogic Server.
Java Home Location *		Java Home Location
Java Home *		The absolute path to the Java Home.
Pre and Post Scripts		Pre and Post Scripts
Service Instance Prescript		Prescript to be executed before any service instance operation.
Service Instance Postscript		Postscript to be executed after any service instance operation.
External Hosts for Executing Scripts		Use ';' to separate multiple external target hosts.
Named Credential for execution of scripts on External Hosts	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	This will be used for the above external hosts.
Execute Scripts on Admin Server Host?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	Choose 'Yes' to execute scripts on admin server host besides the hosts entered above.
Execute Scripts on Managed Server Hosts?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input checked="" type="radio"/> No	Choose 'Yes' to execute scripts on managed server hosts besides the hosts entered above.
Service Settings		Service Settings
Topology	<input checked="" type="radio"/> Single Cluster <input type="radio"/> No Cluster	It is auto populated based on the profile selected.
Port Range		Port Range
Port Range Start	3274	Lower Bound for choosing Free Ports.
Port Range End	65000	Upper Bound for choosing Free Ports.
Placement Parameters		Placement Parameters
Memory Usage Per Instance	0.25	Memory required by each additional instance in GB.
CPU Usage Per Instance	33	CPU required by each additional instance in percentage.
Server Startup Arguments		Server Startup Arguments
Managed Server Startup Arguments		Enter memory and java arguments to start the server. Example: -Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m
Resource Management Script Parameters		Parameters for resource management script
Resource Management Script		Script for dynamic management of resources.

Enter the following details:

- **WebLogic Administration Credentials:**
 - **WebLogic Username:** Enter a value of minimum 8 characters as the name of the user logging into the WebLogic server. This is a mandatory field.
 - **WebLogic Password:** Enter a value of minimum 8 characters as the password for the WebLogic server user. This is a mandatory field.
- **Java Home Location:** Specify the absolute path to the Java Home. This field must be specified if the WebLogic Domain Provisioning Profile selected earlier contains Middleware Home binaries.
- **Pre and Post Scripts**
 - **Prescript for Service Instance:** Select the script that should be executed before creating, deleting, scaling up, or scaling down a service instance.
 - **Postscript for Service Instance:** Select the script should be executed after creating, deleting, scaling up, or scaling down a service instance.
 - **External Hosts for Executing Scripts:** Specify the external hosts on which these scripts should be executed.
 - **Named Credential for execution of scripts on external hosts:** Specify the credentials to be used to run the scripts on external hosts.
 - **Execute Scripts on Admin Server Host:** Select **Yes** if the scripts are to be executed on the Administration Server Host.
 - **Execute Scripts on Managed Server Hosts:** Select **Yes** if the scripts are to be executed on the Managed Server Hosts.

Note: Zone level credentials are used to run these scripts on the Administration Server Host and the Managed Server Host.

The scripts must meet the following guidelines:

- Directive that is created should be a PERL directive.
- An input parameter named `INPUT_FILE_LOCATION` must be defined.

- The path to the location of a property file must be specified in the `INPUT_FILE_LOCATION` parameter.
- The property file contains information about the service instance and the domain.

See [Section 25.6.1, "Sample Postscript"](#) for a sample script file, properties file, and the generated output.

■ **Service Settings:**

- **Topology:** This field is automatically set based on the profile you have selected in the Create Middleware Service Template for Physical: General page.

- **Port Range (Start - End):** Enter the port range for the WebLogic Server. The default start range is 1024 and the end range is 65000.

■ **Placement Parameters:**

- **Memory Usage Per Instance:** Specify the memory required for each additional WebLogic Server instance. This parameter must be specified (cannot be left blank) and the value must match the `-Xmx` value specified in the profile. For example, if the profile specifies `-Xmx512m`, the memory required value must be set to 0.5. Similarly, a profile value of `-Xmx1024m` would need a memory required value of 1, and so on.
- **CPU Usage Per Instance:** Specify the CPU required for each additional WebLogic Server instance.

■ **Server Startup Arguments**

- **Managed Server Startup Arguments:** Specify the memory and Java arguments required to start the managed server. These arguments are used to control the memory size of the JVM server and create multiple templates with the same profile. For example, you can specify `-Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m -Dweblogic.security.SSL.ignoreHostnameVerification=true`.

Note: If the Expose Advanced Settings for the SSA User flag is set to **True**, the self service user can modify these arguments while requesting a service.

■ **Resource Management Script Parameters**

- **Resource Management Script:** Specify the script for dynamic management of resources which allows you to increase or decrease the size of the middleware pool. This script must be present in the Software Library as a directive.

11. Click **Next**. In the Create Middleware Service Template for Physical: Roles page, click **Add** to select the self service user roles to which this service template will be available. All users belonging to the selected role can use this service template.
12. Click **Next**. The Create Middleware Service Template for Physical: Review page appears. Review the information entered so far and click **Submit**. The newly created service template will appear in the Middleware Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

To edit an existing MWaaS service template, follow these steps:

1. Click **Edit** in the Service templates page to launch to the Edit Service Template wizard.

2. In this mode, you can modify the description, user name, password, and port range of the WebLogic Server instance being provisioned, add or remove PaaS Infrastructure Zones, Software Pools into which the template is being deployed, and add or remove users who can use this template.

25.6.1 Sample Postscript

This sample postscript prints the contents of the properties file and also prints details regarding the managed server, administration server, and so on.

25.6.1.1 Sample Properties File

The properties file contains the following:

```
OPERATION= CREATE
SERVICE_INSTANCE= inst_01
DOMAIN_NAME= inst_01_SSA_USER1
DOMAIN_HOME= /middleware/inst_01_SSA_USER1
MW_HOME= /middleware
WLS_HOME= /middleware/wlserver_10.3
ADMIN_SERVER= example.com,27877,8142
MANAGED_SERVERS= example.com,13614,1488,4166;
EXTERNAL_HOSTS= example.com
EXECUTE_SCRIPTS_ON_ADMIN_SERVER_HOST= Yes
EXECUTE_SCRIPTS_ON_MANAGED_SERVER_HOSTS= Yes
```

25.6.1.2 Sample Script

A sample script is given below:

```
#!/usr/bin/perl
use File::Path;
#use File::Spec();
use File::Spec;
use Cwd;

my $dir = getcwd();
my $inputFile = $ARGV[0];

print "Input File Location = ".$inputFile."\n";
print "=====".".\n";
print "The properties file contents accessible to this script are as follows
". "\n";

my @prop;
#Create Hash from properties
open FILE, "<$inputFile" or die("Could not open text file '" . $inputFile . "':
$!");
my %hash;
while ($line4 = <FILE>)
{
    chomp($line4);
    my ($key, $val) = split(/=/,$line4);
    print $key."= ".$val."\n";
    $hash{$key}=$val;
}
close FILE;
print "=====".".\n";
my $ACTION = $hash{'OPERATION'};
if ( $ACTION eq "CREATE" ) {
    print " This is Service Instance Creation Operation \n";
```

```

} elsif ( $ACTION eq "SCALEUP" ) {
    print " This is Scale Up Operation \n";
} elsif ( $ACTION eq "SCALEDOWN" ) {
    print " This is Scale Down Operation \n";
} elsif ( $ACTION eq "DELETE" ) {
    print " This is Delete Service Instance Operation \n";
} else {
    print " Unsupported Configuration Action".$ACTION."\n";
}
print "=====.\n";

my $ADMIN_SERVER = $hash{'ADMIN_SERVER'};

print "=====Admin Server Details Begins=====.\n";
my @fields = split (/,/, $ADMIN_SERVER);
my $arraySize = @fields;
if ($arraySize == 4) {
    print "Admin Server Name is ".$fields[0]."\n";
    print "Admin Server Host Name is ".$fields[1]."\n";
    print "Admin Server NON SSL Port is ".$fields[2]."\n";
    print "Admin Server SSL Port is ".$fields[3]."\n";
} else {
    print "Admin Server Host Name is ".$fields[0]."\n";
    print "Admin Server NON SSL Port is ".$fields[1]."\n";
    print "Admin Server SSL Port is ".$fields[2]."\n";
}
print "=====Admin Server Details Ends=====.\n";

print "\n";

print "=====Managed Server's Details Begins=====.\n";
my $MANAGED_SERVERS = $hash{'MANAGED_SERVERS'};
my $managedServer;
my @noOfManagedServers = split (/,/, $MANAGED_SERVERS);
for ($count = 0; $count < @noOfManagedServers; $count++) {
    $managedServer = $noOfManagedServers[$count];
    @fields = split (/,/, $managedServer);
    $arraySize = @fields;
    if ( $ACTION eq "SCALEDOWN" || $ACTION eq "DELETE" ) {
        print "Managed Server Name is ".$fields[0]."\n";
        print "Managed Server Host Name is ".$fields[1]."\n";
        print "Managed Server NON SSL Port is ".$fields[2]."\n";
        print "Managed Server SSL Port is ".$fields[3]."\n";
    } else {
        print "Managed Server Host Name is ".$fields[0]."\n";
        print "Managed Server NON SSL Port is ".$fields[1]."\n";
        print "Managed Server SSL Port is ".$fields[2]."\n";
    }
    print "\n"
}
print "=====Managed Server's Details Ends=====.\n";

print "\n";

print "=====External Host's Details Begins=====.\n";
my $EXTERNAL_HOSTS = $hash{'EXTERNAL_HOSTS'};
my @hosts = split (/,/, $EXTERNAL_HOSTS);
for ($count = 0; $count < @hosts; $count++) {
    print "External Host is ".$hosts[$count]."\n";
}

```

```
print "=====External Host's Details Ends=====."\n";
```

25.6.1.3 Sample Script Output

The output of the directive is given below:

```
Input File Location = /jan1215/work/agentStateDir/1422547083465.properties
=====
The properties file contents accessible to this script are as follows
OPERATION= CREATE
SERVICE_INSTANCE= inst_01
DOMAIN_NAME= inst_01_SSA_USER1
DOMAIN_HOME= /middleware/inst_01_SSA_USER1
MW_HOME= /middleware
WLS_HOME= /middleware/wlserver_10.3
ADMIN_SERVER= example.com,27877,8142
MANAGED_SERVERS= example.com,13614,1488,4166;
EXTERNAL_HOSTS= example.com
EXECUTE_SCRIPTS_ON_ADMIN_SERVER_HOST= Yes
EXECUTE_SCRIPTS_ON_MANAGED_SERVER_HOSTS= Yes
=====
  This is Service Instance Creation Operation
=====
-----Admin Server Details Begins-----
Admin Server Host Name is example.com
Admin Server NON SSL Port is 27877
Admin Server SSL Port is 8142
-----Admin Server Details Ends-----

-----Managed Server's Details Begins-----
Managed Server Host Name is example.com
Managed Server NON SSL Port is 13614
Managed Server SSL Port is 1488

-----Managed Server's Details Ends-----

-----External Host's Details Begins-----
External Host is example.com
-----External Host's Details Ends-----
```

25.6.2 Resource Management Script

The Resource Management Script specifies the location of the property file which contains a list of name value pairs. The content of the file varies based on the Create, ScaleUp, ScaleDown, and Delete operations.

25.6.2.1 Create Operation

The content of the file for the **Create** operation are:

```
ACTION=CREATE
ZONE_NAME=<value>
POOL_NAME=<value>
NUMBER OF SERVERS BEFORE THIS REQUEST=<value>
NUMBER OF SERVERS REQUESTED=<value>
NUMBER OF SERVERS POSSIBLE WITH AVAILABLE RESOURCES=<value>
```

NUMBER OF SERVERS NEEDED=<value>
MAXIMUM SERVERS ALLOWED PER HOST=<value>
MIDDLEWARE_HOME=<value>
EXPECTED CPU UTILIZATION IN PERCENTAGE=<value>
EXPECTED MEMORY CONSUMPTION IN GB=<value>

25.6.2.2 Scaleup Operation

The content of the file for the **Scaleup** operation are:

ACTION=SCALEUP
ZONE_NAME=<value>
POOL_NAME=<value>
NUMBER OF SERVERS BEFORE THIS REQUEST=<value>
NUMBER OF SERVERS REQUESTED=<value>
NUMBER OF SERVERS POSSIBLE WITH AVAILABLE RESOURCES=<value>
NUMBER OF SERVERS NEEDED=<value>
MAXIMUM SERVERS ALLOWED PER HOST=<value>
MIDDLEWARE_HOME=<value>
DOMAIN_NAME=<value>
EXPECTED CPU UTILIZATION IN PERCENTAGE=<value>
EXPECTED MEMORY CONSUMPTION IN GB=<value>

25.6.2.3 Scaledown Operation

The content of the file for the **scaledown** operation are:

ACTION=SCALEDOWN
ZONE_NAME=<value>
POOL_NAME=<value>
NUMBER OF SERVERS BEFORE THIS REQUEST=<value>
NUMBER OF SERVERS BEING REMOVED=<value>
HOSTS FROM WHERE SERVERS BEING REMOVED=<value>
MIDDLEWARE_HOME=<value>
DOMAIN_NAME=<value>

25.6.2.4 Delete Operation

The content of the file for the **Delete** operation are:

ACTION=DELETE
ZONE_NAME=<value>
POOL_NAME=<value>
NUMBER OF SERVERS BEFORE THIS REQUEST=<value>
NUMBER OF SERVERS BEING REMOVED=<value>

HOSTS FROM WHERE SERVERS BEING REMOVED=<value>

MIDDLEWARE_HOME=<value>

DOMAIN_NAME=<value>

25.7 Configuring Chargeback

Click the **Chargeback** tab to add the middleware pools to the Chargeback Application. On this page, you can determine chargeback zones, services, items, and prices. After Chargeback is set up, you can view charges and plan details.

You can configure chargeback and metering data based on the configuration and monitoring metrics collected from associated targets such as the host, managed server, and the PaaS Infrastructure Zone. The charge plans are based on the host, WebLogic (domain, cluster, and server), PaaS Infrastructure Zone, and configuration such as the WebLogic Domain version, OS version, vendor, and so on.

For details on setting up the Chargeback Service, see [Chapter 43, "Chargeback Administration"](#).

Setting Up the SOAaaS or the OSBaaS Self Service Portal

This chapter describes the procedure to set up and enable the SOA Self Service Portal or the OSB Self Service Portal. It contains the following sections:

- [Getting Started with SOAaaS and OSBaaS](#)
- [Setting Up DBaaS used to Clone a SOA Repository](#)
- [Prerequisites for Creating a SOA or an OSB Provisioning Profile](#)
- [Setting Up the SOA and OSB Cloud Self Service Portal](#)

26.1 Getting Started with SOAaaS and OSBaaS

This section helps you get started by providing an overview of the steps involved in setting up SOA as a Service (SOAaaS) and OSB as a Service (OSBaaS) to provision a service instance on one or more physical hosts.

Table 26–1 *Getting Started with Middleware as a Service*

Step	Task
1	Clone the database used by the Source SOA domain or OSB domain. Oracle recommends using the DBaaS feature available in Enterprise Manager. See Section 26.2 .
2	Meet the Prerequisites for creating the SOA/OSB provisioning profiles: See Section 26.3
3	Setting Up SOA and OSB Self Service Portal. See Section 26.4

26.2 Setting Up DBaaS used to Clone a SOA Repository

Following are the high-level steps to setup the Database Self Service Portal and request for a database instance that can be used for setting up the SOA Self Service Portal. Cloning method followed for setting up database instance for SOA is using RMAN backup. Following are the high-level steps:

Table 26–2 *Provisioning Databases Using RMAN Backup Profile*

Step	Task	Role
1	Follow the steps in the Getting Started section to enable DBaaS.	See Section 12.1, "Getting Started"

Table 26–2 (Cont.) Provisioning Databases Using RMAN Backup Profile

Step	Task	Role
2	Set up one or more PaaS Infrastructure Zones. Note: Oracle recommends using the same Infrastructure zone for Database and SOA/OSB.	See Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"
3	Create a database provisioning profiles using the RMAN Backup option. Note: Select the SOA/OSB dehydration store database used by the source SOA/OSB domain to create the profile.	See Section 19.1.2.1, "Creating a Database Provisioning Profile Using RMAN Backup"
4	Create a database pool.	See Section 19.1.1.1, "Creating a Database Pool for Database as a Service"
5	Create a database service template for SOA. Create a database service template for OSB.	See "Creating a Database Service Template for SOA Profile" See "Creating a Database Service Template for OSB Profile"
6	While deploying a database for SOA/OSB, select the service template you have created.	See Section 22.2, "Requesting a Database"

Note: The same user credentials that are used to create the Database Service instance should be used for creating the SOA/OSB Service instance. If you instead use other credentials, you must ensure that the SOA Service user has been granted the required accesses on the database.

26.2.1 Creating a Database Service Template for SOA Profile

Prerequisite:

To truncate the business data present inside the SOA dehydration store (source environment), use the truncate script provided as a part of the SOA product. For this, you must first create a Generic Component and upload `truncate_soa_oracle.sql` script to Software Library. For more information on this, see *Oracle Enterprise Manager Cloud Control Administrator's Guide*.

Note that the truncate script (`truncate_soa_oracle.sql`) is located in the following directory path: `/MW_HOME/SOA_ORACLE_HOME/rcu/integration/soainfra/sql/truncate`

To create the service template for a SOA Profile, follow these steps:

1. Follow the steps listed in [Section 19.1.2.1](#) to create the database profile.
2. Click **Next**.
3. On the Create Service Template: Customization page, specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.

In the Post SQL Script field, select the component `truncate_soa_oracle.sql` that you uploaded to Software Library.

From the Run as a User drop down menu, select the database schema. Note that you must run the script as {prefix}_SOAINFRA database user. For example, DEV_SOAINFRA.

ORACLE Enterprise Manager Cloud Control 12c

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Customization Roles

You have gone full screen. [Exit full screen \(F11\)](#)

Back Step 4 of 6 Next Cancel

Edit Service Template: Customization

Custom Scripts for Create

Specify the custom scripts to be executed before and after creating the service instance.

Pre Script

Post Script

Post SQL Script

Run As User

Custom Scripts for Delete

Specify the custom scripts to be executed before and after deleting the service instance.

Pre Script

Post Script

Target Properties

Name	Value	Required
Global Property		
Contact	<input type="text"/>	<input type="checkbox"/>
Location	<input type="text"/>	<input type="checkbox"/>
LifeCycle Status	<input type="text"/>	<input type="checkbox"/>
Department	<input type="text"/>	<input type="checkbox"/>
Comment	<input type="text"/>	<input type="checkbox"/>
Line of Business	<input type="text"/>	<input type="checkbox"/>

4. Click **Next**. The Create Service Template: Roles page appears.
5. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
6. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

26.2.2 Creating a Database Service Template for OSB Profile

Prerequisite (*Applicable only for OSB 11g targets*)

OSB uses Logging Last Resource (LLR) transaction optimization feature which creates LLR tables in the OSB schema for each managed server in the OSB domain, including the Administration Server.

As part of cloning the OSB database, you need to drop these tables. Otherwise, startup of the cloned OSB domain will fail. To drop these tables, you can create a Generic Component and upload `llr_table.sql` script to the Software Library.

To create the script for each for each LLR table present in source OSB environment, add the following statement to the SQL script:

```
DROP table WL_LLRL_<SERVER_NAME>
```

For example, if the OSB domain has administrator server and two managed servers with name OSB_SERVER1 and OSB_SERVER2, then the content of the sql script would look like:

```
DROP table WL_LLRL_ADMINSERVER
```

```
DROP table WL_LLRL_OSB_SERVER1
```

```
DROP table WL_LLRL_OSB_SERVER2
```

To create the service template for OSB profile, follow these steps:

1. Follow the steps listed in [Section 19.1.2.1](#) to create the database profile.
2. Click **Next**.
3. On the Create Service Template: Customization page, specify the custom scripts that need to be executed before and after the database is created. See [Section 24.1, "Pre and Post Request Creation / Deletion Scripts"](#) for details.

In the Post SQL Script field, from the Software Library, select the component that you created to truncate the LLR tables (llr_table.sql) present in the database. Note that if you do not perform this step, request for an OSB service will fail.

From the Run as a User drop down menu, select the database schema. Note that you must run the script as {prefix}_SOAINFRA database user. For example, OSB_SOAINFRA.

ORACLE Enterprise Manager Cloud Control 12c

Database Cloud Self Service Portal Setup

General Database Initialization Parameters Customization Roles

You have gone full screen. [Exit full screen \(F11\)](#)

Back Step 4 of 6 Next Cancel

Edit Service Template: Customization

Custom Scripts for Create

Specify the custom scripts to be executed before and after creating the service instance.

Pre Script

Post Script

Post SQL Script

Run As User

Custom Scripts for Delete

Specify the custom scripts to be executed before and after deleting the service instance.

Pre Script

Post Script

Target Properties

Name	Value	Required
Global Property		
Contact	<input type="text"/>	<input type="checkbox"/>
Location	<input type="text"/>	<input type="checkbox"/>
LifeCycle Status	<input type="text"/>	<input type="checkbox"/>
Department	<input type="text"/>	<input type="checkbox"/>
Comment	<input type="text"/>	<input type="checkbox"/>
Line of Business	<input type="text"/>	<input type="checkbox"/>

4. Click **Next**. The Create Service Template: Roles page appears.
5. Click **Add** to select the SSA user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.

6. The Create Service Template: Review page appears. Click **Create**. The newly created service template will appear in the Database Cloud Self Service Portal Setup: Service Templates page.

26.3 Prerequisites for Creating a SOA or an OSB Provisioning Profile

Meet all the prerequisites mentioned in the *Oracle Enterprise Manager Lifecycle Management Administrator's Guide* before creating a SOA or an OSB provisioning profile.

26.4 Setting Up the SOA and OSB Cloud Self Service Portal

The EM_SSA_ADMINISTRATOR can configure and set up the SOA/OSB Cloud Self Service Portal by creating middleware pools, setting up quotas, defining request settings, configuring the load balancer, creating service templates, and configuring chargeback.

Note: To create a database profile for SOA or OSB domain, you must use a Single Instance database or a RAC database. For a RAC database, use GridLink data source. Multi datasource is not supported.

The following table lists the tasks that must be performed, and the user roles that can perform the task.

Step	Task	User Role
1	Set up one or more PaaS Infrastructure Zones. See Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"	EM_CLOUD_ADMINISTRATOR
2	<p>Creating SOA Provisioning Profiles.</p> <p>Meet the prerequisites mentioned in Section 26.3.</p> <p>For steps on how to create the SOA profile, see <i>Oracle Enterprise Manager Lifecycle Management Administrator's Guide</i>.</p> <p>Note: Ensure that you grant privileges on the profile to the SSA_USER role. A basic requirement is that the SSA_USER role has view privileges on the SOA profile. To grant privileges, follow these steps:</p> <ol style="list-style-type: none"> 1. In Cloud Control, from Enterprise menu, select Provisioning and Patching, then click Software Library. 2. On the Software Library home page, expand Fusion Middleware Provision option and the Profiles menu, to view all the SOA/OSB profiles. 3. Select one of the profiles, and from Actions menu, select Grant/Revoke Privileges. 4. On the Grant/Revoke Privileges page, click Add to select the SSA_USER role, then grant view privilege. 	EM_SSA_ADMINISTRATOR
3	Section 26.4.1, "Creating a SOAaaS and OSBaaS Pool"	EM_SSA_ADMINISTRATOR
4	Section 25.3, "Creating a Load Balancer Configuration"	EM_SSA_ADMINISTRATOR

Step	Task	User Role
5	Section 25.4, "Configuring Request Settings"	EM_SSA_ADMINISTRATOR
6	Section 25.5, "Setting Up Quotas"	EM_SSA_ADMINISTRATOR
7	Section 26.4.2, "Creating SOA and OSB Service Templates"	EM_SSA_ADMINISTRATOR
8	Section 25.7, "Configuring Chargeback"	EM_SSA_ADMINISTRATOR

26.4.1 Creating a SOAaaS and OSBaaS Pool

A Middleware Pool contains a set of resources that can be used to provision a service instance within a PaaS Infrastructure Zone. You must create separate Middleware pools in the PaaS Infrastructure Zone for each WebLogic version of Middleware Home.

To create a SOA Pool or an OSB Pool, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. The common tasks that need to be performed before setting a specific service family is displayed. Click the **Setup** link next to Middleware service family in the left panel.
4. Select **SOA Infrastructure** or **Oracle Service Bus** from the drop down list, and then click **Middleware Pool**. The Middleware Pool page appears.
5. On the Middleware Pool page, click **Create**.
6. Enter the Target Name, a name, and description for the middleware pool.
7. Select the PaaS Infrastructure Zone in which the middleware pool is to be created. Click **Next**.
8. Click **Add** to add one or more hosts to the middleware pool. Click **Next**.
9. On the Placement Constraints page, in the Maximum Number of WebLogic Servers (per host) field, enter the maximum number of server instances that can be running on each host in the pool.
10. On the Characteristics page, specify the characteristics that will be used to tag and identify the target properties. The following options are possible:
 - To use a shared location, select **Yes** from the Shared Oracle Home menu, and provide an NFS path for the Middleware Home Base Directory. In this case, the SSA Administrator should make sure that the NFS path is mounted on all the hosts in the Middleware Resource Provider (used for SOA and OSB).
 - To use a local path, select **No** from Shared Oracle Home menu, and provide a location that is consistent across hosts in the Middleware Resource Provider.

11. On the Review page, click **Submit** to create a SOA or an OSB pool. The newly created pool can now be used to create the corresponding SOA and OSB Service Templates.

26.4.2 Creating SOA and OSB Service Templates

A Service Template is a service definition that can be used to provision a service instance on a middleware pool.

Prerequisites

- A PaaS Infrastructure Zone must have been created.
- A Middleware Pool must have been created.
- A Middleware Provisioning Profile with appropriate values must be present in the Software Library. The owner of the profile must grant View privileges on the profile to the SSA user.
- The database service template for a SOA profile and OSB profile are different. For information on how it can be created, see [Section 26.2.1](#) and [Section 26.2.2](#).

Note: You can edit a service template that has active instances and modify the configuration parameters. When a service template is modified:

- New instances created after the changes have been made will use the new parameters.
 - Old instances or instances created before the template was modified will use the earlier values.
 - Changes made to zones and roles will be applicable to both old and new instances.
-

To create a Middleware Service Template, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. The common tasks that need to be performed before setting a specific service family is displayed. Click the **Setup** link next to Middleware service family in the left panel.
4. Select **SOA Infrastructure** or **Oracle Service Bus** from the drop down list and click **Service Templates**.

5. On the Service Templates page, click **Create**.
6. On the General page, enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
7. In the Profile SOA field, click the **Search** icon and select a Provisioning profile. For information on how to create these profiles, see *Oracle Enterprise Manager Lifecycle Management Administrator's Guide*. Click **Next**.
8. On the Characteristics page, specify the characteristics that will be used to tag and identify the target properties. Service instances created from the template will have the characteristics. Click **Next**.
9. On the Resource Providers page, click **Add** to select the Middleware Pool into which that the service instances can be provisioned. The PaaS Infrastructure Zone with which the middleware pool is associated is displayed. Click **Next**.
10. On the Configuration page, enter the following details:

Table 26–3 SOA Configuration Details

Name	Description
Middleware Home Base Path and Java Home	<p>Middleware Home Base Path: If you have set the NFS path while creating resource provider, then that path is populated here by default, and you are recommended to retain the same path. However, if the path was not set while creating resource provider, the Middleware Home base path from the profile is displayed, which can be updated if required.</p> <p>Domain Home Base Path: Enter the absolute path to the base directory where this domain should be created, or provide the relative path to the Middleware Home Base Path as follows: '\$MIDDLEWARE_HOME/' prefix. For example, \$MIDDLEWARE_HOME/domains.</p> <p>Alternatively, you can set this from the Resource Provider Characteristics page. If you have set the values already, they will appear pre-populated here.</p> <p>Note: For a shared middleware home, this domain home base path should be an absolute value.</p> <p>Java Home: The Java home path used by source domain (from where the profile is created) is displayed here. You can change this path, if required. Ensure that same java version is used by destination domain as well.</p> <p>Note: If you are using a Windows operating system, ensure that the Java home path does not have any spaces.</p> <p>Work Directory: The files are staged in this directory during provisioning. Specify an absolute path or a path relative to middleware home base path. For example, \$MIDDLEWARE_HOME/work</p>

Table 26–3 (Cont.) SOA Configuration Details

Name	Description
Placement Parameters	<p>Expected Memory Consumption: Approximate CPU used by each additional instance in percentage. The memory consumption should be greater than or equal to the sum of Xms and MaxPermSize.</p> <p>For example, -Xms1280m, MaxPermSize=256m. Sum = 1280 MB+256 MB= 1536 MB (1.536 GB). Make sure that the value entered for memory consumption is greater than or equal to 1.5 GB.</p> <p>Expected CPU Utilization: Approximate Memory required by each additional instance in GB</p> <p>Note: These properties will be used to assign hosts with sufficient resources available for instance creation.</p>
Server Startup Arguments	<p>Managed Server Startup Arguments: Enter memory and java arguments to start the server. Example: -Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m -Dweblogic.security.SSL.ignoreHostnameVerification=true"</p> <p>Note: Coherence configuration is done automatically; there is no need to specify the coherence parameters here.</p>
Weblogic Administration User Credentials	<p>Username: This is the WebLogic username used to create a profile. The user name will be populated by default, and should not be updated.</p> <p>Password: This will be set as passowrd for created weblogic account.</p>

Table 26–3 (Cont.) SOA Configuration Details

Name	Description
Pre and Post Scripts	<p>Prescript for Service Instance: Select the script that should be executed before creating, deleting, or scaling up service instance.</p> <p>Postscript for Service Instance: Select the script that should be executed after creating, deleting, or scaling up service instance.</p> <p>Note: If you have upgraded from FMW plug-in 12.1.0.7 to FMW plug-in 12.1.0.8, then you will need to create a consolidated Prescript and a Postscript for your service. This script must include operations like create, delete, and scale-up. Save the file as a directive in the Software Library.</p> <p>Following this, you must edit the existing service template Configuration page, to include the newly created scripts.</p> <p>Hosts for Executing Scripts: Hosts discovered in Enterprise Manager, on which the scripts should run. Use ',' to separate multiple target hosts.</p> <p>Named Credentials for execution of scripts: Enter the Named Credentials for the hosts on which the scripts should run. Note that SSA Administrator should have View privileges on these Named Credentials. For example, <code>CredName:CredOwner</code>.</p> <p>Execute Scripts on Admin Server Hosts: Enter 1 (YES) to execute scripts on Managed Server Host, and 0 (NO) to Skip Administrator Server Host.</p> <p>Execute Scripts on Managed Server Hosts: Enter 1 (YES) to execute scripts on the Administrator Server Host, and 0 (NO) to Skip Managed Server Hosts.</p> <p>Note: After an upgrade the value of this flag gets reset. Make sure that you edit the existing service template, and set the flag value appropriately.</p> <p>The scripts must meet the following guidelines:</p> <ul style="list-style-type: none"> ■ Directive that is created should be a PERL directive. ■ An input parameter named <code>INPUT_FILE_LOCATION</code> must be defined. ■ The path to the location of a property file must be specified in the <code>INPUT_FILE_LOCATION</code> parameter. ■ The property file contains information about the service instance and the domain. <p>See Section 26.4.3 for a sample script file, properties file, and the generated output.</p>
Port Range	<p>Port Range Start: Lower bound for choosing Free Ports</p> <p>Port Range End: Upper Bound for choosing Free Ports.</p> <p>Note: The port range will be used to assign ports for servers and nodemangers. It should be between 1024-65535.</p> <p>Enable Load Balancer: Enter Yes to enable and No to disable the Load Balancer. Note that if you select YES, there should be a load balancer configured with the selected resource providers.</p>
Load Balancer	<p>Select Yes only if the source domain used in the service template has already been configured with a load balancer. If the source domain is not configured with a load balancer, you must select No.</p>

Name	Value	Description
Provisioning Directories		
Middleware Home Base Path*	/scratch/instoms_prov/mehome	The absolute path to the base directory where the Middleware will get installed. If Middleware Home Base Directory is available in resource provider characteristics, it will be used.
Domain Home Base Path*	/scratch/instoms_prov	The absolute path to the base directory where this domain should be created or Use "MWIDDLEWARE_HOME/" prefix to specify relative path to Middleware Home Base Path.
Java Home*	/usr/local/packages/jdk7	The absolute path to the Java Home.
Work Directory*	MWIDDLEWARE_HOME/work	The work directory where files will be staged during provisioning. Specify an absolute path or a path relative to middleware home base path.
Placement Parameters		
Expected Memory Consumption (For Use By Placement Logic)*	4	Memory required by each Managed Server in GB.
Expected CPU Utilization (For Use By Placement Logic)*	3	CPU required by each Managed Server in percentage.
Server Startup Arguments		
Managed Server Startup Arguments		Memory and java arguments to start the managed servers. Example: -Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m
WebLogic Administration User Credentials		
Username*	welblogic	Administration User Credentials for the domain to be created.
Password*	*****	Password for the WebLogic Server.
Pre and Post Scripts		
Postscript for Service Instance Creation		Script that is invoked before service instance creation.
Postscript for Service Instance Deletion		Script that is invoked after service instance creation.
Hosts for Executing Scripts		Use ";" to separate multiple target hosts.
Named Credential for execution of scripts		Enter the EM Named Credentials to be used for the above hosts in the 'Host for Executing Scripts' field.
Execute Scripts on Admin Server Host?	<input type="radio"/> Yes <input checked="" type="radio"/> No	Choose 'Yes' to execute scripts on Admin Server host besides the hosts entered above.
Execute Scripts on Managed Server Hosts?	<input type="radio"/> Yes <input checked="" type="radio"/> No	Choose 'Yes' to execute scripts on Managed Server hosts besides the hosts entered above.
Port Range		
Port Range Start*	1024	Lower Bound for choosing Free Ports.
Port Range End*	65535	Upper Bound for choosing Free Ports.
Load Balancer		
Enable*	<input type="radio"/> Yes <input checked="" type="radio"/> No	Choose 'Yes' to enable Load Balancer.

Click **Next**.

- On the Roles page, click **Add** to select the self service user roles to which this service template will be available. All users belonging to the selected role can use this service template. Click **Next**.
- On the Review page, review the information entered so far and click **Submit**. The newly created service template will appear in the Middleware Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

26.4.3 Sample Postscript

This sample postscript prints the contents of the properties file and also prints details regarding the managed server, administration server, and so on.

26.4.3.1 Sample Properties File

The properties file contains the following:

```
OPERATION= CREATE
SERVICE_INSTANCE= inst_01_14b3668772c
DOMAIN_NAME= inst_01_14b3668772c_SSA_USER1
DOMAIN_HOME= /scratch/middleware_ps4/inst_01_14b3668772c_SSA_USER1
MW_HOME= /scratch/middleware_ps4
WLS_HOME= /scratch/middleware_ps4/wlserver_10.3
ADMIN_SERVER= example.com,27877,8142
MANAGED_SERVERS= example.com,13614,1488,4166;
EXTERNAL_HOSTS= example.com
EXECUTE_SCRIPTS_ON_ADMIN_SERVER_HOST= Yes
EXECUTE_SCRIPTS_ON_MANAGED_SERVER_HOSTS= Yes
```

Note: Similar to Create operation, you can perform a Delete or a Scale Up operation.

26.4.3.2 Sample Script

A sample script is given below:

```
#!/usr/bin/perl
use File::Path;
#use File::Spec();
use File::Spec;
```

```

use Cwd;

my $dir = getcwd();
my $inputFile = $ARGV[0];

print "Input File Location = ".$inputFile."\n";
print "=====".".\n";
print "The properties file contents accessible to this script are as follows
". "\n";

my @prop;
#Create Hash from properties
open FILE, "<$inputFile" or die("Could not open text file '" . $inputFile . "':
$!");
my %hash;
while ($line4 = <FILE>)
{
    chomp($line4);
    my ($key, $val) = split(/=/,$line4);
    print $key."= ".$val."\n";
    $hash{$key}=$val;
}
close FILE;
print "=====".".\n";
my $ACTION = $hash{'OPERATION'};
if ( $ACTION eq "CREATE" ) {
    print " This is Service Instance Creation Operation \n";
} elsif ( $ACTION eq "SCALEUP" ) {
    print " This is Scale Up Operation \n";
} elsif ( $ACTION eq "DELETE" ) {
    print " This is Delete Service Instance Operation \n";
} else {
    print " Unsupported Configuration Action".$ACTION."\n";
}
print "=====".".\n";

my $ADMIN_SERVER = $hash{'ADMIN_SERVER'};

print "====Admin Server Details Begins=====".".\n";
my @fields = split (/,, $ADMIN_SERVER);
my $arraySize = @fields;
if ($arraySize == 4) {
    print "Admin Server Name is ".$fields[0]."\n";
    print "Admin Server Host Name is ".$fields[1]."\n";
    print "Admin Server NON SSL Port is ".$fields[2]."\n";
    print "Admin Server SSL Port is ".$fields[3]."\n";
} else {
    print "Admin Server Host Name is ".$fields[0]."\n";
    print "Admin Server NON SSL Port is ".$fields[1]."\n";
    print "Admin Server SSL Port is ".$fields[2]."\n";
}
print "====Admin Server Details Ends=====".".\n";

print "\n";

print "====Managed Server's Details Begins=====".".\n";
my $MANAGED_SERVERS = $hash{'MANAGED_SERVERS'};
my $managedServer;
my @noOfManagedServers = split (/,, $MANAGED_SERVERS);
for ($count = 0; $count < @noOfManagedServers; $count++) {

```

```

$managedServer = $noOfManagedServers[count];
@fields = split (/,/, $managedServer);
$arraySize = @fields;
if ( $ACTION eq "DELETE" ) {
    print "Managed Server Name is ".$fields[0]."\n";
    print "Managed Server Host Name is ".$fields[1]."\n";
    print "Managed Server NON SSL Port is ".$fields[2]."\n";
    print "Managed Server SSL Port is ".$fields[3]."\n";
} else {
    print "Managed Server Host Name is ".$fields[0]."\n";
    print "Managed Server NON SSL Port is ".$fields[1]."\n";
    print "Managed Server SSL Port is ".$fields[2]."\n";
}
print "\n"
}
print "=====Managed Server's Details Ends=====."\n";

print "\n";

print "=====External Host's Details Begins=====."\n";
my $EXTERNAL_HOSTS = $hash{'EXTERNAL_HOSTS'};
my @hosts = split (/,/, $EXTERNAL_HOSTS);
for ($count = 0; $count < @hosts; $count++) {
    print "External Host is ".$hosts[count]."\n";
}

print "=====External Host's Details Ends=====."\n";

```

26.4.3.3 Sample Script Output

The output of the directive is given below:

```

Input File Location =
/ade/jan1215/oracle/work/agentStateDir/1422547083465.properties
=====
The properties file contents accessible to this script are as follows
OPERATION= CREATE
SERVICE_INSTANCE= inst_01_14b3668772c
DOMAIN_NAME= inst_01_14b3668772c_SSA_USER1
DOMAIN_HOME= /scratch/middleware_ps4/inst_01_14b3668772c_SSA_USER1
MW_HOME= /scratch/middleware_ps4
WLS_HOME= /scratch/middleware_ps4/wlserver_10.3
ADMIN_SERVER= example.com,27877,8142
MANAGED_SERVERS= example.com,13614,1488,4166;
EXTERNAL_HOSTS= example.com
EXECUTE_SCRIPTS_ON_ADMIN_SERVER_HOST= Yes
EXECUTE_SCRIPTS_ON_MANAGED_SERVER_HOSTS= Yes
=====
This is Service Instance Creation Operation
=====
=====Admin Server Details Begins=====
Admin Server Host Name is example.com
Admin Server NON SSL Port is 27877
Admin Server SSL Port is 8142
=====Admin Server Details Ends=====

=====Managed Server's Details Begins=====
Managed Server Host Name is example.com
Managed Server NON SSL Port is 13614
Managed Server SSL Port is 1488

```

```
=====Managed Server's Details Ends=====

=====External Host's Details Begins=====
External Host is example.com
=====External Host's Details Ends=====
```

26.4.4 Resource Management Script

The Resource Management Script specifies the location of the property file which contains a list of name value pairs. The content of the file varies based on the Create, ScaleUp, and Delete operations.

26.4.4.1 Create Operation

The content of the file for the **Create** operation are:

```
ACTION=CREATE
ZONE_NAME=<value>
POOL_NAME=<value>
NUMBER OF SERVERS BEFORE THIS REQUEST=<value>
NUMBER OF SERVERS REQUESTED=<value>
NUMBER OF SERVERS POSSIBLE WITH AVAILABLE RESOURCES=<value>
NUMBER OF SERVERS NEEDED=<value>
MAXIMUM SERVERS ALLOWED PER HOST=<value>
MIDDLEWARE_HOME=<value>
EXPECTED CPU UTILIZATION IN PERCENTAGE=<value>
EXPECTED MEMORY CONSUMPTION IN GB=<value>
```

26.4.4.2 Scaleup Operation

The content of the file for the **Scaleup** operation are:

```
ACTION=SCALEUP
ZONE_NAME=<value>
POOL_NAME=<value>
NUMBER OF SERVERS BEFORE THIS REQUEST=<value>
NUMBER OF SERVERS REQUESTED=<value>
NUMBER OF SERVERS POSSIBLE WITH AVAILABLE RESOURCES=<value>
NUMBER OF SERVERS NEEDED=<value>
MAXIMUM SERVERS ALLOWED PER HOST=<value>
MIDDLEWARE_HOME=<value>
DOMAIN_NAME=<value>
EXPECTED CPU UTILIZATION IN PERCENTAGE=<value>
EXPECTED MEMORY CONSUMPTION IN GB=<value>
```

26.4.4.3 Delete Operation

The content of the file for the **Delete** operation are:

ACTION=DELETE

ZONE_NAME=<value>

POOL_NAME=<value>

NUMBER OF SERVERS BEFORE THIS REQUEST=<value>

NUMBER OF SERVERS BEING REMOVED=<value>

HOSTS FROM WHERE SERVERS BEING REMOVED=<value>

MIDDLEWARE_HOME=<value>

DOMAIN_NAME=<value>

Setting Up the JVMaaS Self Service Portal

This chapter describes the procedure to set up the Middleware Self Service Portal for JVM as a Service. It contains the following sections:

- [Setting Up the Java Application Service Self Service Portal](#)
- [Creating a Customized Middleware Profile](#)
- [Uploading the Middleware Profile to Software Library](#)
- [Creating a Service Template Based on Java Applications Profile](#)

27.1 Setting Up the Java Application Service Self Service Portal

The EM_SSA_ADMINISTRATOR can configure and set up the JVM Cloud Self Service Portal by creating middleware pools, setting up quotas, defining request settings, creating service templates, and configuring chargeback.

To set up the Java Application Service, follow these steps:

1. Set up one or more PaaS Infrastructure zones. See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#) for details.
2. Create a Middleware Pool. See [Section 25.2, "Creating a Middleware Pool"](#).
3. Configure request settings. See [Section 25.4, "Configuring Request Settings"](#).
4. Define quotas for each self service user role. See [Section 25.5, "Setting Up Quotas"](#).
5. Create service templates. See [Section 27.4, "Creating a Service Template Based on Java Applications Profile"](#).
6. Optionally, you can configure the Chargeback Service. See [Section 25.7, "Configuring Chargeback"](#).

27.2 Creating a Customized Middleware Profile

For creating your own custom profile, you must create an XML file with all the mandatory and the optional parameters. This is explained using the following example which describes how to create a profile for the tomcatService.

1. Enter all the mandatory details required to define the profile like **Internal Name**, **Owner**. You can additionally provide a display name and a short description about your profile. Next, you must provide the platform information, the product list, a display name for the product, and so on:

```
<?xml version="1.0"?>
<mw:profile xmlns:mw="http://xmlns.oracle.com/mw/profile"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
```

```

        xsi:schemaLocation="http://xmlns.oracle.com/mw/profile
../../../../../../../../FmwProvisioningPojo/src/oracle/sysman/fmw/provisioning/
pojo/profile/genericProfile.xsd"
        name="TomcatProfile4" vendor="Oracle" version="1.0"
        content="softwareOnly">
    <mw:displayName>
        Tomcat As A Service with Free Ports
    </mw:displayName>
    <mw:description>
        Profile for Provisioning single Node Tomcat Server with Bundled
        Application.
    </mw:description>

    <mw:platformInfo os="Linux" platform="x86-64" platformId="226"/>
    <mw:products>
        <mw:product name="Tomcat" version="10.3.6.0">
            <mw:displayName>
                Tomcat Bundled With Application
            </mw:displayName>
        </mw:product>
    </mw:products>

```

2. Each services instance that is provisioned using this profile will be provided with free ports. These can be used as desired by the profile. You must provide values for: `-PORT_RANGE_START`, `PORT_RANGE_END`, and `PORTS_COUNT`.

`PORT_RANGE_START` and `PORT_RANGE_END` defines the range of the port values to be specified. If you do not specify anything, by default, 2000 and 3000 is considered respectively.

`PORTS_COUNT` defines the number of ports required by the service. If not defined, no ports will be allotted to the service.

```

<mw:properties>
    <mw:stringProperty name="PORT_RANGE_START" value="2000"/>
    <mw:stringProperty name="PORT_RANGE_END" value="3000"/>
    <mw:stringProperty name="PORTS_COUNT" value="3"/>
</mw:properties>

```

3. Actions defined in the profile XML file like Provision, Start, Stop, and Delete will be performed at different phases of the service instance life cycle.
 - The Provision action determines how the service instance is created the first time. The software setup and configuration is performed as a part of this step. Importantly, you must define the following parameters here:
 - **Payload:** The actual application that is part of the profile.
 - **Procedure:** The variables that are dynamically replaced at runtime.
 - The Start action defines how the software that is provisioned is started.
 - The Stop action defines how the software that is provisioned is stopped.
 - The Delete action deletes the service instances. The cleanup actions are performed as part of this step.

Provision: This action provisions your application in Enterprise Manager.

```

<!-- [Mandatory] Action list -->
<mw:actions default="provision">
    <mw:action name="provision" retryFrom="first">
        <!-- [Optional] Display name and description -->

```



```

    <mw:displayName>
        Provision Tomcat Server
    </mw:displayName>
    <mw:description>
        This action provisions only the Oracle Home from the profile.
    </mw:description>
    <!-- [Mandatory] Define the complete command including the executable and
parameters -->
    <!-- EL is supported, variables can be taken from 3 sources: env,
procedure and profile -->
    <mw:command name="createDirectory" executable="mkdir"
errorMode="continue">
    <mw:param value="-p"/>
    <mw:param value="#{procedure.STAGING_DIRECTORY}" required="true"/>
    </mw:command>
    <mw:command name="unpack" executable="#{procedure.JAVA_HOME}/bin/jar"
directory="#{procedure.STAGING_DIRECTORY}">
    <mw:param value="-xvf"/>
    <mw:param value="#{payload.tomcat_app.jar}" required="true"/>
    </mw:command>
    <mw:command name="configure" executable="/bin/sh"
directory="#{procedure.STAGING_DIRECTORY}">
    <mw:param value="#{payload.fixpath_tc.sh}" required="true"/>
    <mw:param value="#{procedure.FREE_PORTS}" />
    <mw:env name="SERVICE_HOME" value="#{procedure.STAGING_DIRECTORY}" />
    </mw:command>
</mw:action>

```

As a part of the Provision step, you must create the `service.out` file at the staging directory, and the file must define the variables `jvm_jmx_port` and `jvm_service_console_url`.

For example, in the above XML file, there is a shell script called `fixpath_tc.sh` which prints the `jvm_jmx_port` and the `jvm service URL`. The contents of the script are as follows:

```

echo "jvm_jmx_port=${PORT_LIST[1]}" >> $SERVICE_HOME/service.out
echo "jvm_service_console_url=http://${HOSTNAME}:${PORT_LIST[0]}/tc_
hello/HelloWorld" >> $SERVICE_HOME/service.out

```

Note that the `service.out` file must be located in the staging directory. This file contains the values of the variables defined. For example:

```

jvm_jmx_port=2610
jvm_service_console_url=http://blr2201958.idc.oracle.com:2482/tc_
hello/HelloWorld

```

Note: This step is mandatory if you want to discover the Java Application Service target in Enterprise Manager Cloud Console.

Start: This action starts the provisioned application.

```

<mw:action name="start">
    <!-- [Optional] Display name and description -->
    <mw:displayName>
        Start Tomcat Server
    </mw:displayName>
    <mw:description>
        This action Starts the provisioned Tomcat Server
    </mw:description>

    <!-- [Mandatory] Define the complete command including the executable and

```

```

parameters -->
    <!-- EL is supported, variables can be taken from 3 sources: env,
    procedure and profile -->

    <mw:command name="StartTomcat" executable="/bin/sh" errorMode="continue"
background="true" directory="{procedure.STAGING_DIRECTORY}">
    <mw:param value="{procedure.STAGING_
DIRECTORY}/apache-tomcat-7.0.54/bin/startup.sh" required="true"/>
    </mw:command>

</mw:action>

```

Stop: This action stops the provisioned application.

```

<mw:action name="stop">
<!-- [Optional] Display name and description -->
    <mw:displayName>
        Start Tomcat Server
    </mw:displayName>
    <mw:description>
        This action stops the provisioned Tomcat Server
    </mw:description>
    <!-- [Mandatory] Define the complete command including the executable and
parameters -->
    <!-- EL is supported, variables can be taken from 3 sources: env,
    procedure and profile -->

    <mw:command name="stopTomcat" executable="/bin/sh" errorMode="continue"
directory="{procedure.STAGING_DIRECTORY}" >
    <mw:param value="apache-tomcat-7.0.54/bin/shutdown.sh"
required="true"/>
    </mw:command>

</mw:action>

    <mw:action name="delete">
<!-- [Optional] Display name and description -->
    <mw:displayName>
        Remove Tomcat Server
    </mw:displayName>
    <mw:description>

```

Delete: This action stops and removes the provisioned application.

```

    </mw:description>
    <!-- [Mandatory] Define the complete command including the executable and
parameters -->
    <!-- EL is supported, variables can be taken from 3 sources: env,
    procedure and profile -->

    <mw:command name="stopTomcat" executable="/bin/sh" errorMode="continue"
directory="{procedure.STAGING_DIRECTORY}" >
    <mw:param value="apache-tomcat-7.0.54/bin/shutdown.sh"
required="true"/>
    </mw:command>

    <mw:command name="removeTomcat" executable="rm" errorMode="continue"

```

```

directory="#{procedure.STAGING_DIRECTORY}" >
    <mw:param value="-rf"/>
    <mw:param value="#{procedure.STAGING_DIRECTORY}" required="true"/>
</mw:command>

</mw:action>

</mw:actions>

```

4. Discovery of JVM targets in Enterprise Manager is supported by default. To do so, run the `oracle.sysman.emas.mwc.jvmaas.discovery.JVMTargetDiscovery` script as follows:

```

<mw:discovery
className="oracle.sysman.emas.mwc.jvmaas.discovery.JVMTargetDiscovery"
dpName="JVMDiscovery"/>
</mw:profile>

```

27.3 Uploading the Middleware Profile to Software Library

To create a profile using the custom XML script that you have created, run the following command:

```

emcli create_mw_profile -input_
file=propertiesXml:"/scratch/profile/genericProfiles/profile/tomcatService.xml"
-host=blr2201958.idc.oracle.com
-files="/scratch/profile/genericProfiles/profile/tomcat_
app.jar,/scratch/profile/genericProfiles/profile/fixpath_tc.sh"

```

Where,

tomcatService.xml is the input file that describes the characteristics of the profile.

blr2201958.idc.oracle.com is the host target where the stored during provisioning. tomcat_app.jar and fixpath_tc.sh are the files that have to be uploaded to Software Library.

Once the profile is created, to access the profile, you must log in to Enterprise Manager Cloud Console, and navigate to the Software Library home page. To do so, from **Enterprise** menu, select **Patching and Provisioning**, then click **Software Library**. On the Software Library home page, you will see your new profile under the Middleware Provisioning Generic profile folder. Alternatively, you can run the `emcli list_mw_profile` command to view the details of your profile.

Note: To list all the parameters used in a particular action of a profile, use the `emcli` command `list_prov_parameters`. For example, all the parameters used in the action provision in the tomcatService profile, run the following command:

```

emcli list_prov_parameters -profile="Middleware Provisioning/Generic
Profile/tomcatService"
-action="provision"

```

27.4 Creating a Service Template Based on Java Applications Profile

Prerequisites

- Create a customized middleware provisioning profile using XML file. See [Section 27.2](#) for details.

For creating a generic provisioning profile, see [Creating Middleware Provisioning Profiles](#).

- Upload the profile to Software Library. See [Section 27.3](#) for details.

A Middleware Service Template is a service definition that can be used to provision a service instance on a middleware pool.

Note: You can edit a service template that has active instances and modify the configuration parameters. When a service template is modified:

- New instances created after the changes have been made will use the new parameters.
 - Old instances or instances created before the template was modified will use the earlier values.
 - Changes made to zones and roles will be applicable to both old and new instances.
-

To create a Java Applications Profile, follow these steps:

1. Log into Enterprise Manager as an user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the Oracle Cloud menu, select **Setup**, then select **Getting Started**. The common tasks that need to be performed before setting a specific service family are displayed. Click the **Setup** link next to Middleware service family in the left panel.
4. Select **Java Application Service** from the drop down menu, and then click **Service Template**.
5. On the Java Application Service: Service Templates page, click **Create**.
6. Enter a name and description for the service template. The description must be unique and provide information on the type of service template being created.
7. Select the Java Application Profile that you want to use to create the template. Click the search icon, from the Select Software Library Component dialog box, select the template and click **Select**.
8. Click **Next**. On the Characteristics page, specify the characteristics that will be used to tag and identify the target properties. Service instances created from the template will have the characteristics.
9. Click **Next**. In the Create Middleware Service Template: Resource Providers page, click **Add** to select the Middleware Pool into which that the service instances can be provisioned. The PaaS Infrastructure Zone with which the middleware pool is associated is displayed.
10. Click **Next**. On the Configuration page, you can see all the parameters (the name-value pair) defined in the custom XML file with the procedure variable, or as a part of the `input.properties` file. You can enter a new value or update an existing value for a property using this page. Additionally, features like lock and hide are supported that allow you to lock or hide the value of a parameter, by selecting the corresponding check box on the page for the parameter.

For example, if you have locked the value of `Oracle_INVENTORY` in your service template, then at the time of requesting for a service using this template, you will notice that the parameter is read-only and cannot be edited.

Profile Required Parameters

Below are the properties required by the profile. These properties are either fetched from the attach input properties file or are defined as procedure parameters in profile.xml.

Parameter Name	Parameter Value	Self Service Portal settings	
		Read Only	Hidden
ORACLE_INVENTORY	/scratch/nishriva/test1/inventory	<input checked="" type="checkbox"/>	<input type="checkbox"/>
STAGING_DIRECTORY	/scratch/nihalplain	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ORACLE_HOME	/scratch/nishriva/test1/middleware	<input checked="" type="checkbox"/>	<input type="checkbox"/>
WLS_PASSWORD	welcome1	<input type="checkbox"/>	<input checked="" type="checkbox"/>
JAVA_HOME	/usr/local/packages/jdk7	<input type="checkbox"/>	<input type="checkbox"/>
DOMAIN_HOME	/scratch/nishriva/test1/domains/HappyDomain	<input type="checkbox"/>	<input type="checkbox"/>
WLS_USERNAME	weblogic	<input checked="" type="checkbox"/>	<input type="checkbox"/>

11. Click **Next**. On the Roles page, click Add to select the self service user roles to which this service template will be available. All users belonging to the selected role can use this service template.
12. Click **Next**. Review all the information entered, and click Submit. The newly created service template will appear in the Middleware Cloud Self Service Portal Setup: Service Templates page. You can click on the Service Template Name link to view additional details.

Using the MWaaS Self Service Portal

This chapter provides Self Service Application users with instructions on using the MWaaS Self Service Portal to request and monitor middleware services. It contains the following sections:

- [Using the MWaaS Self Service Portal](#)
- [Requesting a Middleware Service](#)
- [Viewing the Middleware Service Home Page](#)
- [Viewing SOA/OSB Service Home Page](#)
- [Viewing the Java Application Service Instance Home Page](#)
- [Uploading a Java EE Component to the Software Library](#)
- [Viewing the Application Home Page](#)

28.1 Using the MWaaS Self Service Portal

The Middleware Self Service Portal allows self service users to view, monitor, and request middleware services. Users can request middleware services using any of the predefined service templates. They can deploy, undeploy applications, create data sources, scale up, and scale down services with minimal or zero intervention by the self service administrator.

Prerequisites

To view the Middleware Cloud Self Service Portal, log in to Enterprise Manager as a user with `EM_SSA_USER` role or an user with the `EM_SSA_USER_BASE` role. Users with these roles must be part of the Middleware Cloud Service Family and must have privileges for the Service Bus, SOA Infrastructure, and WebLogic service types.

To view the MWaaS Self Service Portal, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_USER` role.
2. Select **Middleware** from the **Manage** drop down list. The Middleware Cloud Self Service Portal appears.
3. This page contains the following tabs:
 - **Home:** The Home tab contains the following regions:
 - **Notifications:** This region shows the number of services that are due to expire in the next 7 days and the number of the services templates published within the last 7 days.

- **Usage:** Click the **Usage** icon to view the total quota (servers and memory) used so far by the SSA user, including all the services that the user has created. This table shows the amount of quota being used by each of your service instances. Your quota includes both the total maximum heap memory and the total number of WebLogic servers you are allowed to use across all of your middleware service instances. This table shows the amount of quota being used by each of your service instances.

Note: Any non Oracle JVMs that have been added will not be included in the Usage region.

- **Services:** This region shows the list of middleware services owned by the self service user. For each service, the name, status, service type (Weblogic, SOA Infrastructure, Service Bus, or Java Application Service), resource provider with which the service is associated, policies, date on which the service was created, the expiry date for the service, and non Oracle JVMs (if any) are displayed. You can also view services for which you have been granted privileges.

To request a service, click **Request New Service**. See [Section 28.2, "Requesting a Middleware Service"](#) for details.

You can view the service details by clicking on the **Name** link to drill down to the Middleware Service Home page.

You can delete a service by selecting a service from the table and clicking **Delete**.

You can select a service from the table and from the **Actions** menu, select **Start**. A request to start the service is submitted.

You can select a service from the table and from the **Actions** menu, select **Stop**. A request to stop the service is submitted.

You can grant view, manage, or full privileges over the service instance to other users and roles. You can also revoke privileges that you have granted to other users and roles. See [Section 29.4.1, "Granting, Revoking, and Reassigning Privileges to Service Instances"](#).

- **Requests:** This region shows a list of all the requests. All requests owned by and shared with the current user are displayed. For each request, the status, type, start date, and submission date of the request is displayed. Click on the request name or the **status** icon to view the execution details of the request. These details are helpful in troubleshooting a failed request.

Select columns from the **View** menu to view more details about the request. You can select a scheduled request and click **Reschedule** to reschedule the request. You can select a scheduled request and click **Delete** to delete the request. If a request that is scheduled such as **Create** gets canceled, all other associated requests are also canceled.

- **Chargeback:** This tab displays all the chargeback break-up data for the service. The charge incurred will be calculated from the service requested date to current date. This page contains the following regions:

- **Charge Trend:** This graph show the usage and charge trends over time.

- **Details:** You can aggregate the chargeback data for the service by resources of metrics. You can export this data to an external application such as a spreadsheet.
- **Charge Plans:** The charge plans that have been assigned to each PaaS Infrastructure Zone are displayed. Select a zone to view the pricing. The rate for each metric in the zone for a specific time period is displayed.

For details on setting up the Chargeback Service, see [Chapter 43, "Chargeback Administration"](#).

- **Library:** This tab displays a list of Java EE application components that are available to the SSA user. You can do the following:
 - **Upload:** You can upload a new Java EE application component to the Software Library. See [Section 28.6, "Uploading a Java EE Component to the Software Library"](#) for details.
 - **Delete:** Select a Java EE component from the list and click **Delete** to remove it from the library.
 - **Share / Stop Sharing:** You can share a component with one or more users and roles. Select the component and click **Share**. The Select and Share: Users and Roles window appears. From the **Type** drop list, select User or Role and click **Search**. The users or roles with which the component can be shared. Select one or more users or roles and click **Share**. The selected component is shared with the specified users and roles. To stop sharing the component, select the component and click **Stop Sharing**.
- **Policies:** Click the **Policies** tab to view the list of policies that you have defined. You can create a new Performance or Schedule Based Policy or a Policy Group for one or more middleware services and define Scale Up or Scale Down on these policies. See [Section 28.1.2, "Defining Dynamic Elasticity Policies for Middleware Services"](#).

28.1.1 Setting the Preferences

Click the **Preferences** link in the top right hand corner of the page to set up your preferences such as the Default Service Type, Default Email Address for Notifications, Default Locale, Default PaaS Infrastructure Zone, and so on. To set the Middleware Cloud Self Service Portal as the default page that appears when you log in to the Self Service Portal, select **Middleware** in the **Default Service Type** drop down list and click **Apply**. For more details on setting the preferences, see [Section 8.9, "Viewing Preferences"](#).

28.1.2 Defining Dynamic Elasticity Policies for Middleware Services

Note: These policies are applicable only for the WebLogic Service type.

To define a policy, follow these steps:

1. Log into Enterprise Manager as a user the `EM_SSA_USER` role.
2. Click the **Policies** tab.
3. To create a policy, from the **Create** menu, you can select either of the following:
 - Schedule Based Policy

- Performance Based Policy

28.1.2.1 Creating a MWaaS Schedule Policy

For instance, if you want to create a schedule based policy that states that a middleware service must be scaled up every Monday, follow these steps:

1. From the **Create** menu, select **Schedule Policy**. The following page appears:

Figure 28–1 Create Schedule Policy

The screenshot shows the 'Create Schedule Policy' form. The 'Name' field is 'Scale up on Monday' and the 'Description' is 'Scale up by 2 on Monday for additional resource'. The 'Type' is 'Schedule'. The 'Policy Action' is 'Scale Up' with a description 'Scale Up Middleware Service'. The 'Action Parameters' table has one row: 'Number of Java Serv' with a value of '2'. The 'Start' date is '10/26/2013 12:23:11 AM' (GMT+00:00). The 'Repeat' frequency is 'Specific days of the week'. The 'Days of the Week' are 'Monday' (checked), 'Tuesday' (unchecked), 'Wednesday' (unchecked), 'Thursday' (unchecked), 'Friday' (unchecked), 'Saturday' (unchecked), and 'Sunday' (unchecked). There are 'OK' and 'Cancel' buttons at the top right.

2. Enter a name and description for the policy.
3. In the Policy Action field, select **Scale Up** and enter 2 as the Value in the Action Parameters field.
4. In the Start field, specify the date from which this policy must be effective.
5. In the Repeat field, select Specify Days of the Week and in the Days of the Week field, select Monday. Thus the service will be scaled up by 2 every Monday.
6. Click **OK** to create the policy. You will return to the Policies page where the policy you have defined will appear in the Policies table. To apply these policy for a target, click Add in the Associations region and select a target with which this policy must be associated.

28.1.2.2 Defining a MWaaS Performance Policy

Performance policies are formed based on the performance metrics of a specific target type and its associated targets. You can create conditions and rules for the policy based on the metrics. To define a performance policy, follow these steps:

1. Click the **Policies** tab in the Middleware Self Service Portal. The Policy page appears.
2. Click **Create** and select the **Performance** Policy type.
3. In the General Information page, enter the name and description of the policy.
4. In the Rules and Relationships page, select a metric from the right panel and click **Add to Definition**. Specify the condition, value, and number of occurrences. When these conditions are met, the policy is executed.
5. Click **Next**. The Create Performance Policy: Rules page appears. The policy rule is displayed.
6. Select **Scale Up** or **Scale Down** from the Action drop down list.

7. In the Action Parameters field, enter a value next to the Number of WebLogic Servers. The value specified here is used to either increment or decrement the Number of WebLogic Servers depending on the Action selected.
8. Click Next. The Create Performance Policy: Review page appears. Review the policy details and click **Save** the policy and return to the Middleware Service Portal: Policies page.
9. In the Associations region, click **Add** and select one or more targets to be associated with this policy. The associated targets are listed in the Associations region.

Click on the target link to view a list of policies associated with the target. Once the targets have been associated, the policy is activated. Click **View History** to view the policy action history.

28.2 Requesting a Middleware Service

You can use the **Request New Service** option to request a new middleware service. You can request the following types of middleware services:

- WebLogic Service, see [Section 28.2.1](#)
- SOA/OSB Service, see [Section 28.2.2](#)

28.2.1 Requesting a WebLogic Service

You can request a new WebLogic service on this page.

To request a service, follow these steps:

1. Click **Request New Service** in the Home page of the Middleware Cloud Self Service Portal.
2. The Request New Service window appears. A list of service templates available to the self service user is displayed. Choose a WebLogic service template and click **Select** to launch the New Service Request page.

Figure 28–2 New Middleware Service Instance Request

Middleware Cloud Self Service Portal

New Middleware Service Instance Request

Use this page to request a new middleware service instance. When you click Submit the request will be submitted and shown in the Requests table, so you can track the progress of the service instance creation.

Service Offering: **WLS1211_3Template**

Description:

* Service Instance Name: **mynew_request**

* Fault Infrastructure Zone: **Zone1**

* Number of WebLogic Servers: **1**

* Minimum Number of WebLogic Servers: **1**

Database

Select a database that was cloned from the same WebLogic Domain as the one in the middleware profile of the selected template. Select the database by choosing a database service instance or by entering the database URL.

Select Database Service Instance

* Database Service Instance: **schemaServiceOne**

URL: **jdbcracle@10.10.10.10:1521+ADDRESS=+HOST=+PORT=+CONNECT_DATA=+SERVICE_NAME=**

Schema Password:

Schedule

Start Date: **Immediately** (Later) (UTC-08:00 Los Angeles - Pacific Time (PT))

End Date: **Indefinitely** (Never)

Create WebLogic User Account

You can optionally specify a WebLogic user account to be created on your service instance after it is provisioned. You will be able to access the WebLogic Server Administration Console using the user name and password specified here.

WebLogic User Name:

WebLogic Password:

Confirm WebLogic Password:

Advanced

You can share the service instance with other users or roles. Note that sharing of service instances must be enabled by your System Administrator.

Share Middleware Service Instance: ☐

Managed Server Startup Arguments:

Operating System Details

Use My Operating System Details: ☐

Target Properties

Name	Value
Cost Center	<input type="text"/>
Department	<input type="text"/>
License Status	<input type="text"/>
Line of Business	<input type="text"/>
Location	<input type="text"/>

3. Enter a name for the service and select the PaaS Infrastructure Zone in which the new service is to be deployed.
4. If the service template you have selected is based on a profile that contains a cluster with one or more WebLogic servers, in the Number of WebLogic servers field, specify the initial number of servers that can be present in the new service instance.

Note: The Number of WebLogic servers you specify here cannot be less than the number of servers specified in the profile.

5. In the Minimum Number of WebLogic Servers field, specify the minimum number of WebLogic servers that must be present in the middleware service instance. The value specified here must be less than or equal to the value specified in the Number of WebLogic Servers field.
6. In the Database region, select the database that was cloned from the same WebLogic domain as the one in the Middleware profile of the selected template.

Note: The Database region is displayed only if the selected template is based on a JRF enabled profile (12.x or later versions).

You can:

- Select Database Service Instance: Select this option and choose a Database Service Instance from the drop down list.
 - Specify Database URL: Enter the URL for the database.
 - Schema Password: Enter the schema password.
7. Specify the schedule for the service request.
 - **Start Date:** You can choose **Immediately** (request is executed immediately) or **Later**. If you select the **Later** option, specify the date from which the service is to be available.
 - **End Date:** Select **Indefinitely** to make the service available for an indefinite period of time. If you select **Until**, specify the date on which it will be deleted and no longer available.
 8. In the Create WebLogic User Account (optional) region, you can optionally specify a WebLogic user account to be created on your service after it is provisioned. Enter the WebLogic User Name and WebLogic Password. You will be able to access the WebLogic Server Administration Console using the user name and password specified here.

Note: The Create WebLogic User Account will appear only if the **Expose WebLogic Admin Console and Fusion Middleware Control to SSA User** field was set to **Yes** when the template was created.

9. If the self service administrator has granted access to the Advanced Settings in the service template, you will see the Advanced region here. You can specify the following:

- **Share Middleware Service Instance:** Select this checkbox to share the service instance with other users and roles. The Add region appears. Click **Add** and in the Grant Privilege window, select the user or role to which the privilege is to be granted. From the **Privilege to Grant** drop down list, select the privilege you want to grant which can be **View**, **Manage**, or **Full** and click **Grant**.

Note: Privileges must be explicitly granted by the self service administrator through the Request Settings option. See [Section 29.4.1, "Granting, Revoking, and Reassigning Privileges to Service Instances"](#) for details.

- **Managed Server Startup Arguments:** Specify the memory and Java system property arguments that are to be used when starting all the managed servers in the middleware service instance. For example, you can specify:

```
-Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m
-Dweblogic.security.SSL.ignoreHostnameVerification=true
```

These parameters will override the value specified in the service template.

- **Operating System Details:** Select this checkbox to specify custom operating system credentials. You need to specify the following:
 - **Domain Home Base Directory:** Specify the base directory in which the instance is to be created. The path specified here will override the path specified in the middleware pool.
 - **User Name:** The operating system user name with privileges to write to the specified base directory.
 - **Password:** The password for the operating system user.

Note: Default values for the user name and password can be set using the Preferences option on the Middleware Self Service Portal page. If these values are set, they will be displayed here.

10. Specify the target properties for the service instance.
11. Click **Submit** to create the service request. This request will now appear in the Requests table in the Home page of the Middleware Self Service Portal. You can monitor the status of this request in this table. When the request has been completed, you can refresh the page to view the new service in the Services table.

28.2.2 Requesting an Oracle Service Bus or SOA Infrastructure Service

Log in with `SSA_USER` role to view, monitor, and request for SOA/OSB services using the Middleware Self Service portal.

Prerequisite

Oracle recommends that the database is cloned using DBaaS. If database is cloned using another SSA User account (for example, user1), then user1 needs to grant access on the database service instance to user2, assuming user2 is requesting for SOA / OSB instance.

To request for a service, follow these steps:

1. On the Middleware Cloud Self Service Portal, click **Request New Service**.

2. The Request New Service dialog box appears. A list of service templates available in the zones that the SSA user can access, is displayed. Choose a service template and click Select to launch the Service Request page.
3. On the General page, enter a name for the service, and select the PaaS Infrastructure Zone in which the new service is to be deployed.
4. Specify the schedule for the service request.
 - Start Date: Choose Immediately (request is executed immediately) or Later. If you select Later, specify the date from which the service is to be available.
 - End Date: Select Indefinitely to make the service available for a indefinite period of time. If you select Until, specify the date on which the service will be deleted, and no longer available.
5. On the Configuration page, provide the following details:
 - For a SOA Service Template
 - In the SOA Dehydration Store section, select a database that you want to use as SOA Dehydration Store, and provide the schema password.

The following options are possible: You can select a database which is cloned using DBaaS RMAN Backup option, or a database which is cloned outside DBaaS but discovered in Cloud Control. If you use the latter option, then after discovering the database, you must grant view privileges on the Database target to the SSA User.

 - In the SOA Token Configuration section, click the Value field to customize the SOA token values.
 - In the Managed Server Startup Arguments, enter the memory and java arguments to start the managed server.

Service Request: Configuration Back Step 2 of 3 Next Cancel

SOA Dehydration Store
 Select the database instance to use as the SOA Dehydration store
 Database Instance:
 * Schema Password:
Same password will be used for all schemas.

SOA Token Configuration

Token Name	Value
No SOA Tokens found	

Managed Server Startup Arguments
 Enter memory and java arguments to start the server.
 Managed Server Startup Arguments:
Example: -Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m -Dweblogic.security.SSL.ignoreHostnameVerification=true

Create WebLogic User Account
 Specify a WebLogic user account to be created on your service instance after it is provisioned. You will be able to access the Fusion Middleware Control using the user name and password specified here.

* WebLogic User Name:
 * WebLogic Password:
 * Confirm WebLogic Password:

- For an Oracle Service Bus Template:
 - Select the database instance and provide the OSB schema password.

General Configuration Review

Service Request: Configuration Back Step 2 of 3 Next Cancel

OSB Database

Select the database instance to use for the Oracle Service Bus Instance

Database Instance db100001.oracle.com

* Schema Password

Same password will be used for all schemas.

Managed Server Startup Arguments

Enter memory and java arguments to start the server.

Managed Server Startup Arguments -Xms512m -Xmx1536m -XX:CompileThreshold=8000 -XX:PermSize=512m -XX:MaxPermSize=512m

Example: -Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m -Dweblogic.security.SSL.ignoreHostnameVerification=true

Create WebLogic User Account

Specify a WebLogic user account to be created on your service instance after it is provisioned. You will be able to access the Fusion Middleware Control using the user name and password specified here.

* WebLogic User Name weblogic

* WebLogic Password

* Confirm WebLogic Password

6. In the Create WebLogic User Account region, specify a WebLogic user account to be created for your service after it is provisioned. Enter a WebLogic User Name and WebLogic Password. These credentials will be used to access the WebLogic Administration Server console and the Fusion Middleware Console.

In addition to this, for an OSB service instance, the credentials you have provided in this section, can you used to access the OSB Console.

Click **Next**.

7. On the Review page, review all the configuration details.
8. Click Submit to create the service request. This request will now appear in the Requests table in the Home page of the Middleware Self Service Portal. You can monitor the status of this request in this table. When the request has been completed, you can refresh the page to view the new service in the Services table.

28.3 Viewing the Middleware Service Home Page

The Middleware Service Home page provides detailed information about the services you have requested using the Request Service option. To view the Middleware Service Home page, click the **Name** link in the Middleware Services region in the Middleware Cloud Self Service Portal: Home tab. This page contains the following regions:

- **Performance Summary:** Shows the availability status of the service, status summary of the WebLogic Servers, and the performance metrics for the underlying WebLogic cluster associated with this service. The following charts are displayed.
 - **Availability:** The availability status of the service.
 - **Resource Usage:** Shows the CPU and Heap Usage charts for all the servers in the cluster.
 - **Response and Load:** Shows the request processing time and number of requests per minute for the current service.

- **General:** Shows charts for various performance metrics for the service.
- **Deployments:** This region is displayed only for WebLogic services. It contains the following:
 - **Applications:** Lists all the applications deployed to this service. For each application, the name, status, and the key metrics such as Active Sessions, Request Processing Time, and Request per Minute are displayed. Click the **Name** link to drill down to the Application Home page. You can do the following:
 - **Deploy:** Click **Deploy** to deploy the application to the service. See [Section 28.3.1, "Deploying and Redeploying an Application"](#) for details.
 - **Delete:** Select an application and click **Delete** to undeploy an application.
 - **Redeploy:** If you have an updated Java EE application component, you can select the application and click **Redeploy** to redeploy the application. See [Section 28.3.1, "Deploying and Redeploying an Application"](#) for details.
 - **Start / Stop:** Select an application and click **Start** or **Stop** to start or stop the application.
 - **Test:** Select an application and click the **Test** icon. A list of URLs is displayed in the Application URLs dialog box. Click the URL to navigate to the associated page.
 - **Libraries:** If any applications have been deployed as libraries, they are listed here. You can do the following:
 - **Deploy:** Click **Deploy** to deploy the application to the service. See [Deploying an Application](#) for details.
 - **Delete:** Select an application and click **Delete** to undeploy an application.
 - **Redeploy:** If you have an updated Java EE application component, you can select the application and click **Redeploy** to redeploy the application.

Note: If you select a library that is being referenced by an application, the **Redeploy** and **Delete** buttons are disabled and this library cannot be deleted or redeployed.

When deploying using the Self Service Portal you can create the deployment as a normal application or a library. Libraries are deployments that can be shared with other deployments. The Middleware Service home page shows normal applications in the Applications table and libraries in the Libraries table. Libraries may be deleted and redeployed, but only if they are not being referenced by any applications.

- **Data Sources:** This region is displayed only for WebLogic services. It shows all the data sources that are available for this service. For each data source, the Name, Database Service Name, JNDI name and the URL for the database is displayed. If the data source has been created using a database service, the name is displayed in the Database Service column. Click on the name to drill down to the Database Service Home page. You can create new data sources, edit or delete existing data sources, and test the connection of any specified data source.

- **Requests:** This table shows all the requests that have submitted for this service. These include requests such as Deploy, Undeploy, Redeploy, Scale Up, Scale Down, Start, Stop, Create, Edit, and Delete Data Source.

The following options are available from the Middleware Service Instance menu:

- **Set End Date:** Select this option to specify an end date for the middleware service. You can set the end date for a service. Select a service from the table and click **Set End Date**. In the popup window that appears, you can specify a new End Date for the middleware service instance. If you do not want the service to expire, select Indefinitely and click **OK**.
- **Start and Stop:** You can start or stop the service by selecting the appropriate option from the Middleware Service menu.
- **Scale Up and Scale Down:** See [Section 28.3.2, "Scaling Up and Scaling Down a Service"](#).
- **Service Instance Settings:** This shows the current value of the Minimum Number of WebLogic Servers and allows you to modify this value.
- **Select Metrics:** Click **Select Metrics** to add new charts, remove existing ones, and drag and drop metrics to charts. In the Metric Palette window that appears, select a metric or drag and drop a metric into an existing chart or create a new chart. By default, all new charts are displayed in the General section but you can drag and drop them to a different section. You can remove a metric/chart by unchecking a box in the Metric Palette or by clicking the **x** on the drag bar on the right side of the chart. You can move charts within their section by dragging them by that bar.
- **Restore Default Charts:** Click **Restore Default Charts** to restore the charts to the default settings. All chart additions, modifications and deletions are applicable to a specific service. An SSA user can have different charts for each service.
- **Log Messages:** Click **Log Messages** to view a list of messages sorted by message type, date, and so on. Select the date range, message type, and specify other filters in the Message field. Click **Add Fields**, select other fields to be included in the message, and click **Search**. The first 1000 messages that meet the search criteria are displayed. Click **Export Messages to File** to export the messages to a log file in .txt, .xml, or .csv format.
- **WebLogic Server Administration Console:** Click this option to launch the WebLogic Administration Console.
- **Fusion Middleware Control:** Click this option to launch the Fusion Middleware Control console.

Note: The WebLogic Server Administration Console and the Fusion Middleware Control interfaces allow you to manage and monitor the Oracle Fusion Middleware components. The **WebLogic Server Administration Console** and **Fusion Middleware Control** options are available in the **Middleware Service** menu only if the Expose WebLogic and FMW Console URLs to SSA User field has been set to **Yes** in the Middleware Service Template. See [Section 25.6, "Creating a WebLogic Service Template"](#) for details.

28.3.1 Deploying and Redeploying an Application

You can deploy a preconfigured Java EE application to a Service Instance. To deploy an application, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_USER role and navigate to the Middleware Cloud Self Service Portal page.
2. Click on a **Name** link in the Middleware Services region. The Middleware Service Home page appears.
3. Click **Deploy** in the Applications table. The Deploy Application page appears.

Figure 28–3 Deploy Application

4. Enter the following details:
 - **Application Name:** Enter a name for the application that is to be deployed.
 - **Application Component:** You can choose to:
 - **Select an application component from the Software Library:** Click the **Search** icon and select a Java EE application component from the Software Library.
 - **Select an application archive from your desktop.** Click **Browse** and select an application archive from your desktop.
 - **Deploy as an application:** The deployment can be created as a normal application or as a library. If you select this option, click **Browse** in the Deployment Plan field and select a .xml file that contains the deployment options. This file overrides the deployment plan (if any) specified with the application component.
 - **Deploy as a library:** You can deploy the application as a library. Libraries are deployments that can be shared by other deployments. Libraries should be available on all of the targets running their referencing applications.
5. Specify when the deploy operation should occur and click **Deploy**. After the request to deploy the application has been created, you will return to the Middleware Service Home page where a confirmation message is displayed.

28.3.1.1 Redeploying an Application

You can redeploy an application that has been deployed to a Service Instance. To redeploy an application, select a deployed application from the Applications table and click **Redeploy**. In the Redeploy Application page, select the Application Component that is to be redeployed, the deployment plan if any, and click **Redeploy**. You will see a confirmation message indicating that the application has been redeployed.

28.3.1.2 Deleting an Application

You can delete (undeploy) an application that has been deployed. Select the application to be deleted from the Applications table and click **Delete**. A confirmation message is displayed. Click **Yes** to undeploy the application.

28.3.2 Scaling Up and Scaling Down a Service

You can scale up or scale down a service.

Note: The Scale Up and Scale Down options are available only if the service is based on a middleware service template that contains a middleware provisioning profile with one cluster. If the profile does not contain a cluster, these menu options will not be available.

On the Middleware Service Home page, select the following options from the Middleware Service menu:

- **Scale Up:** You can scale up a service by adding one more servers. The number of servers you can add is limited by your quota. Click **Scale Up** and enter the number of servers by which the service is to be scaled up. Click **Submit** to submit the scale up request and add more servers.
- **Scale Down:** Click **Scale Down** and enter the number of servers by which the service is to be scaled down. Click **Submit** to submit the scale down request and reduce the number of servers.

28.3.3 Creating a Data Source

In a WebLogic Server, you configure database connectivity by adding data sources to your WebLogic domain. WebLogic JDBC data sources provide database access and database connection management. Before an application can access a database, it must be configured to use the JDBC data source.

To create a data source for a service, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_USER role and navigate to the Middleware Cloud Self Service Portal page.
2. Click **Create** in the Data Sources table in the Middleware Service Home page. The Create Data Source page appears.

Figure 28–4 Create Data Source

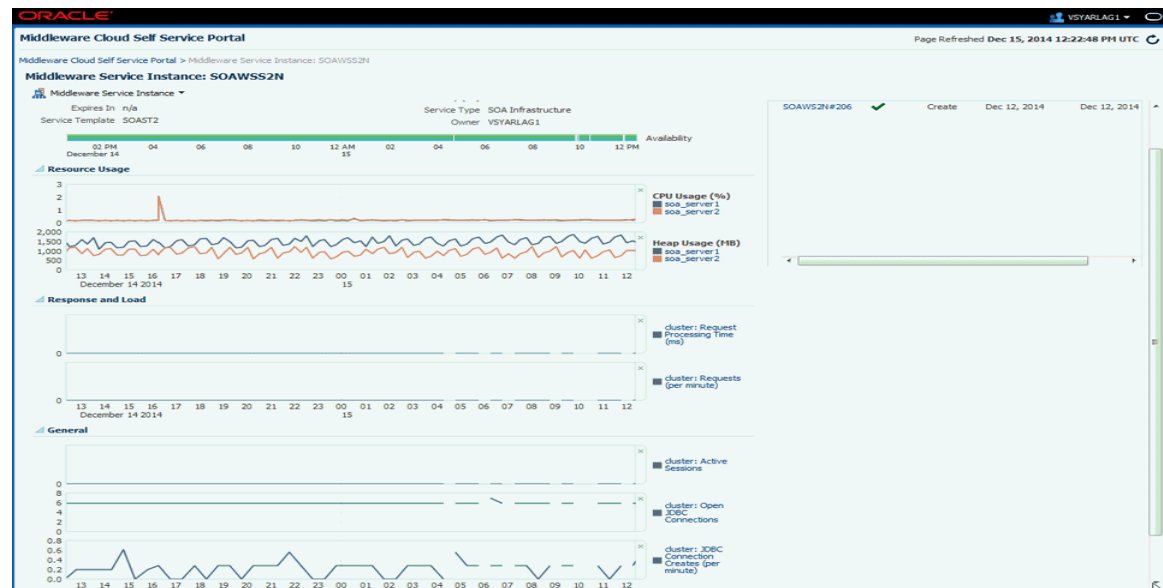
3. Enter the Data Source Name and the JNDI Name.
4. Select the Database Driver Class.
5. If you have a database service instance configured, you can select the Database Service and the corresponding URL is displayed. If not configured, you must manually enter the Database URL.
6. Specify the Database User Name and Password.
7. Click **Create** to create the data source.

28.3.3.1 Editing a Data Source

You can edit the properties of a data source. Click the **Name** link in the Data Sources table in the Middleware Service Home page. The Edit Data Source page appears. You can edit the properties of the data source. If some of the properties are changed, the data source needs to be redeployed and applications using this data source need to be restarted.

28.4 Viewing SOA/OSB Service Home Page

The SOA Home page provides detailed information about the services you have requested using the Requests option. To view the Middleware Service Home page, click the **Name** link in the Middleware Services region in the Middleware Cloud Self Service Portal: Home tab.



This page contains the following regions:

- **Performance Summary:** Shows the availability status of the service, status summary of the WebLogic Servers, and the performance metrics for the underlying WebLogic cluster associated with this service. The following charts are displayed.

- **Availability:** The availability status of the service.
- **Resource Usage:** Shows the CPU and Heap Usage charts for all the servers in the cluster.
- **Response and Load:** Shows the request processing time and number of requests per minute for the current service.
- **General:** Shows charts for various performance metrics for the service.

- **Requests:** This table shows all the requests that have submitted for this service.

The following options are available from the Middleware Service Instance menu:

- **Set End Date:** Select this option to specify an end date for the middleware service.
- **Start and Stop:** You can start or stop the service by selecting the appropriate option from the Middleware Service menu.
- **Scale Up and Scale Down:** See [Section 28.3.2, "Scaling Up and Scaling Down a Service"](#).
- **Select Metrics:** Click **Select Metrics** to add new charts, remove existing ones, and drag and drop metrics to charts. In the Metric Palette window that appears, select a metric or drag and drop a metric into an existing chart or create a new chart. By default, all new charts are displayed in the General section but you can drag and drop them to a different section. You can remove a metric/chart by unchecking a box in the Metric Palette or by clicking the x on the drag bar on the right side of the chart. You can move charts within their section by dragging them by that bar.
- **Restore Default Charts:** Click **Restore Default Charts** to restore the charts to the default settings. All chart additions, modifications and deletions are

applicable to a specific service. An SSA user can have different charts for each service.

- **Log Messages:** Click **Log Messages** to view a list of messages sorted by message type, date, and so on. Select the date range, message type, and specify other filters in the Message field. Click **Add Fields**, select other fields to be included in the message, and click **Search**. The first 1000 messages that meet the search criteria are displayed. Click **Export Messages to File** to export the messages to a log file in .txt, .xml, or .csv format.
- **WebLogic Server Administration Console:** Click this option to launch the WebLogic Administration Console.
- **Fusion Middleware Control:** Click this option to launch the Fusion Middleware Control console.

Note: The WebLogic Server Administration Console and the Fusion Middleware Control interfaces allow you to manage and monitor the Oracle Fusion Middleware components. The **WebLogic Server Administration Console** and **Fusion Middleware Control** options are available in the **Middleware Service** menu only if the Expose WebLogic and FMW Console URLs to SSA User field has been set to 1 in the Middleware Service Template. .

28.5 Viewing the Java Application Service Instance Home Page

The General section displays a URL that can be used to access your service. Click **Download JVMD Agent** to download the JVM Diagnostics Agent war file. Ensure that you deploy the war file on the WebApps folder of the Application Server that is to be monitored. This enables the JVM Diagnostics Agent to start monitoring the Java Application target in Cloud Control.

The Java Application Service History section provides a quick view of the event log for your application, along with the time stamp. Basically details like when a particular application starts or when it was created, is captured and logged in this section.

Parameters that are printed to the `service.out` file is displayed in the Service Details section. This is particularly useful, when you want to view the port numbers assigned to the JVM JMX port.

In addition to this, memory usage and performance summary details are also available on this page.

28.6 Uploading a Java EE Component to the Software Library

You can upload pre-configured ear, war, jar, or rar files to the Software Library. These files are uploaded to the Software Library as Java EE Application components, which are then deployed to your service. To upload a file to the Software Library, click the **Library** tab. The Upload to Software Library field appears.

Figure 28–5 Upload to Software Library

Upload to Software Library Cancel Upload

Select the files you would like to upload to the Software Library. These files will be uploaded as a Java EE application component which you can then use to deploy to your service. You can choose to upload a zip file that contains a `JavaEEAppComp.manifest` manifest file describing the contents of the zip file. See help for more information.

* Application Component
 Description

☒ Upload Files Individually

Archive Browse...

Deployment Plan Browse...

Pre-deploy Script Browse...

Post-deploy Script Browse...

☐ Upload Zip File

Zip File Browse...

Enter the name and description of the file being uploaded. You can then choose to upload files as follows:

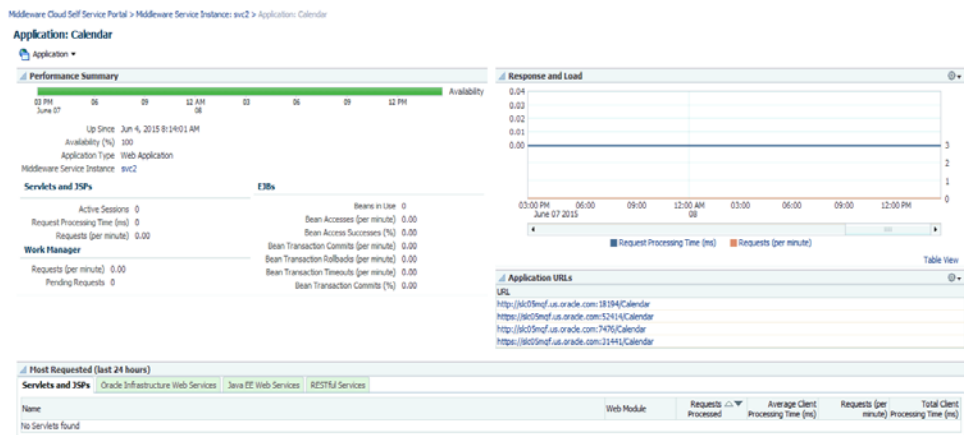
- **Individual Files:** If you choose the **Upload Files Individually** option, you need to specify the following:
 - **Archive:** Select the archive file to be uploaded to the Software Library. This can be an ear, war, jar, or rar file. You can also optionally specify the following:
 - * **Deployment Plan:** This is an `xml` file containing the deployment options for the Java EE Application component.
 - * **Pre Deploy Script:** This is a script containing WLST commands. The Management Agent runs this script on the Administration Server associated with each instance before the application is deployed. You can use this script to create data sources, JMS end points, and any other resources that might be needed by the application that is being deployed.
 - * **Post Deploy Script:** This is a WLST script that is executed by Management Agent on the Administration Server after the application is deployed. You can use this script to perform any post deployment configuration. For example, if you need to roll back and undo the changes made by the pre deploy script, you can select this option.
- **Zip File:** If you select the **Upload Zip File** option, you must upload a zip file that contains the `JavaEEAppComp.manifest` file that describes the contents of the zip file.

Click **Upload** to upload the file to the Software Library.

28.7 Viewing the Application Home Page

To view the Application Home page, select an application, and click the **Name** link in the Applications table on the Middleware Service Home page.

Figure 28–6 MWaaS Application Home



This page displays performance and availability for the application, along with a chart that shows response and load. You can redeploy, delete (undeploy), start, or stop the application using options from the **Application** menu.

Part X

Monitoring the PaaS Cloud

This section describes how to administer and monitor Database as a Service (DBaaS) and Middleware as a Service (MWaaS). It contains the following chapter:

- [Chapter 29, "Administering and Monitoring a PaaS Cloud"](#)

Administering and Monitoring a PaaS Cloud

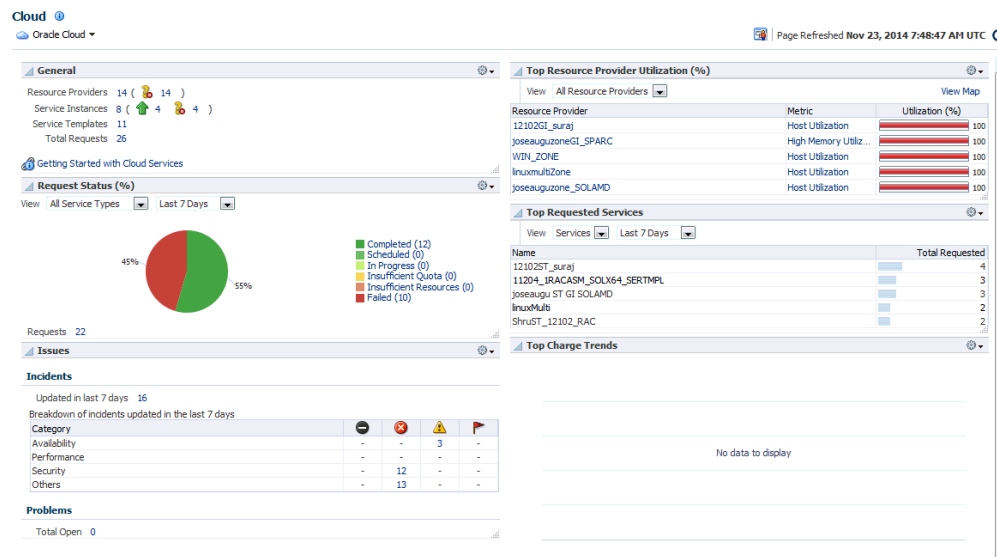
This chapter describes the different options that are available to monitor the DBaaS and MWaaS services. It contains the following sections:

- [Viewing the Cloud Home Page](#)
- [Viewing the List of Resource Providers](#)
- [Viewing the List of Service Templates](#)
- [Viewing the List of Service Instances](#)
- [Viewing the Cloud Request Dashboard](#)
- [Viewing All Cloud Requests](#)
- [Viewing the PaaS Infrastructure Zone Home Page](#)
- [Viewing the Database Pool Home Page](#)
- [Viewing the Schema Pool Home Page](#)
- [Viewing the Pluggable Database Pool Home Page](#)
- [Viewing the Middleware Pool Home Page](#)
-

29.1 Viewing the Cloud Home Page

After the cloud services have been set up, and one or more self service users have submitted requests, you can view a unified view of the different service types on the Cloud Home page. You can use the rolled up data to identify problem areas and drill down for more details. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home** to navigate to this page.

Figure 29–1 Cloud Home Page

**Note:**

- To view this page, you must have **View** privilege on the Cloud target. Out-of-the-box user roles have this privilege by default.
- You can use the **Personalize** option to customize the Cloud Home page. This option allows you to add or delete regions, change the page layout, and so on.

- **General:** This region shows the following:
 - **Resource Providers:** The total number of PaaS Infrastructure zones and software pools that have been created is displayed. Click on the link to drill down to the Resource Providers page.
 - **Service Templates:** The total number of service templates that have been defined.
 - **Total Requests:** The total number of requests for configured cloud services. Click on the link to drill down to the All Requests page.
 - **Service Instances:** The total number of members that are up or down. Click on the link to drill down to the Service Instances page.
- **Request Status:** The status of service requests during a specific period. By default, the request status over the last 24 hours is displayed but you can select another duration such as 7 days, 30 days, and so on. You can view the request status for all requests or for a specific service type. To view the status for a specific service type, select type from the View drop down list.
- **Issues:** The availability, performance, security, and other incidents across all the configured service providers.
- **Top Resource Provider Utilization:** This region shows the Top level resource utilization for the configured resource providers. For example, the CPU and Memory Utilization for a PaaS Infrastructure Zone. To view more details, click the **View Map** link at the top of the region. This displays the Heat Map page with

detailed information on the resource provider utilization. The number of resource providers and the threshold value to calculate color can be configured by using the **Personalization** feature.

- Daily Charge for the Last 30 Days: Shows rolled up chargeback data across all service types.
- Top Requested Services: This region lists the most requested service templates. You can see service utilization trend by user or service template for a selected period which can be 24 hours, 7 days, or 30 days.

The following options are available from the Cloud Home menu.

Note: The following pages can be accessed only by users with the EM_SSA_ADMINISTRATOR role. To modify these pages, the users must have **Manage** privilege on the corresponding services and families. Out-of-the-box administrators have this privilege by default.

- Resource Providers: You can see the list of resource providers for which you have at least View Target Privilege. You can create a new resource provider, edit, or delete an existing resource provider. See Resource Providers Page.
Note: To create a new service provider, you must have Create Target Privilege on that resource provider target type.
- Service Templates: Use this option to the Service Templates page from where you can create, edit, and delete service templates across different service families. See Service Templates Page for details.
- Services Instances: Shows a list of service instances. See Service Instances Page for details.
- Requests: Use this option to view all the requests, or view a summary in the Request Dashboard page.
- Setup: The Setup menu allows you to define global settings across the different service types. The following options are available:
 - Getting Started: The Getting Started page lists the minimum tasks that are required to configure a service type and the order in which these tasks must be completed. This page is useful to self service administrators who are not familiar with the product.
 - Service Settings: Allows you to specify service specific settings such as Load Balancer Settings for MWaaS.
 - Request Settings: Allow you to specify request settings at many different levels (from all services to a specific service type). See Configuring Request Settings.
 - Quotas: Allows you to define quota for each service family. See Setting Up Quotas.
 - Data Sources: Used to launch the Create Profile and Create Test Master wizards if required by the service type.

29.1.1 Viewing the Resource Provider Utilization Heat Map

From the Enterprise menu, select Cloud, then select Cloud Home. On the Cloud Home page, click the View Map link in the Top Resource Provider Utilization % region to view the Resource Provider Utilization Heat Map.

Figure 29–2 Resource Provider Utilization Heat Map



This page shows the utilization metrics for all resource providers such as PaaS Infrastructure Zones, Database Pools, and Middleware Pools. The heat map provides a graphical representation of the resource provider utilization. On the Heat Map view, metrics are represented as boxes and the size and color of each box depicts potential problem areas. Select a box and click on a metric value to navigate to the Metric History page.

29.2 Viewing the List of Resource Providers

A resource provider is an entity that contains the actual resources required to provision the cloud services of a specific service type. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home** to navigate to the Cloud Home page. From the **Cloud Home** menu, select **Resource Providers** to see a list of resource providers.

Figure 29–3 Resource Providers Page

Name	Type	Owner	Parent	Members	Count	Service I
WINzone_Suraj	PaaS Infrastructure Zone	SURARAY1	n/a	Host	1	
HPAIA_zone_dnd_ramuthia	PaaS Infrastructure Zone		n/a	Host	2	
LIN_SLC04kh_ZONE	PaaS Infrastructure Zone		n/a	Host	1	
WINDOWS_SL_SLC09CMZ	PaaS Infrastructure Zone		n/a	Host	1	
zone_AIX	PaaS Infrastructure Zone		n/a	Host	1	
joseauguzone_SOLAMD	PaaS Infrastructure Zone		n/a	Host	1	
ADzone_Suraj	PaaS Infrastructure Zone		n/a	Host	1	
pool_AIX	Database Pool		zone_AIX	Oracle Home	1	
POOL_LINUX_SIIHA	Database Pool		LIN_SLC04kh_ZO...	Oracle Home	2	
12102_hpia_ramuthia_1526	Database Pool		HPAIA_zone_dnd_r...	Oracle Home	1	
joseauguPool_SOLAMD	Database Pool		joseauguzone_SO...	Oracle Home	1	
WIN_DBPOOL	Database Pool		WINDOWS_SL_SL...	Oracle Home	2	
axpool_suraj	Database Pool	SURARAY1	ADzone_Suraj	Oracle Home	1	
wimpool_suraj	Database Pool	SURARAY1	WINzone_Suraj	Oracle Home	2	

- Name: The name of the resource provider.
- Type: The type of resource provider. This can be:

- PaaS Infrastructure Zone
 - Middleware Pool
 - Database Pool
 - Schema Pool
 - Pluggable Database Pool
- Owner: The user who created the resource provider.
 - Parent: If the resource provider has a parent, it is listed here. For example, a PaaS Infrastructure Zone is the parent for a middleware or database pool.
 - Members: The members associated with the resource provider (this includes member type and number of members).
 - Service Instances: The service instance associated with the resource provider. Click on the link to drill down to the Home page.
 - Description: A description of the resource provider specified by the administrator while creating the resource provider.

You can create a resource provider, edit an existing one, or delete a resource provider.

29.3 Viewing the List of Service Templates

From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Service Templates** to view this page.

Figure 29–4 Service Templates Page

Display Name	Service Family	Service Type	Owner	Resource Providers	Service Instances	Service Description
ADST_Suraj	Databases	Database	SURARAY1	1	1	
LINUX_11203_11204_DBTMP	Databases	Database		1	1	
LINUX_DBCA_1124_UPGRADE	Databases	Database		1	1	
Orchestration	Infrastructure - Nimbula	Orchestration	SYSMAN	n/a	0	Create a se
SHA_WINDOWS_112045_PATCH_CM	Databases	Database		1	4	
ST_AIX_TM_PROFILE	Databases	Database		1	0	
Simple Orchestration	Infrastructure - Nimbula	Orchestration	SYSMAN	n/a	0	Create one
VM Instance	Infrastructure - Nimbula	Oracle VM Instance	SYSMAN	n/a	0	Create an i
WIKST_Suraj	Databases	Database	SURARAY1	1	1	
JO66aQuSQLAND ST	Databases	Database		1	0	
new st ak	Databases	Database		1	1	

This page shows a list of all the service templates that are available to the self service administrator across the different service families. For each service template, the following details are displayed:

- Name of the service template
- The service family to which belongs (for example, Database, Middleware, and so on).
- The type of service.
- The owner of the service.
- The resource providers associated with the service template.
- The number of service instances associated with the service template.
- A description of the service template.

You can perform the following actions:

- **Create:** Select this option to launch the Create Service Template wizard.
- **Create Like:** Select this option to create a copy of an existing service template.
- **Edit:** Select a service template and click **Edit** to modify an existing template. Click **Submit** after modifying the template to update the template.
- **Delete:** Select a service template and click **Delete** to delete the template.
- **Grant and Revoke Privileges:** The `EM_SSA_ADMINISTRATOR` can grant or revoke service template privileges to other users with the `EM_SSA_ADMINISTRATOR` role.

29.3.1 Granting, Revoking, and Reassigning Service Template Privileges

The owner (the self service administrator who has created the template, or the `SUPER_USER` can grant or revoke privileges over a service template to one or more users or roles. Only the `SUPER_USER` can grant or revoke privileges over all service templates to other users and roles.

- **Grant Privileges:** Select the service template for which privileges are to be granted and select **Grant** from the **Actions** menu.

To grant privileges to other users, select **User** in the Type drop down list and click **Search**. A list of users to whom the privileges can be granted is displayed. Select one or more users from the list and click **Grant** to grant the privilege.

In the Select **Privilege to Grant** drop down list, select **Manage** or **Full** to grant the privilege to the user. To allow users to edit, and modify the configuration in the service template, select **Manage** access. To allow users to edit, delete, and modify the service template, select **Full** access.

To grant privileges to one or more user roles, select **Role** in the Type drop down list and click **Search**. A list of roles to whom the privileges can be granted is displayed. Select one or more roles from the list and click **Grant** to grant the privilege.

- **Revoke:** Select a service template for which privileges have been granted and click **Revoke**. In the **Search** drop down list, you can select one of the following:
 - **Name:** The name of the user to whom the privilege has been granted.
 - **Type:** Select the type which can either be User or Role to whom the privilege has been granted.
 - **Privilege:** The type of privilege that has been granted which can be View, Manage, or Full.

Based on the search criteria, the list of users or roles to whom the privileges have been granted is displayed. Select the users or roles for whom the privileges are to be revoked and click **Revoke**.

- **Reassigning a Service Template:** Login as a Super Administrator user, select the template and click **Reassign** to reassign the ownership of the service template to another user. Select the user and click **Reassign** to reassign the service template.

29.4 Viewing the List of Service Instances

The Service Instance page shows the list of all service instances. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Service Instances** to view this page.

Figure 29–5 Service Instances Page

Cloud Oracle Cloud Page Refreshed Nov 23, 2014 8:02:49 AM UTC

Service Instances

Actions View Start Stop History Delete Search Created By Advanced Search

Name	Status	Service Type	Resource Provider	Service Template	Created By	Policies	Creation Date	Expires In
db000009		Database	SOLX64_POOL	11204_IRACASH...	SSA_USER11		0 Nov 18, 2014	
db000008		Database	SOLX64_POOL	11204_IRACASH...	SSA_USER11		0 Nov 18, 2014	

The following details are displayed:

- **Service Instance Name:** The name associated with the service instance. Click on the link to drill down to the target home page.
- **Status:** The status of the service instance.
- **Service Instance Type:** The type of request (Middleware or Database).
- **Resource Provider:** The Resource Provider with which the instance is associated.
- **Service Template:** The service template that was used to create the service instance.
- **Policies:** The number of policies associated with the service instance. Click on the link to drill down to the Policies page.
- **Created By:** The user who created this service instance.
- **Creation Date:** The date on which the service was created.
- **Expiry Date:** The date on which the service will expire and no longer be available.

You can perform the following actions:

Note: You must have **Manage** privilege on the service types on which these operations are to be performed. This privilege is assigned to the out-of-the-box self service administrators roles by default.

- **Start:** Select a service instance that has been stopped and click **Start** to start the service.
- **Stop:** Select a service that is running and click **Stop** to stop the service.
- **Delete:** Select a service and click **Delete**. You are prompted to specify the schedule and indicate whether the service instance is to be deleted immediately or at a later date. Select the schedule and click **OK** to delete the request.
- **History:** Select a service and click **History** to view a list of all actions that have been performed on the service instance.
- **Grant, Revoke, and Reassign Privileges:** See Granting, Revoking and Reassigning Privileges to Service Instances.

29.4.1 Granting, Revoking, and Reassigning Privileges to Service Instances

The self service administrator can grant or revoke privileges over a service instance to one or more users or roles. Self service users can also grant or revoke privileges over service instances they own. The user who created the service instance (owner) or the SUPER_USER can reassign the ownership of a service instance to another user.

To grant or revoke access to a service instance, the self service administrator must select **Enterprise > Cloud Home > Setup > Request Settings** and enable the following flags:

- Enable self service user to share service instances with other Users.
- Enable self service user to share service instance Roles.

These settings can be defined either at global level, service family level, or at other User or Role level. See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#) for details.

- **Grant Privileges:** Select the service instance for which privileges are to be granted and select **Grant** from the **Actions** menu.

To grant privileges to other users, select **User** in the Type drop down list and click **Search**. A list of users to whom the privileges can be granted is displayed. Select one or more users from the list and click **Grant** to grant the privilege.

In the Select **Privilege to Grant** drop down list, select **View**, **Manage**, or **Full** to grant the privilege to the user. To allow users to edit, and modify the configuration in the service instance, select **Manage** access. To allow users to edit, delete, and modify the service instance, select **Full** access. To provide users with read only access, select **View** access.

To grant privileges to one or more user roles, select **Role** in the Type drop down list and click **Search**. A list of roles to whom the privileges can be granted is displayed. Select one or more roles from the list and click **Grant** to grant the privilege.

- **Revoke:** Select a service instance for which privileges have been granted and click **Revoke**. In the **Search** drop down list, you can select one of the following:
 - Name: The name of the user to whom the privilege has been granted.
 - Type: Select the type which can either be User or Role to whom the privilege has been granted.
 - Privilege: The type of privilege that has been granted which can be View, Manage, or Full.

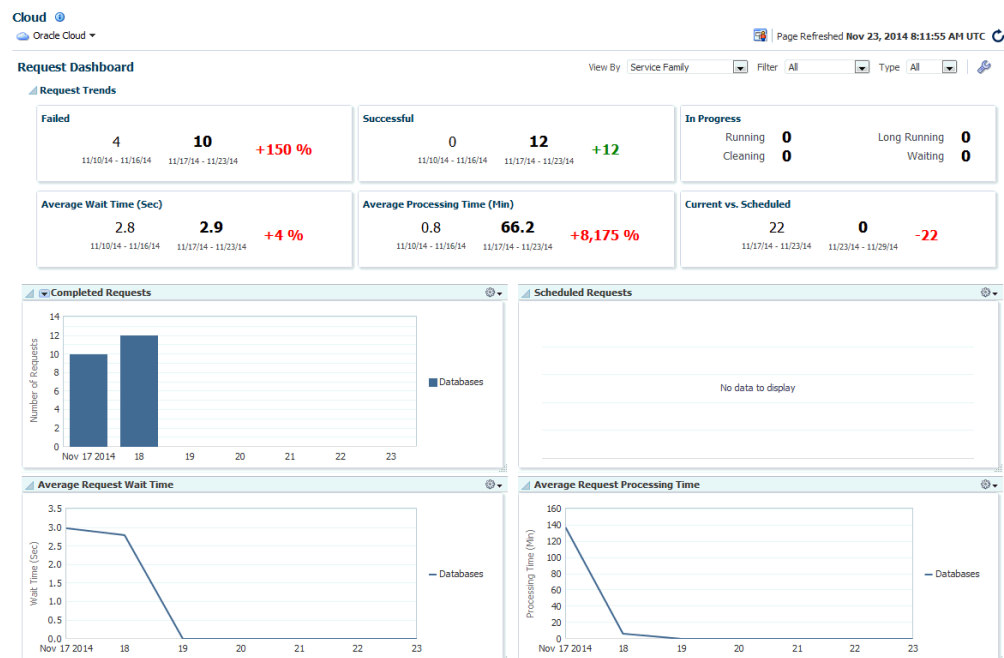
Based on the search criteria, the list of users or roles to whom the privileges have been granted is displayed. Select the users or roles for whom the privileges are to be revoked and click **Revoke**.

- **Reassigning a Service Instance:** Login as a Super Administrator user, select the instance and click **Reassign** to reassign the ownership of the service instance to another user. Select the user and click **Reassign** to reassign the service instance.

29.5 Viewing the Cloud Request Dashboard

The self service administrator can use the Cloud Request Dashboard to track the status of all database and middleware requests. The self service administrator can view the requests across all resource providers for all users. The requests the self service administrator can view depends on the instance level privileges. All trends and graphs on this page apply to the current filter and time period specified. By default, the status across all services over the last 7 days is displayed.

From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Requests**, then select **Dashboard** to view the cloud request dashboard.

Figure 29–6 Cloud Request Dashboard

The following charts are displayed:

- **Request Trends:** You can view recent trends for Failed, Successful, Average Wait Time, Average Processing Time and Scheduled requests. Trends are shown across two time periods (for example, previous week, current week). Click the drop down list in the Completed Requests chart to filter and view failed, successful, partially successful, or completed requests.
- **Average Request Wait Time:** The elapsed time from which a request is scheduled to start and its actual start time.
- **Average Request Processing Time (Zone):** The average time taken to process the request for the selected criteria. For example, if a specific service template is selected as the filter criteria, then the average time taken to create the service instance from the selected service template in the specified time period (last 24 hours, last 7 days, or last 30 days) is displayed.

You can choose to filter the requests listed on the page by selecting a value in the **View By** drop down list and specifying the **Filter** value and the **Type**. For example, if you select **Resource Provider** in the **View By** drop down list, and **All** in the **Filter** column, and **Create** in the Type column, you will see the Create requests for all resource providers.

You can click the **Edit** (wrench icon) option to edit the layout of the Request Dashboard page. The following service settings can be modified:

- **Summary Columns:** The number of columns that can be displayed in the Summary region.
- **Long Running Threshold:** The percentage of average processing time used to determine if the time taken to complete a request is longer than normal.
- **Maximum Chart Items:** The maximum number of resource providers, service types or service families that can be shown in each chart. The remaining items are listed in the All Others category.

- **Include Archived Requests:** Select this check box to include deleted but not yet purged requests in the charts. This option is useful in providing a more accurate picture of the total number of requests processed during the time periods
- **Chart Time Period:** The default view period (7 days) for the chart.

Modify the values as required and click **OK**. To restore the earlier settings, click **Restore Defaults**.

29.6 Viewing All Cloud Requests

From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. From the **Oracle Cloud** menu, select **Requests**, then select **Show All** to view a list of all cloud service requests.

Figure 29–7 All Cloud Requests

Name	Status	Type	Created By	Submission Date	Begin Date
Startup_db000008_18-11-2014 22:44:57#26	✓	Startup Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
Shutdown_db000008_18-11-2014 22:44:04#25	✓	Shutdown Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
SSA_USER11 - Tue Nov 18 2014 22:07:33 UTC_C...	✓	Create Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
Startup_db000008_18-11-2014 12:20:52#23	✓	Startup Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
Shutdown_db000008_18-11-2014 12:20:11#22	✓	Shutdown Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
SSA_USER11 - Tue Nov 18 2014 08:47:51 UTC_CRE...	✓	Create Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
SSA_USER11 - Tue Nov 18 2014 07:46:08 UTC_CRE...	✓	Create Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
SSA_USER11 - Tue Nov 18 2014 07:12:49 UTC_C...	✓	Create Database	SSA_USER11	Nov 18, 2014	Nov 18, 2014
LinuxMulti_CREATE_4_40#13	✓	Create Database	SSA_USER11	Nov 17, 2014	Nov 17, 2014
LinuxMulti_CREATE_26_49#12	✓	Create Database	SSA_USER11	Nov 17, 2014	Nov 17, 2014
SSA_USER11 - Mon Nov 17 2014 08:11:24 UTC_C...	✓	Create Database	SSA_USER11	Nov 17, 2014	Nov 17, 2014
SURARAY1 - Mon Nov 17 2014 08:07:35 UTC_CR...	✓	Create Database	SURARAY1	Nov 17, 2014	Nov 17, 2014

For each request, the name of the request or job, status of the request, the request type (Create, Delete, and so on), the user who submitted the request, service type (database, schema, WebLogic, and so on), date on which the request was submitted, and so on is displayed. Click on the Name link to drill down to the Job Activity page. The Status link shows the Request Details popup window.

You can do the following:

- **Reschedule:** Select a request that is scheduled to run at a future date and click **Reschedule** to change the date on which the request should be initiated.
- **Delete:** Select a request and click **Delete** to delete the request. Deleted requests are still present in the repository and will be purged according the purge policy defined in the Request Settings page. See [Section 11.2.3, "Configuring Request Settings"](#) for details.
- **Clean Up:** Use this option to clean up failed requests. This may include shutting down any partially configured services and deleting any partially configured storage used for the failed service.

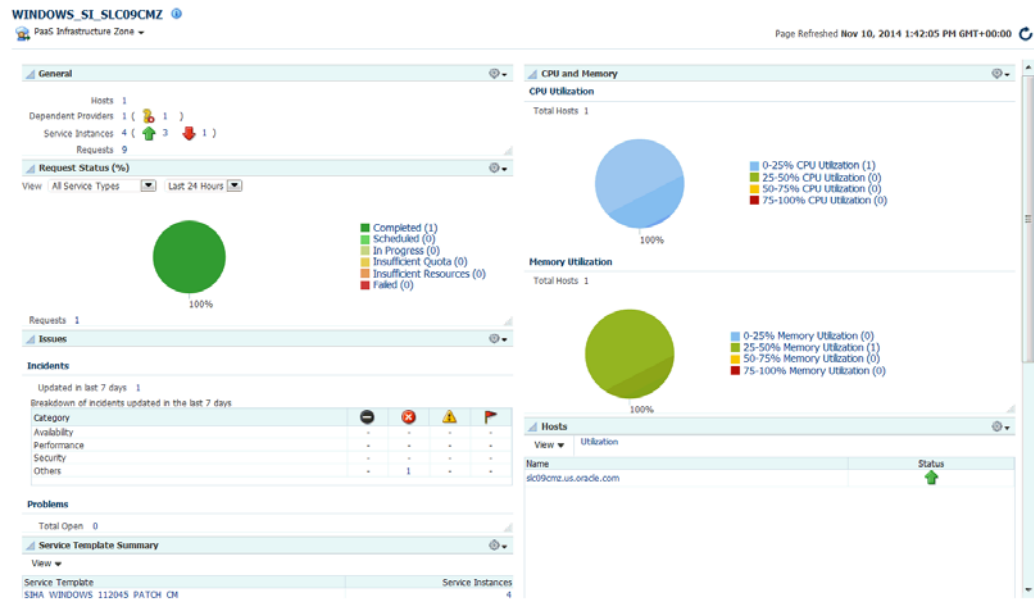
Note: Failed provisioning requests cannot be deleted unless they have been cleaned up.

29.7 Viewing the PaaS Infrastructure Zone Home Page

A zone is a logical entity that allows homogenous resources to be grouped together. The resources consist of components (servers, storage, networks, operating systems, applications) that are required to create new services. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. Click on a resource provider link on the Cloud

Home page to navigate to the Resource Providers page and click on the **PaaS Infrastructure Zone** link to drill down to the PaaS Infrastructure Zone Home page.

Figure 29–8 PaaS Infrastructure Home



The PaaS Infrastructure Zone Home page contains the following regions:

- **General:** This region lists the total number of Hosts, Dependent Providers (Software Pool), Requests, and Service Instances in the zone. It also shows the Placement Policy Constraints that have been defined for the zone.
- **Request Summary:** Shows the percentage of requests that are in progress, failed, successful, partially successful, or scheduled.
- **CPU and Memory:** The average CPU and memory utilizations by Hosts in the zone is displayed in these charts.

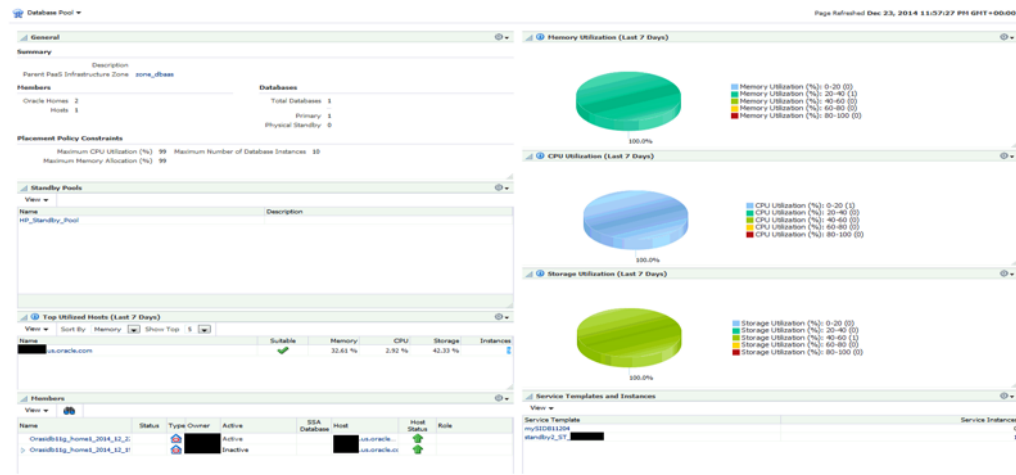
Note: You can set the thresholds for these metrics on the All Metrics page. To navigate to this page, from the **PaaS Infrastructure Zone** menu, select **Monitoring**, then select **All Metrics**. Select the metric for which the threshold is to be set, click **Modify** and change the settings.

- **Issues:** Shows the outstanding incidents and problems for the target.
- **Members:** Shows the members of the zones and the member type (Oracle VM Zone or Host).
- **Hosts:** Lists the hosts in the PaaS Infrastructure Zone. Click on the Utilization link to view details on the CPU and memory has been utilized for all the hosts, and the number of service instances created on the host. Click on the Name link to drill down to the Host Home page.
- **Service Template Summary:** Shows the service templates associated with the zone. The software pool associated with each service template and number of service instances in each resource pool is also displayed.

29.8 Viewing the Database Pool Home Page

A database pool contains a set of resources that can be used to provision a database instance within a PaaS Infrastructure Zone.

Figure 29–9 Database Pool Home



This page contains the following regions:

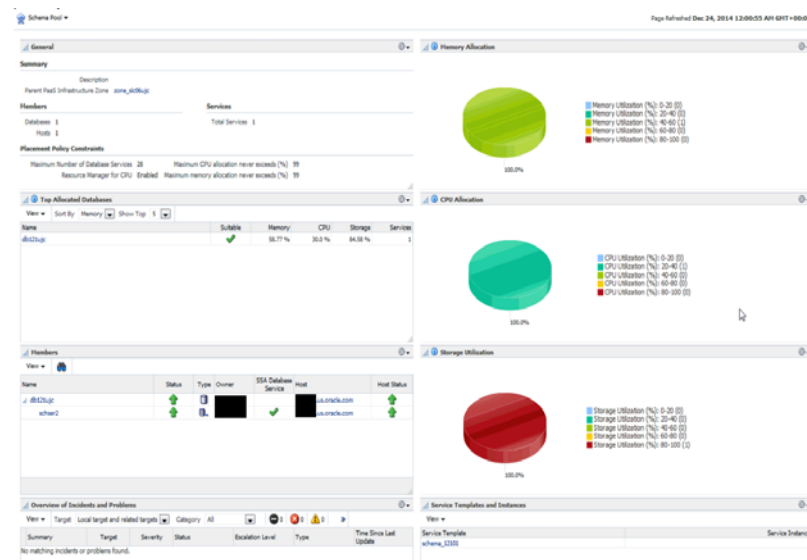
- **General:** This region displays the following:
 - **Summary:** Displays a description of the database pool and PaaS Infrastructure Zone to which it belongs.
 - **Members and Databases:** Shows the list of Members (Oracle Homes and Hosts) and Databases in the pool. The Databases region lists the total number of databases and the number of single instance or RAC databases in the pool.
 - **Placement Policy Constraints:** The placement policy constraints that specify maximum ceilings for each host member of the pool are displayed.
- **Standby Pools:** If one or more standby pools are present, they are listed here.
- **Top Utilized Hosts:** This region shows the list of top utilized hosts over the last 7 days. Click on the link to drill down to the Host Home page. You can sort by:
 - **Memory:** The average memory utilized over the last 7 days as a percentage of the total memory on the host.
 - **CPU:** The average CPU utilized over the last 7 days as a percentage of the CPU available on the host.
 - **Storage:** The average storage utilized over the last 7 days as a percentage of the total storage available on the host.
 - **Instances:** The number of database instances on the host.
- **Members:** Lists all the members in the database pool. Click on the links in the Members table to drill down to the Database or Host Home page.
- **Overview of Incidents and Problems:** This region lists any incidents or problems that have occurred.

- **Memory Utilization:** The chart shows the memory utilization by different hosts present in the database pool. The color coded chart shows the different memory utilization range across the different hosts.
- **CPU Utilization:** The chart shows the CPU utilization by different hosts present in the database pool. The color coded chart shows the different CPU utilization range across the different hosts.
- **Storage Utilization:** The chart shows the storage utilization by different hosts present in the database pool. The color coded chart shows the different storage utilization range across the different hosts.
- **Service Template and Instances:** Shows the service templates and service instances associated with the database pool.

29.9 Viewing the Schema Pool Home Page

You can define one or more schemas that can be deployed on a database.

Figure 29–10 Schema Pool Home



- **General:** This region displays the following:
 - **Summary:** Displays a description of the schema pool and PaaS Infrastructure Zone to which it belongs. I
 - **Members and Services:** Shows the list of Members (Databases and Hosts) and Services in the pool.
 - **Placement Policy Constraints:** The placement policy constraints that specify maximum ceilings for each database member in the pool are displayed.
- **Top Allocated Databases:** This region shows the list of top utilized databases in the schema pool. Click on the link to drill down to the Database Instance page.
 - **Memory:** The total memory allocated for each service based on the workload as a percentage of the total SGA size of the database.
 - **CPU:** The total CPU allocated for each service based on the workload as a percentage of the CPU count.

- **Storage:** The total storage utilized on all the tablespaces of the database as a percentage of the total size of the database.

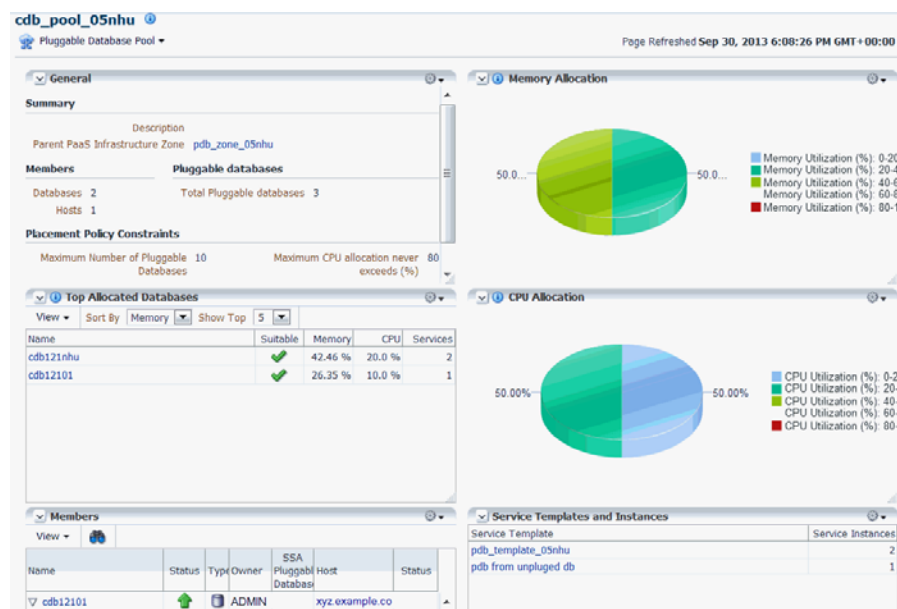
Note: Total here includes requests budgeted for services that have been requested and are active.

- **Services:** The number of database services.
- **Members:** Lists all the members in the schema pool. Click on the links in the Members table to drill down to the Database Instance Home page.
- **Overview of Incidents and Problems:** This region lists any incidents or problems that have occurred.
- **Memory Allocation:** The chart shows the memory allocation across different databases present in the schema pool. The color coded chart shows the memory allocation range across all the databases.
- **CPU Allocation:** The chart shows the CPU allocation across different databases present in the schema pool. The color coded chart shows the CPU allocation range across all the databases.
- **Storage Allocation:** The chart shows the storage allocation across different databases present in the schema pool. The color coded chart shows the storage allocation range across all the databases.
- **Service Template and Instances:** Shows the service templates and service instances associated with the schema pool.

29.10 Viewing the Pluggable Database Pool Home Page

A PDB pool contains one or more container databases that can be used to create PDBs within a PaaS Infrastructure Zone.

Figure 29–11 PDB Pool Home Page



This page contains the following regions:

- **General:** This region contains the following:
 - **Summary:** This region displays a description of the database pool and PaaS Infrastructure Zone to which it belongs. Click on the Parent PaaS Infrastructure Zone link to drill to the Home page.
 - **Members and Databases:** This region displays a list of Members (Oracle Homes and Hosts) and Databases in the pool. The Databases region lists the total number of databases and the number of single instance or RAC databases in the pool.
 - **Placement Policy Constraints:** The placement policy constraints that specify maximum ceilings for the pool are displayed.
- **Top Allocated Databases:** This region shows 5 to 15 pluggable databases (depending on your selection), sorted by Memory, CPU, Storage, or Services.
 - **Memory:** The total memory allocated for each service based on the workload as a percentage of the total SGA size of the Container database.
 - **CPU:** The total CPU allocated for each service based on the workload as a percentage of the total CPU count.
 - **Services:** The number of database services.
- **Members:** This region shows the list of members in the PDB pool. Click on the links in the Members table to drill down to the database or host home page.
- **Overview of Incidents and Problems:** This region shows a list of any incidents and problems that have occurred for any of the targets in the PDB pool.
- **Memory Allocation:** This chart shows the memory allocation by different container databases in the database pool. The color coded chart shows the memory allocation range across all the container databases.

Note: Total here includes requests budgeted for services that have been requested and are active.

- **CPU Allocation:** This chart shows the CPU allocation by different container databases in the pool. The color coded chart shows the CPU allocation range across all the container databases.
- **Service Templates and Instances:** This region shows the list of service templates associated with the PDB pool. Click on the Service Template link to drill down to the Service Template Details page.

29.11 Viewing the Middleware Pool Home Page

The Middleware Pool Home page provides detailed information of the Middleware Pool. To view this page, from the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. Click on the **Resource Providers** link on the Cloud Home page to navigate to the Resource Providers page. Click on a Middleware Pool name to drill down to the Middleware Pool Home page. The Middleware Pool Home page contains the following regions:

Figure 29–12 Middleware Pool Home

The screenshot displays the 'Middleware Pool' configuration page. At the top, it shows the pool name 'pool1' and a refresh button. The page is divided into several sections:

- General:** Contains a 'Summary' section with details like 'Parent PaaS Infrastructure Zone: zone1', 'Oracle Homes: 1', and 'Oracle Home Version: 10.3.6.0'.
- Placement Policy Constraints:** Shows 'Maximum Number of Java Servers (per Host): 10'.
- Java Servers:** Displays 'Total Java Servers: 5'.
- Load Balancer:** Indicates 'No load balancer configuration is associated with this middleware pool.'
- Service Templates:** A table listing templates like 'RiddiesTemplate' with columns for Name, Load Balancer Enabled, and Description.
- Service Instances:** A table listing instances with columns for Name, Status, Expiration Date, Template Name, and Oracle Homes.
- Members:** A table listing members with columns for Name, Type, Host, and Home Location.

- **Summary:** This region shows the following information:
 - **Parent PaaS Infrastructure Zone:** The zone with which the Middleware Pool is associated. Click on the link to drill down to the PaaS Infrastructure Zone Home page.
 - **Oracle Homes:** The total number of Oracle Homes in the Middleware Pool.
 - **Oracle Home Version:** The version of the Oracle homes.
- **Placement Policy Constraints:**
 - **Total Java Servers (per host):** The maximum number of WebLogic servers that can be running on each host.
 - **Java Servers:** The total number of WebLogic servers in the Middleware Pool.
- **Load Balancer:** This region shows the following details:
 - **Load Balancer Configuration:** The name of the load balancer configuration associated with the Middleware Pool. Click on the link to view the load balancer details.
 - **Load Balancer Type:** The type of load balancer. This can be Oracle HTTP Server, Oracle Traffic Director, or Third Party Load Balancer.
- **Service Templates:** The number of service templates with which the Middleware Pool is associated. For each service template, the name, a column indicating if the load balancer configuration has been enabled, and the description of the template is displayed. You can drill down to detailed page to see which MWaaS instances are associated with each service template.
- **Service Instances:** The service instances running on the Middleware Pool are displayed. For each service instance, the name, the status, date on which it is scheduled to expire, the service template with which is associated, and the location of the Oracle Home is displayed.
- **Members:** This region shows a list of members in the Middleware Pool. The name of the target, the target type, the host on which it is running, and the location of the Oracle Home is displayed.

29.12 Viewing the Cloud Services Reports

Oracle BI Publisher is an Oracle's enterprise reporting solution and provides a single reporting environment to author, manage, and deliver all of your reports and business documents. Utilizing a set of familiar desktop tools, such as Microsoft Word, Microsoft Excel, or Adobe Acrobat, you can create and maintain report layouts based on data from diverse sources. The Cloud Services BI reports consist of the following:

- Most Requested Service Types
- Service Request Status
- Service Request Types
- Cloud Requested Duration Thread

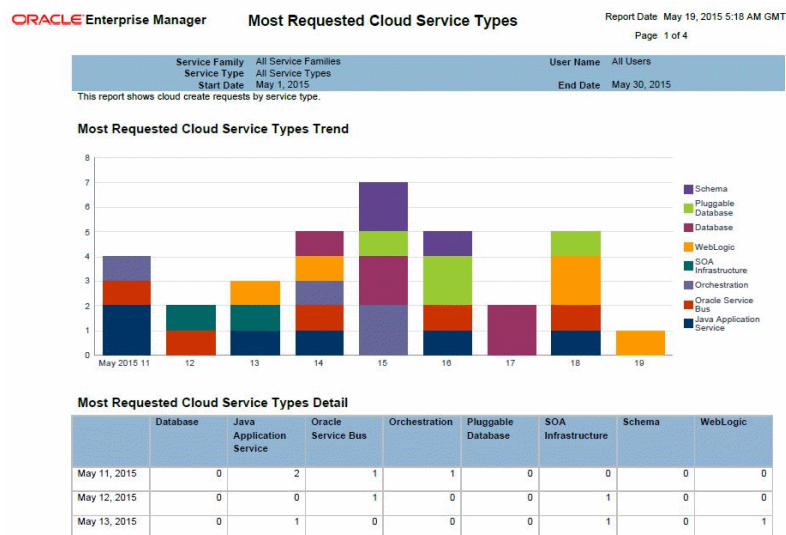
You can view these reports online and export them PDF, RTF, PowerPoint, and Excel formats. To view the reports, log into Enterprise Manager as a user with the EM_CLOUD_ADMINISTRATOR role and from the **Enterprise** menu, select **Reports**, then select **BI Publisher Reports**. Click on a report under the **Cloud Services** menu to launch the BI Publisher application and directly view the report.

29.12.1 Most Requested Service Types

This report shows the most requested reports sorted by service type. You can filter the data displayed by selecting any of the following parameters:

- Service Family
- Service Type
- User Name
- Start Date
- End Date

Figure 29-13 Most Requested Cloud Service Type

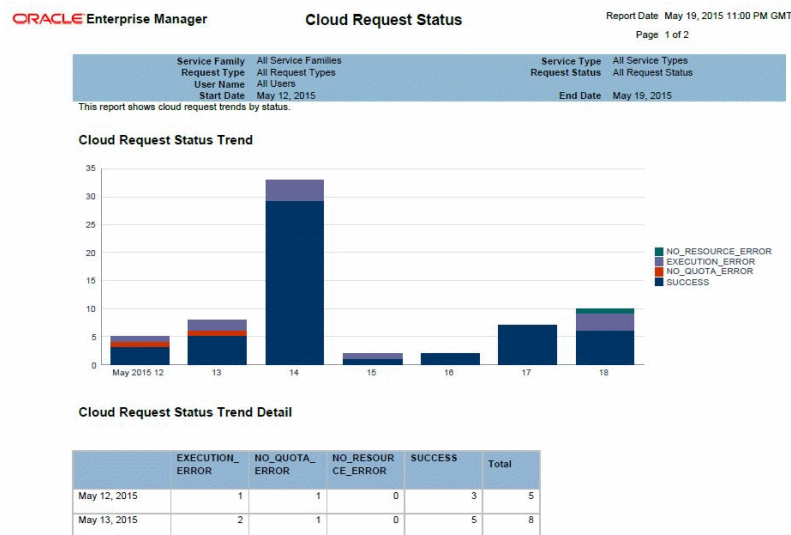


29.12.2 Service Request Status

This report shows the service request trends sorted by status. You can filter the data displayed by selecting any of the following parameters:

- Service Family
- Service Type
- Request Type
- Request Status
- User Name
- Start Date
- End Date

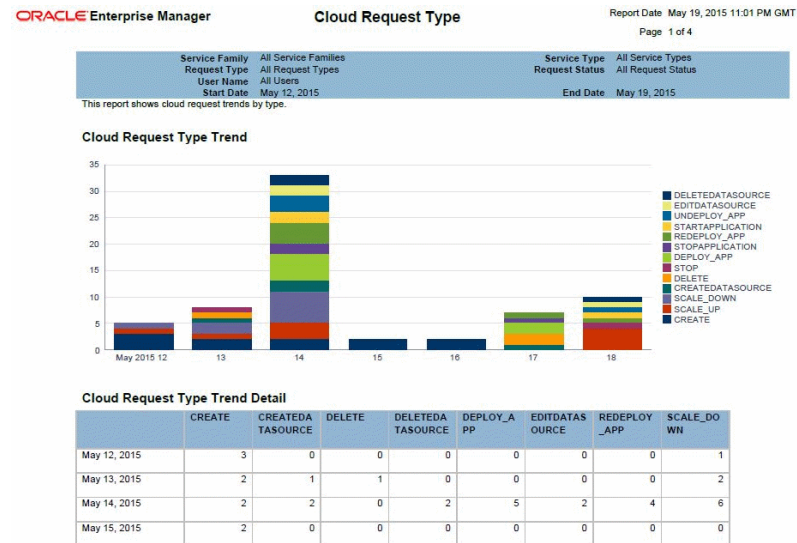
Figure 29–14 Cloud Request Status



29.12.3 Service Request Type

This report shows the cloud request trends sorted by request type. You can filter the data displayed by selecting any of the following parameters:

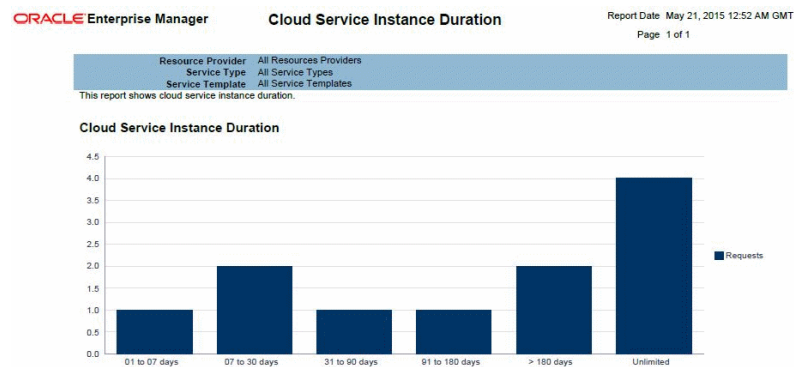
- Service Family
- Service Type
- Request Type
- Request Status
- User Name
- Start Date
- End Date

Figure 29–15 Cloud Request Type

29.12.4 Cloud Service Instance Duration Trend

This report shows the cloud service instance duration. You can filter the data displayed by selecting any of the following parameters:

- Submission Time
- Resource Provider
- Service Type
- Service Template

Figure 29–16 Cloud Service Instance Duration

Part XI

Oracle Compute

This section describes the procedure to setup and use Oracle Infrastructure Compute. It contains the following chapters:

- [Chapter 30, "Getting Started With Oracle Compute"](#)
- [Chapter 31, "Setting Up the Oracle Compute Self Service Portal"](#)
- [Chapter 32, "Using Oracle Compute"](#)
- [Chapter 33, "Managing the Oracle Compute Site and Associated Targets"](#)

Getting Started With Oracle Compute

This chapter provides an introduction to Infrastructure Oracle Compute (referred to as Oracle Compute in this document) and the procedure to discover an Oracle Compute site. It contains the following sections:

- [About Oracle Compute](#)
- [Oracle Compute Terminology](#)
- [Getting Started](#)
- [Discovering the Oracle Compute Site](#)

30.1 About Oracle Compute

Enterprise Manager allows end users to provision infrastructure cloud resources on demand thereby reducing the capital and operational costs. With Oracle Compute, Enterprise Manager provides enhanced monitoring features which allow users to provision cloud resources from various resource providers, support different types of storage and network infrastructure settings.

In this release, Oracle Compute is integrated with the Exalogic Engineered System allowing users to deploy, manage, and monitor the complete cloud service software stack (DBaaS, WSaaS, TaaS, and IaaS) on Oracle Compute based Exalogic systems. By integrating Oracle Compute with Enterprise Manager, users can access a common cloud management system and a self service flow across all the cloud services.

30.2 Oracle Compute Terminology

The following table lists some important terms and definitions.

Table 30–1 Oracle Compute Terminology

Term	Definition
Node	A node is a physical server (Hypervisor) in an Oracle Compute cluster.
Cluster	The Oracle Compute infrastructure is modeled around server pools or cluster. A cluster can contain three or more nodes.
Site	A site is a location running one or more Oracle Compute clusters.
Instance	An instance is a guest virtual machine.

Table 30–1 (Cont.) Oracle Compute Terminology

Term	Definition
Tenant	<p>Every client organization or customer that participates in Multi-Tenancy enabled server or service as consumer is called as Tenant. A tenant is the context within which system objects such as users and machine images are created.</p> <p>A customer can be an organization, a department within an organization, or even a single person. At least one customer needs to be created per site.</p>
User	A user is an entity that can make requests. Each user is associated with one customer. User names are unique within a specific customer, and customer names are unique within the system as a whole.
Shape	<p>A virtual machine's shape refers to a definition of the number of CPUs assigned to the virtual machine, the amount of RAM made available to it, and the relative amount of I/O it processes. Shapes are used to characterize combinations of these resources so that end-users can specify resource requirements for placement of their instances.</p>
Image List	An image list is a list of machine images. Machine images can be added to an image list to create a versioned selection of related machine images recording the versions of the image over its lifetime.
Infiniband	InfiniBand offers point-to-point bidirectional serial links intended for the connection of processors with high-speed peripherals such as disks. On top of the point to point capabilities, InfiniBand also offers multicast operations. In Exalogic system, all the components are inter-connected by Infiniband network.
Oracle Compute Template	An Oracle Compute template is a copy of a virtual hard disk with an installed operating system used to launch a virtual machine instance. It is a whole disk image (including a partition table and a kernel) stored in a tar archive, compressed with gzip.
Orchestration	Orchestration is the automated management of your system components for high availability, monitoring, and persistence. An orchestration ties together the components you create into a single, manageable collection.
Launch Plan	A launch plan defines the configuration settings for one or more VM instances.

30.3 Getting Started

This section lists the tasks that must be performed before you can discover an Oracle Compute site and set it up for self service users.

Table 30–2 Setting Up the Service Family

Step	Task	Role
1	Deploy the necessary plug-ins. See Section 3.2, "Deploying the Required Plug-ins"	Cloud Administrator
2	Define roles for administrators and self service users. See Section 3.3, "Defining Roles and Assigning Users" .	Super Administrator

30.4 Discovering the Oracle Compute Site

Prerequisites

- The Enterprise Manager for Oracle Virtual Infrastructure plugin must be deployed on the Oracle Management Service and the Management Agent.

Additional Configuration

- Run the following commands on the Management Agent monitoring the Oracle Compute targets:

```
<AGENT_INST_HOME>/bin/emctl setproperty agent -allow_new -name _
disableLoadDPFfromCache -value true
```

```
<AGENT_INST_HOME>/bin/emctl setproperty agent -allow_new -name
agentJavaDefines -value "-Xmx512M -XX:MaxPermSize=96M"
```

- If the Oracle Compute site discovery has been disabled, you must enable it with the following command:

```
<OMS_HOME>/bin/emctl register oms metadata -sysman_pwd <sysman_pwd>
-pluginId oracle.sysman.vi -service discovery -file <VI_OMS_PLUGIN_
HOME>/metadata/discovery/vi_discovery.xml.nimbula
```

- Optionally, if you need to access the VNC console of the virtual machine, you must download the VncViewer.jar and copy it to the following location on all OMSes.

```
<OMS_HOME>/sysman/archives/emgc/deployments/EMGC_DOMAIN/emgc.ear/em.war
```

Before you copy the jar file, ensure that the host machine has access to the Hypervisor on which the Oracle Virtual Server is running.

30.4.1 Discovering the Oracle Compute Site and Its Associated Targets

The top level target in Oracle Compute hierarchy is the **Oracle Compute Site**. A site is a location running Oracle Compute Clusters where one or more clusters make up an Oracle Compute site. To discover and register the Oracle Compute site, follow these steps:

1. Log in to Enterprise Manager as a user with the CLOUD_ADMIN role.
2. From the **Setup** menu, select **Add Targets**, then select **Add Targets Manually**.
3. In the Add Targets Manually page, select **Add Targets Using Guided Process**, then select **Oracle Compute Site** from the drop down list and click **Add Using Guided Process.....** The Register Oracle Compute Site appears:

Figure 30–1 Register Oracle Compute Site

Register Oracle Compute Site Page Refreshed May 1, 2015 5:36:15 PM PDT

Register an existing installation of Oracle Compute Site with Oracle Enterprise Manager. Make sure that a connection can be established using the specified URL.

Site Details

* Target Name

Associated Exalogic Target

* Monitoring Agent

Failover Monitoring Agent

Service Manager Endpoint URL

Credentials

Oracle Compute Credentials

* Endpoint URL

* User Name

* Password

☒ **Tip** Add Oracle Compute Site's security certificate to the agent's keystore to perform discovery.

Other Credentials

SNMP V3 Credentials

User Name

Authorization Password

Authorization Protocol

Privacy Password

☒ **Tip** Setting SNMP Credentials will facilitate faster status updates for the Oracle Compute Targets.

4. Enter the registration details in the following regions:

■ **Site Details**

- Target Name: The name to be used for the Oracle Compute site being created.
- Associated Exalogic Target: Select the Exalogic target that is to be associated with the Oracle Compute Site. You will see the Exalogic target only if has been discovered. For details on discovering the Exalogic target, see, <to provide the link>.
- Monitoring Agent: The default Management Agent that is to be used to monitor the Oracle Compute site and the associated targets.
- Failover Monitoring Agent: If the Monitoring Agent is down, the agent specified here will be used.
- Service Manager Endpoint URL:

■ **Oracle Compute Credentials**

- Endpoint URL: The API Endpoint URL of the existing Oracle Compute installation. This is the URL to which you submit HTTP requests or commands. To discover the Oracle Compute target, you must ensure that the Oracle Compute Site security certificate has been added to the Monitoring Agent keystore.
- User Name: The user name required to access the Endpoint URL. This field is used information only.
- Password: The password required to access the Endpoint URL. Click **Test Connection** to test the site credentials.

■ **Other Credentials**

- SNMP V3 Credentials: Specify the SNMP credentials to facilitate faster status updates for the Oracle Compute targets. Enter the user name, authorization password, and the privacy password.

5. Click **Continue**. The Oracle Compute site is discovered along with the targets in the following hierarchy:

- Oracle Compute Cluster
- Oracle Server
- Oracle Virtual Platform
- Oracle Virtual Server

After the Oracle Compute site has been discovered, to view the Oracle Compute Site Home page, from the **Targets** menu, select **All Targets**, then click on the Oracle Compute Site target under **Groups, Systems, and Services**. The newly added Oracle Compute Site will now be one of the resource providers for the Oracle Compute service family.

30.4.2 Importing the Site Certificate

When using Enterprise Manager and a Secure Socket Layer (SSL) protocol to discover and monitor the Oracle Compute Site, the Secure Certificate must be imported before a secure communication link can be established. The Management Agent maintains a Java Keystore (JKS) truststore containing certificates of Certification Authorities (CAs) that it can trust or self signed certificates when establishing a secure connection.

The JKS Agent truststore is available at the following location:

```
$ORACLE_HOME/sysman/config/montrust/AgentTrust.jks
```

where ORACLE_HOME is the Management Agent's instance home.

To download the certificate (CA Certificate or Root Certificate), follow these steps:

1. Open a browser window and enter the site URL in the address window.
2. Expand by clicking on **I Understand the Risk** and click **Add Exception**.
3. Under **Certificate Status** click the **View** button on the right hand side.
4. Click the **Details** tab. In the left hand side bottom column, click **Export**.
5. Save the certificate at your desired location with desired filename.

After downloading the certificate, you must update the Agent truststore (AgentTrust.jks). If a signed certificate from a self signed CA is being used on the Oracle Compute site, then the Root CA certificate for this must be added to JKS Agent truststore so that Management Agent can discover and monitor these Oracle Compute sites. To update the AgentTrust.jks, enter the following command:

```
emctl secure add_trust_cert_to_jks -password <password> -trust_certs_loc  
<loc> -alias <alias>
```

where:

- password is the password for the AgentTrust.jks (if not specified, you will be prompted for the password at the command line)
- trust_certs_loc is the location of the certificate file to be imported.
- alias is the alias of the certificate to be imported.

For example: `emctl secure add_trust_cert_to_jks -password welcome -trust_certs_loc /home/asaral/certs/emdev1_nimbula.crt -alias emdev1_nimbula`

Setting Up the Oracle Compute Self Service Portal

This chapter describes how to set up and configure an Oracle Compute Site for self service users. It contains the following sections:

- [Setting Up the Oracle Compute Site](#)
- [Creating a Tenant](#)
- [Creating a Shape](#)
- [Defining Quotas](#)
- [Managing Oracle Compute Templates](#)
- [Creating an Orchestration Service Template](#)
- [Mapping Enterprise Manager Roles to Oracle Compute Roles](#)

31.1 Setting Up the Oracle Compute Site

After you have discovered the Oracle Compute site, you must configure it for self service users by defining tenants, configuring shapes, quota, templates, and so on.

To set up the Oracle Compute site, follow these steps:

1. Create tenant administrators and users. See [Section 31.2, "Creating a Tenant"](#) for details.
2. Configure shapes. See [Section 31.3, "Creating a Shape"](#) for details.
3. Define quotas. See [Section 31.4, "Defining Quotas"](#) for details.
4. Upload Oracle Compute templates. See [Section 31.5, "Managing Oracle Compute Templates"](#) for details.
5. Set up an orchestration template. See [Section 31.6, "Creating an Orchestration Service Template"](#)
6. Associate Enterprise Manager roles with Oracle Compute roles. See [Section 31.7, "Mapping Enterprise Manager Roles to Oracle Compute Roles"](#)
7. Configure request settings. See [Section 11.2.3, "Configuring Request Settings"](#)
8. Set up the charge plan. See [Section 43.2, "Setting Up Chargeback"](#).

31.2 Creating a Tenant

A tenant (or a customer) is the context or framework within which system objects such as users and templates are created. In an enterprise, a tenant can be an organization, a department within an organization, or even a single person. Each Oracle Compute site must contain at least one tenant.

Before you create a tenant, you must do the following:

- Estimate the resource quotas to be allocated for the tenant
- Identify the tenant users and tenant administrators

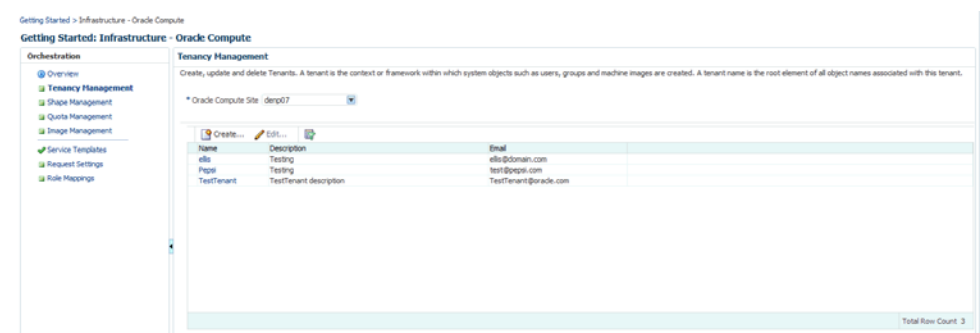
The quota for the vCPUs, memory, and storage resources can be defined during the tenant creation process. If the tenant does not have the required resources, then the Tenant Users cannot create and run instances in the tenant.

The cloud administrator can create one or more tenants in a selected Oracle Compute site. Each tenant can be associated with one or more tenant administrators and tenant users.

To create a tenant, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. From the **Oracle Cloud** menu, select **Getting Started**, then click on the **Setup** link next to the Infrastructure - Oracle Compute service family in the left panel.
4. Click **Tenancy Management** and select an Oracle Compute Site from the drop down list. Tenants that have already been created for the selected site are listed.

Figure 31–1 Tenancy Management



5. Click **Create**. The Create Tenant window appears.

Figure 31–2 Create Tenant

6. Enter the name, password, description, and email address of the tenant administrator.
7. In the Enable Access to Service Networks region, select one or all of the following:
 - OMS Service Name: Select this option to enable VM instances created by the tenant to be monitored by Enterprise Manager.
 - Instance Storage Service Network: Select this option to enable VM instances created by the tenant to access the ZFS storage pool.
 - Service Manager Network: Select this option to enable access to the Platform Service Manager network.
8. In the Quota region, you can select:
 - Default: If you select this option, the default quota will be assigned to this tenancy.
 - Custom: If you select this option, you can define a custom quota that will be available to the tenancy. You can specify the following criteria:
 - Templates: Specify the number of images and the size.
 - Oracle Compute: Specify the number of VM instances, number of vCPUs, and total memory that will be available to all users in this tenancy. You can also set quotas on the number of instances allowed by specifying restrictions which can be comma separated key value pairs. For example, if you specify `os_license=20`, the number of VM instances launched off machine images with `os_license` as attribute key cannot be greater than 20.
 - Storage: Specify the storage volume size that will be available to all users in this tenancy.
 - Network: Specify the number of IP addresses that can be reserved from the VNET that is available to the tenancy.
9. Click **Create**. The newly created tenant will appear on the Tenancy Management page and the quota created for the tenant will appear on the User Management: Quotas page. See Defining the Quota for details. After the tenant has been created, the cloud administrator or the self service administrator can create tenant administrators and tenant users under each tenancy. See <Creating Users>

31.2.1 Editing a Tenant

Select a tenancy from the list displayed on the Tenancy Management page and click **Edit**. The Edit Tenant window appears. You can modify all the details of the tenancy except for the name of the tenant. After modifying the tenancy details, click **Edit** to confirm the changes and return to the Tenancy Management page.

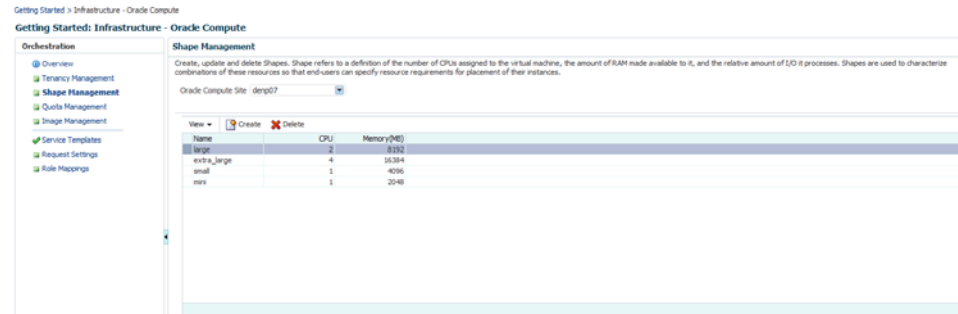
31.3 Creating a Shape

A shape refers to the characteristics of a virtual machine that include the number of CPUs assigned to the virtual machine, the amount of RAM available, and the relative number of I/O processes. Each shape is combination of these characteristics and can be used by tenant users while requesting virtual machines. While defining a shape, you need to consider the capacity of your machines and the anticipated workload of the instances.

To create a shape, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. From the **Oracle Cloud** menu, select **Getting Started**, then click on the **Setup** link next to the Infrastructure - Oracle Compute service family in the left panel.
4. Click **Shape Management** and select an Oracle Compute Site from the drop down list. Shapes that have already been created for the selected site are listed.

Figure 31–3 Shape Management



5. Click **Create**. The Create Compute Machine window appears. Enter the name, description, number of CPUs, memory, and the relative number of IO processes that can be allocated to the virtual machine.
6. Click **Create**. The newly created shape will appear on the Shape Management page.

31.4 Defining Quotas

The administrator (cloud administrator or self service administrator) can define quota on system resources such as templates, instances, storage and networks. Quotas on system resources are enforced only when the administrator explicitly sets them. When a tenant is created, if a custom quota setting is not defined, the default quota setting is assigned to the tenant. Any quota settings defined while creating the tenant can be modified on the User Management: Quotas page.

To edit a quota setting, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home** and navigate to the Oracle Compute Site Home page.
3. From the **Oracle Compute Site** menu, select **User Management**, then select **Quota**. The User Management: Quotas page appears. The quota settings assigned to each tenant are displayed. You can choose to view the quota by **Usage** or by **Allowance** by selecting the appropriate option from the **View** drop down list.

Figure 31–4 Quota Management

Name	Description	Templates Number	Size (MB)	VM Instances	vCPUs	Memory (MB)	Restrictions	Storage Total Volume (MB)	Network Reservations
beta1	Default quota for "beta1"	1000	1024000	50000	25000	1024000		1024000	100
default	The default quota								
kcontrol	Default quota for "kcontrol"								
jelo	Default quota for "jelo"								
jreps	The default quota	3		5	4	2		2000	
TestTenant	Default quota for "TestTenant"								

Total Row Count: 6

4. Select a quota that you wish to modify and click **Edit**. The Edit Quota window appears.
5. You can modify the description of the quota and the following criteria:
 - **Templates:** Specify the number of images and the size.
 - **Oracle Compute:** Specify the number of VM instances, number of vCPUs, and total memory that will be available to all users in this tenancy. You can also set quotas on the number of instances allowed by specifying restrictions which can be comma separated key value pairs. For example, if you specify `os_license=20`, the number of VM instances launched off machine images with `os_license` as attribute key cannot be greater than 20.
 - **Storage:** Specify the storage volume size that will be available to all users in this tenancy.
 - **Network:** Specify the number of IP addresses that can be reserved from the VNET that is available to the tenancy.
6. Click **Edit** to modify the quota and return to the User Management: Quotas page.

31.5 Managing Oracle Compute Templates

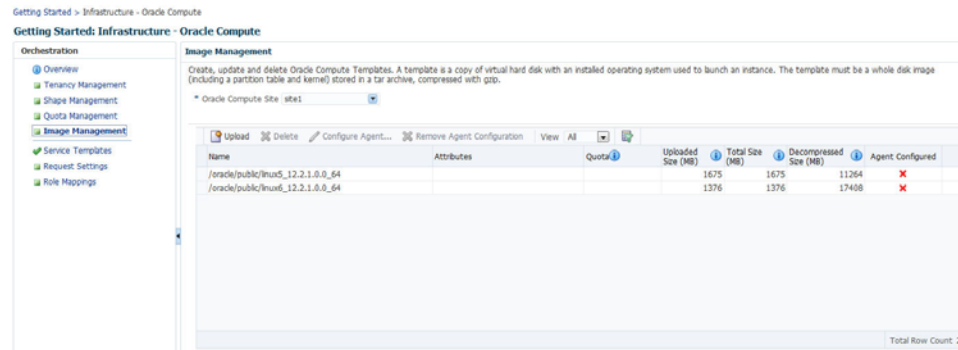
An Oracle Compute template is a copy of a virtual hard disk with an installed operating system used to launch a virtual machine instance. It is a whole disk image (including a partition table and a kernel) stored in a tar archive, compressed with gzip. Templates can be versions of Linux (such as Red Hat or Ubuntu), Microsoft Windows, or other operating systems.

To upload a template, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home** and navigate to the Oracle Compute Site Home page.

- From the **Oracle Compute Site** menu, select **Image Management**. You will see a list of templates that have been uploaded either from the Software Library or from a local disk.

Figure 31–5 Image Management



- Click **Upload**. The Template Management: Upload Template window appears. While uploading the image, the Template Scope can be:
 - Public:** The image will be available to all the users. If you select this option, enter the name of the image in the Name field.
 - Tenant:** The image will be available only to users belonging to the selected tenancy. If you select this option, select the Tenant in the Name drop down field and specify the name of the template. The image will be available to all users in the selected tenancy.
- Specify any additional attributes that will be used when the service instance is provisioned.
- In the Select Template field, select the image that is to be uploaded. The image you upload can either be present in your local disk or from the Software Library.
- Click **Upload** to upload the template. The newly uploaded image will appear on the Image Management: Compute Templates page with the following details:
 - Name:** The name of the image. If the image is available to all users, the format of the name is `/oracle/public/<image_name>`. If the image is available only to users belonging a selected tenancy, the format is `<tenant_name>/public/<image_name>`.
 - Attributes:** Any user defined attributes that were specified when the image was uploaded.
 - Quota:** The quota specified for the image.
 - Uploaded Size:** The size of the image that has been uploaded.
 - Total Size:** The total size of the image.
 - Decompressed Size:** the size of the image in its decompressed state.
 - Agent Configured:** Indicates if the Management Agent has been configured for this image. See Configuring the Management Agent.

31.5.1 Configuring the Management Agent

You can specify the details of the Management Agent that is to be associated with an image list. To configure the agent, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMIN` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Compute Home**. The Compute Cloud page appears.
3. From the Oracle Compute Cloud menu, select **Resource Providers** and click on an Oracle Compute Site from the list. The Oracle Compute Cloud page appears.
4. From the **Oracle Compute Cloud** menu, select **Image Management**. The Image Management page with a list of templates is displayed.
5. Select a template from the list and click **Configure Agent**. Specify the following details:
 - Agent Configuration Type: Select Fresh or Shared.
 - Installation Base Directory: If you selected **Fresh**, specify the base directory on the host machine on which the Management Agent is to be installed.
 - Shared Agent: If you selected **Shared** as the Agent Configuration Type, enter the name of the shared agent.
 - Oracle Home: If you have selected Shared as the Agent Configuration Type, specify the location of the shared Oracle Home of the existing Management Agent.
 - Platform: Select the platform on which it is to be installed.
 - Instance Directory: Specify the Instance Directory for the Oracle Home.
 - Username & Password: Specify the credentials required to access the agent.
 - SSH Timeout: The SSH timeout period for Guest Virtual Machine communication during deployment.
 - Privilege Delegation Settings: Specify any privilege delegation settings.
6. Click **OK** to configure the agent and return to the previous page.

31.6 Creating an Orchestration Service Template

Prerequisites

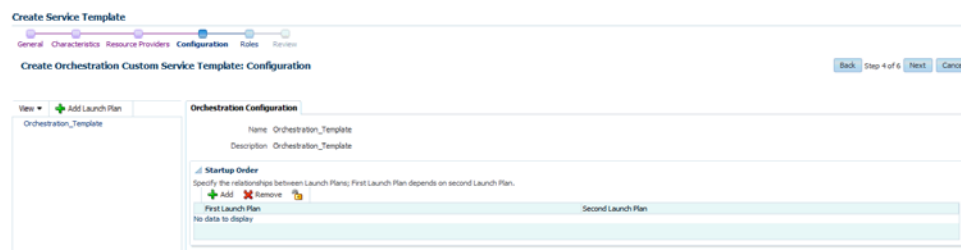
- One or more Oracle Compute sites must have been discovered.
- One or more Oracle Compute templates must be available.

Orchestration is the automated management of your system components for high availability, monitoring, and persistence. An orchestration ties together the components you create into a single, manageable collection. For example, with orchestration you can associate networks, network security, and storage with the instantiation of a virtual machine. The administrator can create orchestration service templates that can be used to create Oracle Compute service instances. To create a service template, follow these steps:

1. Log in as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. From the **Oracle Cloud** menu, select **Getting Started**, then click on the **Setup** link next to the Infrastructure - Oracle Compute service family in the left panel.

4. Click **Service Templates**, then click **Create**. The Create Service Template window appears.
5. Select the Orchestration service type, then select Orchestration Custom Service Template and click **Create** to launch the Create Orchestration Custom Service Template wizard.
6. Enter the name and description for the template and click **Next**.
7. In the Characteristics page, enter the target properties such as contact, cost center, lifecycle status, and so on. These properties or characteristics will be applied to the instance as target properties when the service instance is created. Click **Next**.
8. In the Resource Providers page, click **Add** and select an Oracle Compute Site into which the service instances are to be provisioned.
9. Click **Next**. The Configuration page appears.

Figure 31–6 Create Orchestration Service Template: Configuration



An Orchestration Template can be associated with one or more launch plans. Click **Add Launch Plan** to create a new launch plan. See [Section 31.6.1, "Creating a Launch Plan"](#) for details.

10. After defining one or more launch plans, you can configure the relationship between the launch plans by selecting the order in which the launch plans are to be executed. Select the Orchestration Template link on the left panel. In the Orchestration Configuration page, click **Add** in the Startup Order region and select the order for the launch plans. Click **Next**.
11. In the Roles page, click **Add** and select the roles to which the service template is to be available. Click **Next**.
12. In the Review page, review the template details and click **Submit** to create the Orchestration template.

31.6.1 Creating a Launch Plan

A launch plan defines the configuration settings for one or more VM instances. In the Launch Plan window, enter a name for the launch plan and click **Add**. The launch plan name you entered appears under the Orchestration Template header in the launch panel. Click on the launch plan name to specify the configuration details.

Figure 31–7 Launch Plan Configuration



- **Launch Plan Configuration:** Specify the following details.
 - High Availability: You can specify a high availability policy for an orchestration, which affects how the orchestration is managed by the system. This can be:
 - * No High Availability: If you choose this option, the orchestration components are neither restarted nor monitored.
 - * Active: The components defined by the orchestration are restarted if they stop unexpectedly due to causes such as power failure and node disconnection.

Note: A component will not be restarted if it is stopped due to an operator error such as an instance relaunch or an invalid image list or shape. In this case, the status of an orchestration will reflect the error, but the components will not be recreated. The reported operator error must be fixed and the orchestration restarted.

 - * Monitor: The components are not restarted, they are only monitored.
 - Deploy on Different Nodes: Select this check box to deploy the launch plan on different nodes.
- **Common Settings:** Click this tab to define the default settings that will be used for all VM instances in this launch plan. The default setting can be overridden at the VM instance level.

Figure 31–8 Common Settings

Launch Plan Configuration: Common Settings

Common settings will be used as default setting for all VM instances in this Launch Plan. They can be overridden at VM instance level.

* Oracle Compute Template

Shape: large (CPU: 2, RAM: 8192MB)

☒ Configure VM Agent

Credentials

Set SSH keys for password-less access to VM instances and host credentials for VM agent deployment.

Oracle SSH Key: Use Preferences

Root SSH Key: Use Preferences

Set Oracle user and Root user password.

Oracle User Credential: Use Preferences

Root User Credential: Use Preferences

Network Configuration

Specify one or more network interfaces to be attached to Oracle VM Instance. At least one network interface must be configured.

Name	Type	Default Gateway	Symmetric Routing	Provider Role
jcloudpublic/eth0-CM5	eth0 VLAN 72	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
jcloudpublic/net (pull-instance-storage)	iSCSI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Domain Name System (DNS) Configuration

Domain Name System (DNS) Configuration

Servers

Search Domains

Specify the following details:

- Oracle Compute Template: A template is a copy of virtual hard disk with an installed operating system used to launch an instance. The template must be a whole disk image (including a partition table and kernel) stored in a tar archive, compressed with gzip. Click the **Search** icon and select a template from the list. If you click the **Lock** icon to lock the template, the tenant administrator or tenant user cannot change the template while provisioning the service instance.
- Shape: A shape is a combination of CPU, memory, and IO which define the characteristics of a virtual machine. Select a shape from the drop down list. If you click the **Lock** icon to lock the shape, the shape cannot be changed by the tenant administrator or tenant user while provisioning the service instance.

- Configure EM Agent: Select this checkbox to add EoIB and IPoIB storage networks to the network table.
- Credentials: You can set the SSH key credentials for password-less access to VM instances and host credentials for deploying the Management Agent. You can use:
 - * Oracle SSH Key: If SSH key credentials have been set, and can be used as preferred credentials, select **Use Preferences** and choose the credential set from the drop down box. If you select **Enter Key**, you must specify the SSH public and private key pair required to access the VM instances. If you select **Key** is in a file, click **Browse** and select the public / private key from a file.
 - * Root SSH Key: If SSH key credentials have been set for the host, and can be used as preferred credentials, select **Use Preferences** and choose the credential set from the drop down box. If you select **Enter Key**, you must specify the SSH public and private key pair required to access the VM instances. If you select **Key is in a file**, click **Browse** and select the public / private key from a file.
 - * Oracle User: If you select Use Preferences, choose the preferred credentials from the drop down box. If you select Enter Password, you must enter the password for the Oracle user.
 - * Root User: If you select Use Preferences, choose the preferred credentials from the drop down box. If you select Enter Password, you must enter the password for the root user.
- Network Configuration: Click **Add** to select one or more network interfaces that will be associated with the VM instances. A network can be an IPoIB or EoIB network. In the Select Network window, you can choose:
 - * Tenant Networks: These are networks configured for each tenant to communicate with other servers within Exalogic or outside Exalogic.
 - * Service Networks: These are networks configured to communicate with other service providers such as ZFSSA or Exadata systems.

For external network interfaces, you can select one or all of the following:

 - * Default Gateway: The selected network will be configured as the default gateway network.
 - * Symmetric Routing: If this option is selected, the reply packets are routed through the same network interface on which the vNet IP packets were received.
 - * Provider Role: *** need info ***

After adding the network, you can select the network and click the **Lock** icon to lock the network configuration.
- Domain Name System (DNS) Configuration: Specify the DNS configuration for the network.
 - * Servers: Enter a comma separated list of DNS servers for the selected network.
 - * Search Domains: Enter a comma separated list of DNS Search Domains for the selected network.
- Network Information Service (NIS) Configuration

- * NIS Domain Name: Enter the NIS Domain Name for the selected VM instance.
- * Network Information Services (NIS) Server: Click **Add** to add an NIS server. Enter the name and IP address of the NIS server and click **Add** to add the NIS server.
- Storage Configuration: You can associate one or more storage volumes to the VM instances that are to be created. Click **Create**. In the Create Storage Volumes window, enter the name of the storage volume, size, the number of volumes to be created and click **Add**. You can then click the **Lock** icon and lock of the storage volume.
- Advanced Configuration: You can optionally specify additional attributes for the VM instances. Click **Add** to add a key and value for the attribute.
- After you have created the launch plan, you can add one or more VM instances that can use the launch plan. Select the launch plan you have created and click **Add VM Instance**. In the Add VM Instance window, specify the name and number of VM instances to be created. If you are adding more than one instance, the name you specify will be used as a prefix to generate a unique name for each VM instance.

You can define configuration settings at the instance level and override the settings defined at the launch plan level. To define instance level specific configuration settings, select the VM instance from the left panel. The Oracle VM Instance Configuration page appears. To define instance level settings, select the **Override Common Settings** checkbox to override the default launch plan level settings. Select the Oracle Compute Template, Shape, and specify the Network, and Storage Configuration.

In the Advanced Configuration region, you can optionally specify additional attributes. Click **Add**. In the Add Attributes window, specify the key and value for the attribute. In the Tags field, you can enter tags to identify the instance deployment request.

In the Optional Network Configuration region, you can specify additional configuration parameters for the network defined in the Network Configuration region. You can specify a list of DNS servers, configure the network as the default gateway network, and configure the VM instance as a provider on the underlying selected service network.

31.7 Mapping Enterprise Manager Roles to Oracle Compute Roles

You can associate an Enterprise Manager role with an Oracle Compute role. To define a role mapping, follow these steps:

1. Log in as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. From the **Oracle Cloud** menu, select **Getting Started**, then click on the **Setup** link next to the Infrastructure - Oracle Compute service family in the left panel.
4. Click **Role Mappings**. In the Role Mappings page, from the drop down list, select the Oracle Compute Site in which the role mappings are to be defined.
5. Click **Create**. In the Create Role Mapping window, select the Enterprise Manager role and the Oracle Compute role with which it should be associated and click **Add** to create the role mapping.

Using Oracle Compute

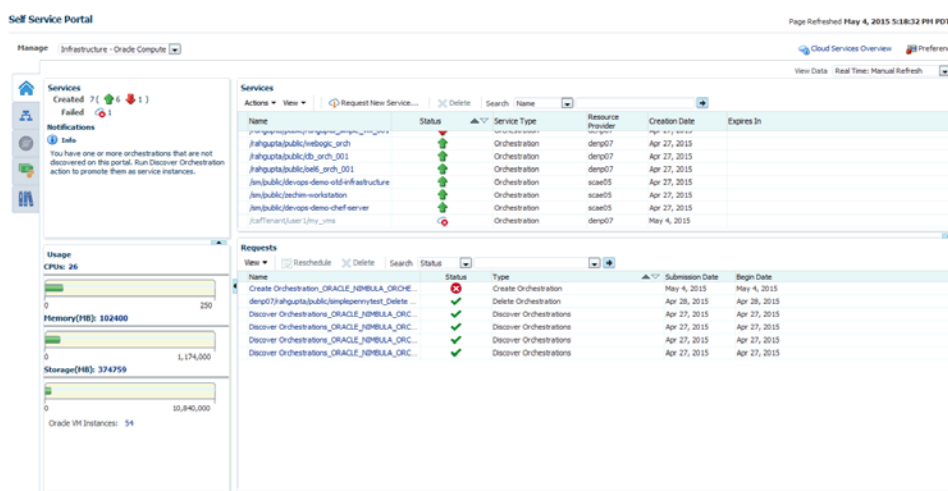
This chapter provides self service users with instructions on using the Oracle Compute Self Service Portal to request, monitor, and manage Oracle Compute instances. It contains the following sections:

- [Using the Oracle Compute Self Service Portal](#)
- [Creating a New Orchestration](#)
- [Viewing the Orchestration Details](#)
- [Creating Networks](#)
- [Creating Storage Volumes](#)
- [Managing the Library](#)
- [Discovering an Orchestration](#)

32.1 Using the Oracle Compute Self Service Portal

To navigate to the Oracle Compute Self Service Portal page, login as a user with the EM_SSA_USER role. The Self Service Portal page is displayed. Select **Infrastructure - Oracle Compute** from the drop down list. The following page appears:

Figure 32–1 Oracle Compute Self Service Portal



It contains the following tabs:

- **Home:** The Home page contains the following regions:
 - **Services:** This region shows the list of instances that have been created and the status indicating whether they are Up or Down.
 - **Notifications:** In this region, you will see notifications such as orchestrations that have not been discovered, number of service offerings published in the last 7 days, and so on.
 - **Usage:** Click the **Usage** icon to view the total quota (servers and memory) used so far by the self service user, including all the services that the user has created. Your quota includes both the number of Oracle VM instances, CPUs, memory, and storage across all your instances.
 - **Services:** This region shows the list of Oracle VM instances owned by the self service user. For each service, the name of the service, the status, service type, resource provider, and date on which it was created, and the date on which it is scheduled to expire is displayed. You can also see the services for which you have granted privileges. You can do the following:
 - **Request New Service:** To create an orchestration, click **Request New Service**. See [Creating a New Orchestration](#).
 - **View a Service:** Click on the Name link to drill down to the VM Instance Home page.
 - **Delete a Service:** Select a service from the table and click **Delete**. A confirmation message is displayed. Click **Yes** to delete the instance.
 - **Start a Service:** Select a service instance from the table and click **Start**. A request is submitted to start the service.
 - **Stop a Service:** Select a service instance from the table and click **Stop**. A confirmation message is displayed. Click **Yes** to submit a request to stop the service.
 - **History:** Select a service instance and click **History** to view the history of operations performed on the service instance.
 - **Discover:** Select this option to discover any orchestrations and promote them as service instances.
 - **Grant:** You can grant view or full privileges over the service instance to other users or roles. See [Granting and Revoking Privileges](#).
 - **Revoke Privileges:** You can revoke privileges you have granted to other users or roles.
 - **Requests:** This region shows a list of Start Orchestration, Discover Orchestration, and Service Deletion requests. For each request, the status, type, start date, and submission date of the request is displayed. Select columns from the View menu to view more details about the request. You can select a scheduled request and click Reschedule to reschedule the request. To delete a scheduled request, select the request and click Cancel. If a request that is scheduled such as Create gets canceled, all other associated requests are also canceled.
- **Networks:** See [Section 32.4, "Creating Networks"](#).
- **Storage:** See [Section 32.5, "Creating Storage Volumes"](#).
- **Chargeback:** See [Section 43, "Chargeback Administration"](#).
- **Library:** See [Section 32.6, "Managing the Library"](#).

32.2 Creating a New Orchestration

To create a set of Oracle VM instances with a customized configuration, you must create a new orchestration by following these steps:

1. Click **Request New Service** in the Infrastructure Oracle Compute Self Service Portal page.

Note: When you log in for the first time, you must set the Oracle Compute Credentials. Click the **Preferences** link the top right corner of the page. The Preferences window appears. Click on the Infrastructure: Oracle Compute link in the left panel. Click **Set** in the Oracle Compute Site Credential region and enter the username and password required to access the Oracle Compute Site. Optionally, you can specify the host credentials for deploying the Management Agent.

2. Select the **Orchestration Service Template** from the Service Catalog. The Request Orchestration wizard appears.

Figure 32–2 Request Orchestration: General

3. Select the Oracle Compute Site in which the VM instances are to be created.
4. Enter a name for the orchestration and specify a description.
5. If any orchestration has been saved either as a deployment plan or as a JSON file, you select it here. If no saved orchestrations are available, click **Next** to continue. The Deployment Configuration page appears.
6. On this page, you can specify the configuration for the different components of your orchestration using one or more launch plans. A launch plan defines the configuration settings for one or more VM instances. In the Launch Plan window, enter a name for the launch plan and click **Add**. The launch plan name you entered appears under the Orchestration Template header in the launch panel.
7. Click on the **Launch Plan Configuration** tab. Enter the following details:
 - **High Availability:** You can specify a high availability policy for an orchestration, which affects how the orchestration is managed by the system. This can be:
 - No High Availability: If you choose this option, the orchestration components are neither restarted nor monitored.
 - Active: The components defined by the orchestration are restarted if they stop unexpectedly due to causes such as power failure and node disconnection.

Note: A component will not be restarted if it is stopped due to an operator error such as an instance relaunch or an invalid template list or shape. In this case, the status of an orchestration will reflect the error, but the components will not be recreated. The reported operator error must be fixed and the orchestration restarted.

- **Monitor:** The components are not restarted, they are only monitored.
 - **Deploy on Different Nodes:** Select this check box to deploy the launch plan on different nodes.
8. Click on the **Common Settings** tab to define the default settings that will be used for all VM instances in this launch plan. The default setting can be overridden at the VM instance level.

Figure 32–3 Request Orchestration: Deployment Configuration

Specify the following details:

- **Oracle Compute Template:** A template is a copy of virtual hard disk with an installed operating system used to launch an instance. The template must be a whole disk template (including a partition table and kernel) stored in a tar archive, compressed with gzip. Click the **Search** icon and select a template from the list.
- **Shape:** A shape is a combination of CPU, memory, and IO which define the characteristics of a virtual machine. Select a shape from the drop down list.
- **Configure EM Agent:** This checkbox will be disabled if the self service user does not have access to the EoIB OMS and IPoIB instance storage networks that are required to deploy the management agent on virtual machines.
- **Credentials:** You can set the SSH key credentials for password-less access to VM instances and host credentials for deploying the Management Agent. You can use:
 - * **Oracle SSH Key:** If SSH key credentials have been set, and can be used as preferred credentials, select **Use Preferences** and choose the credential set from the drop down box. If you select **Enter Key**, you must specify the SSH public and private key pair required to access the VM instances. If you select **Key** is in a file, click **Browse** and select the public / private key from a file.
 - * **Root SSH Key:** If SSH key credentials have been set for the host, and can be used as preferred credentials, select **Use Preferences** and choose the

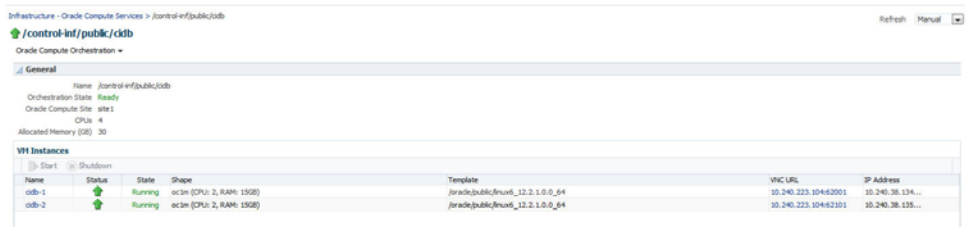
credential set from the drop down box. If you select **Enter Key**, you must specify the SSH public and private key pair required to access the VM instances. If you select **Key is in a file**, click **Browse** and select the public / private key from a file.

- * **Oracle User:** If you select Use Preferences, choose the preferred credentials from the drop down box. If you select Enter Password, you must enter the password for the Oracle user.
 - * **Root User:** If you select Use Preferences, choose the preferred credentials from the drop down box. If you select Enter Password, you must enter the password for the root user.
 - **Network Configuration:** Click **Add** to select one or more network interfaces that will be associated with the VM instances. A network can be an IPoIB or EoIB network. In the Select Network window, you can choose:
 - * **Tenant Networks:** These are networks configured for each tenant to communicate with other servers within Exalogic or outside Exalogic.
 - * **Service Networks:** These are networks configured to communicate with other service providers such as ZFSSA or Exadata systems.
 - **Storage Configuration:** You can associate one or more storage volumes to the VM instances that are to be created. Click **Create**. In the Create Storage Volumes window, enter the name of the storage volume, size, select the storage properties, and the number of volumes to be created and click **Add**.
 - **Advanced Configuration:** You can optionally specify additional attributes for the VM instances. Click **Add** to add a key and value for the attribute.
9. After you have created the launch plan, you can add one or more VM instances that can use the launch plan. Select the launch plan you have created and click **Add VM Instance**. In the Add VM Instance window, specify the name and number of VM instances to be created. If you are adding more than one instance, the name you specify will be used as a prefix to generate a unique name for each VM instance. You can define configuration settings at the instance level and override the settings defined at the launch plan level.
- To define instance level specific configuration settings, select the VM instance from the left panel. The Oracle VM Instance Configuration page appears. To define instance level settings, select the Override Common Settings checkbox to override the default launch plan level settings. Select the Oracle Compute Template, Shape, Network, and Storage Configuration.
10. In the Advanced Configuration region, you can optionally specify additional attributes. Click **Add**. In the Add Attributes window, specify the key and value for the attribute. In the Tags field, you can enter tags to identify the instance deployment request.
11. In the Optional Network Configuration region, you can specify additional configuration parameters for the network defined in the Network Configuration region. You can specify a list of DNS servers, configure the network as the default gateway network, and configure the VM instance as a provider on the underlying selected service network. Click **Next**.
12. The Review page appears. Review the information entered so far and click **Submit** to submit the orchestration request or click **Save as Deployment Plan** to save the orchestration as a deployment plan that can be used for other orchestrations.

32.3 Viewing the Orchestration Details

To view the orchestration details, click on the **Name** link in the Services region of the Infrastructure - Oracle Compute Self Service Portal page.

Figure 32–4 Oracle Compute Orchestration Page



This page contains the following regions:

- **General:** This region shows the name of the Oracle Compute Site, the target name, the number of launch plans, CPU, and allocated memory.
- **VM Instances:** Lists the VM instances in the launch plan and the configuration for each VM instance which includes the status, shape, template, VNC URL, and IP address. Click on the VM Instance link to drill down to the VM Instance Home page. If the VM instance is up and running, select the VM Instance and click **Shutdown** to shut down the instance. If the VM instance is down, click **Restart** to restart the instance.

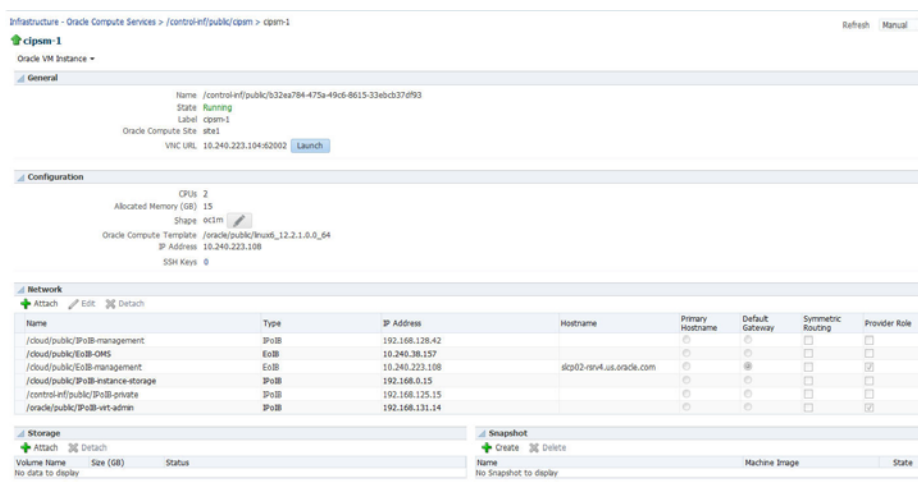
You can perform the following operations on this page:

- Start
- Stop
- Update
- Shutdown

32.3.1 Viewing the Oracle VM Instance Home Page

To view this page, click on the **Name** link in the VM Instances region in the Oracle Compute Orchestration Details page.

Figure 32–5 Oracle VM Instance Home Page



This page shows the detailed information for the VM instance. The name of the Oracle Compute Site with which this instance is associated, the number of CPUs, allocated memory, storage, networks, relative CPU utilization, and so on are displayed. You can do the following:

- **Attach Storage:** Use this option to attach storage to the VM instance. Select one or more storage volumes and specify an index for each volume. The index value must be between 1 and 10. Click **Attach** to attach the storage volume to the VM instance.
- **Detach Storage:** Select one or more storage volumes from the list and click **Detach** to detach storage from the VM instance.
- **Edit VM Instance:** Select this option to modify the shape and network configuration for the VM instance.
- **Launch VNC Console:** Select this option to launch a VNC Console.

32.4 Creating Networks

You can create network subnets that contain a range of VNet that can be reserved for VM instances. Click on the **Network** icon to navigate to the Networks page. You can create and edit tenant networks, view service networks, and reserve IP addresses in each network.

Figure 32–6 Oracle Compute Self Service Portal: Networks

The screenshot shows the 'Networks' page in the Oracle Compute Self Service Portal. It displays a list of subnets and an IP reservation table.

Subnet	Type	Description	CIDR	IP Ranges
/ten/public/oaas-igntest-1-private	ipib	Service unet network	10.196.96.0/21	10.196.96.29, 10.196.96.30, 10.196.96.31, 10.196.96.32, 10.196.96.33, 10.196.96.34, 10.196.96.35, 10.196.96.36, 10.196.96.37, 10.196.96.38, 10.196.96.39, 10.196.96.40, 10.196.96.41, 10.196.96.42, 10.196.96.43, 10.196.96.44, 10.196.96.45, 10.196.96.46, 10.196.96.47, 10.196.96.48, 10.196.96.49, 10.196.96.50, 10.196.96.51, 10.196.96.52, 10.196.96.53, 10.196.96.54, 10.196.96.55, 10.196.96.56, 10.196.96.57, 10.196.96.58, 10.196.96.59, 10.196.96.60, 10.196.96.61, 10.196.96.62, 10.196.96.63, 10.196.96.64, 10.196.96.65, 10.196.96.66, 10.196.96.67, 10.196.96.68, 10.196.96.69, 10.196.96.70, 10.196.96.71, 10.196.96.72, 10.196.96.73, 10.196.96.74, 10.196.96.75, 10.196.96.76, 10.196.96.77, 10.196.96.78, 10.196.96.79, 10.196.96.80, 10.196.96.81, 10.196.96.82, 10.196.96.83, 10.196.96.84, 10.196.96.85, 10.196.96.86, 10.196.96.87, 10.196.96.88, 10.196.96.89, 10.196.96.90, 10.196.96.91, 10.196.96.92, 10.196.96.93, 10.196.96.94, 10.196.96.95, 10.196.96.96, 10.196.96.97, 10.196.96.98, 10.196.96.99, 10.196.96.100, 10.196.96.101, 10.196.96.102, 10.196.96.103, 10.196.96.104, 10.196.96.105, 10.196.96.106, 10.196.96.107, 10.196.96.108, 10.196.96.109, 10.196.96.110, 10.196.96.111, 10.196.96.112, 10.196.96.113, 10.196.96.114, 10.196.96.115, 10.196.96.116, 10.196.96.117, 10.196.96.118, 10.196.96.119, 10.196.96.120, 10.196.96.121, 10.196.96.122, 10.196.96.123, 10.196.96.124, 10.196.96.125, 10.196.96.126, 10.196.96.127, 10.196.96.128, 10.196.96.129, 10.196.96.130, 10.196.96.131, 10.196.96.132, 10.196.96.133, 10.196.96.134, 10.196.96.135, 10.196.96.136, 10.196.96.137, 10.196.96.138, 10.196.96.139, 10.196.96.140, 10.196.96.141, 10.196.96.142, 10.196.96.143, 10.196.96.144, 10.196.96.145, 10.196.96.146, 10.196.96.147, 10.196.96.148, 10.196.96.149, 10.196.96.150, 10.196.96.151, 10.196.96.152, 10.196.96.153, 10.196.96.154, 10.196.96.155, 10.196.96.156, 10.196.96.157, 10.196.96.158, 10.196.96.159, 10.196.96.160, 10.196.96.161, 10.196.96.162, 10.196.96.163, 10.196.96.164, 10.196.96.165, 10.196.96.166, 10.196.96.167, 10.196.96.168, 10.196.96.169, 10.196.96.170, 10.196.96.171, 10.196.96.172, 10.196.96.173, 10.196.96.174, 10.196.96.175, 10.196.96.176, 10.196.96.177, 10.196.96.178, 10.196.96.179, 10.196.96.180, 10.196.96.181, 10.196.96.182, 10.196.96.183, 10.196.96.184, 10.196.96.185, 10.196.96.186, 10.196.96.187, 10.196.96.188, 10.196.96.189, 10.196.96.190, 10.196.96.191, 10.196.96.192, 10.196.96.193, 10.196.96.194, 10.196.96.195, 10.196.96.196, 10.196.96.197, 10.196.96.198, 10.196.96.199, 10.196.96.200, 10.196.96.201, 10.196.96.202, 10.196.96.203, 10.196.96.204, 10.196.96.205, 10.196.96.206, 10.196.96.207, 10.196.96.208, 10.196.96.209, 10.196.96.210, 10.196.96.211, 10.196.96.212, 10.196.96.213, 10.196.96.214, 10.196.96.215, 10.196.96.216, 10.196.96.217, 10.196.96.218, 10.196.96.219, 10.196.96.220, 10.196.96.221, 10.196.96.222, 10.196.96.223, 10.196.96.224, 10.196.96.225, 10.196.96.226, 10.196.96.227, 10.196.96.228, 10.196.96.229, 10.196.96.230, 10.196.96.231, 10.196.96.232, 10.196.96.233, 10.196.96.234, 10.196.96.235, 10.196.96.236, 10.196.96.237, 10.196.96.238, 10.196.96.239, 10.196.96.240, 10.196.96.241, 10.196.96.242, 10.196.96.243, 10.196.96.244, 10.196.96.245, 10.196.96.246, 10.196.96.247, 10.196.96.248, 10.196.96.249, 10.196.96.250, 10.196.96.251, 10.196.96.252, 10.196.96.253, 10.196.96.254, 10.196.96.255

IP Address	Name	Used
10.128.187.58	/ten/public/oaas-igntest-1-ib-vn-1-igntest	<input checked="" type="checkbox"/>
10.128.187.57	/ten/public/oaas-igntest-1-ib-vn-1-igntest1	<input checked="" type="checkbox"/>
10.128.187.53	/ten/public/oaas-igntest-1-ib-vn-2-igntest	<input checked="" type="checkbox"/>
10.128.187.59	/ten/public/oaas-igntest-1-ib-vn-2-igntest2	<input checked="" type="checkbox"/>
10.128.187.54	/ten/public/oaas-igntest-1-ib-vn-3-igntest	<input checked="" type="checkbox"/>
10.128.187.60	/ten/public/oaas-igntest-1-ib-vn-3-igntest1	<input checked="" type="checkbox"/>
10.128.187.55	/ten/public/oaas-igntest-1-ib-vn-3-igntest2	<input checked="" type="checkbox"/>

Click **Create** to create an IPoIB subnet for a tenant network. See

32.4.1 Creating IPoIB Subnets for Tenant Networks

IPoIB networks are deployed on the private security domain. Multiple IPoIB virtual networks can be deployed on a security domain of the tenant. These IPoIB networks are not isolated from each other and can be created for each tenant.

To create an IPoIB subnet, follow these steps:

- Select the Tenant Networks box and click **Create**. Enter the following details:
 - Name: Enter the name of the tenant administrator user.
 - vEthernet Name: Click the Search icon and select the VEthernet from the list.
 - Creation Mode: This can be CIDR / IP Range or Global IP.
 - CIDR: Enter the IP address for the subnet in the CIDR (Classless Inter-Domain Routing) format. A CIDR address includes the standard 32-bit IP address and it indicates how many bits are used for the prefix.
For example, an address of 206.13.1.48/25 indicates that the first 25 bits are used to identify the unique network. The remaining bits are available to identify the specific host. The network you specify must not be used by another EoIB network.
 - Global IP: An IP Pool is a pool of public IP ranges made up of one or more IP Pool entries. If global IP pool is enabled in the site configuration, specify the global IP pool address number. If this number is specified, the IP address is allocated from a global pool of IP addresses.
 - Ethernet Interface Index: Select this checkbox and specify the ethernet interface index number.
 - Description: Enter a description of the EoIB network.
 - IP Ranges: Click Add to add an IP address range in the format IP-IP. For example, 10.242.2.211-10.242.2.215.
- Click **Create** to create the IPoIB subnet and return to the Networks page.

32.4.2 Viewing the Service Networks

The service networks that are available are listed here. The subnet, type, description, CIDR, and IP address range is displayed.

32.5 Creating Storage Volumes

Click on the **Storage** icon to view the Storage Volumes page. A storage volume object is a single volume that can be attached to an instance. On this page, the name of the storage volume, status, size, and its properties are displayed.

Figure 32-7 Oracle Compute Self Service Portal: Storage

Storage

* Oracle Cloud Site : derp0?

A storage volume object is a single volume that can be attached to an instance.

Create Snapshot Delete

Name	Status	Size (GB)	Description
/ahqguts/bulk/bootstrap-test	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-prem2_storage-vol-prem2	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-prem2_storage-vol-prem2-again	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-prem2_storage-vol-prem2-again_1	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-prem2_storage-vol-prem2	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-prem22_storage-vol-prem2-again	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-prem22_storage-vol-prem2-again_1	Online	1	
/ahqguts/bulk/complex-orch-1-prem_devtest_storage-vol-prem2	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-m-storage-vol-prem2-again	Online	1	
/ahqguts/bulk/complex-orch-1-prem_mw-m-storage-vol-prem2-again_1	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-1_p223	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-1_p223_1	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-1_p231	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-2_p223	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-2_p223_1	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-2_p231	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-p223	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-p223_1	Online	1	
/ahqguts/bulk/prem-orch-complex-1_mw-m-p231	Online	1	
/ahqguts/bulk/weblog_orch_vm-1_vols_storage	Online	10	
/ahqguts/bulk/weblog_orch_vm-2_vols_storage	Online	10	
/ahqguts/bulk/weblog_orch_vm-3_vols_storage	Online	10	
/ahqguts/bulk/vols_storage	Online	10	
/ahqguts/bulk/vols_storage_001	Online	10	
/ahqguts/bulk/vols_storage_002	Online	10	
/ahqguts/bulk/vols_storage_003	Online	10	

Click **Create**. In the Create Storage Volume window, the name of the storage volume is displayed. Enter the size, description, and select a template for the volume. Click **OK** to create the storage volume.

You can take a snapshot or a copy of a storage volume and make the copy available to users belonging to another tenancy. Select a storage volume from the list and click **Snapshot**. In the Snapshot Storage Volume window, select a target tenant name in the Target Volume drop down field, and enter the name of the snapshot, specify the size, and a description for the snapshot. Click **OK** to create the snapshot and return to the Storage page.

32.6 Managing the Library

This page lists the templates and saved deployment plans that are available to the tenant user. Click the **Library** icon to access this page.

Figure 32–8 Oracle Compute Self Service Portal: Library

Name	Attributes	Quota	Uploaded Size (MB)	Total Size (MB)	Decompressed Size (MB)	Agent Configured
/oracle/public/emptyTemplate			0	0	5120	✗
/oracle/public/maas_12.2.1.0.0_64			1536	1536	10240	✗
/oracle/public/maas_12.2.1.0.0_64			1476	1476	10240	✓
/oracle/public/testTemplate-9a			0	0	5120	✗
/oracle/public/testTemplate-1			0	0	5120	✗
/ahqgata/public/longman-snapshots		/ahqgata	1463	1463	10240	✗
It refers to the Ahqgata tenant's template 1			1463	1463	10240	✗
Total Rows Count: 7						

Saved Deployment Plans		
Delete the Deployment Plans which are saved for later deployment.		
Name/Description	Owner	Created On
0... Orchestration_Te...	SSA2	5/4/2015

For each template, the name, attributes, quota assigned, and the size of the template is displayed. You can choose to view all the templates, templates available to public, or templates available for the selected tenancy.

32.6.1 Uploading a Template

A template is a copy of virtual hard disk with an installed operating system used to launch an instance. The template must be a whole disk image (including a partition table and kernel) stored in a tar archive, compressed with gzip. To upload an template, follow these steps:

1. Click **Upload**. The Template Management: Upload Template window appears. While uploading the template, the Template Scope can be:
 - **Public**: The template will be available to all the users. If you select this option, enter the name of the template in the Name field.
 - **Tenant**: The template will be available only to users belonging to the selected tenancy. If you select this option, select the Tenant in the Name drop down field and specify the name of the template. The template will be available to all users in the selected tenancy.
2. Specify any additional attributes that will be used when the service instance is provisioned.
3. In the Select Template field, select the template that is to be uploaded. The template you upload can either be present in your local disk or from the Software Library.
4. Click **Upload** to upload the template. The newly uploaded template will appear with the following details:
 - **Name**: The name of the template. If the template is available to all users, the format of the name is /oracle/public/<template_name>. If the template is available only to users belonging a selected tenancy, the format is <tenant_name>/public/<template_name>.
 - **Attributes**: Any user defined attributes that were specified when the template was uploaded.
 - **Quota**: The quota specified for the template.
 - **Uploaded Size**: The size of the template that has been uploaded.
 - **Total Size**: The total size of the template.
 - **Decompressed Size**: The size of the template in its decompressed state.

- **Agent Configured:** Indicates if the Management Agent has been configured for this template.

32.6.2 Deleting a Template or a Deployment Plan

To delete a template, select the template from the list in the Library region and click **Delete**. A confirmation message is displayed. Click **Delete** to confirm.

Deployment plans that have been saved for later deployment are displayed in the Saved Deployment Plans region. Select a plan and click **Delete** and click **OK** to confirm the deletion.

32.7 Discovering an Orchestration

You can use this option to discover any orchestrations that have been created externally without using Enterprise Manager.

To discover an orchestration, follow these steps:

1. From the Actions menu, select **Discover**, then select Orchestration.
2. A confirmation message is displayed. Click **Submit** to submit the request and discover the orchestration.

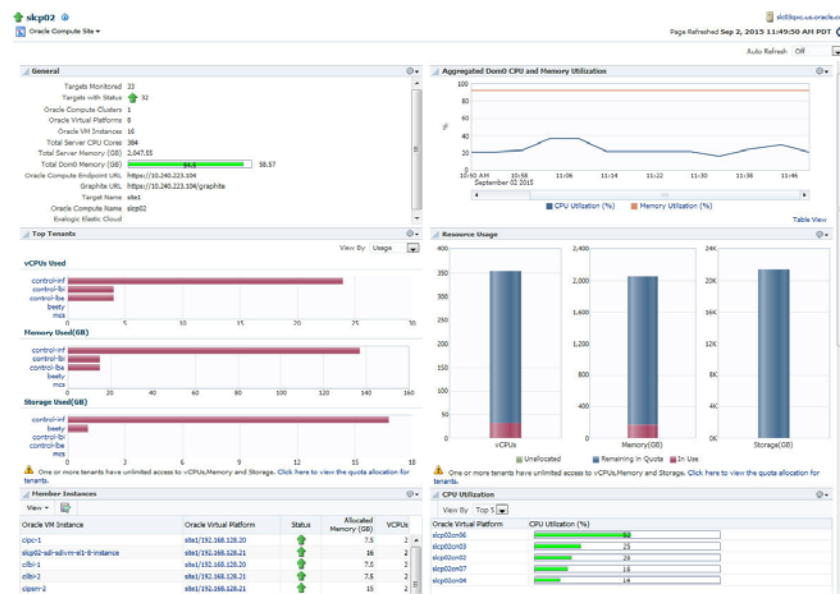
Managing the Oracle Compute Site and Associated Targets

This chapter describes how to view and manage an Oracle Compute Site and its associated targets such as Oracle Compute Cluster, Oracle Virtual Platform, and Oracle VM Instance. It contains the following sections:

- [Viewing the Oracle Compute Site](#)
- [Managing Networks](#)
- [Creating a Storage Volume](#)
- [Creating a User](#)
- [Viewing the Oracle VM Instance Home Page](#)
- [Viewing the Oracle Compute Cluster Home Page](#)
- [Viewing the Oracle Virtual Platform Home Page](#)
- [Viewing the Oracle Server Home Page](#)

33.1 Viewing the Oracle Compute Site

An Oracle Compute Site is a location running Oracle Compute Director with one or more clusters. To view the Oracle Compute Site Home Page, select **All Targets** from the **Targets** menu. In the Search panel on the left hand side, click **Oracle Compute Site** under **Groups, Systems, and Services**. The list of Oracle Compute Sites that have been discovered are displayed. Click on the Target Name link to drill down to the Home page.

Figure 33–1 Oracle Compute Site Home Page

This page contains the following regions:

Note: This page displays metrics from Domain-0 (Control Domain) only.

- **General:** This region shows the following details:
 - Number of targets being monitored
 - Aggregated status of all the targets
 - Number of clusters, virtual platforms, VM instances, and total number of CPU cores in the site
 - Total server memory
 - Total Dom0 memory available
 - Oracle Compute Endpoint URL
 - Graphite URL to monitor the Oracle Compute targets.
 - Exalogic Elastic Cloud target if it has been discovered.
- **Aggregated Dom0 CPU and Memory Utilization:** This region shows the aggregated CPU, and memory utilization of all the targets in the site.
- **Top Tenants:** This region shows the top tenants in the site. From the **View By** drop down list, you can select:
 - **Usage:** Shows the top usage by tenants in the site across vCPUs, memory, and storage. Click on the Tenant Name link to drill down to the Tenant Home page.
 - **Allowance:** Shows the number of vCPUs, memory, and storage allocated to the top tenants in the site. Click on the Tenant Name to drill down to the Tenant Home page.

Note: This region will appear only if you the preferred credentials you specify are for a user with the EM_CLOUD_ADMINISTRATOR role.

- **Resource Usage:** This region shows how the physical resources are allocated to the tenants in terms of quota and the actual usage. Click on the quota allocation link to drill down to the Quota Home page.
- **Member Instances:** Lists all the member instances in the Oracle Compute site. For each member instance, the name of the Oracle VM Instance, the Oracle Virtual Platform, status, allocated memory, and number of vCPUs is displayed. You can use the query by example feature to filter the list of members displayed. Click on the Oracle VM Instance or the Oracle Virtual Platform link to drill down to the respective home pages.
- **Aggregated Dom0 CPU and Memory Utilization:** This chart shows the aggregate CPU and memory utilization by all targets in this site over the last 24 hours.
- **CPU Utilization:** This region shows the relative CPU utilization by each cluster. You can choose to view all the clusters or view the top 1 or 5 clusters.
- **Memory Utilization:** This region shows the memory utilization by each cluster. You can choose to view all the clusters or view the top 1 or 5 clusters.
- **Incidents and Problems:** This region shows any incidents or problems that have occurred over the last 7 days.
- **Jobs:** This region shows a summary of jobs whose start date is within the last 7 days.

From the Oracle Compute Site menu, the following options are available:

- Networking: See [Section 33.2, "Managing Networks"](#).
- Storage: See [Section 33.3, "Creating a Storage Volume"](#).
- User Management
 - Tenants: See [Section 31.2, "Creating a Tenant"](#).
 - Users: See [Section 33.4, "Creating a User"](#).
 - Quota: See [Section 31.4, "Defining Quotas"](#).
- Image Management: See [Section 31.5, "Managing Oracle Compute Templates"](#).
- Shape Management: See [Section 31.3, "Creating a Shape"](#).

33.2 Managing Networks

An Exalogic machine includes compute nodes, storage appliance, switches, and other equipment to connect the compute nodes to your network. The network connections allow the servers to be administered remotely, enable clients to connect to the compute nodes, and enable client access to the storage appliance. For more information about Exalogic network configuration, refer to Oracle Exalogic Elastic Machine Owner's Guide.

In this release, Oracle Compute Service is extended to support InfiniBand networking. The network isolation is brought in by the following ways in the cloud infrastructure:

- Network isolation within the tenants. When you create tenants, private and public security domains are created. The private security domain is used for isolated communication within the tenant of the Exalogic rack. The public security domain is used for isolated communication between the tenant and the Ethernet infrastructure outside the Exalogic rack through NM2 Gateway. In both the public

and private security domain, the communication is isolated only within that particular tenant and the security domain of that tenant.

- The service network created for instances to access the service provider ensures that the communication is allowed only between the service provider and the service consumer or between the service providers. The service network connectivity is not allowed for communication between the service consumers.

The networking formats that are supported are virtual Ethernets (vEthernets), flat networks, Network Address Translation (NAT), and network services cluster.

A vEthernet is a virtual OSI Layer 2 network with VLAN support. vEthernets can facilitate isolation for networks for instances run by specific departments or business units. vEthernets in Oracle Compute have a one-to-one mapping with VLANs on the switching infrastructure and are typically associated with business units or departments.

A flat network is a single IP routed domain, where any IP address is routable to any other. Protection of instances comes from security lists – software firewall on the Hypervisor. For isolation between virtual machines on such a network, Oracle Compute enforces security policy on the hypervisors themselves using security lists.

You can create the following types of networks:

- Tenant networks
- Service networks
- Infrastructure networks

33.2.1 Creating a Tenant Network

A tenant network provides an isolated or protected environment for deployment of virtual networks and VMs that interact with these virtual networks. In Exalogic, a tenant is a base construct that defines two isolated domains – public and private. Each domain has an InfiniBand partition key assigned to it. The public domain is used for deploying vlan-tagged virtual networks for enabling communication between the compute nodes and entities external to Exalogic that run on Ethernet. The private domain is used for deploying IB private networks for inter-compute node communications. You can create an:

- EoIB network: Public tenant network
- IPoIB network: Private tenant network

33.2.1.1 Creating an EoIB Network

An EoIB ((Ethernet over Infiniband) network is deployed on the public security domain and are associated with a VLAN. They are used to associate a tenant's VMs with a specific VLAN. EoIB is used for components inside the Exalogic machine rack to communicate with components external to the Exalogic machine rack. You can deploy multiple EoIB virtual networks on the public security domain of the tenant. These networks are not isolated from each other. Only the cloud administrator can create and manage EoIB networks as these networks subnets are defined outside the Exalogic machine.

To create an EoIB network, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.

3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an Oracle Compute Site to drill down to the Oracle Compute Site Home page.
4. From the **Oracle Compute Site** menu, select **Networking**, then select **Tenant Networks**.
5. Select the tenant in which you want to create the EoIB network. From the **Actions** menu, select **Create EoIB vEthernet**.

Figure 33–2 Create EoIB vEthernet

The screenshot shows the 'Create EoIB vEthernet' form. At the top, there's a breadcrumb 'Oracle Compute Site' and a refresh button. The form has three main input sections: 'Name' (with a dropdown for 'OTD' and a text field for 'public'), 'vLAN' (with a numeric input field set to '0'), and 'Description' (with a text area). Below these is a 'Switch Ports' section containing a table with three columns: 'Switch name', 'HA Switch Name', and 'Port'. The table has one row with values 'dnp07nw-b03', 'dnp07nw-b02', and 'GA-ETH-1'. At the bottom right of the form are 'Create' and 'Cancel' buttons.

Enter the following details:

- Name: Enter the name of the tenant administrator user.
 - vLAN: Specify the VLAN ID (range 2 to 4095) for this network.
 - Description: Enter a description of the EoIB network.
 - Switch Ports: Select the switch port from the drop down list.
6. Click **Create** to create the EoIB network. The newly created network will appear on the Networks page.

33.2.1.2 Creating an EoIB Subnet

To create an EoIB subnet, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an **Oracle Compute Site** to drill down to the Oracle Compute Site Home page.
4. From the **Oracle Compute Site** menu, select **Networking**, then select **Tenant Networks**.
5. Select the tenant in which you want to create the EoIB network. From the **Actions** menu, select **Create EoIB Subnet**.

Figure 33–3 Create EoIB Subnet

The screenshot shows the 'Create EoIB Subnet' form. At the top, it says 'Oracle Compute Site' and 'Page Refreshed May 4, 2015 12:33:13 PM PDT'. The form has a 'Create' button and a 'Cancel' button. The fields are:

- Name: /OIT / public
- vEthernet Name: (dropdown menu)
- CIDR: (text input)
- Gateway: (text input)
- Ethernet Interface Index: (checkbox)
- Description: (text area)
- IP Ranges: (Add button and a table for adding IP ranges)

Enter the following details:

- Name: Enter the name of the tenant administrator user.
- vEthernet Name: Enter the vEthernet name.
- CIDR: Enter the IP address for the subnet in the CIDR (Classless Inter-Domain Routing) format. A CIDR address includes the standard 32-bit IP address and it indicates how many bits are used for the prefix.

For example, an address of 206.13.1.48/25 indicates that the first 25 bits are used to identify the unique network. The remaining bits are available to identify the specific host. The network you specify must not be used by another EoIB network.

- Gateway: Enter the IP address of the gateway.
- Ethernet Interface Index: Select this checkbox if you want to provide index numbers for vNets created.
- Description: Enter a description of the EoIB network.
- IP Ranges: Click **Add** to add an IP address range in the format IP-IP. For example, 10.242.2.211-10.242.2.215.

6. Click **Create** to create the EoIB subnet and return to the Networks page.

33.2.1.3 Creating an IPoIB Subnet

IPoIB networks are deployed on the private security domain and are used to associate VMs within a tenant. Multiple IPoIB virtual networks can be deployed on a security domain of the tenant. These IPoIB networks are not isolated from each other and can be created for each tenant. To create an IPoIB subnet, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an **Oracle Compute Site** to drill down to the Oracle Compute Site Home page.
4. From the **Oracle Compute Site** menu, select **Networking**, then select **Tenant Networks**.
5. Select the tenant in which you want to create the EoIB network. From the **Actions** menu, select **Create IPoIB Subnet**.

Figure 33–4 Create IPoIB Subnet

The screenshot shows the 'Create IPoIB Subnet' form. At the top, it says 'Oracle Compute Site' and 'Page Refreshed May 4, 2015 1:06:38 PM PDT'. The form has a 'Create' button and a 'Cancel' button. The fields are:

- * Name: /OTD / public
- vEthernet Name: [dropdown]
- * Creation Mode: CIDR/IP Range Global IP
- CIDR: /
- Number of IP Addresses: 1
- Ethernet Interface Index: [checkbox]
- Description: [text area]
- IP Ranges: [Add] [Remove]

- Name: Enter the name of the tenant administrator user.
 - Creation Mode: This can be CIDR / IP Range or Global IP.
 - CIDR: Enter the IP address for the subnet in the CIDR (Classless Inter-Domain Routing) format. A CIDR address includes the standard 32-bit IP address and it indicates how many bits are used for the prefix. For example, an address of 206.13.1.48/25 indicates that the first 25 bits are used to identify the unique network. The remaining bits are available to identify the specific host. The network you specify must not be used by another EoIB network.
 - Global IP: An IP Pool is a pool of public IP ranges made up of one or more IP Pool entries. If global IP pool is enabled in the site configuration, specify the global IP pool address number. If this number is specified, the IP address is allocated from a global pool of IP addresses.
 - Gateway: Enter the IP address of the gateway.
 - Ethernet Interface Index: Select this checkbox if you want to provide index numbers for the vNets created.
 - Description: Enter a description of the EoIB network.
 - IP Ranges: Click **Add** to add an IP address range in the format IP-IP. For example, 10.242.2.211-10.242.2.215.
6. Click **Create** to create the IPoIB subnet and return to the Networks page.

33.2.1.3.1 Editing the IPoIB Subnet

To edit the IPoIB subnet, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an **Oracle Compute Site** to drill down to the Oracle Compute Site Home page.
4. From the **Oracle Compute Site** menu, select **Networking**, then select the IPoIB subnet that you wish to edit. The following details are displayed:
 - Name
 - CIDR
 - Number of IP Addresses

- IP Ranges
 - Total: The total number of usable IP addresses.
 - Reserved: The number of allocated IP addresses.
 - Used: The number of IP addresses that have been used by the instance.
 - Failed Allocations: The number of IP address allocations that have failed since the VNet was created or updated.
5. Click **Add** in the IP Reservation region to add one or more IP reservations. In the Create IP Reservation window, enter the name and IP address for the reservation and click **OK**.
 6. Select **Edit** from the **Actions** menu. In the Update IPoIB Subnet page, you can edit the Number of IP Addresses, Ethernet Interface Index, and Description. Click **Edit** to update the details and return to the previous menu.

33.2.2 Managing Service Networks

Service networks are created in Exalogic to provide shared services across multiple tenants. The shared services include access to storage, network, and other engineered systems. An example of external service provider is a ZFS storage appliance that provides storage shared across tenants.

An InfiniBand partition is allocated for a service network. The compute nodes of the cluster can be defined as Providers or Consumers. The providers are given full membership to the InfiniBand partition. Whereas, the consumers are given limited membership to the InfiniBand partition. Through this service network, the consumers can communicate with the providers but cannot communicate with each other. Providers are usually common services such as storage whose services must be available to more than one tenant.

Each service network is automatically allocated with an InfiniBand partition and no two service networks share the partition. Service networks are created by cloud administrators.

There are two types of service networks:

- **IPoIB Service Networks:** The IPoIB service network is used for communication with a service provider within the Exalogic system or connected directly to the InfiniBand fabric such as Exadata. For example, shared storage from the Oracle ZFS Storage Appliance.
- **EoIB Service Networks:** The EoIB service network is used for communication with a service provider located outside the Exalogic system.

33.2.2.1 Creating a Service Network

A service network provides a certain service to the user. Service networks are required for a common service that needs to be available to more than one tenant. For example, ZFS appliance providing an access to shared storage.

To create a service network, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an **Oracle Compute Site** to drill down to the Oracle Compute Site Home page.

4. From the **Oracle Compute Site** menu, select **Networking**, then select **Service Networks**. From the **Actions** menu, select **Create Service** and enter the following details:
 - Name: Enter the name of the tenant administrator user.
 - Provider Nodes: Select the checkbox to add all existing nodes to the list of provider nodes for the service network.
 - Description: Enter a description of the service network.
5. Click **Create** to create the service network and return to the Networks page.

33.2.2.2 Connecting to an Engineered System

You can connect the Exalogic machine to an Exadata server using the Infiniband fabric. To connect to an engineered system, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an **Oracle Compute Site** to drill down to the Oracle Compute Site Home page.
4. From the **Oracle Compute Site** menu, select **Networking**, then select **Service Networks**. From the **Actions** menu, select **Connect Engineered System** and enter the following details:
 - Name: The name of the tenancy.
 - Partition Key: An InfiniBand partition defines a group of InfiniBand nodes that are allowed to communicate with one another. You can use InfiniBand partitions to increase security by implementing network isolation on Exalogic machine's InfiniBand fabric. In addition, you can associate InfiniBand nodes with specific VLANs. A partition key is a unique ID assigned to an InfiniBand partition. Specify an external partition key that is to be associated with the service network. The partition key you specify must not be used by a different service network.
 - Foreign Partition: If this checkbox is selected, a service network that is associated with an externally defined partition key is created.
 - Provider Nodes: Select this checkbox to add provider nodes.
 - Description: Enter a description of the service network.
5. Click **Create** to create the service network and return to the Networks page.

33.2.3 Managing Infrastructure Networks

Infrastructure service networks are service networks that are created by Exalogic Configuration Utility (ECU) while configuring the Exalogic machine. These networks are used to provide network access to leverage some of the basic services available on Exalogic platform. These are the control networks that are jointly used by the customer deployed instances and the Exalogic Control.

The following infrastructure networks are created on the switches and zfs storage (except for the EoIB networks):

- IPoIB Management: This network is used for Oracle Compute pxe services and flexboot is configured for this partition.

- IPoIB Storage: Used for all Oracle Compute related ZFS access from Dom0.
- IPoIB Instance Storage: Used for control VMs (read/write) and client VMs (read only) to access ZFS storage.
- EoIB Management Network: Used for Oracle Compute API service access and Control VMs.
- Default: IPoIB default partition (0x7FF).

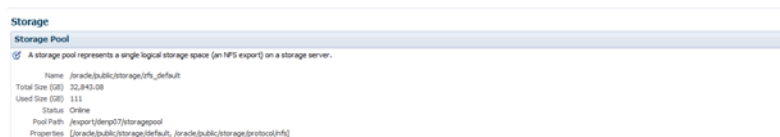
33.3 Creating a Storage Volume

A storage pool represents a single logical storage space (an NFS export) on a storage server. The name of the storage pool, the total size (physical) of the storage pool, the amount of space used, the path and the properties of the storage pool are displayed.

A storage volume object is a single volume that can be attached to an instance. On this page, the name of the storage volume, status, size, Oracle Virtual Servers with which it is associated, and its properties are displayed. To create a storage volume, follow these steps:

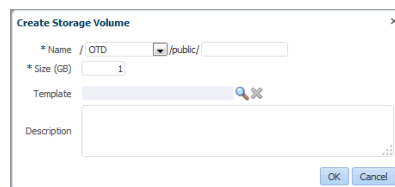
1. Log in to Enterprise Manager as a user with the EM_CLOUD_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an **Oracle Compute Site** to drill down to the Oracle Compute Site Home page.
4. From the **Oracle Compute Site** menu, select **Storage** to view the Storage Pool Home page. In the Storage Pool region, the name of the storage pool, size, status, path, and properties or characteristics of the pool are displayed.

Figure 33–5 Storage Pool



5. The storage volumes in the Oracle Compute site are displayed. A storage volume object is a single volume that can be attached to an instance. Each volume has a size that is available to all users in the selected tenancy. The storage volume can be shared across multiple instances. Click **Create** to create a new storage volume.

Figure 33–6 Create Storage Volume



6. In the Create Storage Volume window, enter the name (in the format <tenant_name/public/<storage_vol_name>, size, description, and optionally select a template for the volume. Click **OK** to create the storage volume.

33.3.1 Creating a Storage Volume Snapshot

You can take a snapshot or a copy of a storage volume and make the copy available to users belonging to another tenancy. To create a storage volume snapshot, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
3. Click on the **Oracle Compute Site** link in the left panel. The list of Oracle Compute sites that have been registered are displayed. Click on an **Oracle Compute Site** to drill down to the Oracle Compute Site Home page.
4. From the **Oracle Compute Site** menu, select **Storage** to view the Storage Pool Home page. The name of the storage pool, size, status, path, and properties or characteristics of the pool are displayed.
5. The storage volumes in the Oracle Compute site are displayed. Select a storage volume from the list and click **Snapshot**.
6. In the Snapshot Storage Volume window, select a target tenant name in the Target Volume drop down field, and enter the name of the snapshot, specify the size, and a description for the snapshot. Click **OK** to create the snapshot and return to the Storage page.

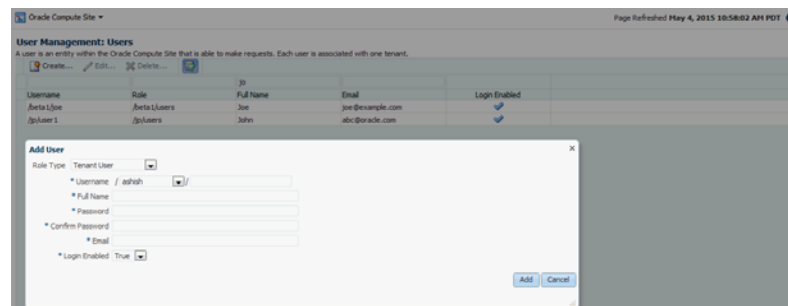
33.4 Creating a User

A user is an entity within the Oracle Compute Site that is able to make requests. Each user is associated with one tenant.

To create a user, follow these steps:

1. Log in to Enterprise Manager as a user with the `EM_CLOUD_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home** and navigate to the Oracle Compute Site Home page.
3. From the **Oracle Compute Site** menu, select **User Management**, then select **Users**.
4. The User Management page appears. Click **Create**. The Add User window appears.

Figure 33–7 Add User Page



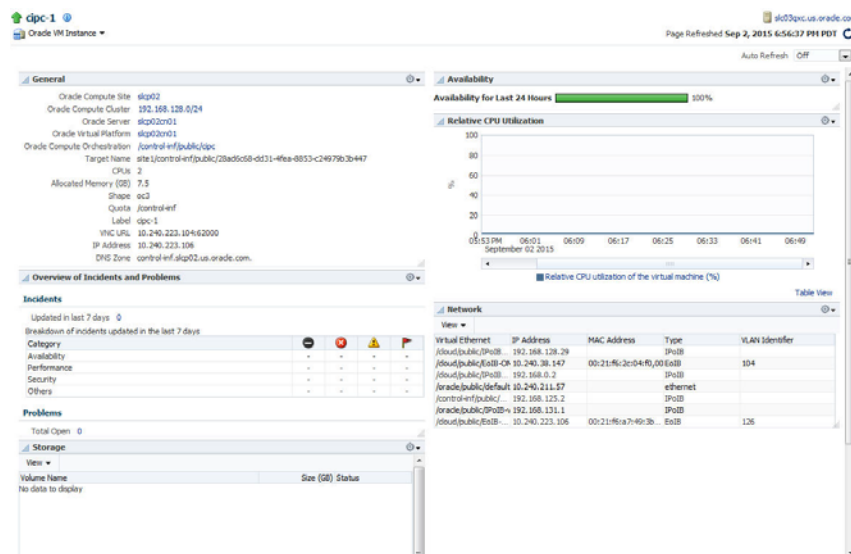
5. Enter the Role Type which can be one of the following:
 - **Cloud Administrator:** A user with this role can discover targets, create users and perform other setup operations. For more details, refer the Enterprise Manager Cloud Administration Guide.

- **Tenant Administrator:** A user with this role can request new instances, add one or more tenant users, and perform operations such as assign quotas to users.
 - **Tenant User:** A user with this role can request new instances.
6. In the Username field, depending on the user role you are creating, the user name must be entered in the following format:
 - **Cloud Administrator:** /cloud/<user_name>
 - **Tenant Administrator:** /<tenant_name>/<tenant_admin_name>
 - **Tenant User:** /<tenant_name>/<tenant_user_name>
 7. Enter the full name of the user, the password, and email address.
 8. In the Login Enabled field, select True. This field allows administrators to enable or disable a user's login.
 9. Click **Add**. The newly created user will appear on the User Management page.

33.5 Viewing the Oracle VM Instance Home Page

An Oracle VM Instance is an instantiation of a machine image running as a virtual machine. Instances have attributes such as allocated RAM, number of CPUs available, and attached network interfaces. Instances are created via an orchestration that specifies the desired set of hosts, which image lists they are to be launched from and placement relationships that exist between them. To view the Oracle VM Instance Home page, click on the **Oracle VM Instance** link on the Oracle Compute Site Home page.

Figure 33–8 Oracle VM Instance Home Page



This page contains the following regions:

- **General:** This region shows the Oracle Compute Site, Oracle Compute Cluster, Oracle Server, Oracle Virtual Platform in which the instance is running, and the Oracle Compute Orchestration associated with this instance. You can click on the link to drill down to any of the home pages. It also shows the target name, number

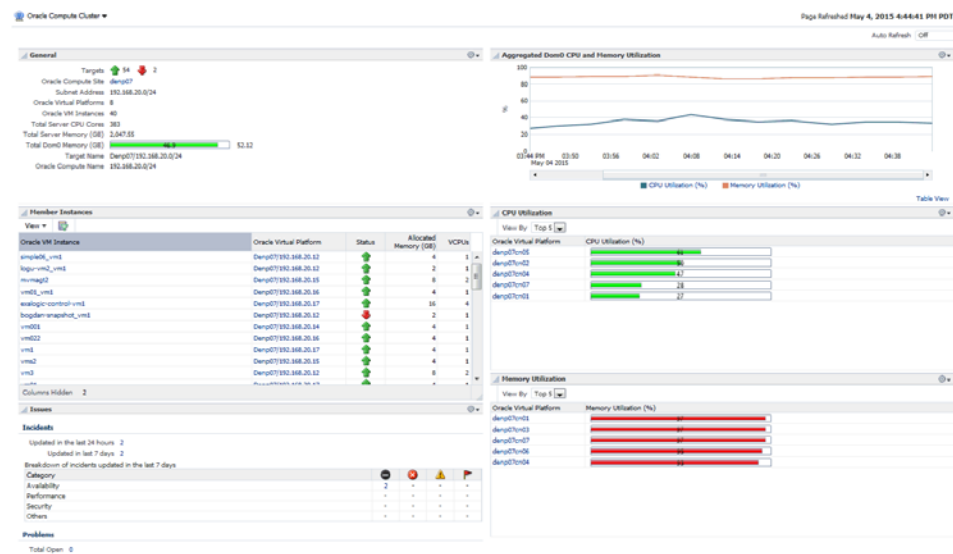
of CPUs, allocated memory, shape, quota (if set), VNC URL, IP address, and the DNS zone.

- **Availability:** Shows the availability of the instance over the last 24 hours.
- **Relative CPU Utilization:** Shows the relative CPU utilization by the virtual machine.
- **Overview of Incidents and Problems:** This region lists any incidents and problems that have occurred over the last 7 days.
- **Network:** Lists the name of the network interface and the MAC address.
- **Storage:** Lists any storage volumes that are present.

33.6 Viewing the Oracle Compute Cluster Home Page

An Oracle Compute cluster is a group of at least three physical nodes running Oracle Compute software on the same Ethernet domain. In a typical multi-cluster configuration, a router links two or more subnets and broadcast domains, one per cluster. One or more clusters make a site. To view the Oracle Compute Cluster Home page, click on an **Oracle Compute Cluster** link in the Oracle Compute Site Home page.

Figure 33–9 Compute Cluster Home Page



This page contains the following regions:

Note: This page displays metrics from Domain-0 (Control Domain) only.

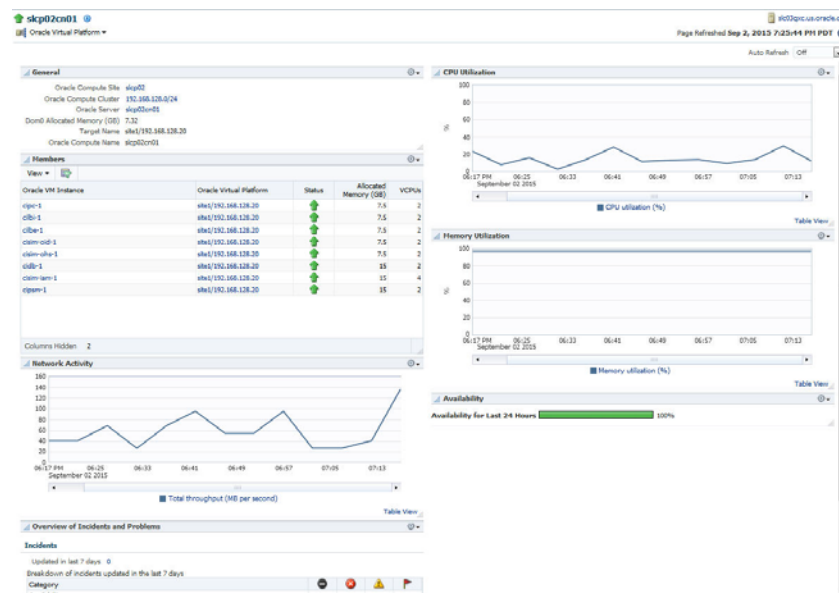
- **General:** This region shows the aggregated status of all the targets in the cluster, the Oracle Compute Site to which this cluster belongs, the number of virtual platforms and VM instances in the cluster, the total number of CPU cores, the total server memory, the total Dom0 memory available, and the target name.
- **Aggregated Dom0 CPU and Memory Utilization:** This region shows the aggregated CPU and memory utilization over the last 1 hour.

- **Member Instances:** Lists the Oracle VM instances in the cluster. Click on the Oracle VM Instance or Oracle Virtual Platform link to drill down to respective home pages.
- **CPU Utilization:** This region shows the CPU utilization by each virtual platform in the cluster. You can choose to view all or the top 5 virtual platforms. Click on the Oracle Virtual Platform link to drill down to the home page.
- **Memory Utilization:** This region shows the memory utilization by each virtual platform in the cluster. You can choose to view all or the top 5 virtual platforms. Click on the Oracle Virtual Platform link to drill down to the home page.
- **Incidents and Problems:** This region shows any incidents or problems that have occurred over the last 7 days.

33.7 Viewing the Oracle Virtual Platform Home Page

Click on an Oracle Virtual Platform link on the Oracle Compute Cluster Home page to drill down to this page.

Figure 33–10 Oracle Virtual Platform Page



This page contains the following regions:

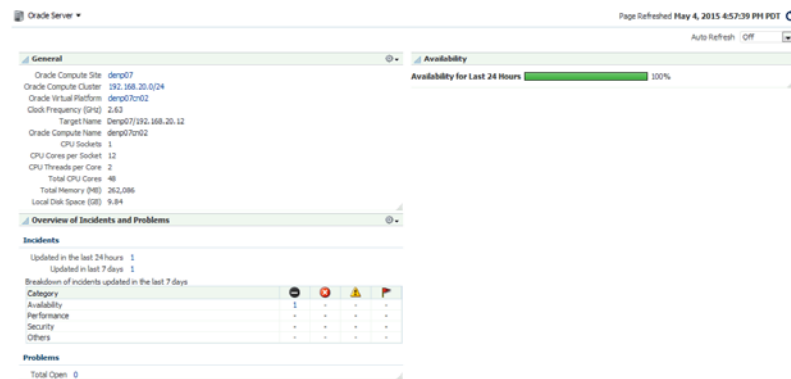
- **General:** This region displays the name of the Oracle Compute Site and Oracle Compute Cluster to which the Oracle Virtual Platform belongs. You can click on any of these links to drill down to the respective home page. It also shows the Dom0 allocated memory, the target name, and the Oracle Compute name.
- **CPU Utilization:** This region shows the CPU utilization by the virtual platform over the last 24 hours.
- **Members:** This region lists all VM instances that are running on this virtual platform, their status, and the memory allocated to each virtual server. Click on the Oracle VM Instance or Oracle Virtual Platform links to drill down to the respective home pages.

- **Memory Utilization:** This region shows the memory utilization by the virtual platform over the last 24 hours.
- **Network Activity:** This region shows the network activity by the virtual platform over the last 24 hours.
- **Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.
- **Availability:** The chart in this region shows the status of the target over the last 24 hours.

33.8 Viewing the Oracle Server Home Page

Click on an **Oracle Server** link in the Oracle Virtual Platform Home page to drill down to this page.

Figure 33–11 Oracle Server Home Page



This page contains the following regions:

- **General:** This region shows the Oracle Compute Site, Oracle Compute Cluster, and the Oracle Virtual Platform in which the server is present. It also shows the clock frequency, target name, number of CPU sockets, number of CPU cores per socket, number of CPU threads per core, total number of CPU cores, the total memory, and the local disk space.
- **Availability:** The chart in this region shows the status of the target over the last 24 hours.
- **Overview of Incidents and Problems:** This region shows any incidents or problems associated with the Oracle Server target.

Part XII

Dynamic Resource Provisioning

This section covers the dynamic resource provisioning feature.

It contains the following chapters:

- [Chapter 34, "Dynamic Resource Provisioning with Oracle VM Server for SPARC"](#)
- [Chapter 35, "Getting Started with Dynamic Resource Provisioning"](#)
- [Chapter 36, "Provisioning Resources in a DBaaS Cloud"](#)
- [Chapter 37, "Dynamically Provisioning Resources in an MWaaS Cloud"](#)

Dynamic Resource Provisioning with Oracle VM Server for SPARC

Oracle Enterprise Manager Cloud Control integrates with Enterprise Manager Ops Center to create and manage virtual datacenters (vDC). Within the vDC, a vServer appears to users as a complete system, which they can optimize on demand as a DBaaS or MWaaS private cloud.

Integration for a PaaS Solution

In Oracle Enterprise Manager Ops Center, the IaaS cloud platform service is a virtual datacenter (vDC), a virtual environment supported by pooled servers, storage, and network resources. A cloud administrator sets up the vDC to run Oracle VM Servers for SPARC (logical domains). Enterprise Manager Cloud Control users are creating vServers in the logical domains automatically, as needed. Each vServer draws its requirements from the resources of the vDC.

This section explains how to create the vDC in Enterprise Manager Ops Center and how to connect it to Enterprise Manager Cloud Control.

Prerequisites

- Enterprise Manager 12c Cloud Control Release 5 with Virtual Service Adaptor configured to connect to Ops Center's Enterprise Controller. See [Getting Started with Dynamic Resource Provisioning](#).
- Enterprise Manager Ops Center Release 3 with managed storage and network assets. See Oracle Enterprise Manager Ops Center [Installation for Oracle Solaris Operating System](#) and [Configure Reference](#) for information about installing the product and discovering assets.
- Oracle Enterprise Manager Ops Center Client Kit, which includes modifications to enable communication between the two software products. This kit is available from My Oracle Support to <https://support.oracle.com/epmos/faces/PatchDetail?patchId=21190506>.

The minimum requirement for Ops Center is the co-located configuration: one system hosts the Enterprise Controller, one Proxy Controller, and an embedded Oracle database.

- Requirements for Enterprise Controller:
 - A minimum of T4-1 Sun Server
 - Same or higher version of Oracle Solaris 11 as the version to be provisioned on vServers running Oracle VM Server for SPARC. Supported versions are Oracle

Solaris 11, 11.1, and 11.2 but, for optimal performance use the latest SRU of Oracle Solaris 11.2.

- Requirements for Proxy Controller:
 - Co-located with Enterprise Controller or running in a system with the same minimum requirements for server, network, and operating system as for the Enterprise Controller.
- Requirements for Oracle VM Server for SPARC control domain:
 - Oracle VM Server for SPARC 3.1 or later
 - Oracle Solaris 11, 11.1, and 11.2. The version must be the same or later than the version to run in the vServer. To provide different versions of Oracle Solaris 11, create a control domain for each operating system.
 - For optimal performance between storage elements and control domains, equip each server that hosts a control domain with a Fibre Channel HBA of at least 4 Gb and a 10 Gb Ethernet card. A 1 Gb Ethernet card is the minimum.
 - The right size of networks and virtual assets is not uniform. This document makes recommendations but your purposes and site requirements affect them. For a discussion of sizing, see the Oracle blog for some good practices in tuning resources for virtual assets at https://blogs.oracle.com/jsavit/entry/best_practices_top_ten_tuning.
- Requirements for Oracle VMS Server for SPARC logical domain:
 - Oracle VM Server for SPARC 3.1 or later
 - The version of Oracle Solaris that is available in the Ops Center OS image repository.
- Requirements for storage resources:
 - Dedicated LUNs exposed only to appropriate WWNs. The LUNs must be fully-provisioned, not thin-provisioned. You can use Fibre Channel LUNs or iSCSI LUNs or both.
 - For Fibre Channel LUNs, create at least one SAN static storage library.
 - For iSCSI LUNs, a SAN dynamic storage library is created when you discover the storage server; however, you cannot use this library for the vDC. Create at least one static SAN storage library. Use a 10 Gb Ethernet network connection and tune the number of iSCSI connections. For 8 threads/connection:
`iscsiadm modify initiator-node -c 8.`
 - For optimal performance between storage elements and control domains, equip each server that hosts a control domain with a Fibre Channel HBA of at least 4 Gb and a 10 Gb Ethernet card. A 1 Gb Ethernet card is the minimum.
- Requirements for networks:
 - A fabric backed by an isolated Ethernet switch or a set of non-routable VLANs spanning multiple network switches to provide separate interfaces to each control domain using the dedicated VLAN IDs that provision virtual networks.
 - A dedicated network domain. Do not use the Default network domain.
 - At least one public network to provision OS and to access vServers. Public networks supply a block of IP addresses for provisioning the vServers. The number of IP addresses equals the number of vServers that can be supported. Consider the size of the network that can accommodate all

your current and future requirements. Class C (for example, 10.0.0.1/24) networks enable you to create 256 vServers, Class 16C networks (for example, 10.0.0.2/20) enable you to create 4096 vServers.

- Private networks for Clusterware and internal host connectivity.
- Requirement for software libraries:
 - Place the libraries on a storage server with high transfer rates.
 - To provision an OS version, the Oracle Solaris 11 Software Update Library must contain the packages for that version. This repository is created during the product installation. In addition, you must download the Oracle Solaris 11 SRU library. Ensure that the master IPS repository (MSR) download is complete.
 - Limit the Oracle Solaris 11 Software Library to versions of releases and SRUs that are in active use.
 - Add packages from client kit to the Oracle Solaris 11 Software Library.

Overview of the Configuration of PaaS Solution

To set up the PaaS solution, you perform tasks on each component of the solution:

- [Configure Enterprise Manager Cloud Control](#)
- [Obtain the Client Kit](#)
- [Configure Enterprise Manager Ops Center](#)

Configure Enterprise Manager Cloud Control

The Enterprise Manager's Virtual Service Adapter is the interface between Enterprise Manager and Enterprise Manager Ops Center. To configure the integration, the main component of Enterprise Manager Ops Center, the Enterprise Controller, is added as a staging server, as described in [Adding the Stage Server](#).

When the configuration of Oracle Enterprise Manager Ops Center is complete, use the following information to configure Enterprise Manager Cloud Control:

- IP address of the Enterprise Controller
- User name and password of the cloud user account

Obtain the Client Kit

Go to <https://support.oracle.com/> to obtain the Ops Center Client Kit, p21190506_121050_Generic.zip. The kit is also available in the OC DVD bundle.

The kit contains packages that provision logical domains, modified to enable PaaS operations, and a script:

- ORCLsysman-iaas-cli.pkg
- ORCLsysman-paas-cli.pkg
- post-script-paas-`<post-script-paas.version>`.p5p

Extract the files in the compressed file to a location of your choice. These packages and script will be uploaded to Ops Center's repository for Oracle Solaris 11 and used in an OS Update Profile.

Configure Enterprise Manager Ops Center

The following are the major tasks needed to configure Enterprise Manager Ops Center:

1. [Configure Resources for vDC](#)
2. [Set Up and Configure a Virtual Data Center](#)
3. [Set Up and Configure a Server Template](#)
4. [Validate the Integration and PaaS](#)

It might take 2-3 hours to complete all of the tasks. You can perform some of the tasks simultaneously, that is, you do not have to wait for one job to complete before starting another one.

Configure Resources for vDC

A vDC relies on pools of networks, storage, and control domains. It provisions its servers from images in a current OS repository according to profiles in the repository. Log in as a user with the Ops Center Admin, Storage Admin, Virtualization Admin, and Cloud Admin role or root to configure the resources.

- [Add Client Kit Contents to the Software Library for Oracle Solaris 11](#)
- [Prepare Network Resources for the vDC](#)
- [Prepare Storage Resources](#)

Add Client Kit Contents to the Software Library for Oracle Solaris 11

The package that enables the PaaS solution is `post-script-paas-$(post-script-paas.version).p5p`. This file is in the compressed file you downloaded from My Oracle Support and resides in the directory on the Enterprise Controller where you extracted the contents of the compressed file. This procedure imports the file into Ops Center's Oracle Solaris 11 repository so that it can enable communication between the Enterprise Manager Cloud Control staging server and the Ops Center resources.

Use the **Add Content** action to add ISO image files to the Oracle Solaris 11 Software Update Library manually.

1. Locate the image in the new repository.
2. Expand **Libraries** in the Navigation pane.
3. Click **Software Libraries**, then click **Oracle Solaris 11 Software Update Library**.
4. Click **Add Content** in the Action pane.
5. In the **Repository URL** field, enter the location of the file on the Enterprise Controller using the syntax:
`file:///<fullpath>/post-script-paas-$(post-script-paas.version).p5p`.
Complete the path and version based on your file.

If credentials are required in your environment, specify the system's credentials, **SystemDefinedSupportCredential**.

Figure 34–1 Specify Repository

Specify Repository to add content from

Enter the URL of the parent repository URL and credentials.

Repository URL	Credential
enter url	<div>None</div> <div> None Define New SystemDefinedS... </div>

- When the job is completed, the file is listed in the Contents tab of the Oracle Solaris 11 Software library. To verify, open the Oracle Solaris 11 Software Library Contents tab and search for PaaS.

Prepare Network Resources for the vDC

Fabrics are the physical infrastructure, consisting of network interface cards and network switches. Network domains are the logical infrastructure, combining network resources from at least one fabric. The networks used by virtual assets are created from the VLAN IDs managed by a network domain. The physical fabrics support these virtual networks, through the network domain, in a manner that depends on their type. To supply network resources to a vDC, you create a network domain from an appropriate fabric.

You must have the role of Network Admin to create network domains.

Identify a Fabric

To see the available fabrics, expand **Networks** in the Assets pane. Select **Fabrics**. For each fabric, the Dashboard in the center pane includes a Management Capability field. You have these options for providing physical network resources to a new network domain:

- Use an existing host-managed fabric.
- Convert an unmanaged fabric to host-managed and then use it.
- Create a new host-managed fabric.
- Use an unmanaged fabric.

To convert an unmanaged fabric to a host-managed fabric, use the **Assign VLAN ID Range** action. Specify a range that matches VLANs on the isolated switch that supports the fabric. If the fabric is not supported by an isolated switch, you can use an

arbitrary VLAN ID range representing configured, non-routed VLANs, for example, 1001-1200.

Perform the following steps to create a new host-managed fabric:

1. In the Navigation pane, navigate to **Networks**, then select **Fabrics** from the drop-down list.
2. In the Actions pane, click **Define Ethernet Fabric**.
3. In the wizard, enter a name in the **Fabric Name** field. Enter a description. Click **Next**.
4. Enter the range of VLAN IDs. If the fabric is supported by an isolated switch, specify a range that matches the switch's VLANs. If the fabric is not supported by an isolated switch, use an arbitrary VLAN ID range, for example, 1001-1200.
5. Select the networks to be associated with the fabric, then click **Next**.
6. Review the Summary, then click **Finish**. The new fabric is host-managed.

To use an unmanaged fabric, assign a set of its public networks as private networks or convert the fabric to an host-managed fabric.

Create a Network Domain

After Ops Center manages the physical fabric, its network resources are in the system-defined Default Network Domain, but you cannot use the Default network domain for a virtual datacenter. Instead, create a network domain specifically to support a server pool that contains a vDC.

A network domain is a container for networks and handles the relationship between the physical fabrics and the server pool. The fabrics provide network resources such as links and IP subnets. Within the network domain, networks that have been discovered or specified are available for assignment. These are called public networks. Their network resources have been defined. Another type of network is dynamic, that is, the network is created when it is needed, using an IP address space available to the network domain. Because they exist only for a specific purpose and only within a specific network domain, they are called private networks.

To use virtual datacenters, the network domain must provide private networks. To use existing public networks for a virtual datacenter, add each network to the network domain, making it a static private network, because existing public networks already have an IP subnet addresses and VLAN IDs.

Note: Do not attempt to use the Default Network Domain to support a virtual datacenter. Although you are not prevented from specifying the Default Network Domain, its networks will not be available for selection.

Although the network domain is providing the networks to the server pools, this is only a logical association using VLAN IDs. To use the network resources, each physical server that supports the control domains in the server pool must have a physical connection to a fabric in the network domain.

1. Expand **Networks** in the Navigation pane.
2. The Standard views shows Networks. The Default Network Domain is selected.

Figure 34–2 Networks Navigation

3. Click **Create Network Domain** in the Actions pane.
4. In the Identify Network Domain pane, enter the name and description of the network domain. You can also add tags.
5. In the Add Fabrics step, choose at least one fabric.
6. Accept the default value for the Network Creation Limit. This value is the maximum number of dynamic private networks that can be in use simultaneously and is set by the number of VLAN IDs in the range of VLAN IDs you set.

A private network uses an IP address from the pool of available IP addresses in the network domain. To exclude IP addresses that your organization is using for other purposes, specify them in the Reserved IP Address Ranges table. These addresses will not be available to dynamic private networks.

7. In the Associate Networks step, add existing networks to the new network domain. Add the network you want to use as the public network. This network will be used to provision vServers.
8. Review and click **Finish**.

When the job is completed, the new network domain is listed in the Navigation pane.

Configure Public Network

Select the public network and then select **Edit Managed IP Ranges**. Specify a range or a series of IP addresses, as provided by your network administrator. These addresses will be used later to support vServers.

Prepare Storage Resources

When Ops Center discovers a storage device, it creates a dynamic storage library, but these libraries cannot be used to support a vDC. Instead, create static storage libraries:

- Create a NAS storage library to store the metadata of the control domains. This storage is exclusive for the vDC. Do not use this library for any other purpose.
- Create at least one SAN library to store the operational data.

The storage libraries are block storage, which use Logical Unit Numbers (LUNs). The LUNs are backed by Fibre Channel disks or iSCSI disks in the form of LUNs.

SAN LUNs are associated with Fibre Channel or iSCSI target groups. Fibre Channel targets use a dedicated optical network and iSCSI targets use the IP network, but in

both protocols, the targets in a target group expose one or more LUNs as a storage resource for the target's initiators.

For both protocols, Oracle Enterprise Manager Ops Center acts as the initiator. To allow the target group and Oracle Enterprise Manager Ops Center to identify each other as eligible initiators and targets, each one's Fibre Channel World Wide Number (WWN) or iSCSI IQN must be registered with the other one. Oracle Enterprise Manager Ops Center recognizes the targets because the WWNs or IQNs of the storage server are recorded when the storage server is discovered. Any LUNs that have been assigned to that WWN or IQN are eligible to be used in a storage library.

Create a NAS Storage Library

These are the tasks for setting up a NAS storage library:

1. [Identify the NAS Share](#)
2. [Create a NAS Storage Library](#)

Identify the NAS Share

The NFS share is a file system on a NAS storage device. You can view the shares on managed storage servers from the Oracle Enterprise Manager Ops Center user interface.

1. Expand **Assets** in the Navigation pane and click
2. Click **All Assets** to expand the section.
3. Click on the NAS storage server in the Storage section.
4. In the center pane, click the **Storage Shares** tab.

Figure 34–3 Storage Shares Tab

Name	Export Point (NFS)	Resource Name (CIFS)	Use Access Based Enumeration (CIFS)	NFS Enabled	CIFS Enabled	Used Space (GB)	Share Mode (NFS)	No SUID (NFS)	Anon User Mapping (NFS)
OVM/FS_befo...	/export/FS_be...		false	true	false	0.000	none	false	
OVM/pool1	/export/pool1		false	true	false	0.000	none	false	
OVM/pool2	/export/pool2		false	true	false	0.441	none	false	
OVM/repo1	/export/repo1		false	true	false	58.917	none	false	
OVM/repo2	/export/repo2		false	true	false	0.143	none	false	
OVM/sigal1	/export/sigal1		false	true	false	0.142	none	false	
OVM/sigal2	/export/sigal2		false	true	false	0.000	none	false	
OVM/sigal3	/export/sigal3		false	true	false	0.000	none	false	
OVM/sigal4	/export/sigal4		false	true	false	0.142	none	false	

5. View the shares and choose one with capacity to support a server pool. You will use this share in the following procedure.

Create a NAS Storage Library

1. Expand **Libraries** in the Navigation pane. The new library will be created in the Filesystem Storage section.
2. Click **New NAS Software Library** in the Actions pane.
3. Enter a name for the library and a description. For example, identify how the new library will be used.
4. Do not associate a server pool with the new storage library. The server pool will be created later. Click **Next**.
5. By default, the wizard displays the option for using an exported share of a storage device. Because this procedure has set up an NFS share, select **Other**.
6. Enter the URL or IP address for the NFS server in the URL field.

Figure 34–4 Identify Storage

7. (Optional) You can specify the version of NFS that this storage uses. By default, Oracle Enterprise Manager Ops Center uses the operating system's default NFS version. To specify a different version, allow the version to be changed.
 - a. Select **Override NFS Version**.
 - b. Click the drop-down list of NFS versions. Select a version.

Figure 34–5 Override NFS Version

8. Click the **Next** button to review a summary of the storage library.
9. Click the **Finish** button to submit the job.

When the job is completed, you can see the new storage library in the Libraries section of the Navigation pane.

Create SAN Storage Libraries using Fibre Channel LUNs

This section describes how to set up a static block storage library, backed by Fibre Channel LUNs. The number of LUNs in the storage library determines the number of virtual hosts that the library can support

What You Will Need

You will need the following to set up and use a block storage library:

- LUNs backed by a managed SAN server using the Fibre Channel protocol
- The role of Storage Admin

To create LUNs on the storage server, you must have the user account and password to log into the storage server and create the LUNs as targets.

Configure the Storage Server

If you need to create LUNs and make them available to Oracle Enterprise Manager Ops Center, see the storage server's documentation for instructions in how to perform the following:

- **Configure the initiator and the targets.** The initiator (Oracle Enterprise Manager Ops Center) must be able to recognize the targets (LUNs) and the targets must be able to recognize the initiator. Oracle Enterprise Manager Ops Center recognizes the targets because the WWNs of the storage server are recorded when the storage server is discovered. Any LUNs that have been assigned to that WWN are eligible to be used in a storage library. On the storage server, you must specify Oracle Enterprise Manager Ops Center's WWN as an initiator and assign LUNs to that initiator.
- **Enable multipathing on the Fibre Channel ports.** Multipathing is enabled by default on Oracle Solaris x86-based systems, but is disabled by default on Oracle Solaris SPARC-based systems. Use the `stmsboot -e` command to enable multipathing.
- **Create new LUNs.** It can take several hours for a new LUN to be displayed in Oracle Enterprise Manager Ops Center's user interface.

To verify iSCSI LUNs are available to the virtualization host, use the following command:

```
# iscsiadm list target -S
```

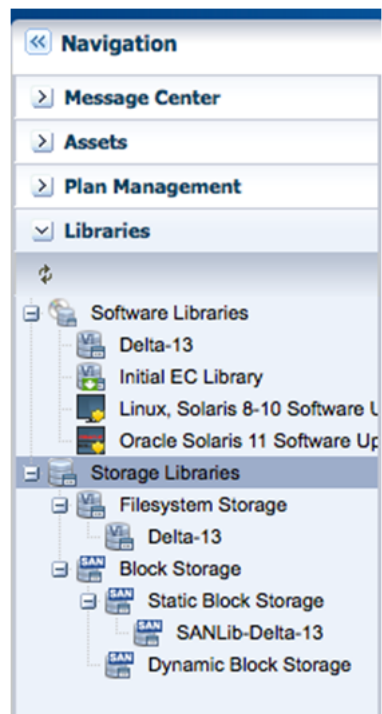
To verify Fibre Channel LUNs are available to the virtualization host, use the following command for Oracle Solaris 11:

```
# fcadm lu
```

Create a Static Block Storage SAN Library

To specify the LUNs in a storage library, you specify the server pool that will use the storage library and then select LUNs from among the LUNs available to the server pool.

1. Expand **Libraries** in the Navigation pane.

Figure 34–6 Storage Libraries Navigation

2. Click **New SAN Storage Library** in the Actions pane.
3. Enter the name and description of the library. Click **Next**.
4. Select **Associate the new library with the selected items and LUNs sharing to LDOMs**. To create RAC instances, the SAN library must support LDom sharing in order for each logical domain to get access to its storage through any of the domains in the server pool. Click **Next**.

Figure 34–7 Identify Library Associations

Identify Library Associations

an option to select logical units (storage volumes) that should be contained in this library.
Select at least one object from the table to associate with the new library.

☐ Create the library associations later

☒ Associate the new library with the selected items

☒ LUNs sharing to LDOMs

Name	Description	Type
VirtPool_t4	virtual pool	Idom
L1@example.com		Idom
L2@example.com		Idom
press00	Global Zone	zone

5. In the Identify LUNs step, select at least one LUN from the list of available LUNs. You can select one LUN and then add more LUNs later. Click **Next**.
6. Review the details of the storage library in the Summary pane. Click **Finish** to submit the job.

When the job is completed, the new storage library is displayed in the Libraries section of the Navigation pane in the Static Block Storage section. The center pane shows the library's Summary tab.

Deploy Control Domains

- [Create a Provisioning Profile for Oracle VM Server for SPARC](#)
- [Create an OS Configuration Profile for Oracle VM Server for SPARC](#)
- [Create an Install Server Deployment Plan](#)
- [Apply the Install Server Deployment Plan](#)

Create a Provisioning Profile for Oracle VM Server for SPARC

This profile provisions the Oracle VM Server for SPARC with Oracle Solaris 11 OS. Ensure that the MSR import job is finished before creating the provisioning profile.

1. Select **Plan Management** section and expand **Profiles and Policies** in the Navigation pane.
2. Select **OS Provisioning** profile and click **Create Profile** in the Actions pane.
3. Enter the following details in the **Create OS Profile - OS Provisioning** wizard:
 - Name and description of the profile. In this case, the name of the profile is `control_domain_osp`.
 - Select `Oracle VM Server for SPARC` as the Subtype and `V class` as the target type.

Figure 34–8 Identify Oracle VM Server Provisioning Profile

Identify Profile * Indicates Required Field

* **Name:**

Description:

* **Subtype:**

Target Type:

Click **Next**.

4. Select the Oracle Solaris and Oracle VM Server (LDom) version. Select the following parameters, then click **Next**:
 - For the Oracle VM Server for SPARC version, select an Oracle Solaris 11 SRU that includes your Oracle VM Server for SPARC version. For example, Solaris 11.2 SRU 11.5.0 (LDom 3.2.0.1). If you do not see the Oracle Solaris 11 release you want, verify that the MSR import is complete or select a different Oracle Solaris 11 version that is supported by your MSR.
 - For the Systems Software Group, select solaris-small-server. If you have a complicated environment, you can choose a large server.

Figure 34–9 Specify OSP Parameters

Specify OSP Parameters * Indicates Required Field

Select an OS image from the list of images available.
Select one system software group and any optional feature software groups that this OS profile installs. Use Ctrl+Click and Shift+Click to select multiple software groups.

* **Oracle VM Server Version:** Solaris 11.2 SRU 11.5.0 (LDom 3.2.0.1) ▼

☐ Use Custom Manifest

* **Software Group:**

- System Software Groups**
 - pkg://solaris/group/system/solaris-small-server
 - pkg://solaris/group/system/solaris-minimal-server
 - pkg://solaris/group/system/solaris-large-server
 - pkg://solaris/group/system/solaris-core-platform
 - pkg://solaris/group/system/management/rad/rad-server-int...
 - pkg://solaris/group/system/management/rad/rad-client-inte...
- Feature Software Groups**
 - pkg://solaris/group/feature/trusted_desktop

Solaris 11 Update Profile: ▼

5. Keep the default values for the OS setup parameters or edit the language, time zone, and NFS4 Domain values for your environment.
6. Enter the root password and confirm the password.
7. Clear the **Manual Net Boot** option and the **Save NVRAMRC** option.
Click **Next**.
8. Specify the user account for logging into the control domain. Create a user account to SSH to the OS after provisioning. Provide a user name and password for the account, then click **Next**.

Figure 34–10 Specify the User Account

Specify User Account

Specify user account to be used for the OS.

* **Username:** admin

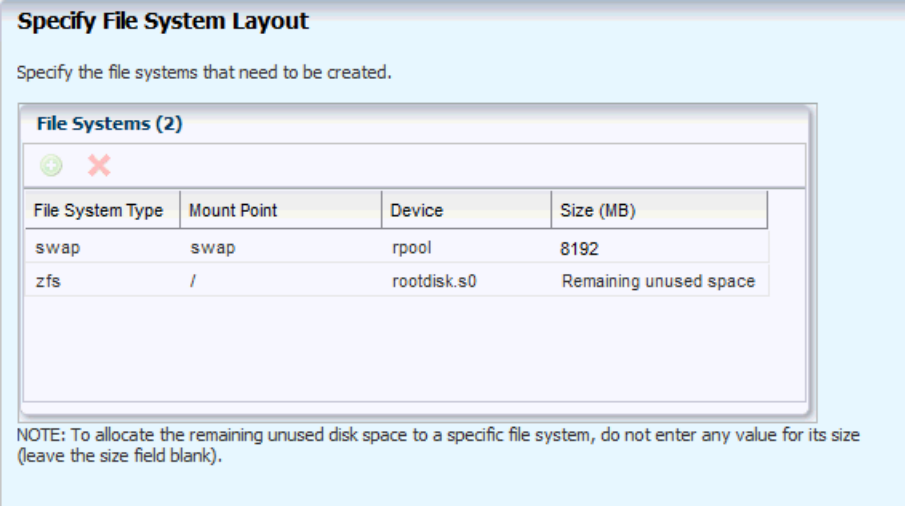
Full Name:

* **Password:** ••••••••

* **Confirm Password:** ••••••••

9. Do not use iSCSI disks for provisioning Oracle VM Server for SPARC. Deselect **Use iSCSI Disk** and click **Next**.
10. Edit the swap size, then click **Next**.

Use a minimum of 8192 MB for the swap size. The root (/) and a swap file system are defined by default but you must change the swap size, according to recommendations for sizing and performance. In general, each logical domain that this control domain supports will need 1 GB.

Figure 34–11 Specify the File System Layout


Specify File System Layout

Specify the file systems that need to be created.

File Systems (2)

File System Type	Mount Point	Device	Size (MB)
swap	swap	rpool	8192
zfs	/	rootdisk.s0	Remaining unused space

NOTE: To allocate the remaining unused disk space to a specific file system, do not enter any value for its size (leave the size field blank).

11. Select DNS as the naming service in place, and provide the details, including the server names. Naming service is not required. Click **Next**.
12. Review the parameters selected for the profile and click **Finish** to create the OS provisioning profile.

The profile appears in the center pane and in the Profiles and Policies section of **Plan Management**.

Create an OS Configuration Profile for Oracle VM Server for SPARC

The OS Configuration profile lets you define the network interface that you want to use on the operating system. The first interface you define is the boot interface and also the primary interface. You can add more than one network interface. When you apply the plan to a target, you can select which network interface is the primary interface and define the IP address.

- Control domain configuration such as CPU Threads or Whole-cores, memory, Crypto Units, Virtual Console Port Range and Virtual Disk Server name.
- Options such as enabling MPxIO and SR-IOV, detaching the unused buses, and saving NVRAMRC values.
- OS management option to install the Agent Controller.
- Networking options to use IPMP or Link Aggregation.

The recommended minimum configurations for the control domain are described in the following sections.

CPU Resource Allocation The number of system CPUs determines the number of control domain CPU threads:

- For less than 16 system CPUs, set the control domain CPU Threads to 2.
- For between 16 and 64 system CPUs, set the control domain CPU Threads to 4.
- For more than 64 system CPUs, set the control domain CPU Threads to 8.

You can select to allocate CPU resources either as CPU Threads or Whole-core. Whole-core is the default value in Oracle Enterprise Manager Ops Center. When you allocate as Whole-core, all the CPU Threads in the core are allocated to the control domain. For example, when you allocate two cores in UltraSPARC T2 servers, the

control domain is allocated with all the 16 CPU Threads in the core. You can also set the maximum cores constraint when you select Whole-core allocation type. The maximum number of cores constraint specifies the number of cores that must be assigned to the domain.

Crypto Units Crypto units are the resources on the supported platforms that provide high-performance, dedicated cryptographic engines. These can be used for tasks such as encrypting and decrypting network traffic between a Secure Socket Layer (SSL) web server and an application server.

Each CPU core has one Crypto unit and four or eight CPU threads. Because the Crypto unit is part of a core, the Crypto unit is bound only to domains that contain at least one thread from the parent core. Crypto units cannot be split as CPU threads are split. For example, you have assigned the Crypto unit for the first CPU core to the control domain. When a new logical domain is assigned a thread from the first CPU core and the Crypto unit for that core is already assigned, the control domain cannot assign that Crypto unit to the new logical domain. Allocation of Crypto units might not succeed, especially when a core is split between domains. An Oracle VM Server might allocate fewer Crypto units or none at all.

You must assign at least one Crypto unit to the control domain because the Crypto unit enables domain migration.

The use of Crypto Units is not mandatory although it might speed the logical domain migration. Allocation of Crypto Units might not be available in all the hardware.

RAM The amount of RAM for the control domain depends on the size of the system RAM and the load of the system.

- For system RAM less than 8 GB, set the control domain's RAM to 1 GB.
- For system RAM between 8 GB to 16 GB, set the control domain's RAM to 2 GB.
- For system RAM greater than 16 GB, set the control domain's RAM to 8 GB.

In Oracle Enterprise Manager Ops Center the default value is 4 GB as a recommended starting point for logical domains, and the minimum value is 1GB.

NVRAMRC Value Automatic booting on a SPARC system uses the default boot device that is defined in the non-volatile RAM (NVRAM). User-defined commands that are executed during start-up are stored in the NVRAMRC file in the NVRAM. When you run an OS provisioning job on a SPARC machine, Oracle Enterprise Manager Ops Center resets the configuration to the factory default configuration and removes the information that is stored in the NVRAMRC file. The control domain OS configuration profile gives you the option to preserve the information in the NVRAMRC file before resetting the server to the factory defaults, and then restore the information after the reset.

To create an OS Configuration profile:

1. Select the **Plan Management** section and expand **Profiles and Policies**.
2. Select OS Configuration and click **Create Profile** in the Actions pane.
3. Enter a name and description in the **Create Profile - OS Configuration** wizard. In this case, the new profile has the name `install_cdoms_osc`, select Oracle VM Server for SPARC as the Subtype, then click **Next**.

Figure 34–12 Identify the OS Configuration Profile

Identify Profile * Indicates Required Field

*** Name:**

Description:

*** Subtype:** Subtype

- Oracle VM Server for SPARC
- Logical Domain
- Oracle Linux
- Oracle VM Server for x86
- Red Hat Linux
- SUSE Linux
- Solaris
- JET Template

Target Type: Target Type

- V class (sun4v)

4. Select the Oracle VM Server for SPARC version to be installed. The version must match the version selected in the OS Provisioning profile.
5. Specify the resources that you want to assign to the control domain, according to the recommended minimum configuration. The control domain will route the network and Fibre Channel LUNs. Be sure to use sufficient cores and memory for your environment and control domain to avoid performance issues.

The remaining resources are then available for the logical domains.

- **CPU Model:** Select Whole-core to allocate the CPU resource in cores.
- **CPU Cores:** Enter the number of CPU core to be allocated to the control domain.
- **Max CPU Cores:** Enter the number of CPU cores that must be assigned to control domain.
- **Memory:** Enter the amount of memory required for control domain.
- Do not provide any values for **Requested Crypto Units**.
- **Virtual Console Port Range:** Enter the range between 5000 to 6000.
- Keep the default name of the virtual disk server.

Clear the following options, then click **Next**:

- **Enable Single Root I/O Virtualization (SR-IOV)**
- **Detach Unused Buses**

Figure 34–13 Specify the Control Domain Parameters

Specify Oracle VM Server Control Domain Parameters * Indicates Required Field

Specify the setup configuration for the Oracle VM Server Control Domain.

* Oracle VM Server Version: Solaris 11.2 SRU 11.5.0 (LDom 3.2.0.1)

CPU Model: ☐ Virtual CPU ☒ Whole-Core

* CPU Cores: 3

Max CPU Cores: 3

Memory: 12 GB

Requested Crypto Units:

Virtual Console Port Range: 5000 - 6000

Virtual Disk Server: primary-vds0

Options: ☐ Enable Single Root I/O Virtualization (SR-IOV)
☐ Detach Unused Buses

6. Select the option **Enable Multiplexed I/O** so that you can associate block storage libraries such as SAN and iSCSI for storage with the control domain. Click **Next**.
7. In the Specify Networking page, select **None** as the networking option for Oracle VM Server for SPARC. Click **Next**.
8. Select the network interface to use for OS provisioning. Select the **Controller** that hosts the network interfaces and the corresponding network interface. The **Address Allocation** is Use Static IP by default and cannot be modified.

Select **Auto** to create a virtual switch automatically for the network connection to the control domain, then click **Next**. The virtual switch is created in the default format. For example, the network 192.0.2.0/24, the virtual switch is created as 192.0.2.0_24.

Figure 34–14 Specify the Network Interfaces

Specify Network Interfaces

Specify all network interfaces that you want to use on the OS.

Network Interfaces (1)

Controller	Interface	Address Allocation Method	Virtual Switch
default	net_0	Use Static IP	Auto

9. Review the parameters and click **Finish** to create the OS configuration profile.

The job is initiated and the new OS configuration profile appears under Profiles and Policies in the Plan Management section. You can select the OS Configuration profile to view its details in the center pane.

Create an Install Server Deployment Plan

Create an Install Server deployment plan that uses the OS provisioning and OS Configuration profiles that you just created.

1. Expand **Plan Management** in the Navigation pane.
2. Under Deployment Plans, select **Install Server**.
3. Click **Create Plan from Template** in the Actions pane.
4. Enter a plan name and description. For the Failure Policy, select the option to complete as much of the plan as possible.
5. Associate the profiles that you created earlier.
 - a. In the OS Provision step, place your cursor in the Associated Profile/Deployment Plan field for that row and select the OS Provisioning Profile you created.
 - b. In the OS Configuration step, place your cursor in the Associated Profile/Deployment Plan field for that row and select the OS Configuration Profile you created.
6. Click **Save**.

Apply the Install Server Deployment Plan

Apply the Install Server deployment plan to provision Oracle VM Server for SPARC.

When you apply a deployment plan to provision Oracle VM Server for SPARC, you must have the following information to complete the installation:

- In the server hardware, obtain the network interface that is physically connected to the network that is managed by Oracle Enterprise Manager Ops Center.
 - Both tagged and untagged networks are listed for network configuration. When OpenBoot PROM (OBP) is used, only untagged networks can be used for OS provisioning as you cannot boot from a tagged network.
 - The IP address for the boot interface.
 - If you want to identify the network interface using the MAC address, you can select to enter the MAC address instead of the boot interface.
 - The details of network connection that you want to use to configure the OS after booting. For multiple network configuration, the first interface is always overwritten by the boot interface that is defined during the OS provisioning step. For single network configuration, it is same as the boot interface network.
 - Do not select the option to place the Oracle VM Server for SPARC in a server pool.
1. Select the **Install Server** plan in the **Deployment Plans** list.
 2. Select **Apply Deployment Plan** in the Actions pane.
 3. Select one or more assets and click **Add to Target List**.
 4. Select **Apply with minimal interaction**. If you want to review and change the profile parameters, then select **Allow me to override any profile values** to verify the configuration for the OS Provisioning and OS Configuration profiles. Click **Next**.
 5. If you selected **Apply with minimal interaction**, select not to review the steps that are not included in the plan and click **Next**.

6. The wizard collects information for provisioning Oracle VM Server for SPARC. Click **Next**.
7. In the Boot Interface Resource Assignments step, provide the following information:
 - **Network:** The network for the boot interface.
 - **Controller:** Select the controller that provides the network interface for OS provisioning. It is always default for the Oracle VM Server for SPARC provisioning.
 - **Interface:** Select the net0 interface from the list. This network interface is physically connected to the selected network.
 - **IP Address:** Enter the IP address for the boot interface of each target.
 - (Optional) **Primary Hostname:** Enter the host name for Oracle VM Server for SPARC.

If you want to identify the network interface by its MAC address, then select the option **Identify Network Interface by MAC Address** and enter the MAC address instead of selecting the Controller and the Interface.

Click **Next** to view the OS provisioning summary.

8. Review the parameter of OS provisioning and click **Next**.
9. The following steps in the wizard collect information about OS configuration. Click **Next**.
10. Specify the network resources that were defined in the profile. Select the network and for each network, select the network interface and enter the IP address.

The first network interface listed is the boot interface. For multiple network configuration, the first network interface is always overwritten by the boot interface network. You can select which is the primary network interface after the provisioning of the OS.

For single network, the boot interface network will be defined as the primary network during OS configuration.

Click **Next**.
11. Select the option **Do not assign to a Server Pool**. Click **Next**.
12. Review the summary of the OS configuration parameters and click **Next** to schedule the job.
13. Schedule the provisioning job to run **Now**. Click **Apply** to apply the deployment plan on the selected targets.

When the job completes, the control domain is installed and appears in the All Assets section and each is managed by an Oracle VM Server for SPARC agent.

Create the Server Pool

A server pool is a group of control domains that has access to the same virtual and physical networks and storage resources. Server pools provide load balancing, high availability capabilities, and sharing of the resources for all the members of the pool.

This procedure creates a server pool containing the control domains you created, both storage libraries you created, and the network domain you created.

Before you begin, you must know the network interface that is the physical connection to the system that supports the control domain.

- 1. Select **Server Pools** in the Resource Management View of the Navigation pane.
- 2. Click **Create Server Pool** in the Actions pane.
- 3. Enter a name and description for the server pool.
- 4. Select **Oracle VM Server - SPARC** from the Virtualization Technology list.
- 5. Click **Next**.
- 6. Select the Oracle VM Servers to be added to the server pool. Click **Next**.

Figure 34–15 Select Members of the Server Pool

Select Members

Select one or more assets to add to the server pool.

Member Name	CPU Architecture	CPU Type	CPU Frequency
prggb04		SPARC-T5	3600
prggb05		SPARC-T5	3600

- 7. Select the new network domain to be associated with the server pool. When you select a the network domain, the Specify Physical Interface table is populated with the fabrics in the network domain.

Figure 34–16 Specify the Network Domain

Associate Network Domain

Select the network domain to associate with the server pool. Select the physical interfaces for each asset used to connect to each fabric in the network domain.

Network Domain: PaaS ND

Specify Physical Interfaces

Server	ServiceDomain	Physical Interface	Bond ID	Bond Member
Fabric: Eth Fab at net5 at 10.1...7				
prggb05	primary	net0		
Fabric: PaaS Eth Fabric				
prggb05	primary	net3		

Networks on PaaS Eth Fabric:

Networks on Eth Fab at net5 at 10.163.96.217: 10...1

- 8. Specify how each fabric connects to each Oracle VM Server, then click **Next**.

Note: In the Physical Interface column, for each Oracle VM Server, select the name of the NIC that the system that hosts the Oracle VM Server uses to connect to the fabric. The NIC that is displayed initially is not a default; you must specify the NIC to use. Make sure that the proper interfaces are selected. If the public network is wrong, you cannot create virtual servers. If the private fabric connections are wrong, you cannot create attached private networks.

9. Click the **Add Network** icon to associate the public network in the network domain with the servers in the server pool. Enter 1 as the number of connections to the network in the Total Connections field. If you have pre-defined private networks managed outside of Enterprise Manager Ops Center, you can add them here. Click **Next**.

Figure 34-17 Add a Network

Associate Networks

Select the networks to associate with all of the servers in the server pool.

Network Domain: PaaS ND

Network Name	P-Key / VLAN ID	Mode	Total Connections	Use for Migration?
10.2.1	-	-	1	<input type="checkbox"/>

10. Specify the network configuration settings for each Oracle VM Server. If you correctly deployed the control domain, the information in the Configure Interfaces is correctly completed and the Oracle VM Server is already connected to the selected network. The UI displays the existing connection details to the network.

The following are the interfaces for each fabric in the network domain:

- For the fabric that supports the public network (the routable network), select any existing interfaces to the control domain. If no interface has been connected to the control domain, select the interface that is connected to the Ethernet switch.
- For the host-managed fabric, select the interface that is connected to Ethernet switch. Do not use bonded interfaces. Click **Next**.

Note: In the NIC column, for each Oracle VM Server, select the name of the NIC that the system that hosts the Oracle VM Server uses to connect to the fabric. Specify the same NIC that you chose in Step 8.

Figure 34–18 Configure Interfaces

Configure Interfaces

Specify the configuration settings for each network connection.

Server Pool Name: my_server_pool

Specify Configuration Settings for each Network Connection

Hostname	Service Domain	SR-IOV	Network	P-Key/VLAN ID	Mode	Connected	NIC	Switch Name	Address Allocation Method
smt5v2-1	primary	<input type="checkbox"/>	192.0.2.0/24.1	-	Untagged	<input checked="" type="checkbox"/>	net0	192.0.2.0_24	Do not All
smt4v2-3	primary	<input type="checkbox"/>	192.0.2.0/24.1	-	Untagged	<input checked="" type="checkbox"/>	net0	192.0.2.0_24	Do not All

- Storage libraries that are reachable from the selected members of the pool are displayed. Select the NAS and the SAN storage library to be associated with the server pool. Do not select a dynamic storage library. Click **Next**.

Figure 34–19 Associate Libraries

Associate Libraries

The storage libraries that are reachable from all of the selected virtualization hosts are listed. Select the storage libraries to associate with the server pool.

Search

Library Type	Library Name	Description
Dynamic Storage	Dynamic Library (10.163.98.106)	Dynamic Storage Library of 10.163.98.106 Storag...
SAN	PaaS data lib	fc://b65f59dd-819c-4d40-8244-d54d1f38eed6
NAS	metadata_paaS	paas metadata lib

- Select the placement and auto balancing policy, then click **Next**:
 - Place the guest on Oracle VM Server with lowest relative load. The vDC will override this placement policy.
 - Do not auto balance the server pool.
 - Clear the option for Automatic Recovery. Enterprise Manager Cloud Control will take control of the high availability.

Figure 34–20 Define the Policies

Specify Policies

Placement Policy: ☒ Place guest on Oracle VM Server with lowest relative load
☐ Place guest on Oracle VM Server with lowest allocated CPU and memory
☐ Place guest on Oracle VM Server minimizing overall power consumption
A Server is over-utilized when the following values are exceeded:
CPU Utilization exceeds: % for: minutes

Auto-Balancing Policy: ☒ Do not auto-balance the server pool
☐ Automatic balancing of the server pool
Note: The date and time are in the Enterprise Controller's time zone.
Every: Weeks on a at

Approval Policy
☒ Approval not required, automatically move the guests
☐ Approval required, send notification

Automatic Recovery: ☐ Power off a failed server when the capabilities are available before the automatic recovery of its logical domains

Check servers reachability every : seconds

13. Review the server pool information, then click **Finish** to create the server pool.

When the job finishes, the server pool is created and appears in the Server Pools view of the Assets section. Open the job to confirm that the job completed successfully.

Refresh the Library

Before you create the vDC, refresh the Static Block Storage Library. If the number is not refreshed before creating the vDC, it will break provisioning.

1. Expand **Libraries**, then expand **Storage Libraries** in the Navigation pane.
2. Select the storage library under **Static Block Storage**.
3. Click the **Refresh** button at the top of the center pane.

Wait a few minutes before creating the vDC to ensure that the refresh is complete. Refresh does not launch a job and you do not receive any notification that the library is refreshed.

Set Up and Configure a Virtual Data Center

- [Create an Enterprise Manager User](#)
- [Create the vDC](#)
- [Create the vDC Account for PaaS](#)
- [Prepare the vServers](#)

Create an Enterprise Manager User

Add a user to connect Enterprise Manager Ops Center with Enterprise Manager Cloud Control. The user does not need to have full access to Enterprise Manager Ops Center, only the Cloud role. You can create a local user or use a naming service.

You must have the Enterprise Manager Ops Center User Admin role to add a user.

1. Select **Administration** in the Navigation pane.
2. Click **Local Users**.
3. Click the **Add User** icon.
4. Enter `ocadmin` as the user name.
5. Add the **Cloud** role to the list of Selected Roles. You can add other roles, but it is not required. Click **Add User**.

Create the vDC

The vDC inherits network resources and storage resources from the server pool. The vDC enables cloud users to create virtual machines and run applications. The cloud user provides networking to its virtual machines from the public networks that are allocated to each account or by creating private networks. The cloud user can use the public networks, or create a private vNet for use in the account. When the cloud users create a private vNet, either a dynamic private network is created or the static private network is available for use in that account.

You must have the Enterprise Manager Ops Center Cloud Admin role to create a vDC.

1. Select **vDC Management** in the Navigation pane.
2. Click **Create Virtual Datacenter** in the Actions pane.
3. The first step Create Virtual Datacenter Wizard is an introduction to the vDC and the prerequisites for creating a vDC. Click **Next**.
4. In Specify Virtual Datacenter Details:
 - Provide a name and description for the vDC.
 - Enter tags to distinguish this vDC from other vDCs.
 - Select **Password Required** to enforce using credentials when creating vServers in the vDC. When this option is enabled, cloud users must specify a root password, with or without an SSH key. In addition, cloud users must specify either an SSH key or remote user credentials when creating vServers that use Oracle Solaris 11 OS.

Click **Next**.

5. Select the new server pool from the list.

If the server pool does not appear in the list, the server pool was not properly configured. Ensure that the metadata library is created and that there is a dedicated network domain. The vDC is homogeneous. You can only add compatible server pools that have Oracle VM Server for SPARC. It is recommended to not mix machines that have different CPU and memory configurations.

6. Select one or more boot networks from the public network. You must select at least one network.

Note: Boot networks are required for vServer OS deployment. You must also add at least one boot network to each account in the vDC for creating vServers in the account. You can also assign a boot network to an account and use it as a public network for that account.

Click **Next**.

7. The vCPU sizing displays this information:
 - **Total number of vCPUs:** The total number of vCPU in the vDC for the updated vCPU to physical CPU Threads ratio.
 - **Avg memory per vCPU:** The average memory per vCPU in GB. The total memory available for the vDC by the total number of vCPUs. When you want to use the CPU and memory resources to the full extent, the vServers must use this amount of resources.

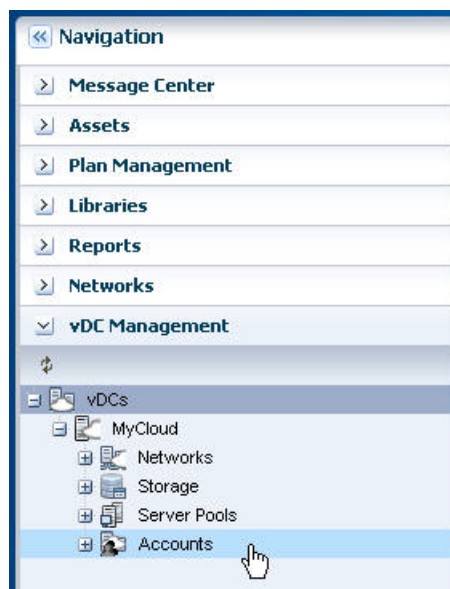
Accept the default values and click **Next**.
 8. Select **Static Block Storage Libraries** as the storage type for the root disk.
 9. Select the SAN storage library you created.
 10. Select **Static Block Storage Libraries** as the storage type for the volume and.
 11. Select the SAN storage library you created.
- Click **Next**.
12. Confirm the vDC configuration and click **Finish** to create the vDC. The vServers will run in this vDC, according to the vServer type.

Create the vDC Account for PaaS

In creating the account, you allocate resources from the vDC to the account. The resource allocation for all the accounts in a vDC can be more than the actual resources in a vDC. This oversubscription of the resources must be planned. You must update the resources when the requirement increases.

1. Expand **vDC Management** on the Navigation pane.
2. Expand **vDCs**, select the new vDC, then click **Accounts**.

Figure 34–21 vDC Management Navigation



3. On the Actions pane, click **Create Account**.
4. Enter the name for the account: PaaS_Account, then click **Next**.
5. Specify the quotas of vCPU, Memory, and Storage for the account.

Only one account will control the resources. For this PaaS_Account, specify the maximum capacity of each resource.

In the Number of private vNets field, enter the number of private vNets for this account, which is the same as the number of VLAN IDs assigned. Click **Next**.

Figure 34–22 Specify Account Resource Limits

Specify Account Resource Limits

vCPU:

Memory: GB

Storage: GB

Resource Quota Information

- vCPU is Infinity% oversubscribed, 5 vCPUs subscribed from vDC capacity of 0
- Memory is Infinity% oversubscribed, 10 GB subscribed from a vDC capacity of 0 GB
- Storage is 1% oversubscribed, 1635 GB subscribed from a vDC capacity of 1630 GB

Number of private vNets:

Use the table below to edit the public network resource limits.

	Name	Subnet	Available Addresses	Limit
<input checked="" type="checkbox"/>	10.10.10.1	10.10.10.2	101	<input type="text" value="8"/>

6. Select the Enterprise Manager Ops Center user with the Cloud role, `ocadmin`, that you created earlier. Use the right arrow key to add this user to the list of Assigned Cloud Users. Do not assign the `root` user. Click **Next**.

The `ocadmin` user is the connection between Enterprise Manager Ops Center and Enterprise Manager Cloud Control. Cloud Control will connect to Ops Center using this user account.

Figure 34–23 Assign Users

Assign Users

Assign users to the account.

Available Cloud Users

root

Assigned Cloud Users

ocadmin

➡

➡

⬅

⬅

7. View the Summary and click **Finish** to create the account. When the job is completed, a new account is created.

Prepare the vServers

A vServer is an entity that provides the outward interface of a stand-alone operating system that consumes CPU, storage, and memory resources. A vServer has its own identity, local storage, interfaces, and configuration that exist for the full lifetime of the vServer. You determine the creation of new vServers according to the account quota limits and applications requirements.

When creating a vServer, the following account resources are required:

- **A vServer type:** vServer Types are profiles that define the computing resources such as virtual CPU, memory, and storage size. You select the best suitable vServer type from those available for the account. vServer types are visible to cloud users during the vServer creation process.
- **A server template:** Server templates designate the OS provisioning and OS configuration for the vServer. You can either select a server template from those that exist for the account or create a new server template.
- **One or more virtual networks:** For the vServer network connectivity you must choose one or more vNets from the available vNets or create new ones before creating a vServer. vServers are only assigned to virtual networks when the vServer is created.

Create a New vServer Type

When you create a vServer type, the VM hosting details display the following information in the wizard based on the resources defined:

- The number of virtualization servers in the vDC that have sufficient physical resources to host a vServer with the selected resources.
 - An estimation of number of vServers that can be hosted with the total number of physical resources of the vDC.
 - A warning when the current value of the memory size exceeds the selected storage size.
1. Select the vDC and click **Create vServer Type** in the Actions pane.
 2. Provide a name and description to identify the type. For example:
 - single instance DBAAS
 - RAC instance DBAAS
 - RAC big instance DBAAS
 3. Add tags for identification and classification of the vServer type. Click **Next**.
 4. Specify values for vCPU, memory and storage resources, then click **Next**.

The VM Hosting Details will display the estimated number of vServers that can be hosted based on the figures you supply. The minimum amount of RAM for Oracle Solaris 11.2 is 2 GB. For example, [Table 34–1](#) shows the recommended values for the DBaaS instances deploying Oracle 12c Database.

Table 34–1 Recommended Values for DBaaS Using Oracle 12c Database

Instance	RAM	root	vCPU
single instance DBAAS	4 GB	45 GB	16
RAC instance DBAAS	5 GB	45 GB	16
RAC big instance DBAAS	12 GB	45 GB	16

5. Review the information provided and click **Finish** to create the vServer type.

Create a Private vNet

Private vNet is a private virtual network set up exclusively for an account. The vServers associated with this vNet have private virtual IP address for internal

communication. In this PaaS solution, only RAC instances use private networks. Generally, the number of networks is equal to the number of real application clusters that you want to host on your cloud. The private networks are used as the cluster interconnect, but you can use them to connect different virtual machines between each other with a network that cannot see them from the public network.

1. Expand **vDC Management** on the Navigation pane.
2. Expand **vDCs**, select the new vDC, then click **Accounts**.
3. Select the account you created.
4. On the Actions pane, click **Create Private vNet**.
5. Enter the name and description for the private virtual network. For example, `large_private_vnet` or `small_private_vnet`. Click **Next**.
6. Use the slide bar to set the value of the number of elements, or hosts. Click **Next**.

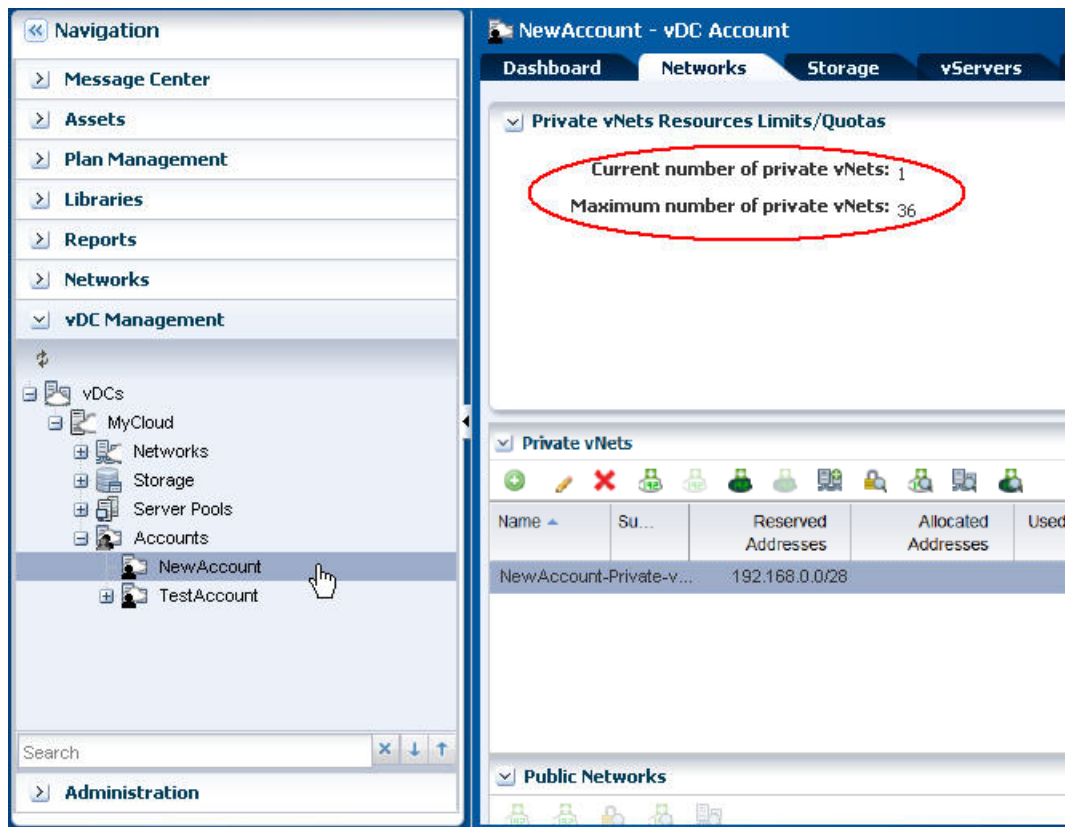
The values entered are rounded up to the next value of 13, 29, 61, 125, 253, 509, 1021, 2045, 4093, and 8189. Do not use the values of 1 or 5. You cannot change the size of a network after it is created so specify the size needed to accommodate your current and future requirements:

- The number of elements is also the maximum number of vServers that can be part of this vNet. Class C networks (for example, 10.0.0.1/24) enable you to create 256 vServers and Class 16C networks (for example, 10.0.0.2/20) enable you to create 4096 vServers.
- Whether the vNets will be shared or dedicated. If multiple RAC instances will share one or more networks, set the network size to 509 and more. If each RAC instance will have a dedicated network, limit the network size to 29 or 13.

Figure 34–24 Private vNet Configuration



7. Review the Summary, then click **Finish** to create the private virtual network.
- The new private virtual network is listed in the Networks and vDC sections of the Navigation pane.

Figure 34–25 View of the New Private Virtual Network

8. Connect the IP address from this new private virtual network to the vServer, using **Connect Private vNet** icon in the Private vNets table. Click **Connect**.

Note: If you have multiple vNets, connect each vNet one at a time. Wait for each job to complete before making the next connection.

Set Up and Configure a Server Template

Before you can create guest domains, you must create the necessary profiles and plans to define the operating system for the guest. After you create the profiles you will create a Server Template to apply the profiles.

Server Templates are a combination of OS update, OS provisioning, and OS Configuration profiles. You can create several profiles and server templates.

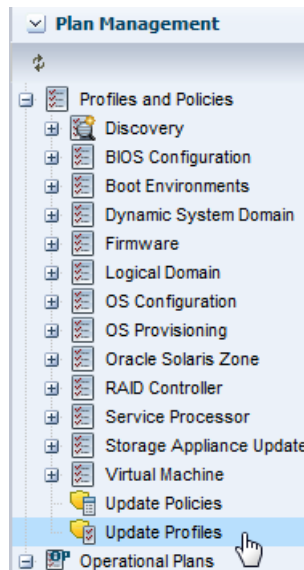
- [Create an OS Update Profile](#)
- [Create an OS Provisioning Profile for Guests](#)
- [Create an OS Configuration Profile for Guests](#)
- [Create a vServer Template](#)
- [Create a vServer](#)

Create an OS Update Profile

The Oracle Solaris 11 OS Update profile installs packages as part of an OS Provisioning profile. This example shows how to create an OS Update profile that installs the integration package. You then add this profile to an OS Provisioning profile.

1. Expand **Plan Management** in the Navigation pane, then select **Update Profiles** under **Profiles and Policies**.

Figure 34–26 Update Profiles Navigation



2. Click **New Profile** in the Actions pane.
3. Enter a name and description for the profile. In this case, the profile is PaaS base update. Then select **Solaris 11** from the Type menu.

Figure 34–27 Create OS Update Profile

 A screenshot of the 'Create OS Update Profile' form. It has a light blue header. Below the header, there are three input fields: a text field for 'Name' containing 'PaaS base update', a dropdown menu for 'Type' set to 'Solaris11', and a text area for 'Description' which is currently empty.

4. Keep the default filters and then search for each one of the following packages and files and click the **Install** icon. If more than one version appears, select the latest version.
 - SUNWhea
 - SUNWsprot
 - developer/assembler
 - developer/java/jdk-6
 - developer/java/jdk-7
 - post-script-paas
5. Click **Create OS Update Profile**. The profile appears in the list of Update profiles.

Create an OS Provisioning Profile for Guests

The OS provisioning profile will define the operating system image and PaaS package to install on the guest. This example installs Oracle Solaris 11.2 SRU 11.5.0.

Perform the following steps to create a new OS Provisioning profile:

1. Select the **Plan Management** section in the Navigation pane.
2. Expand **Profiles and Policies** and select **OS Provisioning** profile.
3. Click **Create Profile** in the Actions pane.

The Create Profile - OS Provisioning wizard is displayed.

4. Provide the following details for the profile identification, then click **Next**:
 - Enter the name of the profile as *ldom_guest_osp*.
 - Enter a suitable description for the profile that describes the OS.
 - Select **Logical Domain** as the Subtype and **Virtual Machine** as the Target Type.

Figure 34–28 Identify the Logical Domain Profile

Identify Profile * Indicates Required Field

* **Name:**

Description:

* **Subtype:** Subtype

- Oracle VM Server for SPARC
- Logical Domain**
- Oracle Linux
- Oracle VM Server for x86
- Red Hat Linux
- SUSE Linux
- JET Template
- Solaris SPARC
- Solaris x86

Target Type: Target Type

- VirtualMachine**

5. Select the following OSP parameters:
 - The Oracle Solaris 11.1 OS and the SRU from the list.
 - solaris-small-server as the Software Group from the list.
 - For the Solaris 11 Update profile, select the OS Update Profile that you created: PaaS base update.

Figure 34–29 Specify the OSP Parameters

Specify OSP Parameters * Indicates Required Field

Select an OS image from the list of images available.
Select one system software group and any optional feature software groups that this OS profile installs. Use Ctrl+Click and Shift+Click to select multiple software groups.

* **OS Image:** Oracle Solaris 11.2 sparc (AI) ▼

* **OS Image Version:** SRU 11.5.0 ▼

* **Software Group:**

System Software Groups

- pkg://solaris/group/system/solaris-small-server
- pkg://solaris/group/system/solaris-large-server
- pkg://solaris/group/system/solaris-desktop

Feature Software Groups

- pkg://solaris/group/feature/trusted-desktop
- pkg://solaris/group/feature/storage-server
- pkg://solaris/group/feature/storage-nas
- pkg://solaris/group/feature/storage-ave

☐ Include Custom Scripts

Solaris 11 Update Profile: ▼

PaaS base update

Click **Next** to specify the OS Setup.

6. Specify the OS setup parameters, then click **Next:**

- Enter the time zone, language, terminal type, console serial port, and console baud rate.
- Enter the root password. The password that you enter here will be overwritten. Cloud Control will deploy its own password.
- The NFS4 domain is set to dynamic in this example. If a naming service is configured in your environment, enter the NFS4 domain value.

Figure 34–30 Define the OS Setup

Specify OS Setup * Indicates Required Field

Specify language, time zone, terminal type, console and root password for the OS.

Language: U.S.A. (en_US.ISO8859-15) ▼

Time Zone: GMT ▼

Terminal Type:

Console Serial Port: ttya ▼

Console Baud Rate: 9600 ▼

NFS4 Domain: dynamic

* Root Password:

* Confirm Password:

☐ Manual Net Boot

7. In the Specify User Account page, enter a user name and password to create a user account, then click **Next**.

Note: Cloud Control will overwrite this password and deploy its own password.

8. (Optional) If you want to use iSCSI disks for OS provisioning, select the check box. Click **Next**.

Figure 34–31 Specify if an iSCSI Disk is to be Used for Provisioning

Specify iSCSI Disk Usage

Specify if iSCSI disk is used for OS provisioning.

☐ Use iSCSI Disk

9. The root (/) and a swap file system are defined by default. You can change the swap size. Click the **Add** icon to add more ZFS file systems. Click **Next** to specify the name service.

Note: The minimum swap space should be 6 GB. If you are using a larger deployment, you might increase the swap or create multiple server templates.

Figure 34–32 Specify the File System Layout

Specify File System Layout

Specify the file systems that need to be created.

File Systems (2)

File System Type	Mount Point	Device	Size (MB)
swap	swap	rpool	6144
zfs	/	rootdisk.s0	Remaining unused space

NOTE: To allocate the remaining unused disk space to a specific file system, do not enter any value for its size (leave the size field blank).

10. Select the DNS naming service, then click **Next**.

Note: Ensure that your DNS naming service is working and that it conforms to public network requirements. All public IPs must be resolvable by the naming service.

11. Review the parameters selected for the profile and click **Finish** to create the OS provisioning profile.

The OS provisioning profile is created and listed under the OS provisioning profiles. Use this profile to create a Provision OS plan.

Create an OS Configuration Profile for Guests

1. Select the **Plan Management** section and expand **Profiles and Policies**.
2. Select **OS Configuration** and click **Create Profile** in the Actions pane.
3. Enter the following details to identify the profile, then click **Next**:
 - Name and description of the profile.
 - Select Logical Domain as the Subtype and Virtual Machine as the Target Type.

Figure 34–33 Identify the OS Configuration Profile for the Guests

Identify Profile * Indicates Required Field

* **Name:**

Description:

* **Subtype:** Subtype

- Oracle VM Server for SPARC
- Logical Domain**
- Oracle Linux
- Oracle VM Server for x86
- Red Hat Linux
- SUSE Linux
- Solaris
- JET Template

Target Type: Target Type

- VirtualMachine**

4. Select **Automatically manage with Oracle Enterprise Manager Ops Center and Deploy the Agent Controller**. To manage the virtual machines, you can select the option **Enable Multiplexed I/O** so that you can associate block storage libraries such as FC and iSCSI for storage with the OS. MPxIO is not required because the control domain will control the management.

Deselect the option **Enable Single Root I/O Virtualization (SR-IOV)**, the option is only applicable to root domains. Click **Next**.

Figure 34–34 Define the OS Management

OS Management

☒ Automatically Manage with Oracle Enterprise Manager Ops Center

☐ Deploy Agent Controller

☐ Periodically probe the asset. SSH credentials are required, choose from an existing set or create a new set.

SSH:

☒ Enable Multiplexed I/O (MPxIO)

☐ Enable Single Root I/O Virtualization (SR-IOV)

5. In Specify Networking, select **None** as the networking option for the OS, then click **Next**.
6. Enter 1 in the network interfaces field. The vDC will create the network interfaces and overwrite this value. Click **Next**.
7. Review the parameters and click **Finish** to create the OS configuration profile.

Create a vServer Template

Create a vServer template from the new OS profiles you created: provisioning, which includes the update profile, and configuration. You can create different templates for different profiles and deployments.

1. Select the account in the vDC Management section.
2. Click **Create Server Template** in the Actions pane.
3. In the wizard, skip the introduction and click **Next**.
4. Enter the name and description for the server template. Click **Next**.
5. Select the new OS provisioning profile, then click **Next**.
6. Select the new OS configuration profile from the list, then click **Next**.
7. Review the information and click **Finish** to create the server template.

The new template is created and available to create vServers.

Create a vServer

Use the Server Template to create one or more vServers.

1. Select the account in the vDC Management section.
2. Click **Create Server** in the Actions pane.
3. In the wizard, skip the introduction and click **Next**.
4. Enter the name and description for the server.
Click **Next**.
5. Select the new OS provisioning profile, then click **Next**.
6. Select the new OS configuration profile from the list, then click **Next**.
7. Review the information and click **Finish** to create the server.

Validate the Integration and PaaS

Test the connections from Enterprise Manager Cloud Control and Enterprise Manager Ops Center as the cloud user. In this test, create two vServers with the same storage and network resources. If successful, one vServer can send information to and receive information from the other vServer. To test, log out as the Admin user and log in as the cloud user.

Create Volumes for vServer

Use the following procedure to create volumes from shared disks. In normal operations, Enterprise Manager creates the volumes.

1. Expand **vDC Management** in the Navigation pane.
2. Select the account from the vDC Accounts list.
3. Click **Create Volume** in the Actions pane.
4. Enter a name for the volume, then click **Next**.
5. Check the **Shared** option and enter the size of the volume. Click **Next**.
6. Click **Finish** to create the volume.

Delete the volume when the job has completed.

Create Test vServers

Create two vServers with the same private network.

1. Expand vDC Management in the Navigation pane.
2. Select the account from the vDC Accounts list.
3. Click **Create vServer** in the Actions pane.

The Create vServer Wizard is displayed.

4. Enter the following information in the **vServer Details** step:
 - Name and description for the vServer.
 - Tags for better identification and classification of the vServer.
 - Number of vServers to create.
 - The High Availability Support option has no effect in the PaaS integration.

Click **Next**.

5. Select a server template from the list. Click **Next**.
6. Select a vServer type from the list. Click **Next**.
7. Select one or more volumes from the Available Volumes list. Use the arrow keys to move the selected volumes to the Attached Volumes list.

For this test, attach the same volume to both vServers.

Click **Next**.

8. Select one or more vNets from the list. Click **Next**.
9. Select the Static method for assigning the IP address.
10. Assign the IP address from the new private virtual network to the vServer. Click **Next**.

You can also perform this step after you create the vServer by clicking the **Connect vNet** icon on the account's **Networks** tab in the Private vNet table.

Do not select a distribution group. Click **Next**.

11. Specify a root password. Click **Next**.
12. Confirm the vServer information provided in the Summary and click **Finish** to launch the job to create the vServer.

After the job completes, the vServer is created and listed in the Navigation pane. By default, the DNS and other naming information is taken from the selected vNet or server template and added in the `/etc/resolv.conf` file of the vServer.

Verify Shared Storage and Connectivity

To verify connectivity of the two vServers. From the console, log into one vServer and use the `ping` command with the IP address of the other vServer. This succeeds on public network or private network.

To verify shared storage:

- For a Fibre Channel SAN storage:`fcadm lu`

- For iSCSI SAN storage: `iscsiadm list target -S`

The Client Kit also contains the `new_vDC.ksh` script that can be useful for diagnosing problems. Enterprise Manager uses the file when it starts the integration, using the file path `/tmp/INPUT/bootstrap.xml` but you can also perform this manually.

Note: After you finish testing, delete the `bootstrap.xml` file and the `oc-pass.txt` files because they contain security information such as passwords and URLs.

1. Create a file named `bootstrap.xml` in the following form and using your site's information.

```
<bootstrap version="1.0" name="boot_strap"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="bootstrap.xsd">
<!-- Ops-center details required to establish connection before running the ops
center commands -->
<opsCenterDetails>
    <opsCenterURL>https://<yourhostname>.com</opsCenterURL>
    <!-- OpsCenter credentials -->
    <opsCenterUser>ocadmin</opsCenterUser>
    <opsCenterHome>/opt/oracle/iaas/cli/</opsCenterHome>
    <!-- Stage location on Ops Center Host -->
    <opsCenterStageLoc>/tmp/</opsCenterStageLoc>
</opsCenterDetails>

</bootstrap>
```

2. Issue the following commands:

```
-bash-4.1$ echo password > /tmp/INPUT/oc-pass.txt
-bash-4.1$ /opt/oracle/paas/tools/new_vDC.ksh
```

3. Review the output:

```
Certificate added to truststore /export/home/ocadmin/.oracle_iaas/truststore
Vserver types
4159 EXTRA_LARGE Logical Domain extra-large instance type for vDC PaaS_vDC
17179869184 28 4
4158 LARGE Logical Domain large instance type for vDC PaaS_vDC
8589934592 24 2
4157 SMALL Logical Domain small instance type for vDC PaaS_vDC
4294967296 20 1
4161 paas_RAC
12884901888 45 16
4160 paas_SI
4294967296 45 16
Vnets
VNET-321a93e4-2d11-4642-b3ec-3ebde6e86b04 big_private_net big_private_net OK
172.16.0.0/20 private
VNET-badc34e5-021a-44c7-a7ad-d11915e04ec3 small_rac_net1 small_rac_net1 OK
192.168.0.0/28 private
VNET-47f06e55-7c72-4116-919f-bb940c978b8a 10.163.96.0/22.1 OK
1x.16x.x6.0/22 public_external
Vserver s
TMPL-116826d2-6a96-4217-ab16-0d4a71157028 paas_default OK
12884901888 false false
```

Diagnosing Problems

If a virtual datacenter is unable to create vNets, edit the network domain to increase the limit of private networks it can provide simultaneously.

If the control domain is already running and you change the fabric that supports the server pool, you will need to configure the Fibre Channel controller:

1. `fcadm hba-port`
2. Identify active ports.
3. `fcadm remote-port -p <each_portID_from_output>`
4. `# cfgadm -c configure <controller_to_be_configured>`

Getting Started with Dynamic Resource Provisioning

This chapter provides an introduction to the Dynamic Resource Provisioning and describes how to set up the virtual service adapter so that it can communicate with virtual data center. It contains the following sections:

- [About Dynamic Resource Provisioning](#)
- [Configuring the Solaris SPARC Adapter](#)

35.1 About Dynamic Resource Provisioning

Oracle Enterprise Manager Ops Center provides a centralized management and optimization system by which administrators can create virtual operating systems, virtual systems, or a virtual data center in a cloud. The Enterprise Manager Platform as a Service allows administrators to create platforms onto which users can deploy database and middleware applications. By using the Dynamic Resource Provisioning feature, Enterprise Manager can now interface with the Enterprise Manager Ops Center to add or remove resources on demand to a PaaS Cloud.

This reduces the administrator overhead required while planning and setting up large infrastructure services. With this feature, administrators can:

- Dynamically add or remove virtual hardware
- Extend or downsize middleware resources in an automated manner.

To expand the capacity of a private cloud, the cloud administrator must request hardware and software from the Enterprise Manager Ops Center infrastructure administrator. The infrastructure administrator provides the host, network, and storage details to the cloud administrator who then uses these details to setup the PaaS infrastructure in the cloud.

In earlier releases, these tasks had to be performed manually. In this release, several of the steps have been automated and the cloud administrator can increase or decrease capacity by just a few clicks. To set up DBaaS / MWaaS on Solaris SPARC, the following steps are required:

- The virtual data center must be configured. This involves setting up the networks, storage volumes, creating server templates, and defining sizes. See [Section , "Set Up and Configure a Virtual Data Center"](#).
- The virtual machine adapter must be configured. See [Section 35.2.2, "Creating the Virtual Machine Adapter Instance"](#).

- The administrator can launch the Provision or De-Provision wizard to increase or decrease the capacity of the pool. For:
 - DBaaS: See [Section 36, "Provisioning Resources in a DBaaS Cloud"](#).
 - MWaaS: See [Section 37, "Dynamically Provisioning Resources in an MWaaS Cloud"](#).

35.2 Configuring the Solaris SPARC Adapter

The Solaris SPARC Adapter acts as an interface between Enterprise Manager and Enterprise Manager Ops Center and allows cloud and self service administrators to dynamically provision or de-provision resources in their private cloud setup. Resources can be added when additional service instances need to be provisioned or decreased if existing resources are not being utilized. Resources can either be infrastructure resources like hosts (based on virtual machines) or platform resources like database and middleware Oracle Homes.

To configure the virtual service adapter, follow these steps:

Step	Task	Link
1	Adding the Stage Server	See Section 35.2.1, "Adding the Stage Server" .
2	Creating the Virtual Machine Adapter Instance	See Section 35.2.2, "Creating the Virtual Machine Adapter Instance" .
3	Creating the Virtual Machine Template	See Section 35.2.5, "Creating the Virtual Machine Service Template" .

35.2.1 Adding the Stage Server

A staging server is a managed host that communicates with the Enterprise Manager Ops Center to perform one or more of the following tasks:

- Query: Query and retrieve configuration information for Solaris SPARC systems from the Enterprise Manager Ops Center Virtual Data Center.
- Provision the Virtual Machines: Access the Enterprise Manager Ops Center to perform provisioning operations such as creating virtual machines, reserving networks and allocating storage on virtual machines.
- De-provision the Virtual Machines: Access the Enterprise Manager Ops Center to perform de-provisioning operations such as releasing networks, IP addresses, and storage on virtual machines.

Any managed host can be used as the staging server if the Enterprise Manager Ops Center Client kit has been installed and available for the platform. The following platforms are supported:

- Linux_x86
- Solaris_x64
- Solaris SPARC 64

Before the staging server can communicate with Enterprise Manager Ops Center, the Ops Center Client must be installed. To communicate with Enterprise Manager Ops Center, specify the IP address of the Ops Center's Enterprise Controller and the credentials for the cloud user account after configuring of the Ops Center Client, as

described in [Chapter 34, "Dynamic Resource Provisioning with Oracle VM Server for SPARC"](#).

To add a stage server, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the **Virtual Adapters** service family and click on the **Stage Servers** link.
3. Click **Add** on the Stage Servers page. The Add Stage Server window appears.

Figure 35–1 Add Stage Server

Add Stage Server

Staging server is a managed host target which can be used to stage and execute a script.

* Host

* Directory

Host Credentials

Select credential from one of the following options.

Credential ☒ Named ☐ New

Credential Name EMCA_CRED

Attribute	Value
Username	emga
Password	*****

More Details

OK Cancel

4. In the Host field, select a managed host that is to be used as the staging server.
5. Specify the directory in which the staging files are to be stored. This directory is used to stage and execute the scripts, store temporary data and results.
6. Specify the credential type which can be:
 - **Named:** Select a named profile for which the credentials have been defined.
 - **New:** Select this option to specify new credentials. Enter the user name, password, specify the **Run** privilege and click **OK**.
7. Click **OK** to add the stage server.

You can add one or more stage servers that can be used to communicate with Enterprise Manager Ops Center when the Solaris adapter instance is being created. When one of the stage servers goes down, the next available one will be used to communicate with Enterprise Manager Ops Center.

35.2.2 Creating the Virtual Machine Adapter Instance

A virtual machine adapter instance is a managed target which can be used as an interface with the Infrastructure provider system (Enterprise Manager Ops Center) to manage the client machines.

To create an virtual machine adapter instance, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the **Virtual Adapters** service family and click on the **Instances** link.
3. Click **Create**. The Create Infrastructure Adapter: General page appears. Enter the name and description for the adapter.

4. Select the PaaS Infrastructure Zone with which the adapter is to be associated. Any virtual machine provisioned using this adapter will be added as a host member to the PaaS Infrastructure Zone selected here. A PaaS Infrastructure Zone can be associated with only one adapter instance.

Figure 35–2 Create Infrastructure Adapter: Connection Details

The screenshot shows the 'Create Infrastructure Adapter: Connection Details' page. It has a breadcrumb trail: General > Connection Details > Credentials > Placement Constraints > Characteristics > Notes > Review. The 'Connection Details' tab is active. The page is titled 'Create Infrastructure Adapter: Connection Details'. There are 'Back', 'Step 2 of 7', 'Next', and 'Cancel' buttons at the top right. The 'Remote Connection' section has a description: 'Provide information required to connect with the adapter like, connection URL, user name, password etc.' It contains four fields: 'Ops Center web service URL: https://', 'Ops Center Admin User: ocadmin', 'Password: *****', and 'Confirm Password: *****'. The 'Stage Servers' section has a description: 'Add stage servers to use for executing scripts while performing various operation like provisioning, querying etc. on the adapter'. It has a table with columns 'Name', 'Directory', and a path. The table has one entry: 'test' with Directory '/export/home/ocadmin/stage_server_path'.

5. Click **Next**. In the Create Infrastructure Adapter: Connection Details page, specify the following:
 - Ops Center Web Service URL: Enter the URL that is to be used to connect to the Enterprise Manager Ops Center server.
 - Ops Center Admin User: Enter the name of the administrator who will be accessing the Enterprise Manager Ops Center server. This user is created when the virtual data center is set up.
 - Password: Enter the password for the administrator.
 - Stage Servers: Click **Add** to select the stage servers that are to be used to execute scripts to perform various operations such as provisioning, querying, and so on. You must select the correct stage server for this adapter instance. For example, there may be two administrators managing two different virtual data centers with different accounts and using separate stage servers for each of their accounts. In this case, it is important that the correct stage server is selected here.
6. Click **Next**. In the Placement Constraints page, specify the maximum number of virtual machines that can be provisioned.
7. Click **Next**. In the Characteristics page, specify the characteristics that will be applied to the virtual machine adapter target as target properties. When a new virtual machine is created, these properties will be applied.
8. Click **Submit**. A Solaris SPARC adapter instance that can be used to communicate with the virtualized resource provider system (Enterprise Manager Ops Center) is created. Along with the Solaris SPARC adapter instance, a default virtual machine service template is also created. This template can be modified and copied to create more service templates. These templates provide the structural definition for the virtual machines that will be created.

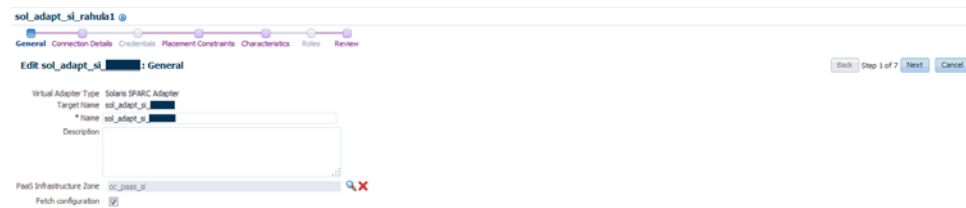
35.2.3 Editing the Virtual Machine Adapter Instance

To edit a virtual machine adapter instance, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.
2. From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the **Virtual Adapters** service family and click on the **Instances** link.

3. Select a virtual machine adapter instance from the list and click **Edit**.

Figure 35–3 Edit Virtual Adapter Instance



4. You can edit the following:
 - Name and description of the adapter.
 - PaaS Infrastructure Zone: You can select a new PaaS Infrastructure Zone with which the adapter instance is to be associated.
 - Fetch Configuration: Select this check box to retrieve the latest configuration information such subnet, storage, and so on available with the adapter. If the configuration has changed, the existing service templates may become invalid and scheduled provisioning operations may need to be manually purged.
5. Click **Next**. In the Connection Details page, you can modify the connection details, add a new stage server or remove an existing stage server. Click **Next**.
6. Modify the Placement Constraints if required. Click **Next** and modify the characteristics you have defined for the adapter instance if necessary.
7. Click **Next** and review the information entered so far. Click **Submit** to submit the changes made to the adapter instance.

35.2.4 Deleting the Virtual Machine Adapter Instance

To delete a virtual machine adapter instance, select an instance from the list and click **Delete**. A confirmation message is displayed. Click **Yes** to confirm and delete the adapter instance.

Note: You cannot delete an instance if any virtual machines have been provisioned using the adapter instance.

35.2.5 Creating the Virtual Machine Service Template

The virtual machine template describes the virtual machine configuration that can be used to provision a virtual machine on the infrastructure adapter instance.

This template can be used:

- when the administrator chooses to provision the virtual infrastructure.
- when auto provisioning is not part of the service request. (This feature is available only for Middleware as a Service).

To create the virtual machine template, follow these steps:

1. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**.

- From the **Oracle Cloud** menu, select **Setup**, then select **Getting Started**. Click the **Setup** link next to the **Virtual Adapters** service family and click on the **Service Templates** link.
- Click **Create**. The General page appears. Enter the name and description for the template and click **Next**.
- In the Characteristics page, specify the characteristics that will be applied to the virtual machines that will be provisioned using the Solaris SPARC adapter.
- Click **Next**. In the Solaris Adapter page, click **Add** to select the Solaris SPARC Adapter with which the service template is to be associated.
- Click **Next**. The Virtual Machine Configuration page appears. Depending on your use case (single instance, RAC, or middleware), the configuration details you specify will be different.

Figure 35–4 Virtual Machine Configuration (Single Instance)

Enter the virtual machine configuration details:

- Host Name Prefix:** Enter a prefix for the host name. This is a logical name used to group hosts of a certain request type.
- Instance Size:** The list of available virtual machine hardware configurations (memory, CPU, and storage) are listed. The configurations are retrieved from the Enterprise Manager Ops Center when the Solaris adapter is registered. Select the configuration that best suits your requirements based on how much CPU, storage, and memory is required to run the operating system, the software that is to be deployed, and extra space for maintenance.

If all configurations are selected, they will be displayed when the request is submitted.

For example, if the operating system requires 2GB, the Database Home to be deployed requires 2GB, and the maintenance space (3.5 times the Database Home) + expected data to be stored (1GB), you must select at least 10 GB size.

- Server Template:** The server template defines the operating system image being used. When you select a server template, configuration details such as virtual machine templates, virtual machine sizes, networks, and storage volumes that are accessible and available to the administrator are retrieved from the Enterprise Manager Ops Center. To maintain consistency across the software pool, all the Oracle homes in the pool must be of the same type and are expected to use the same operating system image.

Example 35–1 Sample XML: Server Template

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
```

```

<result xmlns="http://www.oracle.com/xml/ns/iaas"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="DescribeServerTemplatesResult" requestId="8886">
  <items>
    <id>TMPL-1005a3b8-cc8b-4f3e-83c2-ee65b849c871</id>
    <name>paas-templ</name>
    <status>OK</status>
    <size>12884901888</size>
    <public>false</public>
    <readOnly>false</readOnly>
  </items>
  <items>
    <id>TMPL-55e78615-e896-4521-a9bd-d037dc5c981b</id>
    <name>paas-templ-simple-post-script</name>
    <status>OK</status>
    <size>12884901888</size>
    <public>false</public>
    <readOnly>false</readOnly>
  </items>
</result>

```

Example 35–2 Sample XML: Server Template: RAC

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<result xmlns="http://www.oracle.com/xml/ns/iaas"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="DescribeVserverTypesResult" requestId="8889">
  <items>
    <id>16019</id>
    <name>PaaS_RAC_big</name>
    <description>Custom vsver type: PaaS_RAC_big, CPU: 8 Memory:
12GB</description>
    <tags>
      <name>oracle.cloud.uuid.cloud</name>
      <value>VDC-db24f716-fed4-4bd2-8127-d88848d04687</value>
    </tags>
    <tags>
      <name>oracle.vm.profile.type</name>
      <value>CLOUD_CUSTOM</value>
    </tags>
    <tags>
      <name>oc.internal.ui.hide</name>
      <value>TRUE</value>
    </tags>
    <memorySize>12884901888</memorySize>
    <storageSize>20</storageSize>
    <vcpu>8</vcpu>
  </items>
  <items>
    <id>16017</id>
    <name>PaaS_SI</name>
    <description>Custom vsver type: PaaS_SI, CPU: 4 Memory:
6GB</description>
    <tags>
      <name>oracle.cloud.uuid.cloud</name>
      <value>VDC-db24f716-fed4-4bd2-8127-d88848d04687</value>
    </tags>
    <tags>
      <name>oracle.vm.profile.type</name>
      <value>CLOUD_CUSTOM</value>
    </tags>
  </items>
</result>

```

```

    </tags>
    <tags>
      <name>oc.internal.ui.hide</name>
      <value>TRUE</value>
    </tags>
    <memorySize>6442450944</memorySize>
    <storageSize>20</storageSize>
    <vcpu>4</vcpu>
  </items>
</result>

```

- **Networks:** The list of available networks or VNET Ids are displayed. Select the public and private network interface for the virtual machine that is to be created. Multiple private and public networks can be available and you must decide which network is to be used for virtual machines created using this service template. For example, choose a network that has sufficient IP addresses available.
 - **Single Instance Database:** If you are defining a service template that will be used create virtual machines for single instance databases, specify Public Network Details.
 - **RAC Database:** If you are defining a service template that will be used to create virtual machines for cluster databases, specify Public Network Details and select public networks for virtual machines, Host IP, Scan IP, and Virtual IPs. For private interconnect, select Private Network Details and specify a private network with sufficient IP addresses available.
 - **Middleware:** If you are defining a service template that will be used to create virtual machines for middleware as a service specify the Public Network Details.

Example 35–3 Sample XML: Networks

```

<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<result xmlns="http://www.oracle.com/xml/ns/iaas"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:type="DescribeVnetsResult" requestId="8887">
  <items>
    <id>VNET-90db3003-3518-4988-8920-4f66fd85aefc</id>
    <name>bigpriv</name>
    <description>bigpriv</description>
    <status>OK</status>
    <tags>
      <name>network.normalized.name</name>
      <value>com.sun.hss.domain:name=NORM-192.168.0.0_
24,type=Network</value>
    </tags>
    <ipAddress>192.168.0.0/24</ipAddress>
    <vnetType>private</vnetType>
  </items>
  <items>
    <id>VNET-d7ae94f1-ff1c-4eb9-8b69-3d087a9344be</id>
    <name>10.163.96.0/22.1</name>
    <status>OK</status>
    <ipAddress>10.163.96.0/22</ipAddress>
    <vnetType>public_external</vnetType>
  </items>
</result>

```


- **Storage:** Select shared and local storage for the virtual machine that is to be created. By default, all the available resources are selected. You must select the storage that best meets your requirement or can specify the storage details while submitting the request.

Note: Shared Storage (RAW) is applicable for RAC databases.

For example, if you are creating this service template to provision a RAC database, you must select an instance size with sufficient storage.

Example 35–4 Sample XML: Storage

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<result xmlns="http://www.oracle.com/xml/ns/iaas"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:type="DescribeVolumesResult" requestId="8888">
  <items>
    <id>VOL-08391b8d-8f9f-4894-adc4-8214346d64a4</id>
    <name>soanew-14d95dbf7f6-2-1-20</name>
    <description>no_description_provided</description>
    <status>OK</status>
    <tags>
      <name>keepDisk</name>
      <value>True</value>
    </tags>
    <size>30.0</size>
    <shared>false</shared>
    <vservers>VSRV-d984031b-8385-4473-a0ce-07d71e33756e</vservers>
    <paths>/dev/dsk/c1d1</paths>
  </items>
  <items>
    <id>VOL-c0249120-d9be-42df-bb7d-f9f811a1fb8a</id>
    <name>racsk2-s-1-10</name>
    <description>no_description_provided</description>
    <status>OK</status>
    <tags>
      <name>keepDisk</name>
      <value>True</value>
    </tags>
    <size>10.0</size>
    <shared>true</shared>
    <vservers>VSRV-291b879b-5dbd-45ae-b5e3-c4f1239f0804</vservers>
    <paths>/dev/dsk/c1d1</paths>
  </items>
</result>
```

7. In the Host Configuration region, specify the Owner for the Host and Agent targets.
8. In the Agent Configuration region, select the **Push EM Agent** check box to deploy the Management Agent on the virtual machine and specify the following agent configuration details:
 - **Platform:** Select Oracle Solaris on SPARC (64-bit) platform.
 - **Port:** Enter the port used for the Management Agent process. If no value is specified, then either 3872 or any free port between 1830 and 1849 will be used.

- Note:** The script will be present on the virtual machine only if it was bundled with the OS image.

- 9. Click **Next**.** The Review page appears.

Create Service Template

[General](#)
[Characteristics](#)
[Solaris SPARC Adapter](#)
[Virtual Machine Configuration](#)
[Rules](#)
[Review](#)

Create SOLARISSPARCAdapter_CREATE: Review

General

Name

Solaris_Adapter_Template

Display Name

Solaris_Adapter_Template

Description

Solaris SPARC Adapter

Solaris SPARC Adapter

sol_adapter_0

Service Characteristics

Contact

Line of Business

Cost Center

Location

Department

Site

Lifecycle Status

Virtual Machine Configuration

General

Host Name Prefix

vm05

Owner

ADMIN

Virtual Server Type

SMALL; LARGE; pass-RAC-big; pass-RAC-small; LARGE

Server Template

pass-templ

Host Configuration

Platform

Oracle Solaris on SPARC (64-bit)

Port

Base Location

/scratch/umcsmc_80

Networks

Back

Step 6 of 6

Next

Submit

Cancel

After the virtual service adapter has been created and configured, you can associate it with software pools to provision virtual machines.

Provisioning Resources in a DBaaS Cloud

This chapter describes the process of adding or removing resources based on demand to a DBaaS Cloud. It contains the following sections:

- [Provisioning Resources](#)
- [De-Provisioning Resources](#)

36.1 Provisioning Resources

After you have set up and configured the virtual service adapter, you can dynamically add or remove virtual resources to your DBaaS cloud whenever required.

Prerequisites

- The stage server must be identified. See [Section 35.2.1, "Adding the Stage Server"](#)
- The Enterprise Manager Ops Center Client Kit must be deployed on the host that is being managed by Enterprise Manager.
- The Solaris Sparc Adapter instance must have been created and configured. See [Section 35.2.2, "Creating the Virtual Machine Adapter Instance"](#).

To provision new virtual resources in a DBaaS cloud, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Resource Providers**. The list of existing resource providers is displayed. You can select one of the following:
 - **Database Pool**: If you select a database pool, when the provisioning procedure has been completed, a virtual machine is created, the Management Agent, and Database Software is deployed on the virtual machine (either by using an image if the pool is subscribed to it or by using a reference home in the pool), and the Oracle Home is added to the pool. The capacity of the pool is now increased.
 - **PaaS Infrastructure Zone**: If you select a PaaS Infrastructure Zone, when the provisioning procedure is completed, a virtual machine is created, the Management Agent is deployed, and a host is added to the pool.
4. Select one of the above resource providers from the list. From the **Resources** menu, select **Provision**.
5. In the General page, in the Execution Name field, enter a name for the provisioning procedure.

The virtual machine adapter with which this pool is associated is displayed.

6. In the Resources to be Provisioned field, enter the number of virtual machines that are to be provisioned.
7. Click **Next**. The Virtual Machine Configuration page appears.

Figure 36–1 Virtual Machine Configuration (Single Instance Database)

Provision Resources: Virtual Machine Configuration

Each resource provisioned will be hosted on a virtual machine.
Select a desired virtual machine template and modify the virtual machine configuration as needed. The configuration provided will be applied to all the virtual machines that will be provisioned.

* Service Template:

Host Name Prefix:
 Virtual Server Type: Memory: 4294957296, CPU Count: 16, Storage Size: 45
 Server Template: Size: 12884901888, Status: OK

Network IPs
 Select subnet to configure IP addresses on the virtual machines.

Purpose	Type	Network Type	Subnet
Public IP	PUBLIC	Public Network	<input type="text" value="10.10.10.1"/>

Storage
 Configure additional storage on the virtual machines.

Purpose	Type	Storage	Storage Instance	Size
Local storage for ASM-SHARED	Local Storage	<input type="text" value="100GB"/>	<input type="text" value="100GB"/>	0

In the Service Template drop down field, select the Solaris Adapter service template from the list. The configuration details defined in the service template are displayed and can be modified.

For example, the service template used for a RAC database requires a private network along with a public network for scan and virtual IPs. You can select the correct template, VM size, network, and storage to create a stand alone virtual machine or a multi node network set up for clustered data using this example. For a detailed description of the fields, see [Section 35.2.5, "Creating the Virtual Machine Service Template"](#)

For a single instance database, you must consider the database size while selecting the virtual server type. The size guidelines you need to follow for single instance database are as follows:

SIDB VM size > OS size + (3.5 * Oracle home size) + expected data size

For RAC databases, you must use the following sizing guidelines:

RAC VM size > OS size + (3.5 * Oracle home size)

In the case of RAC databases, data is stored on shared disk using ASM.

Figure 36–2 Virtual Machine Configuration (RAC Database)

rac_db_pool_12102_rahula

General Virtual Machine Configuration Cluster Configuration Software Configuration Schedule Review

Provision Resources: Virtual Machine Configuration

Each resource provisioned will be hosted on a virtual machine.
Select a desired virtual machine template and modify the virtual machine configuration as needed. The configuration provided will be applied to all the virtual machines that will be provisioned.

* Service Template: sql_adapt_... Default Template: #409

Host Name Prefix: sql_adapt_...
Virtual Server Type: EXTRA_LARGE Memory: 17179869184, CPU Count: 4, Storage Size: 28
Server Template: pass-tpst Size: 12884903808, Status: OK

Network IPs
Select subnet to configure IP addresses on the virtual machines.

Purpose	Type	Network Type	Subnet
Private IP	PRIVATE	Private Network	
Public IP	PUBLIC	Public Network	
Virtual IP	PUBLIC	Public Network	

Storage
Configure additional storage on the virtual machines.

Purpose	Type	Storage	Storage Instance	Size
Additional Storage	AWF	Shared Storage		0

- Click **Next**. If you are provisioning a RAC machine, specify the cluster name and the network from which the Scan IP is to be allocated. The Scan IP is allocated dynamically from the pool of IPs in this network.

Figure 36–3 Cluster Configuration

rac_db_pool_12102_rahula

General Virtual Machine Configuration Cluster Configuration Software Configuration Schedule Review

Provision Resources: Cluster Configuration

Network Details
Specify the different network artifacts which will be used while provisioning the grid infrastructure.

* Cluster Name: cluster_db
* Scan IP:

- Click **Next**. Specify the schedule for the provisioning procedure and click **Next**.
- Review the information and click **Submit** to submit the provisioning job.

36.2 De-Provisioning Resources

You can remove or de-provision resources from your DBaaS cloud by following these steps:

- Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
- From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
- From the **Oracle Cloud** menu, select **Resource Providers**. The list of existing resource providers is displayed.
- Select a Database Pool or a PaaS Infrastructure Zone from the list. From the **Resources** menu, select **De-Provision**.

Figure 36–4 De-Provision Resources

De-Provision Resources

General

Database Pool: sl_11204pool

Resource Type: Oracle Home

* De-provision Job: deprovision_db

Description:

Resources to De-Provision

Select resources to be de-provisioned

+ Add - Remove

Oracle Homes
Orasdb11g_home1_2015_06_03_08_17

De-Provision Cancel

De-Provision Cancel

5. Enter a name and description for the procedure.
6. In the Resources to De-Provision region, click **Add** and select one or more Oracle homes to be de-provisioned.
 - Single Instance Database: You must select the Oracle homes that are to be deleted. All virtual machines hosting these Oracle homes will be deleted.
 - RAC Database: You must select all the Oracle homes that are part of the cluster. This will delete all virtual machines that are part of the cluster.
7. Click **De-Provision** to submit the job. The selected Oracle homes will be deleted and the virtual machines will be de-provisioned.

Dynamically Provisioning Resources in an MWaaS Cloud

This chapter describes the process of adding or removing resources based on demand to an MWaaS cloud. It contains the following sections:

- [Provisioning Resources](#)
- [De-Provisioning Resources](#)
- [Enabling Dynamic Resource Provisioning](#)

37.1 Provisioning Resources

After you have set up and configured the virtual machine adapter, you can dynamically add or remove virtual resources to your MWaaS cloud whenever required.

Prerequisites

- The stage server must be identified. See [Section 35.2.1, "Adding the Stage Server"](#).
- The Enterprise Manager Ops Center Client Kit must be deployed on the stage server.
- The Solaris Sparc Adapter instance must have been created and configured. See [Section 35.2.2, "Creating the Virtual Machine Adapter Instance"](#). The Solaris image (server template) must contain a JDK version that is supported for the selected application.

To provision new virtual resources in a MWaaS cloud, follow these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Resource Providers**. The list of existing resource providers is displayed.
4. Select a middleware pool from the list. From the **Resources** menu, select **Provision**.
5. In the General page, the virtual adapter instance with which the middleware pool is associated is displayed.
6. In the Execution Name field, enter a name for the provisioning procedure.
7. In the Resources to be Provisioned field, enter the number of virtual machines that are to be provisioned.

8. If dynamic provisioning has been enabled for this middleware pool, the Turn on Dynamic Provisioning flag is selected. If it has not been enabled, you can select the flag and enable it here. See [Section 37.3, "Enabling Dynamic Resource Provisioning"](#).
9. Click **Next**. The Virtual Machine Configuration page appears.

Figure 37–1 Virtual Machine Configuration

OSBPS6 MN POOL

General Virtual Machine Configuration Cluster Configuration Software Configuration Schedule Review

Provision Resources: Virtual Machine Configuration

Each resource provisioned will be hosted on a virtual machine.
Select a desired virtual machine template and modify the virtual machine configuration as needed. The configuration provided will be applied to all the virtual machines that will be provisioned.

* Service Template: DRFAdapter Default Template #1

Host Name Prefix: DRFAdapter

Virtual Server Type: PaaS_RAC_jag Memory: 1288400 MB, CPU Count: 8, Storage Size: 20

Server Template: pass-fsml-simple-post-script Size: 1288400 MB, Status: OK

Network IPs
Select subnet to configure IP addresses on the virtual machines.

Purpose	Type	Network Type	Subnet
Default IP	ADOT	Private Network	begin

Storage
Configure additional storage on the virtual machines.

Purpose	Type	Storage	Storage Instance	Size
Additional Storage	ADOT	Shared Storage		0

Enter the following details:

- Virtual Machine Template: Select the virtual machine template. This is the virtual adapter service template that was created while setting up the virtual service adapter. See [Section 35.2.5, "Creating the Virtual Machine Service Template"](#). Based on the template selected, the default virtual machine configuration is displayed. The configuration details can be modified.
10. Click **Next**. Specify the schedule for the provisioning procedure and click **Next**.
 11. Review the information and click **Submit** to submit the provisioning job.

37.2 De-Provisioning Resources

You can remove or de-provision resources from your MWaaS cloud by following these steps:

1. Log into Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Cloud** menu, select **Cloud Home**. The Cloud Home page appears.
3. From the Oracle Cloud menu, select **Resource Providers**. The list of existing resource providers is displayed.
4. Select a middleware pool from the list. From the **Resources** menu, select **De-Provision**.

Figure 37-2 De-Provision Resources: MWaaS

5. Enter a name and description for the procedure.
6. In the Resources to De-Provision region, click **Add** and select one or more hosts to be de-provisioned.
7. Click **De-Provision** to submit the job and remove the selected hosts.

37.3 Enabling Dynamic Resource Provisioning

You can enable dynamic provisioning for a middleware pool. If dynamic provisioning is enabled, when a self service user requests for a middleware service (WLaaS, JVMaaS, SBaaS, SOAaaS), virtual machines are automatically provisioned. Similarly, when the self service user no longer requires the virtual machine, it is automatically de-provisioned.

To enable dynamic provisioning, follow these steps:

1. Log into Enterprise Manager as a user with the `EM_SSA_ADMINISTRATOR` role.
2. From the **Enterprise Manager** menu, select **Cloud**, then select **Cloud Home**. The Cloud Home page appears.
3. From the **Oracle Cloud** menu, select **Resource Providers**.
4. Select a middleware pool and from the **Resources** drop down menu, select **Turn On Dynamic Provisioning**.
5. In the General page, the virtual machine adapter with which the resource provider is associated is displayed. See [Section 35.2.2, "Creating the Virtual Machine Adapter Instance"](#).
6. In the Resources to be Provisioned field, enter the number of resources that are to be provisioned with the specified configuration. The number of servers specified in the middleware profile used in the service template will override the value specified here. Click **Next**. The Virtual Machine Configuration page appears.

Figure 37–3 Enable Dynamic Provisioning: Virtual Machine Configuration

OSBPS6 MN POOL

General **Virtual Machine Configuration** Cluster Configuration Software Configuration Schedule Review

Provision Resources: Virtual Machine Configuration Back Step 2 of 6 Next Cancel

Each resource provisioned will be hosted on a virtual machine.
Select a desired virtual machine template and modify the virtual machine configuration as needed. The configuration provided will be applied to all the virtual machines that will be provisioned.

* Service Template: DRPAdapter Default Template #1

Host Name Prefix: DRPAdapter
Virtual Server Type: Prod_BAC_Img Memory: 12884903888, CPU Count: 8, Storage Size: 20
ServerTemplate: java-trip-simple post-script Size: 12884903888, Status: OK

Network IPs
Select subnet to configure IP addresses on the virtual machines.

Purpose	Type	Network Type	Subnet
Default IP	ADT	Private Network	logovm

Storage
Configure additional storage on the virtual machines.

Purpose	Type	Storage	Storage Instance	Size
Additional Storage	ADT	Shared Storage		0

7. In the Service Template field, select the virtual machine template from the drop down list. The configuration details as defined in the template are displayed. You can use the selected service template configuration or modify it if required. See [Section 35.2.5, "Creating the Virtual Machine Service Template"](#) for details.
8. Click **Next**. Review the information entered so far and click **Save** to save the configuration. The saved configuration will be applied on all virtual machines provisioned by the self service user.

37.3.1 Disabling Dynamic Provisioning

You can disable dynamic provisioning for a specific resource provider. Select a middleware pool for which dynamic provisioning has been enabled and from the **Resources** drop down, select **Turn Off Dynamic Resource Provisioning**. A confirmation message is displayed. If you select **Yes**, dynamic provisioning will no longer be enabled for the selected resource provider.

Part XIII

JVM Diagnostics as a Service

This section describes the process to enable and use JVM Diagnostics as a Service. It contains the following sections:

- [Chapter 38, "Setting Up JVM Diagnostics as a Service"](#)
- [Chapter 39, "Using the JVM Diagnostics Self Service Portal"](#)

Setting Up JVM Diagnostics as a Service

This chapter describes the procedure to set up and enable JVM Diagnostics as a Service. It covers the following:

- [About JVM Diagnostics as a Service](#)
- [Creating Users and Roles](#)
- [Setting Up JVMDaaS](#)
- [Defining and Allocating Quotas](#)
- [Monitoring JVM Diagnostics Agents and Engines](#)

38.1 About JVM Diagnostics as a Service

JVM Diagnostics as a Service (JVMDaaS) enables IT organizations to provide JVM Diagnostics functionality in a self service manner and monitor JVMs within a Web based portal. The JVMs being monitored can either be monitored targets in Enterprise Manager or remote targets.

For example, a development organization may want to provide JVM Diagnostics functionality to its developers and QA personnel. The system administrator can provide this service through JVMDaaS. This helps reduce the organization cost by enabling developers and QA personnel to complete development tasks faster as JVM Diagnostics is easily accessible on any instance they are working on. Since the self service approach is used, there is no increase in the workload of the system administrator.

38.2 Creating Users and Roles

Oracle Enterprise Manager supports different classes of Oracle users, depending upon the environment you are managing and the context in which you are using Oracle Enterprise Manager.

User privileges provide a basic level of security in Enterprise Manager. They are designed to control user access to data and to limit the kinds of SQL statements that users can execute. When creating a user, you grant privileges to enable the user to connect to the database, to run queries and make updates, to create schema objects, and more.

A role is a collection of Enterprise Manager resource privileges, or target privileges, or both, which you can grant to administrators or to other roles. These roles can be based upon geographic location (for example, a role for Canadian administrators to manage Canadian systems), line of business (for example, a role for administrators of the human resource systems or the sales systems), or any other model. By creating roles,

an administrator needs only to assign the role that includes all the appropriate privileges to his team members instead of having to grant many individual privileges.

Before using JVMDaaS, the Super Administrator must create users for the following roles:

- **EM_SSA_ADMINISTRATOR:** Users with this role can define quotas and constraints for the self service users and grant them access privileges. Users with this role also have provisioning and patching designer privileges that allow them to create and save deployment procedures, create and view patch plans, and support the plug-in lifecycle on the Management Agent. These privileges are required for initial setup and ongoing maintenance of the infrastructure.
- **JVMDAAS:** Users with this role can access the Cloud JVM Diagnostics Self Service Portal. A user with the EM_SSA_ADMINISTRATOR role can provide additional privileges that allow users with this role to access other features in Enterprise Manager. While creating this role, ensure that:
 - The EM_SSA_USER_BASE role has been explicitly granted to this role.
 - The following resource privileges have been granted to this role:
 - * View Any Service Family
 - * Grant View Service Family

38.3 Setting Up JVMDaaS

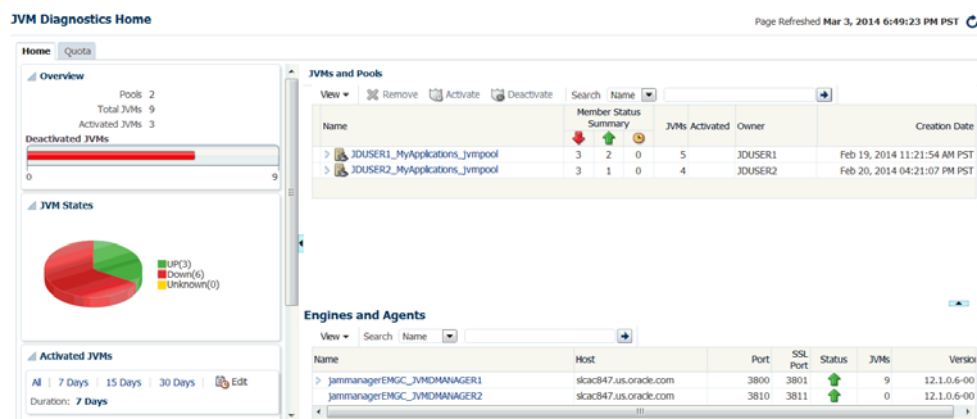
Prerequisites

Users with the EM_SSA_ADMINISTRATOR and JVMDAAS role must have been created. See [Creating Users and Roles](#).

To set up JVMDaaS, follow these steps:

1. Log in to Enterprise Manager as a user with the EM_SSA_ADMINISTRATOR role.
2. From the **Enterprise** menu, select **Cloud**, then select **JVM Diagnostics Home**.

Figure 38–1 JVMDAAS - Home



3. Click the **Quotas** tab to allocate quota to one or more users with JDAAS role. See [Defining and Allocating Quotas](#).
4. Click the **Home** tab to manage and monitor the JVM Diagnostics Agents. See [Monitoring JVM Diagnostics Agents and Engines](#).

38.4 Defining and Allocating Quotas

Quotas can be defined to specify the total number of JVMs that can be allocated to a self service user belonging to a specific role. Users with the `EM_SSA_ADMINISTRATOR` role can define quotas for self service users.

Prerequisites

- You must have created a user with the `EM_SSA_ADMINISTRATOR` role. This user must have the `EM_SSA_ADMIN` and `JVM Diagnostics Administrator` privileges.
- You must have created one or more users with the `JVMDAAS` role.

To set up quotas, follow these steps:

1. Click the **Quotas** tab. This page shows the list of roles and the maximum number of JVMs allocated to each role.

Figure 38–2 JVMDAAS - Quota

Role Name	JVMs
JVDASROLE	2
JVDAS_USERS_1	2
JVDAS_USERS_2	4

2. Click **Create**. In the Create Quota window that appears, specify the following:
 - **Role Name:** Specify the `EM_SSA_USER` role to which the quota is to be allocated.
 - **JVMs:** Specify the maximum number of JVMs or the quota that will be available to the selected role.
 - **JVMD Engine:** You can select either of the following:
 - **JVM Diagnostics Engine:** Select the JVM Diagnostics Engine that is to be registered for the JVM Diagnostics Service.
 - **Custom:** Specify the host and port number of the JVM Diagnostics Manager on which a load balancer has been enabled.
3. Click **OK** to create the quota and return to the JVM Diagnostics Cloud Self Service Portal Setup page. The quota (JVM pool) with the specified number of JVMs is listed in the Quotas page.

You can edit or delete a quota by selecting the name of the role to which the quota has been assigned and clicking the **Edit** or **Delete** option as required.

Note: If you modify a quota that contains active JVMs, the new quota will be applicable only to the new JVM connections. The existing JVMs will continue to use the old quota.

38.5 Monitoring JVM Diagnostics Agents and Engines

Click on the **Home** tab to view the JVM Diagnostics Home page. It contains the following regions:

- **Overview:** This region shows the total number of JVM Pools and JVMs for which quota has been allocated. It shows the number of active and deactivated JVMs.

- **JVM States:** This region shows a chart with the various states of the JVM.
- **Active JVMs:** The Active JVMs region shows the number of the JVMs that are active for a specified duration.
- **JVMs and Pools:** This region lists the JVMs and JVM Pools for which quota has been allocated. For each JVM Pool, the number of JVMs in the pool, the owner, and the date on which the JVM Pool was created is displayed. For each JVM, the status of the JVM (active or inactive), the owner, and the date on which it was created is displayed.

You can **Activate**, **Deactivate** a JVM, or **Remove** a JVM Pool. You can click on a JVM Pool or a JVM to drill down to the corresponding home page.

- **Engines and Agents:** This region shows the list of JVM Engines and JVM Agents.

Using the JVM Diagnostics Self Service Portal

39.1 JVM Diagnostics Cloud Self Service Portal

The JVM Diagnostics Cloud Self Service Portal allows self service users to view and monitor the JVMs allocated to them. To view this page, follow these steps:

1. Log in to Enterprise Manager as a user with the JDAAS_USER role. The Cloud Self Service Portal page appears.
2. The JVM Diagnostics Cloud Self Service Portal page appears. It contains the following regions:
 - **Summary:** This region shows the total number of JVMs allocated to the self service user. It also shows the number of available JVMs, and deactivated JVMs.
 - **Getting Started:** This region contains links to conceptual topics.
 - **My JVM Diagnostics:** This region shows a list of JVM pools that have been allocated to the self service user. The following actions can be performed:
 - **Download Agent:** Before you can monitor the JVM, click **Download Agent** to download the JVM Diagnostics Agent war file and deploy it on the Application Server that is to be monitored.

Note: The quota assigned to the self service user must be greater than 0.

- **Activate:** After the war file has been deployed, select a JVM and click **Activate** to start monitoring it.
- **Deactivate:** Select a JVM and click **Deactivate** to stop monitoring the JVM.

Note: Before you remove the JVM, you must undeploy the JVM Diagnostics Agent from your application server. If it is not undeployed, the JVM Diagnostics Agent will reconnect and start monitoring the JVM again.

- Click on the **Name** link to drill down to the Java Virtual Machine Home page. The Java Virtual Machine Home page provides a summary view of the JVM and displays the real time thread states. Click the My JVM

Diagnostics link to return to the JVM Diagnostics Cloud Self Service Portal page.

39.2 JVM Home Page

The JVM Home page with the following details is displayed.

- **Summary:** Shows details of the JVM such as the JVM Pool it belongs to, the host, JVM version, vendor, heap size, agent optimization level, and agent log level details.
- **Realtime Thread States:** Shows the state of the various threads in the JVM in the color coded columns. The current activity of the JVM including CPU usage, memory, number of threads waiting for a database response, network response, or number of threads waiting for synchronization lock, and number of idle threads are displayed. Click on a JVM to view the list of threads in the JVM and the details of each thread.
- **Active Threads:** The number of active threads in the JVM in the last 24 hours.
- **Top Requests:** Shows the top requests over the last 24 hours.

From this page, you can navigate to the following pages:

- **JVM Performance Diagnostics:** Shows the performance diagnostics data for the JVM.
- **Live Thread Analysis:** Shows the real time JVM data for the selected JVM.
- **Cloud Self Service Portal:** Takes you back the JVM Diagnostics Cloud Self Service Portal.

Part XIV

Enabling Testing as a Service (TaaS)

This section provides an overview of Testing as a Service (TaaS), describes the configuration steps, and the testing self service portal.

This part contains the following chapters:

- [Chapter 40, "About Testing as a Service"](#)
- [Chapter 41, "Setting Up Testing as a Service"](#)
- [Chapter 42, "Using the Testing as a Service Portal"](#)

About Testing as a Service

Testing as a Service (TaaS) is a cloud-based platform for delivering automated application testing services. It is a self-service solution designed for private clouds that:

- Orchestrates the testing process end-to-end by automating the provisioning of test labs including applications under test and test tools.
- Executes load and/or functional test scripts against the application.
- Provides rich application monitoring and diagnostics data for analysis.
- Has sophisticated chargeback facility for metering and charging the usage of the testing cloud by end-users.

Delivered through Enterprise Manager Cloud Control, TaaS makes it possible to significantly reduce testing time and costs without compromising quality and enables organizations to be more agile in delivering critical business applications to their users.

Key TaaS features include:

- Self-service portal for executing application load and functional tests.
- Test library with full access and security controls which stores all the test assets (scripts, databank files, scenario description and user configurable parameters) available to end users.
- On-demand automated provisioning of complete test labs that includes ability to deploy complex multi-tier applications, test tools, and test scripts. Pre-built assembly for Oracle Load Testing, Oracle Functional Testing, as well as custom test driver.
- Sharing of cloud hardware resource pools to help maximize hardware utilization while abiding by security policies.
- Integrated and rich application monitoring and diagnostics for middle tier and data tier, to ensure detection of bottlenecks and problems for the application under test.
- Resource metering and chargeback for tests that require to be charged to cost centers. These metering capabilities allow for tracking and charging for compute resources used.

40.1 TaaS Roles

There are three roles used in TaaS: Test Administrators, Test Designers, and Testers. The following sections describe these roles in more detail.

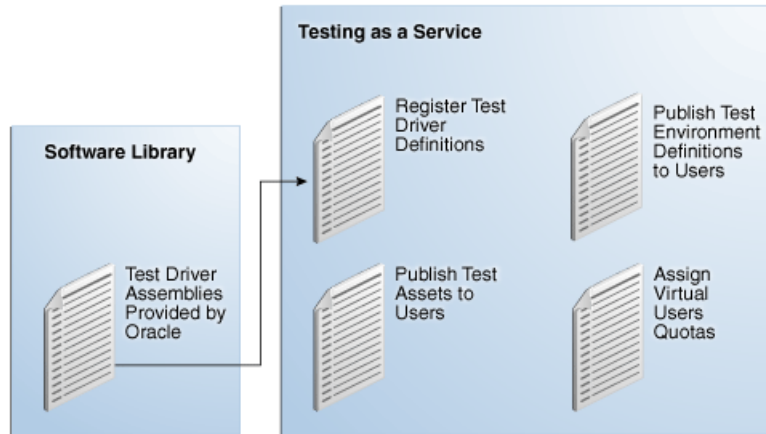
- [Test Administrators](#)

- [Test Designers](#)
- [Testers](#)

40.1.1 Test Administrators

TaaS enables Test Administrators to manage the application infrastructure for testing activities, define user activities for self-service testing, and manage test environments and test assets. See [Figure 40–1](#).

Figure 40–1 Testing Cloud Administration Activities

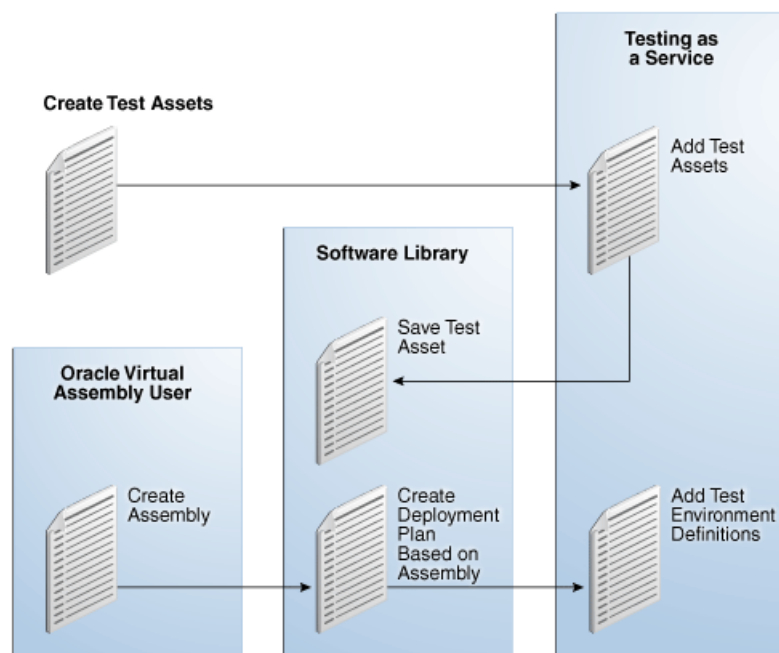


From TaaS, the Test Administrator can:

- Set Up Applications
- Set Up Test Drivers
- Set Up Quotas
- Publish to User Roles
- Set Up Chargeback Service

40.1.2 Test Designers

TaaS enables Test Designers to create test assets and test environments that can be made available to users to perform testing activities. Test Designers create test scripts and testing scenarios by using the test drivers native capabilities. These scenarios include which parameters are configurable at run-time. See [Figure 40–2](#).

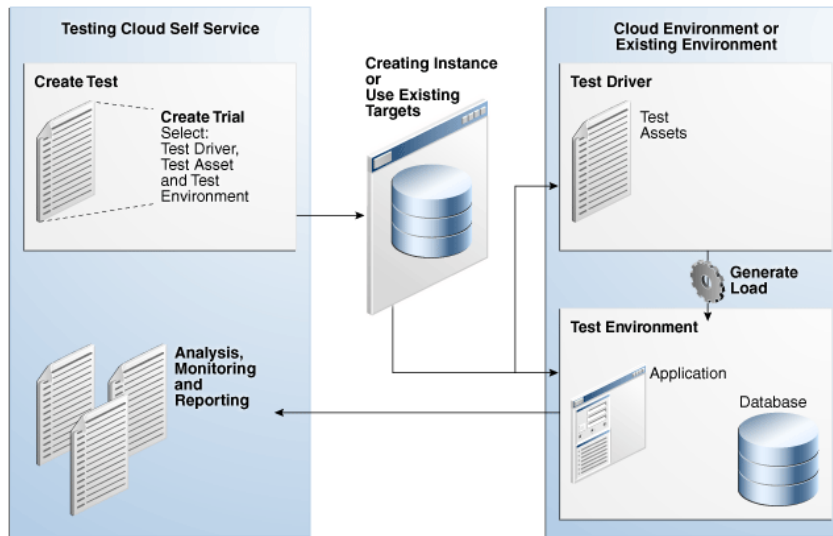
Figure 40–2 Testing Cloud Designer Activities

From TaaS, the Test Designer can:

- Create Test Assets
- Create Test Environments

40.1.3 Testers

TaaS allows Testers to create tests from test assets and test environments that have been published to them by the Test Administrator. The Tester runs trials based on the test asset and environment, monitors ongoing trials, and analyzes the results of completed trials. The Tester can apply patches to an environment and rerun the trials to compare the results and determine how changes to the environment affect key metrics and overall performance. See [Figure 40–3](#).

Figure 40–3 Testing Cloud End User Activities

From TaaS, the Tester can:

- Verify Available Test Assets and Environments
- Create Tests
- Create and Run Trials
- Share Tests
- Monitor On-Going Trials
- Report and Compare Trial Data from Previous Trials
- View Activity and Usage Information
- View Deployment Information

Setting Up Testing as a Service

This chapter provides an overview of the steps involved in setting up testing as a service (TaaS).

Many of these setup tasks are also required to use Infrastructure as a Service; if you have already set up IaaS, you will have already completed many of these tasks. This chapter contains the following sections:

- [Getting Started](#)
- [Creating Test Administrators](#)
- [Creating an Assembly Component](#)
- [Creating a Deployment Plan](#)

41.1 Getting Started

The table below provides an overview of TaaS setup tasks.

Table 41–1 *Getting Started with TaaS*

Step	Task	Role
1	Install the TaaS Plug-In See Section 3.2, "Deploying the Required Plug-ins"	Super Administrator
2	Create Testers See Section 41.2, "Creating Test Administrators"	CLOUD_ADMIN
3	Create a Virtualization (VT) Assembly with the Required Assembly Zip files See Section 41.3, "Creating an Assembly Component"	CLOUD_ADMIN
4	Install Oracle VM Manager (OVM) This is part of Setting the Cloud Infrastructure. See Chapter 3, "Setting Up the Cloud Management Infrastructure" .	CLOUD_ADMIN
5	Install VT Plug-in from Enterprise Manager See Section 3.2, "Deploying the Required Plug-ins"	CLOUD_ADMIN
6	Register OVM See Section 5.3, "Registering the Oracle VM Manager"	CLOUD_ADMIN
7	Register Oracle VM Server (OVS) Reimage steps See Section 5.5, "Discovering a Virtual Server"	CLOUD_ADMIN

Table 41–1 (Cont.) Getting Started with TaaS

Step	Task	Role
8	Add Storage See Section 5.10, "Creating a Storage Repository"	CLOUD_ADMIN
9	Refresh Mount Locations	CLOUD_ADMIN
10	Add Storage Repository See Section 5.10.1, "Performing Administrative Operations on a Storage Repository"	CLOUD_ADMIN
11	Present Server See Section 5.11, "Presenting the Storage Repository"	CLOUD_ADMIN
12	Create Server Pool See Section 5.14, "Creating a Virtual Server Pool"	CLOUD_ADMIN
13	Create Zone See Section 5.15, "Creating a Zone"	CLOUD_ADMIN
14	Import Assembly into Storage Repository See Section 5.12, "Importing Assemblies, Templates, and Virtual Disks into the Storage Repository"	CLOUD_ADMIN
15	Set Up Network See Section 5.7, "Setting Up Networks"	CLOUD_ADMIN
16	Generate MAC Addresses See Section 5.7.1, "Generating MAC Addresses"	CLOUD_ADMIN
17	Create a Deployment Plan See Section 41.4, "Creating a Deployment Plan"	CLOUD_ADMIN

41.2 Creating Test Administrators

Follow these steps to create Test Administrators:

1. Log in to Enterprise Manager as a Super Administrator or a user who has privileges to create a new administrator.
2. From **Setup**, select **Security**, then select **Administrator**.
3. Create the TAASADMIN administrator with the EM_SSA_ADMINISTRATOR role.
4. Create the TAASDESIGNER administrator with the EM_TAAS_DESIGNER role.
5. Create the TAASUSER administrator with the EM_SSA_ROLE.

41.3 Creating an Assembly Component

To create a VT assembly, perform the following steps:

1. From the Enterprise menu, select **Provisioning and Patching**, then select **Software Library**.
2. Select the Root directory. Select **Actions** then select **Create Folder**.
3. Select the directory which has write access. From the **Actions** menu, select **Create Entity**, then select **Virtualization**.
4. Select Assembly as the type and click **OK**.

5. Provide the required value and click **Next**.
6. Select the upload mechanism. Click **OK**.
7. Click **Add** button to enter file name and click **OK**.
8. Continue to click **Next** until you are on the Review page and click **Save and Upload**.

If you are uploading a file from the OMS or Agent, then you need to Upload Files to a destination where you want the files to be uploaded.

41.4 Creating a Deployment Plan

Perform the following steps to create a Deployment Plan:

1. From Enterprise menu, select **Cloud**, then select **Infrastructure Home**.
2. In the right panel, select a zone and right click.
Note: A Deployment Plan created from Zone is the only supported option. (If the deployment plan is created from Server Pool or Oracle VM Server, that deployment plan is not visible in TaaS.)
3. Select **Deploy Assembly**. Select the Assembly created in the Software Library or assembly directly imported in the storage repository. Click **Next**.
4. On the Assembly Deployment: Network and Agent page, select **Enable Agent Push Configuration**. The push means that the Enterprise Manager Agent will be pushed from Enterprise Manager after OVM creation.
5. Provide the Installation Base Directory, Platform, User Name, and Password.
6. Click **Save as Plan**. Provide the name of the plan and select the software library folder. Any other information to provide depends on the assembly you want to install.

Using the Testing as a Service Portal

After the TaaS environment has been setup, Test Administrators and Test Designers must perform their up front tasks before the Tester can start testing. In general, the tasks are:

- **Test Administrator** gives access and quotas for environments on the cloud, test assets, and virtual user test limits for the Oracle Load Testing test driver.
- **Test Designer** creates test assets (pre-packaged test scripts and scenarios) and test environments (templates for application-under-test, based on Oracle Assemblies) for users to consume.
- **Tester** is the consumer of the test assets and test environments for testing created by the Test Designer. The Tester also plans, executes, and analyzes the test results.

Table 42–1 Tasks in TaaS

Task	How To	Role
Ensure Prerequisites Are Met	Prerequisites	Test Administrator, Test Designer, Tester
Add application	Setting Up Application Types	Test Administrator
Define Test Drivers	Setting Up Oracle Load Testing Test Drivers Setting Up Oracle Functional Testing Test Drivers Setting Up Custom Test Driver Types	Test Administrator
Set Up Quotas	Setting Up Quotas	Test Administrator
Publish Test Environments and Test Assets	Publishing Test Environments, Test Assets, and Test Drivers	Test Administrator
Set Up Chargeback Service	Setting Up Chargeback Service	Test Administrator
Create Test Asset	Creating Test Assets - General Information Creating Test Asset - Oracle Load Testing Creating Test Asset - Oracle Functional Testing Creating Test Asset - Custom Test	Test Designer
Create Test Environments	Creating Test Environments	Test Designer
Verify Available Test Assets and Environments	Verifying Available Test Assets and Environments	Tester

Table 42–1 (Cont.) Tasks in TaaS

Task	How To	Role
Create Tests	Creating Tests Creating Tests - Oracle Load Testing Tests Creating Tests - Oracle Functional Testing Tests Creating Tests - Custom Tests	Tester
Create and Run Trials	Creating and Running Trials Creating and Running Oracle Load Testing Trial Creating and Running Oracle Functional Testing Trial	Tester
Monitor On-Going Trials	Monitoring On-Going Trials	Tester
Compare Trial Results	Comparing Trial Results	Tester
View Activity and Usage Information	Viewing Activity and Usage Information	Tester
View Deployment Information	Viewing Deployment Information	Tester

42.1 Prerequisites

Ensure the following prerequisites are met when using the Testing Cloud Self Service Portal.

Before You Do Anything

- Ensure Enterprise Manager Cloud Control is set up to manage the cloud environment.
- Ensure Self Service Application Plug-in is installed because Testing as a Service is part of the SSA plug-in.

Prerequisites Specific to Test Designer

- Has the privileges to access the Testing as a Service (TaaS) Test Designer options. This user must have the EM_TAAS_DESIGNER role.
- Must have knowledge about what applications are to be tested using Enterprise Manager and their structure (such as database servers, application servers, and configurations for the servers.)
- Has created test scripts using the Oracle Application Testing Suite scripting tool OpenScript, the Oracle Load Testing scenario, and the self-contained .scnzip file, and the Oracle Functional Testing scenario with its self-contained .zip file. For information on how to create and record scripts, refer to the Oracle Application Testing Suite documentation available by downloading the documentation set from:
<http://www.oracle.com/technetwork/oem/downloads/index-084446.html>
- Must be familiar with Enterprise Manager Cloud Control features.
- Has created Test Assets based on scripts and scenarios for Oracle Load Testing, Oracle Functional Testing, or other test drivers and Test Environments based on Oracle assemblies.

- Has deploy privileges over the Cloud Zones, otherwise he cannot create deployment plans.
- Has access to the Cloud Infrastructure.

Prerequisites Specific to Test Administrator

- Has the privileges to access the Testing Cloud Self Service Portal Test Administrator options. This user must have the `EM_SSA_ADMINISTRATOR` role.
- Must have knowledge about what applications are being deployed, managed, and tested using Enterprise Manager and their structure (such as database servers, application servers, and configurations for the servers.)
- Must have basic DB administration knowledge and have a good understanding of virtualization technologies.
- Must be familiar with Enterprise Manager Cloud Control features.
- Ensures that the Test Designer has created Test Assets and Test Environments.
- Ensures that the Testers have the privileges to access the Testing Cloud Self Service Portal user options.
- Publishes the test assets, test environments, and test drivers to the Tester role and the `EM_SSA_USER` role.
- Has deploy privileges over the Cloud Zones, otherwise he cannot create deployment plans.
- Has access to the Cloud Infrastructure.

Prerequisites Specific to Tester and SSA Users

- Must have the `EM_SSA_USER` role.
- Ensures that the Test Designer has created Test Assets and Test Environments.
- Ensures that the Test Administrator has assigned Test Assets, Test Environments, and Test Drivers to the Tester role (`EM_SSA_USER`).
- Has the privileges to access the TaaS Tester options.
- Has the privileges to access the Testing Cloud Self Service Portal user options.
- Must be familiar with Enterprise Manager Cloud Control features.

42.2 Test Administrator Tasks

Enterprise Manager allows TaaS Test Administrators to manage the application infrastructure for testing activities, define user activities for self-service testing, and manage test environments and test assets.

Specific responsibilities include:

- Manage the test drivers.
- Manage user roles and access to test drivers (specify which users have access to which plug-in.)
- Manage access to test environments and test assets based on users and roles.
- Assign the OVM and Zone privileges to the following roles and users:
 - OVM - View privilege to Test Designer and Test Administrator
 - Zone - Operator privilege to Test Designer and Test Administrator

Since TaaS cannot know before hand the zones and Oracle Virtual Machines present in user deployments, the Super Administrator, Cloud Administrator, or respective target owner will decide which zones and Oracle Virtual Machines are to be used.

The following tasks are performed by the Test Administrator.

- [Setting Up Application Types](#)
- [Setting Up Oracle Load Testing Test Drivers](#)
- [Setting Up Oracle Functional Testing Test Drivers](#)
- [Setting Up Custom Test Driver Types](#)
- [Setting Up Quotas](#)
- [Publishing Test Environments, Test Assets, and Test Drivers](#)
- [Setting Up Chargeback Service](#)

42.2.1 Setting Up Application Types

The Testing Cloud Self Service Portal allows Test Administrators to manage the application infrastructure for testing activities, define user activities for self-service testing, and manage test environments and test assets. Specific responsibilities include:

- Manage the test drivers.
- Manage user roles and access to test drivers (specify which users have access to which plug-in.)
- Manage access to test environments and test assets based on users and roles.
- Assign the OVM and Zone privileges to the following roles and users:
 - OVM - View privilege to Test Designer and Test Administrator
 - Zone - Operator privilege to Test Designer and Test Administrator

Since TaaS cannot know before hand the zones and Oracle Virtual Machines present in user deployments, the Super Administrator, Cloud Administrator, or respective target owner will decide which zones and Oracle Virtual Machines are to be used.

Note: Ensure the prerequisites are met before using the Testing Cloud Self Service Portal (see [Prerequisites](#)).

Follow this process to set up application types to be tested.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Test Administrator credentials.
2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Test Administrator page appears.
3. Click **Application Types** located in the left panel to define application types.
4. Click **Add** to define the name and description of the application type to make available for testing.
5. Define the name and description and click **Save**.

42.2.2 Setting Up Test Drivers

A Test Driver is the package of software that Enterprise Manager uses to generate tests or workload against test systems based on a deployment plan.

Oracle provides two types of drivers: Oracle Load Testing and Oracle Functional Testing. The Oracle Load Testing test driver is used for load, scalability, and stress testing. This allows you to simulate hundreds or thousands of users using the software at the same time. Oracle Functional Testing test driver is used for functional and regression testing.

Since Oracle Load Testing and Oracle Functional Testing are created by Oracle, Oracle knows the specifics of the test drivers and provides seamless integration to these drivers.

You can register your own type of test drivers as long as you can build a deployment plan around your assembly which contains the testing product and software. However, when you create a custom test driver, you need to direct your scripts on how to launch and monitor your tests.

The Custom Test Driver allows Testers to use test tools from third party vendors together with TaaS. Use Custom Test Driver Types to define and register test-driver types which meet your specific testing needs.

The following sections explain how to register specific test drivers.

- [Setting Up Oracle Load Testing Test Drivers](#)
- [Setting Up Oracle Functional Testing Test Drivers](#)
- [Setting Up Custom Test Driver Types](#)

42.2.3 Setting Up Oracle Load Testing Test Drivers

The Oracle Load Testing test driver is used for load, scalability, and stress testing. This allows you to simulate hundreds or thousands of users using the software at the same time.

Note: Ensure the prerequisites are met before setting up Oracle Load Testing Test Drivers (see [Prerequisites](#)).

To register an Oracle Load Testing test driver, follow these steps:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Administrator credentials.
2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Test Administrator page appears.
3. Click **Test Drivers** located in the left panel. The Test Driver page appears.
4. From the **Register** menu, select **Oracle Load Testing**.
5. Provide the following information:
 - **Name:** Enter a meaningful name for this Test Driver.
 - **Deployment Plan:** Click the magnifying glass for selecting a deployment plan on which the test driver is based. In the resulting dialog box, select the Deployment Plan to be used for the test driver and click **Select**.

Ensure that Test Designers and Test Administrators create the deployment plan "on a zone". Also, ensure they have correct privileges to this zone. For information regarding deployment plans, see *Oracle Enterprise Manager Lifecycle Management Administrator's Guide*.

- **Version:** Version field is automatically filled in. The information is derived from the deployment plan.
- **Agent Deployment Plan:** Click the magnifying glass for selecting an Agent Deployment Plan.

The Agent deployment plan is a configuration file that defines an independent Agent machine on the cloud. Since TaaS registers the Agent deployment plan with a test driver, the Agent machine instance is used together with the test driver deployment plan to create the load test.

This allows TaaS to create independent agent machines on the cloud, allowing load generation capacity of a test driver to be scaled up depending upon the trial configuration and demand.

Ensure that the Agent Deployment Plan is scalable.

Note: Both the Deployment Plan's version of the Application Testing Suite and the Agent Deployment Plan's version of the Application Testing Suite must be same.

- **Description:** Enter a description for the Test Driver.

6. Click **Register**.

To view the details of a test driver that has already been registered, highlight the test driver in the table. The deployment plan, agent deployment plan, and assembly structure information are provided.

42.2.4 Setting Up Oracle Functional Testing Test Drivers

The Oracle Functional Testing Test Driver is used for functional and regression testing and validating application functionality.

Note: Ensure the prerequisites are met before setting up Oracle Load Testing Test Drivers and Oracle Functional Testing Test Drivers (see [Prerequisites](#)).

To register an Oracle Functional Testing test driver, follow these steps:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Test Administrator credentials.
2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Testing Cloud Self Service Setup page appears.
3. Click **Test Drivers** located in the left pane. The Test Drivers pane appears.
4. From the **Register** menu, select **Oracle Functional Testing**.
5. Provide the following information:
 - **Name:** Enter a meaningful name for this Test Driver.
 - **Deployment Plan:** Click the magnifying glass for selecting a deployment plan on which the test driver is based. In the resulting dialog box, select the Deployment Plan to be used for the test driver and click **Select**.

Ensure that Test Designers and Test Administrators create the deployment plan "on a zone". Also, ensure they have correct privileges to this zone. For information regarding deployment plans, see *Oracle Enterprise Manager Lifecycle Management Administrator's Guide*.
 - **Version:** Version field is automatically filled in. The information is derived from the deployment plan.

- **Description:** Enter a description for the Test Driver.
- **Results Storage:** Use either the Result File System or the repository. The Result File System enables you to store, manage, and access the Functional Testing results for a longer duration and without any size limitations. These results can also be accessed from your external web clients and servers using the http and nfs protocols.

If you choose to use the repository, you are limited to 10 MB of storage. Results stored locally will be purged after two days.

6. Click Register.

To view the details of a test driver that has already been registered, highlight the test driver in the table. The deployment plan and assembly structure information are provided.

42.2.5 Setting Up Custom Test Driver Types

The Custom Test Driver allows testers to use test tools from third party vendors together with TaaS. Use Custom Test Driver Types to define and register test-driver types which meet your specific testing needs.

Oracle Load Testing and Oracle Functional Testing are *types* of drivers, and since they are created by Oracle, we (Oracle) know the specifics of the drivers. However, when you create a test driver, you need to direct your scripts on how to launch and monitor your tests. You can register your own type of test drivers as long as you can build a deployment plan around your assembly which contains the testing product and software.

Note: If you are using third party test automation tools, these tools need to be registered as Custom Test Drivers.

Ensure the prerequisites are met before setting up Oracle Load Testing Test Drivers and Oracle Functional Testing Test Drivers (see [Prerequisites](#)).

To register a custom test driver, follow these steps:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Administrator credentials.
2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Testing Cloud Self Service Setup page appears.
3. Click **Custom Types** located in the left panel. The Custom Test Driver Types page appears.
4. Click **Create**.
5. On the Add Custom Test Driver Type dialog, provide the following information:
 - a. Enter a meaningful name and description.
 - b. The Working Directory is a folder created on your Test Driver Virtual Machine (VM) where the operations will occur.
 - c. The Results Directory is a folder created on your Test Driver Virtual Machine (VM) and where the results of your tests will appear, TaaS will zip up the entire folder, send it to Enterprise Manager.

- d. Pre-Execution Script is a file which performs pre-execution steps for your test. Click **Browse** to locate the file.
- e. Execution Script is a file which launches the test. Click **Browse** to locate the file.
- f. Progress Monitoring Script is a script which TaaS will run on the test driver, to determine if the test is running or complete (and its outcome). Click **Browse** to locate the file.

When the test is complete, TaaS reports the outcome of the test. TaaS looks at the value returned by this script to determine the test outcome (passed, failed, warning).

Note: For TaaS to know the outcome of the trial, ensure that your script prints one of the following outcomes: passed, failed or warning, as the last line to the standard output.

- g. Post-Execution Script is a file which performs the clean up steps after your test runs. Click **Browse** to locate the file.
- h. Stop Execution Script is a script which TaaS will run on the test driver to stop the test execution.
- i. Custom Parameters is a property file which contains the run-time parameters that will be passed to the test execution. You can configure these parameters during trial submission.
- j. Click OK.

Once you provide these inputs, your type is defined and you can now register a new driver of this type.

- 6. To register a driver, on the Test Drivers page, select **Custom** from the Register menu.
- 7. Provide a meaningful name for this Test Driver.
- 8. Click the magnifying glass for selecting a deployment plan on which the test driver is based. In the resulting dialog box, select the Deployment Plan that should be used for the Custom test driver and click **Select**.
- 9. Enter a description for the Test Driver and click **Register**.
- 10. Select a Test Driver in the list then click on the component to drill down to the Deployment Plan details.

42.2.6 Setting Up Quotas

The Testing as a Service Portal allows you (Test Administrator) to Setup usage quotas for Testers by specific roles. To set up quotas, follow these steps:

Note: Ensure the prerequisites are met before setting up quotas (see [Prerequisites](#)).

- 1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Administrator credentials.
- 2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Test Administrator page appears.
- 3. Click **Quotas** located in the left panel. The Quotas page appears.
- 4. Click **Create**.

5. For the Role Name, click the magnifying glass for selecting roles. In the resulting dialog box, select the role to set quotas for and click **Select**.
6. Enter the Number of Guest VMs (Virtual Machines), Number of CPUs, Memory (GB), Storage Size (GB), and Number of VUs (Virtual Users) to allocate to the selected role and click **Create**.

42.2.7 Setting Up Result File Systems

The Testing as a Service (TaaS) Portal allows you (Test Administrator) to setup result file systems for Testers.

Use Result File Systems to store, manage, and access the Functional Testing results for a longer duration and without any size limitations. These results can also be accessed from your external web clients and servers using the http and nfs protocols.

Note: Ensure the prerequisites are met before publishing test environments and test assets (see [Prerequisites](#)).

To set up result file systems, follow these steps:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Test Administrator credentials.
2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Test Administrator page appears.
3. Click **Result File Systems** located in the left panel. The Result File System region appears.
4. Click **Add**.
5. On the Add Result File System dialog box, provide the following:
 - Name
 - Export Path - Full path to file that stores results, for example, nfs-server.mydomain.com:/export/OFTResults
 - HTTP Access URL - HTTP URL corresponding to the NFS path provided.
 - Description
6. Click **Add**.

42.2.8 Publishing Test Environments, Test Assets, and Test Drivers

The Testing as a Service (TaaS) Portal allows you (Test Administrator) to publish test asset assets, test environments, and test drivers to selected roles so they can be used when creating tests.

Note: Ensure the prerequisites are met before publishing test environments and test assets (see [Prerequisites](#)).

To publish test environments, test assets, and test drivers, follow these steps:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Administrator credentials.
2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Test Administrator page appears.
3. Click **Publish** located in the left panel. The Publish page appears.
4. Click **Add**.

5. From the **Add** menu in the Select Test Assets, Test Environments, Test Drivers region, select either **Test Asset**, **Test Environment**, or **Test Driver**. In the resulting dialog box, select the appropriate item to be published and click **Select**.

The Detail region displays the specific information for each test asset, test environment, and test driver.

6. Click **Add** in the Select Roles region. In the resulting dialog box, select the role to be published and click **Select**.
7. After all the test assets, test environments, test drivers, and roles have been selected, click **Publish**.

42.2.9 Setting Up Chargeback Service

Note: Ensure the prerequisites are met before setting up the chargeback service (see [Prerequisites](#)).

For information about Chargeback Service, refer to the Chargeback Administration chapter in the *Oracle Enterprise Manager Cloud Administration Guide*.

Follow this process to set up applications to be tested.

1. Log in to Enterprise Manager Cloud Control using Test Administrator credentials.
2. From the **Setup** menu, select **Cloud**, then select **Testing**. The Test Administrator page appears.
3. Click **Chargeback** located in the left panel to define the chargeback service.
4. Click **Configure Charge Plan** to define Extended Charge Plans. Plans may be defined by configuration or usage. If defining plans by usage, charges may be based on universal metrics (CPU, memory, storage) or by metrics specific to the targets. Use extended charge plans to set individual prices.
5. Click **Configure Targets** to assign Charge Plans. Charge plans must be assigned to targets. If targets are grouped into a zone, then a charge plan can be assigned to the zone, and will apply to all targets within that zone. If there are multiple zones, then different charge plans may be assigned to each one. The Self-Service Application (SSA) administrator can determine chargeback pricing by assigning existing charge plans to the different zones.
6. Click **Configure Cost Center** to set up Cost Centers (Optional). Cost Centers may be set up to aggregate costs among groups of users, but are not required. If Cost Centers are set up, the chargeback reports by Cost Center are only available to SSA administrators.

42.3 Test Designer Tasks - Creating Test Assets and Test Environments

The following tasks are performed by the Test Designer:

- [Creating Test Assets - General Information](#)
- [Creating Test Asset - Oracle Load Testing](#)
- [Creating Test Asset - Oracle Functional Testing](#)
- [Creating Test Asset - Custom Test](#)
- [Creating Test Environments](#)

42.3.1 Creating Test Assets - General Information

A Test Asset is a collection of test artifacts (scenarios, scripts, tests) that can be executed on a test environment. A test asset defines the actions that need to be executed to reproduce the workload against the test environment. The Testing Cloud Self Service Portal allows the Test Designer to create Test Assets based upon the available Test Drivers defined by the Test Administrator.

The Test Designer should know the application under test and its relevant Key Performance Indicators (KPIs). The Test Designer should also know the business use-cases for the test scenarios being run. Specific responsibilities include:

- The Test Designer should be skilled in Oracle OpenScript. If the Oracle Load Testing Test Driver is used, the Test Designer should be skilled in Oracle Load Testing. If a Custom Test Driver is used, the Test Designer should be skilled using the corresponding test scripting tool.
- The Test Designer should be skilled as DBA.
- Create Test Assets using the Testing as a Service portal.
- Create Test Environments using the Testing as a Service portal.
- If the Test Designer is required to create environments, the Test Designer must know how to create assemblies.

Note: Ensure the prerequisites are met before creating test assets (see [Prerequisites](#)).

42.3.2 Creating Test Asset - Oracle Load Testing

Follow this process to create Oracle Load Testing test assets.

1. Log in to Enterprise Manager Cloud Control using Test Designer credentials.
2. From the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**. The Infrastructure Cloud Self Service Portal page appears.
3. Click **My Tests**. The My Library tab appears.
4. Click **Test Assets** to define the test asset to be added to the library.
5. From the **Create** menu, select Oracle Load Testing. The Oracle Load Testing Asset Properties page appears.
6. Provide the following information:
 - **Name:** Enter a meaningful name for this Test Asset.
 - **Description:** Enter a meaningful description for this Test Asset.
 - **Application Type:** Click the **Application** drop-down list and select the application to be tested from the list.
 - **Tags:** Enter any tags to use as keywords to further identify this test asset. These tags make test assets easier to identify and to understand the purpose of the asset.
 - **Scenario:** Click **Browse** and select the asset file you want to upload. The file type for Oracle Load Testing is SCNZIP. If the Test Asset was going to be used to do large scalable testing using a number of agent machines, the scenario configuration file will have the Hardware Estimation Available feature enabled, as well as values for End Condition, Ramp-up Rate, and Number of Virtual Users.

- **Configurable Parameters:** Choose none, any, or all of the parameters. The selected parameters will be exposed within TaaS and the parameters can be changed for the TaaS test runs.
7. Once all the information is provided, click **Submit**. The Test Asset is added to the library. Click on a test asset name to drill down to the Test Asset Details page.

42.3.3 Creating Test Asset - Oracle Functional Testing

Follow this process to create Oracle Functional Testing test assets.

1. Log in to Enterprise Manager Cloud Control using Test Designer credentials.
2. From the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**. The Infrastructure Cloud Self Service Portal page appears.
3. Click **My Tests**. The My Library tab appears.
4. Click **Test Assets** to define the test asset to be added to the library.
5. From the **Create** menu, select Oracle Functional Testing. The Oracle Functional Testing Asset Properties page appears.
6. Provide the following information:
 - **Name:** Enter a meaningful name for this Test Asset.
 - **Description:** Enter a meaningful description for this Test Asset.
 - **Application Type:** Click the **Application** drop-down list and select the application to be tested from the list.
 - **Tags:** Enter any tags to use as keywords to further identify this test asset. These tags make test assets easier to identify and to understand the purpose of the asset.
 - **Script:** Click **Browse** and select the script file (or files) you want to upload. The file type for Oracle Functional Testing is ZIP. (Test Script Zip exported from Open Script Tool.)

Note: When you select multiple scripts, the order is important. The scripts are executed in the order in which they appear in the list.
7. Once all the information is provided, click **Submit**.

The Test Asset is added to the library. If Oracle Load Testing Scenario file contains the Hardware Estimation result, the 'Hardware Estimation Available' label is set to true.

Click on a test asset name to drill down to the Test Asset Details page.

42.3.4 Creating Test Asset - Custom Test

Follow this process to create Custom test assets.

1. Log in to Enterprise Manager Cloud Control using Test Designer credentials.
2. From the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**. The Infrastructure Cloud Self Service Portal page appears.
3. Click **My Tests**. The My Library tab appears.
4. Click **Test Assets** to define the test assets to be added to the library.
5. From the **Create** menu, select Custom. The Custom Test Asset Properties page appears.

6. Select the type of Custom test driver.
Enter a name and description for the test asset. In addition, for Custom asset type, you determine which parameters will be exposed to the user.
7. Click the **Application** drop-down list and select the application to be tested from the list.
8. Enter any tags to use as keywords to further identify this test asset. These tags make test assets easier to identify and to understand the purpose of the asset.
9. Click **Browse** and select the asset file you want to upload. The file type for Custom can be whatever file type understood by the test driver involved.
10. Click **OK**. The Test Asset is added to the library. Click on a test asset name to drill down to the Test Asset Details page.

42.3.5 Creating Test Environments

A Test Environment is a collection of entities that represents the entire application stack, thus an environment consists of the following elements:

- **Application under test (AuT):** Contains the software bits and application data. For example, for a deployed Siebel application, end users can modify settings, configurations, and parameters of the application.
- **Infrastructure under test (IaT):** These are entities the Application under test depends upon, for example, the cloud setup/infrastructure in a cloud deployment. Typically an infrastructure is something created for consumption of end users by administrators.

Note: Ensure the prerequisites are met before creating test environments (see [Prerequisites](#)).

Follow this process to create test environments.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Test Designer credentials.
2. From the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**. The Self Service page appears.
3. Click **My Tests**. The My Library tab appears.
4. Click **Test Environments** to define the test environments to be added to the library.
5. Click **Create**. The Test Environment Properties page appears.
6. Enter a name and description for the test environment.
7. Click the **Application** drop-down list and select the application to be tested from the list.
8. Enter any tags to use as keywords to further identify this test environment. These tags make test environments easier to identify and to understand the purpose of the environment.
9. Click the magnifying glass icon and select the **Deployment Plan** to use for this test environment.

The Deployment Plans must already be created on a Zone where the Test Designer/Administrator has Operator privileges and which (the zone) is part of an Oracle VM Manager with view privileges to the same user.

10. If the Test Environment contains a Web Application, click **Yes**.

11. Click the **Select web-application** drop-down and select the appliance that will act as the application or web server when the environment is deployed in the cloud.
12. Click **OK**. The test environment is added to the library. Click on a test environment name to drill down to the Test Environment Details page. Click on a deployment plan name to drill down to the Deployment Plan Details page.

42.4 Tester Tasks - Using the Testing Environment

Once the Test Administrator and Test Designer have performed their respective tasks, the Tester can now start testing.

The Testing Cloud Self Service Portal allows Testers to create tests from test assets and test environments to perform testing activities. Testers create tests using test assets and environments that have been assigned to them by the Test Administrator.

The Tester should know the application under test and its relevant Key Performance Indicators (KPIs). The Tester should also know the business use-cases for the test scenarios being run. Specific responsibilities include:

- Running the tests by using the test assets and environments created by the Test Designer and assigned to them by the Test Administrator.
- Reserving resources from the cloud, cancel upcoming reservations, update configurations of resources that have been reserved (CPU, memory, and so on).
- Editing test scenarios set up by the Test Designer to specify run time test parameters and schedule the tests for execution.
- Performing the test run analysis to compare various metrics that are relevant to the application and business use-case.

The following tasks are performed by the Tester.

- [Creating Tests](#)
- [Creating Tests - Oracle Load Testing Tests](#)
- [Creating Tests - Oracle Functional Testing Tests](#)
- [Creating Tests - Custom Tests](#)
- [Creating and Running Trials](#)
- [Creating and Running Oracle Load Testing Trial](#)
- [Creating and Running Oracle Functional Testing Trial](#)
- [Monitoring On-Going Trials](#)
- [Comparing Trial Results](#)
- [Sharing Tests](#)
- [Viewing Activity and Usage Information](#)
- [Viewing Deployment Information](#) (Browse My Deployments)
- [Browsing the Testing Home Page](#)

42.4.1 Verifying Available Test Assets and Environments

The Testing Cloud Self Service Portal allows Testers to verify which test assets and test environments have been assigned to them by the Test Administrator.

Note: Ensure the prerequisites are met before verifying available test assets and environments (see [Prerequisites](#)).

Follow this process to verify test assets and test environments assigned to your role.

1. Log in to Enterprise Manager Cloud Control using Tester credentials. You are logged into Self Service Portal.
2. Click **My Tests**. The Testing Cloud Self Service Portal Home tab appears.
3. Click the **My Library** tab. The My Library tab shows the test environments and test assets published to you by the Test Administrator.
4. Click **Test Environments**.
5. Click on an environment to view the details about the environment. Click on the component to drill down to the Assembly Structure details.
6. Click **Test Assets**.
7. Click on a test asset to view the details about the asset.

42.4.2 Creating Tests

The Testing Cloud Self Service Portal allows Testers to create tests from test assets and environments to perform testing activities. Testers create tests using test assets and test environments that have been assigned to them by the Test Administrator.

Note: Ensure the prerequisites are met before creating tests (see [Prerequisites](#)).

See the following section for the types of tests you can create:

- [Creating Tests - Oracle Load Testing Tests](#)
- [Creating Tests - Oracle Functional Testing Tests](#)
- [Creating Tests - Custom Tests](#)

42.4.3 Creating Tests - Oracle Load Testing Tests

Note: Ensure the prerequisites are met before creating Tests (see [Prerequisites](#)).

Follow this process to create Oracle Load Testing tests.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into the Infrastructure Cloud Self Service Portal.
2. Click **My Tests**.
3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. From the **Create** menu, select **Oracle Load Testing**. The Create Test page appears.
5. Provide the name and description. In addition, click the magnifying glass icon, select the test asset to be used in this test, and click **Continue**.
6. Select the Source, click the magnifying glass icon, and select the test environment to be used in this test. Change the Mapping URLs settings if needed.
7. Click the **Test Driver** drop-down and select the test driver to use to run the test in the cloud.
8. The Hardware Estimate region displays the recommended number of agent machines to use for this test based on the Test Asset and Test Driver if the Test driver is configured with Agent Deployment plan.

9. Click **OK**. The test is added to the library that specifies an asset, an environment, and a test-driver. Click on a test name to drill down to the details page.

42.4.4 Creating Tests - Oracle Functional Testing Tests

Note: Ensure the prerequisites are met before creating Tests (see [Prerequisites](#)).

Follow this process to create Oracle Functional Testing tests.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into the Infrastructure Cloud Self Service Portal.
2. Click **My Tests**.
3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. From the **Create** menu, select **Oracle Functional Testing**. The Create Test page appears.
5. Provide the name and description.
6. Click **Add** to select one or more Functional Test Assets for the test. The order in which the assets are listed will be the order of their execution in the trial.

Rearrange the order of the assets as needed by using the Move Up and Move Down arrows. You can also remove assets as needed.
7. Click **Continue**.
8. Select the Source, click the magnifying glass icon, and select the test environment to be used in this test. Change the Mapping URLs as needed.
9. Click the **Test Driver** drop-down and select the test driver to use to run the test in the cloud.
10. Click **OK**. The test is added to the library that specifies an asset, an environment, and a test-driver. Click on a test name to drill down to the details page.

42.4.5 Creating Tests - Custom Tests

Note: Ensure the prerequisites are met before creating Tests (see [Prerequisites](#)).

Follow this process to create Custom tests.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into the Infrastructure Cloud Self Service Portal.
2. Click **My Tests**.
3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. From the **Create** menu, select **Custom**. The Create Test page appears.
5. Enter a name and description for the test.
6. Click the magnifying glass icon, select the test asset to be used in this test, and click **Select**.
7. Select the test asset, review the details, and click **Continue**.
8. Select the Source and click the magnifying glass icon and select the test environment to be used in this test.
9. Select the test environment and click **Select**.

10. Click the **Test Driver** drop-down and select the test driver to use to run the test in the cloud.
11. Click **OK**. The test is added to the library that specifies an asset, an environment, and a test-driver. Click on a test name to drill down to the details page.

42.4.6 Creating and Running Trials

The Testing Cloud Self Service Portal allows Testers to create and run trials from the test instances that have been created in the portal. The Tester runs trials on the test asset and environment, monitors ongoing trials, and analyzes the results of completed trials.

Note: Ensure the prerequisites are met before creating and running trials (see [Prerequisites](#)).

See the following section for the types of trials you can create and run:

- [Creating and Running Oracle Load Testing Trial](#)
- [Creating and Running Oracle Functional Testing Trial](#)

42.4.7 Creating and Running Oracle Load Testing Trial

Follow this process to create and run Oracle Load Testing trials:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Infrastructure Cloud Self Service Portal.
2. Click **My Tests** in the Self Service Portal.
3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. Select a test to run for this trial.
5. Click **Create...** in the **Trials** section. The Create Trial page appears.
6. Enter a name and description for the trial.
7. In the Application Under Test Region, specify the Application Under Test instance details.
 - **Create new instance:** You can create new virtual machines on the cloud for the application under test.
 - **Use existing instance:** If you have created instances for this test or this application before, you can choose to re-use the same set of virtual machines instead of creating new ones.

Re-using an existing instance is faster because there will be no need to deploy the instance.
 - If you are creating a new instance, enter a password of your choice for the Root Password and reenter to confirm it.

Important: This value is not retrievable. DO NOT FORGET THIS PASSWORD.

- (Optional) Specify the **Stop Instance** and **Delete Instance** settings and click **Continue**.
8. In the Test Asset Parameters region, you can:

- Change the number of virtual users to run for this trial in the **Trial Virtual Users** column of each script.

You can set these values **ONLY** if the Test Designer (who created the asset) has chosen to allow users to override the values. Otherwise, the application uses the information available in the asset and these controls are grayed out.

- Specify the **Ramp Up Rate** settings for this trial.

You can change these values **ONLY** if the Test Designer (who created the asset) has chosen to allow users to override the values. Otherwise, the application uses the information available in the asset and these controls are grayed out.

- Set the **End Condition** settings for the Trial and click **Continue**.

You can set these values **ONLY** if the Test Designer (who created the asset) has chosen to allow users to override the values. Otherwise, the application uses the information available in the asset and these controls are grayed out.

If you do not set the test end conditions, the test runs until it is stopped manually.

After you have reviewed the Test Asset Parameters, click **Continue**.

9. In the Test Driver region, you can either create a new instance or use an existing instance. If the existing instance is being used by another trial, it will not be available.

Enter a password of your choice for the Master Password and reenter to confirm it. This is the password the Testing Cloud Self Service Portal will set for the Oracle Load Testing Virtual Machine and all accounts for Oracle Load Testing.

Specify the **Stop Instance** and **Delete Instance** settings and click **Continue**.

10. In Hardware Estimate region, you can estimate and add agent machines (hardware estimate feature).

If this is a Trial, use a Test Driver that has an Agent Deployment plan. The number is calculated based on parameters set in the previous step and the Agent Deployment plan. You can also specify a new number. The Hardware Estimate setting is enabled only when the Test driver has an Agent Deployment plan.

11. In the Schedule region, specify whether to start the trial immediately or schedule at a later time. A new trial will be created and submitted for execution.

Click **OK**. The initial execution of a trial will take some time to deploy the Virtual Machines, copy necessary software, and start the test.

42.4.8 Creating and Running Oracle Functional Testing Trial

Follow this process to create and run Oracle Functional Testing trials:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Infrastructure Cloud Self Service Portal.
2. Click **My Tests** in the Self Service Portal.
3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. Select a test to run for this trial.
5. Click **Create...** in the **Trials** section. The Create Trial page appears.
6. Enter a name and description for the trial.

7. In the Application Under Test region, specify the Application Under Test instance details.
 - Creating new instance: Users can create new virtual machines on the cloud for the application under test.
 - Re-using an existing instance: If users have created instances for this test or this application before, they can choose to re-use the same set of virtual machines instead of creating new ones.
 Re-using an existing instance is faster because there will be no need to deploy the instance.
 - If creating a new instance, enter a password of your choice for the Master Password and reenter to confirm it.

Important: This value is not retrievable. DO NOT FORGET THIS PASSWORD.

 - Specify the **Stop Instance** and **Delete Instance** settings.
8. In the Asset Execution Settings region, select the assets that are to be executed. Click **Continue**.
9. In the Playback Settings region, change the settings as needed for this trial. To save time, you can copy the settings from another asset.
 Click Reset to go back to the original settings for this trial.
10. In the Data Banks region, review and modify the data banks used with this asset. Click **Continue**.
11. In the Test Driver region, either create a new instance of the test driver or use an existing instance.
 If the existing instance is being used by another trial, it will not be available.
 - Enter a password of your choice for the Master Password and reenter to confirm it.
 - Specify the **Stop Instance** and **Delete Instance** settings.
12. In the Schedule region, specify the schedule for starting the trial run and click **OK**. A new trial will be created and submitted for execution. The initial execution of a trial will take some time to deploy the Virtual Machines, copy necessary software, and start the test.

42.4.9 Monitoring On-Going Trials

The Testing Cloud Self Service Portal allows Testers to monitor running trials and create charts of the key performance indicators for the application-under-test.

Note: Ensure the prerequisites are met before monitoring on-going trials (see [Prerequisites](#)).

Follow this process to monitor on-going tests.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Infrastructure Cloud Self Service Portal.
2. Click **My Tests**.

3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. Select the test to view the trial details. The trial status information appears in the Trials pane.
5. Click on the trial name link in the Trials pane to navigate to the trial-home page.
You can monitor the progress of the trial by clicking **Status**. If the status of the trial is In Progress, click the trial name which will take you to the trial home and the remaining trial information.
6. Expand the metric nodes and select metrics or counters to plot them in the chart. For Oracle Functional Testing, you can select items for Trial Result to display the result in detail.
7. View the Agent count associated to the current trial in the Test Driver Instance session.

42.4.10 Comparing Trial Results

The Testing Cloud Self Service Portal allows Testers to compare trial results and create charts of the key performance indicators for the application-under-test.

Note: This feature is only available for Oracle Load Testing Test Driver based trials.

Note: Ensure the prerequisites are met before comparing trial results (see [Prerequisites](#)).

Follow this process to compare trial results.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Infrastructure Cloud Self Service Portal.
2. Click **My Tests**.
3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. Select the test to view the trial details. The trial status information appears in the Trials pane.
5. Select two trials of the same test that have been previously run.
To select 2 trials of the same test, select one trial, then click Shift/Control to select the other trial. The trials must belong to the same test.
6. Click **Compare Results**. You can compare the metrics of the two trials to view the differences.

When in this mode, selecting any metric will chart two lines - one for each of the selected trials. You can also compare the Oracle Load Testing session summary report side-by-side.

42.4.11 Sharing Tests

To avoid duplication of effort, you can share tests with other users. Note that the person who created and shared the tests will be charged for any resource usage associated with the shared tests.

To share tests, perform the following steps:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Self Service Portal.
2. Click **My Tests**.

3. Click the **My Tests** tab in the Testing Cloud Self Service Portal.
4. Select a test from the list of Tests on the My Tests page.
5. Click **Share**.
6. Select a user to share the Test with.
7. Click **Share**.
8. Click **Log Out**.

To verify that the test is shared:

1. Log in as the user whom you shared the test with.
2. Verify that you have access to the shared test.

42.4.12 Viewing Activity and Usage Information

The Testing Cloud Self Service Portal allows Testers to view summary information for test assets and test environments available to you, your quota as defined by the Test Administrator for your role, your current utilization of hardware resources, and submitted and scheduled trials.

Note: Ensure the prerequisites are met before viewing activity and usage information (see [Prerequisites](#)).

Follow this process to view activity and usage information.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Self Service Portal.
2. Click **My Tests**.
3. Click the **Home** tab in the Testing Cloud Self Service Portal. This tab shows summary information for test assets and test environments available to you, your quota as defined by the Test Administrator for your role, your current utilization of hardware resources, and submitted and scheduled trials.

42.4.13 Viewing Deployment Information

The Testing Cloud Self Service Portal allows Testers to create tests from test assets and test environments to perform testing activities using the Testing Cloud Self Service Portal. Testers create tests using test asset and environment that have been assigned to them by the Test Administrator. The Tester runs trials on the test asset and environment, monitors ongoing trials, and analyzes the results of completed trials.

Note: Ensure the prerequisites are met before viewing deployment information (see [Prerequisites](#)).

Follow this process to view activity and usage information.

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Self Service Portal.
2. Click **My Tests**.
3. Click the **My Deployments** tab in the Testing Cloud Self Service Portal. This tab shows a table of all environments and test-drivers deployed for you.
4. Select a test environment or test driver instance. The details pane shows the appliances within the selected test environment or test driver instance.

5. Click on an appliance within the selected test environment or test driver instance to navigate to the details view of the appliance.

42.4.14 Browsing the Testing Home Page

The users HOME tab displays a summary of what the user has done, including resources consumed for testing and tests created by the user. From the HOME tab, users can quickly access previously executed test trials in order to compare results or to do more in depth post-run analysis.

The Testing home page provides information regarding the statistics of ongoing testing. General statistics are provided, as well as test assets and environments, ongoing test and trials, Oracle Load Testing, and the Infrastructure. It also provides an overview of the servers and infrastructure resources consumed by the user, like the number of servers provisioned, number of CPUs, as well as RAM and Storage.

When you log in as Test Designer, you only see the My Library tab. When you log in as Test Administrator, you see the Home tab. When you log in as a Super Administrator, you see both the Home and My Library tabs.

The sections on the Home tab are:

- General - Total counts of various artifacts available in the system, for example, its “total tests present in system”, “total trials ran across all trials”, and so on.
- Test Assets/Environments - Accumulation graph of test assets, environments, and machines in use in the Testing Cloud. Count and trend data are included. This is the Test Administrator’s overview of the entire TaaS portal, regardless of Testers.
- Tests and Trials - Daily totals of the number of tests created or daily totals of the number of trial runs.
- Infrastructure - Daily consumption of infrastructure resources: CPU, Memory, and Disk space storage.
- Oracle Load Testing (OLT) - Daily total of the number of OLT Virtual Users (VU) that were run. Oracle Load Testing uses OpenScript scripts to simulate users accessing an application under test.

The vertical axis shows daily usage totals based upon the View selection in each of the regions.

The My Library tab provides details on both Test Assets and Test Environments.

1. Log in to Enterprise manager using Tester credentials.
2. Click **My Tests** radio button.
3. Click the **Home** tab.

You will see a summary of test assets and test environments available to you, your quota as defined by the Test Administrator for your role, your current utilization of hardware resources, and the submitted and scheduled trials.

42.4.15 Trial Page

The Trial Page provides the Results, Test Environment, Configuration, and Performance information of the trial.

The top of the page provides the general information of the trial including: status of the trial, results of the trial, start time of the trial with the option to stop the trial, the test being run, and the test environment being used.

Results

Note: The Results tab is only for Oracle Functional Testing.

From the Results tab, you can:

- Download the results to be viewed at another time.
- Browse the results location
- Generate a Report to be published in BI Publisher.

Test Environment

From the Test Environment tab, you can:

- Start, stop, and restart the Guest Virtual Machines used for the test.
- Start, stop, and restart the Test Driver Instance used for the test.

Configuration

From the Configuration tab, you can:

- View the details of the application that was tested.
- Test Driver used for the test.
- List of the Test Asset Parameters used.
- Schedule of the trial.

Performance

Note: The Performance tab is only available for Oracle Load Testing trials.

From the Performance tab, you can:

- View all the collected Oracle Load Testing counters and Enterprise Manager target metrics.
- Select interested counter(s)/metric(s) and show them in charts.

Summary

Note: The Summary tab is only available for Oracle Load Testing trials.

From the Summary tab, you can:

- See the summary report of this trial and AWR report if it is available.
- Generate Oracle Load Testing trial report and AWR report if it is available.

42.4.16 Viewing TaaS Reports

To facilitate the sharing of information about trials, TaaS provides reports using Business Intelligence Publisher (BI Publisher). These reports include the TaaS Oracle Functional Testing Trial Report and the TaaS Oracle Load Testing Trial Report.

To view these reports:

1. Log in to Enterprise Manager Cloud Control using Testing Cloud Self Service Portal Tester credentials. You are logged into Infrastructure Cloud Self Service Portal.
2. Click **My Tests**.
3. Click the **Home** tab in the Testing Cloud Self Service Portal. This tab shows summary information for test assets and test environments available to you, your

quota as defined by the Test Administrator for your role, your current utilization of hardware resources, and submitted, scheduled, and completed trials.

4. Highlight a trial.
5. On the Results tab, click **Generate Report**.

42.4.17 Estimating Hardware Needed for Testing

The Test Driver hardware resource requirement depends on factors such as: number of virtual users for your Trial, ramp-up rate, number of script steps, number of variables in the script and script type.

To ensure that TaaS provides the appropriate amount of resources for your test trial, TaaS provides a hardware estimation feature. TaaS calculates and creates agent machines based on estimation results of CPU and memory resources consumed by the test asset in your test trial.

Note: To use the Hardware Estimation Available feature, you must have selected the Hardware Estimation Data option on the Export File screen when creating the scenario.zip file in the Oracle Load Testing application.

To take advantage of this feature, the Test Administrator and Tester need to perform the following steps:

1. Define an Agent deployment plan for an Oracle Load Testing Test Driver.
 - a. From Setup menu, select **Cloud**, then select **Testing**.
 - b. On the Testing Cloud Self Service Setup page, select **Test Drivers** in the navigation tree.
 - c. From the **Register** menu, select Oracle Load Testing.
 - d. Provide the information for Name, Deployment Plan, Version, and so on.
Ensure that the deployment plans you use are scalable.
2. View hardware estimation result in Test Oracle Load Testing Asset.
 - a. From Enterprise menu, select **Cloud**, then select **Self Service Portal**.
 - b. Select **My Tests**.
 - c. On the Testing Cloud Self Service Portal page, click the **My Library** tab.
 - d. Select **Test Assets**. Highlight the asset in which you are interested. The Scenario Configuration section states whether Hardware Estimation is available for this asset. An X denotes that the estimate is not available whereas a check mark denotes that it is.
3. To create a Test Asset, click **Create** and choose **Oracle Load Testing**. Provide the requisite information.

- The scenario zip file is exported from the Oracle Load Testing application.

Note that it is through the scenario zip file that the Hardware Estimation Data feature is enabled. To learn how to create a scenario, refer to the *Oracle Load Testing Load Testing User's Guide* available from the 'Oracle Application Testing Suite Downloads' page:

(<http://www.oracle.com/technetwork/oem/downloads/index-084446.html>).

- By choosing the configurable parameters, you can change these settings when you create a trial using this asset.
4. Evaluate Test Driver with estimation resource result.
 - a. From the My Tests tab, select **Create**, then select **Oracle Load Testing**.
 - b. Provide the requisite information and ensure that the source (Test Asset) is one that has the Hardware Estimation Data feature.

Note: It is through the scenario zip file that the Hardware Estimation Data feature is enabled on the Export File page.

Also note that the Hardware Estimate region contains the recommended number of agent machines to use for testing the selected Test Asset.
 5. Start an Oracle Load Testing Trial Using Estimation Resource Result
 - a. Click the **My Tests** tab. Highlight the test you want to use for the trial.
 - b. In the Trials section, select **Create**.
 - c. On the Create Trial screen:
 - Provide the requisite information in the Overview and Application Under Test regions. Click **Continue**.
 - For the Test Asset Parameters, if needed change the values for the Trial Virtual Users, Ramp-up Rate, and End Condition. Click **Continue**.
 - Provide the parameters for the Test Driver, Hardware Estimate, and Schedule. Click **OK**.

Note that in the Hardware Estimate region, the number of agents is calculated by TaaS to meet the required resource needed for the trial. However, you can change the number of agents if you want.
 6. View Agent Status in Trial Home

On the My Tests tab, highlight the trial of interest.
 7. View Agent Status in My Deployment Tab.

On the My Deployments tab, highlight the deployment of interest. The Agent Status will be shown in the Agent tab.
 8. Share/unshare the Agent between different test driver instances.

Part XV

Using Consolidation Planner and Chargeback

This section describes the Consolidation Planner and Chargeback features in Enterprise Manager.

It contains the following chapters:

- [Chapter 44, "Using Consolidation Planner"](#)
- [Chapter 43, "Chargeback Administration"](#)

Chargeback Administration

This chapter describes the Chargeback application and details the administrative tasks necessary to set up and run the application. It then presents various ways to access and use the information Chargeback collects and aggregates.

The chapter contains the following sections:

- [Overview of Chargeback](#)
- [Setting Up Chargeback](#)
- [Accessing Chargeback Information](#)

43.1 Overview of Chargeback

This section gives a brief overview of the most important aspects of Chargeback. It covers the following topics:

- [Why Implement Chargeback](#)
- [Enterprise Manager Chargeback](#)

43.1.1 Why Implement Chargeback

The purpose of Chargeback is to gather data on resource use, allocate charges for the use of these resources, and present the results in a comprehensible format.

Chargeback is used to allocate the costs of IT resources to the people or organizations who consume them. While it can be applied in situations where IT resources are dedicated, it is particularly relevant in situations where resources are shared, as without some way to meter and charge for consumption there will be a tendency for users to use more resources than they need. This problem is exacerbated in cloud environments where users are able to provision their own resources using self-service.

Consider the following primary use cases:

- Increasingly, organizations are adopting consolidation platforms such as Oracle Exadata and Oracle Exalogic, where there are multiple applications running on a shared hardware platform. There needs to be a way to meter the resources consumed by each application so charges can be applied accordingly. This, in turn, helps to measure the business value of IT investments so that priority can be given to the applications with the greatest return on investment (ROI).
- With the popularity of cloud computing on the rise, where users have the ability to self-service provision resources such as databases and virtual machines, it is highly desirable to be able to meter the resources each cloud consumer uses so that they can be charged based on their consumption. Cloud consumers likewise

benefit by rationing their consumption to that which provides optimal business value, thus contributing to the overall ROI of the organization's IT investment.

To sum up, adopting a Chargeback (or Showback) model can deliver significant benefits to both IT and Line of Business users:

- Chargeback benefits consumers by placing them in control of their IT costs.
- Chargeback benefits IT by helping to drive up utilization rates, thus reducing the number of physical resources they need to manage.

43.1.2 Enterprise Manager Chargeback

Chargeback, as the name implies, is a tool of accountability. The application's primary uses can generally be described as follows:

- Provide resource usage metering by aggregating and normalizing the enormous amount of metric data Enterprise Manager collects.
- Provide IT with a means to "charge" a currency amount to the consumers of resources.
- Provide consumers with reports detailing their consumption and associated charges.

43.1.2.1 Chargeback Entities

Chargeback calculates charges based on resource use. A resource is typically associated with an Enterprise Manager target. Chargeback collects metrics and configuration information for a subset of Enterprise Manager targets to calculate charges. A resource can also be something that an integrator customizes to be monitored and charged for in Enterprise Manager. Chargeback recognizes these Enterprise Manager targets and custom resources collectively as entities. For information on creating a custom entity, see the *Oracle Enterprise Manager Cloud Control Extensibility Programmer's Guide*.

Note: You can also add Chargeback support for Enterprise Manager target types for which there is no current out-of-box Chargeback support. See [Chapter 56, "Chargeback and Metering EMCLI Verbs,"](#) for more information.

Within Chargeback there is the concept of usage mode; that is, how an entity is metered. Integrators who create entity types define associated usage modes. All entity types have a default usage mode. Administrators, when adding entities to Chargeback, decide which usage mode is applicable in a given context, if the entity in question has more than its default usage mode. Common usage modes include the following:

- Metered—where charges accrue against a single cost center
- Metered by service—a database instance with multiple services bills by the service; charges by service can be to different cost centers, or charges for all services can be to the same cost center
- Metered by J2EE application—a WebLogic Server bills by the J2EE application; charges by application are to different cost centers

See [Section 43.2.6](#) for detailed information on adding entities to Chargeback.

43.1.2.2 Charge Plans

A charge plan defines the resources to charge for and their associated rates. Chargeback offers two types of charge plan—the universal charge plan and extended charge plans.

Universal Charge Plan

The universal charge plan contains the rates for three common resources:

- CPU
- Memory
- Storage

Note that the universal plan does not apply to all entity types. Universal rates are not applicable to J2EE applications, for example.

Extended Charge Plans

While CPU, memory and storage can be used for Chargeback across a variety of entity types, there may be situations where entity-specific charges are required. For example, you may want to base charges on the type of host OS (Windows or Linux), or on a database option such as Partitioning. In this instance, an extended charge plan can be used. The extended charge plan provides greater flexibility to Chargeback administrators, enabling them to:

- Define entity type-specific charges
- Define configuration and usage-based rates
- Define a flat charge independent of configuration or usage
- Override or adjust universal plan rates

Chargeback provides an out-of-box extended plan that you can use as a sample for creating your own extended plans tailored to your environment. The shipped plan defines charges for the Oracle VM Guest entity type where charge items and applicable rates vary depending on machine size.

See [Section 43.2.4](#) for detailed information on working with charge plans.

43.1.2.3 Cost Centers

When charges for the consumption of resources are calculated, these charges must be assigned somewhere. In Chargeback, the assignment of these costs is to a cost center. Cost centers are typically organized in a business hierarchy and may correspond to business units—sales, engineering, human resources, and so forth. The cost center hierarchy is defined within the Chargeback application and is used for rollup and drill-down purposes when reporting on usage and charges. There are also default mechanisms in place based on cost center properties set outside of Chargeback. See [Section 43.2.5](#) for detailed information on creating cost centers.

43.1.2.4 Reports

The payoff for setting up Chargeback is the wealth of information it puts at your fingertips. The information is available in a variety of formats, including pie charts and bar graphs. You can drill down to details by cost center, entity type, and resource. Trending reports show charges and resource utilization over time, up to a year in fact, which can help in IT resource planning. In addition to the reporting function available to administrators within the application, self service users can view Chargeback

information related to their entities within the self service portal, and Line of Business users can view Chargeback information in BI Publisher reports.

Report Cycle

Chargeback calculates charges for the current calendar month. This constitutes the report cycle. Any adjustments to configured charge plans and rates are retroactively applied to usage from the first day of the report cycle (that is, the first day of the current month). Charges accrued in previous calendar months are considered closed. Thus, modifications to charge plans do not affect the calculated charges for previous months.

See [Section 43.3](#) for detailed information on accessing Chargeback information.

43.2 Setting Up Chargeback

This section describes the following tasks, which must be completed to implement and support Chargeback services:

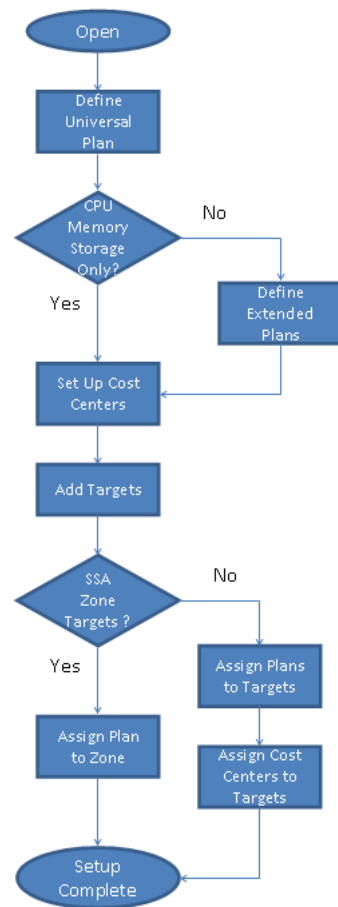
- [Configuring Global Settings for Chargeback](#)
- [Working with Charge Plans](#)
- [Creating Cost Centers](#)
- [Adding Entities to Chargeback](#)
- [Assigning Cost Centers to Entities](#)
- [Assigning Charge Plans to Entities](#)
- [Running the Daily Data Collection Job](#)

The person performing these tasks must have the necessary privileges. These privileges can be granted using the EM_CBA_ADMIN role.

Note: To view a visual demonstration on setting up and using Chargeback, watch the video Oracle Enterprise Manager 12c: Metering and Chargeback, using the following URL:

https://apex.oracle.com/pls/apex/f?p=44785:24:0::NO:24:P24_CONTENT_ID,P24_PREV_PAGE:5772,1

[Figure 43–1](#) shows a simple workflow of steps required to set up Chargeback.

Figure 43–1 Chargeback Setup Workflow

Following initial setup, you perform tasks on a regular basis, such as:

- Adding new entities to Chargeback
- Updating charge plans
- Assigning charge plans and cost centers

Other events happen automatically:

- SSA entity charges are rolled up to higher-level cost centers
- New entities that are members of a composite entity (a VM Guest in a VM zone, for example) are discovered and added to Chargeback

The daily data collection job is responsible for capturing these changes, in addition to collecting metric and configuration data.

See [Section 43.2.10](#) for detailed information on the daily collection job.

43.2.1 Chargeback and Metrics

Chargeback uses information that Enterprise Manager collects as a basis for metering. Chargeback metrics can be configuration-based, usage-based, or availability-based.

- Configuration-based metrics refer to things such as number of CPUs or database version; these metrics are considered static and thus have a daily aggregation.

- Usage-based metrics refer to things such as CPU utilization or memory consumption; these metrics have an hourly aggregation.
- Availability-based metrics measure the time an entity is available, otherwise known as an entity's uptime. It is the number of minutes in a given hour an entity is considered available. The charge is prorated for downtime.

Charges can also be applied at a fixed rate.

Entity types for which charge rates can be defined for specific metrics include host, virtual machine, WebLogic Server, database instance, schema service, and pluggable database (PDB). Composite entity types can also be added to Chargeback. These include Cluster Database, Oracle WebLogic Cluster, Oracle WebLogic Domain, Oracle VM Zone, PaaS Infrastructure Zone, Oracle VM Server Pool, and so forth. Adding groups and systems automatically includes all members that are valid Chargeback entities. After an entity has been added to Chargeback, a collection job will run once a day against entity tables in Enterprise Manager to extract information for use by Chargeback.

Chargeback Data Retention Period

Chargeback retains the data it collects as follows:

- Hourly data remains available for three months by default. To see what your current retention period is for hourly data, execute the following query:

```
select * from EM_INT_PARTITIONED_TABLES where table_name like
@ 'EMCT_CBA_CHARGE_1HOURL'
```

To adjust the hourly retention period, execute the following command sequence:

```
begin
gc_interval_partition_mgr.SET_RETENTION('SYSMAN', 'EMCT_CBA_CHARGE_1HOURL',
4);
end;
```

This example extends the hourly retention period to four months.

- Daily data remains available for 24 months by default. To see what your current retention period is for daily data, execute the following query:

```
select * from EM_INT_PARTITIONED_TABLES where table_name like
@ 'EMCT_CBA_CHARGE_1DAY'
```

To adjust the daily retention period, execute the following command sequence:

```
begin
gc_interval_partition_mgr.SET_RETENTION('SYSMAN', 'EMCT_CBA_CHARGE_1DAY',
36);
end;
```

This example extends the daily retention period to 36 months.

43.2.2 Self Service Applications and Zones within Chargeback

A key component of cloud computing is availability of self service applications. Enterprise Manager includes SSAs for Oracle VM, database, and middleware.

1. To access the respective portal, from the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**.
2. On the Self Service Portal page, select a service type from the **Manage** drop-down menu.

3. Click the **Chargeback** icon in the left pane to view charge trends and details for the selected service type, provided it was configured for Chargeback.

While performing cloud setup, you can link directly into Chargeback to configure the respective zone. Note that zone setup is a prerequisite.

1. From the **Setup** menu, select **Cloud**, then select as follows:
 - **Infrastructure**—to set up VM types.
 - **PaaS Infrastructure Zones**—to manage PaaS Infrastructure zones.
 - **Database**—to set up database resource pools.
 - **Middleware**—to set up middleware resource pools.
 - **Testing**—to add application types for use by test designers to organize test-related activities.
2. Each respective home page has a **Chargeback** selection on the left. Click it to display an informational page on Chargeback setup that includes links into Chargeback to perform setup.

Chargeback supports several zones including Oracle VM and PaaS Infrastructure, which includes DBaaS, MWaaS, Schema as a Service (SchaaS), and Pluggable Database as a Service (PdbaaS).

Within Chargeback, the respective zone hierarchies appear as follows on the **Entities** tab, PaaS Infrastructure under the Cloud category and Oracle VM under the Servers, Storage and Network category:

Note: A PaaS Infrastructure zone can contain a database instance, a RAC instance, a database service, a composite application, or any combination of these, as represented below.

Zones	Zone Hierarchy
PaaS Infrastructure	PaaS Infrastructure Zone Single Instance Database Cluster Database Database Instance1 Database Instance2 Schema Service Pluggable Database Oracle Composite Application WebLogic Domain WebLogic Cluster Oracle WebLogic Server1 Oracle WebLogic Server2 Oracle WebLogic Server
Oracle VM	Oracle VM Zone Oracle VM Server Pool Oracle VM Guest1 Oracle VM Guest2

The following characteristics apply to all entity type zones:

- Adding a zone to Chargeback automatically includes all child instances.
- Removing a zone from Chargeback automatically removes all child instances.
- A child instance with no explicitly assigned charge plan inherits the plan of its nearest ancestor above it in the hierarchy.
- A child instance with no explicitly assigned cost center inherits the cost center of its nearest ancestor above it in the hierarchy.
- Querying on charges at a given level within the hierarchy will include all charges for the levels below (either directly or indirectly).
- New members discovered or added to a zone are automatically recognized by Chargeback at the next data collection cycle.

As the Chargeback Administrator with respect to self service, you should perform all configuration-related tasks on the self service zone rather than on child entities.

The SSA user is automatically associated with the SSA entity as the cost center, when the SSA entity is added to Chargeback. See [Section 43.2.7](#) to learn about assigning cost centers.. When assigning charge plans, a plan assigned to a zone applies to all members within the zone that do not otherwise have a plan assigned. See [Section 43.2.8](#) to learn about assigning charge plans.

43.2.3 Configuring Global Settings for Chargeback

Click the **Settings** subtab on the **Home** tab to configure global settings for currency symbol and uptime calculations.

Currency Symbol

You can change the default currency (USD) by clicking in the currency symbol text box and entering the desired currency symbol. The new selection becomes the default currency across all charge plans; that is, the universal plan and all extended charge plans. All reports, including historical reports, reflect the new currency. Note that no rate conversion occurs when you change the currency; that is, the numbers stay the same. Change from dollars to euros and a one dollar charge becomes a one euro charge.

Uptime Calculations

Select the appropriate radio button to ignore or include uptime in charge calculations. The default is to include uptime as a consideration. Note that to include uptime has an impact on all fixed and configuration-based charge calculations for all entities.

Chargeback prorates charges and discounts accordingly. So, for example, if an entity was available 22.5 hours in a 24-hour period, the daily charge would be adjusted 1.5 hours. A change in the uptime setting is effective from the beginning of the current report cycle, but does not impact previous report cycles; that is, charges in historical reports are not prorated based on a change made to the setting in the current cycle.

Click **Save** to update the settings.

Example

To demonstrate the difference in factoring in uptime, consider the following charge plan configurations:

- A universal charge plan that charges two dollars a day per gigabyte of memory allocation, a dollar a day per gigabyte of storage, and no charge for CPU usage

- An extended charge plan for a Guest VM (medium), with a base charge of a dollar an hour and a memory allocation adjustment of x5

Given these charge plans, a user requisitions a Guest VM with 4 GB of memory and 100 GB of disk space for two consecutive days. The first day the uptime metric records 20 hours and the second day, 24 hours.

When uptime is *not* a factor in the calculations, the charge per day is 164 dollars, computed as follows:

- Forty dollars a day for memory (4 GB * \$2 * 5)
- A hundred dollars a day for storage (100 GB * \$1)
- A base charge of 24 dollars a day (24 hours * \$1)

When uptime is a factor, charges for the first day are 137 dollars (rounded up), computed by subtracting the four hours of downtime from the per day charge (20/24 * 164).

43.2.4 Working with Charge Plans

As described in the Overview, there are two types of charge plan, the universal charge plan and extended charge plans.

The universal charge plan establishes rates for three basic metrics (CPU, memory, and storage). For example, charge a dollar a day for a CPU (generic), two dollars a week per GB of memory, and a dollar a week per GB of storage. Optionally, different rates can be applied per CPU architecture. For example, charge different rates for a PA-RISC, a SPARC, and an x86. You can create multiple revisions of the universal charge plan for use in the future.

An extended charge plan enhances the universal plan to include entity-specific metrics. You may want to implement charges that relate to specific characteristics of an entity. An extended charge plan affords that flexibility. The entity type determines the items for which rates can be charged.

In defining an appropriate charge plan for use with a given entity type, you have to decide on a case-by-case basis whether the three basic metrics of CPU, memory, and storage are sufficient to charge for resource use. If the answer is no, then you have to define an extended plan for the entity type.

In any case, you want to define the universal charge plan for general use. You can then indicate in an extended charge plan how the universal plan rates apply.

An extended charge plan consists of groups of entity-type specific charge items. Entity-specific charge templates are available for the following entity types:

- Host
- Oracle WebLogic Server (includes J2EE applications)
- Oracle VM Guest
- Database Instance (includes database services)
- Pluggable Database (PDB)
- Schema Service

Chargeable items and applicable rate adjustments vary, depending on the entity type.

With an extended plan you can base charges on entity-specific charge items. For example, you may want an additional charge for a host running Windows OS, or a database with the Partitioning option installed. In addition to configuration- and

usage-based charge items, you can include a fixed charge. For example, charge \$100 a month for each host, regardless of consumption.

You may find that even with an extended plan, the charge items available for a given entity type are insufficient for your particular needs. In this case, you can introduce custom charge items through use of CLI verbs. For additional information, see [Chapter 56, "Chargeback and Metering EMCLI Verbs."](#)

This section covers the following topics:

- [Charge Plans and Effective Dates](#)
- [Creating and Revising the Universal Charge Plan](#)
- [Creating an Extended Charge Plan](#)
- [Viewing Charge item Metadata](#)
- [Using Conditions in Charge Plans](#)
- [Revising Extended Charge Plans](#)

43.2.4.1 Charge Plans and Effective Dates

When you create a charge plan (universal or extended), you establish the plan's effective date, which is always the first of a month. The plan revision remains in effect until you create a new plan revision whose effective date determines the previous plan revision's termination.

Say, for example, you want to set up a charge plan for a calendar year, in which a new plan revision goes into effect each quarter. You create an initial plan revision that goes into effect January 1. The plan shows an effective date of Jan. 1, yyyy - Onward. You create a plan revision that goes into effect April 1. The initial plan revision now shows an effective date of Jan. 1, yyyy - Mar. 31, yyyy, and the new plan revision, Apr. 1, yyyy - Onward. You create two more plan revisions, one with an effective date of July 1 and the other with an effective date of October 1. You now have four plan revisions with effective dates as follows:

- Jan. 1, yyyy - Mar. 31, yyyy
- Apr. 1, yyyy - Jun. 30, yyyy
- Jul. 1, yyyy - Sep. 30, yyyy
- Oct. 1, yyyy - Onward

Only current and future plan revisions appear in the Charge Plans navigation pane. You can retrieve expired plan revisions by selecting **Historical Revisions** from the **View** menu.

43.2.4.2 Creating and Revising the Universal Charge Plan

Set up the universal charge plan as follows:

1. How to proceed depends on the revision date:
 - If the effective date under Universal Charge Plan starts in the past, select the revision in the navigation pane, then select **Revision** from the **Create** menu.
 - If the effective date under Universal Charge Plan is current or in the future, select the revision in the navigation pane and click **Set Rates**.
2. In the dialog that opens, select the effective date of the revision. Note that a change to rates currently in effect is retroactive to the beginning of the cycle. Click **OK**.

3. In the Charge Plan editor, set the rates and charge frequency for the three basic metrics.

Select a row, enter the rate and select the frequency from the drop-down menu.

The rates set here are effective from the beginning of the current month, and have no impact on any previous month.

4. Make additional entries for different CPU architectures, as required.
 - a. Click the **Add** button.
 - b. Select a CPU from the drop-down menu and click **OK**.
 - c. In the new row added to the table, enter the rate and select the charge frequency from the drop-down menu.
5. When done, click the **Save** button in the upper right hand corner to complete the universal charge plan revision.

43.2.4.3 Creating an Extended Charge Plan

Set up an extended charge plan as follows:

1. From the **Create** menu, select **Plan**. The Charge Plan editor opens.
2. Enter a name for the plan. The name must be unique but the plan can have multiple, date-based revisions.
3. Click **Add**. The Add Entity Types dialog opens.
4. Select from the list of supported entity types. As a plan can serve more than one entity type, you can multiselect in the dialog. Click **OK**.
Selected entity types appear in a table with one configuration (default) indicated.
5. Click **Set Up Configurations** to open the Set Up Configurations dialog, then click **Add** to open the Add Configuration dialog.

Add a condition to set up a configuration for the entity type selected. The list of conditions available derives from the entity type. Select from the list, choose an operator, and set the condition value. You can specify a value or click the search icon to select the condition value from a list, or to search for some other value.

You might, for example, set a condition of machine architecture for a host entity type, where there are two options: sparc sun4u and AMD64. You can then use the **Move Up** and **Move Down** buttons to establish the order of precedence in matching conditions, if applicable.

Click **OK** when done with configuration setup.

As [Figure 43–2](#) shows, the charge plan table now displays separate columns for conditional configurations and the default configuration called Other.

Figure 43–2 Setting Up an Entity Configuration

Host			
Add Item... Edit Item... Remove Item Setup Configurations...			
Item	Charge by Configuration: Machine Architecture		
	AMD64	sparc sun4u	Other
▽ Universal Rate Adjustments			
▶ CPU Rate Factor	1x	1x	1x
▶ Memory Rate Factor	1x	1x	1x
▶ Storage Rate Factor	1x	1x	1x

Note that you can set only a single condition for a configuration. Suppose you want to change the condition from machine size to high availability for VM Guest. To do so, open the Set Up Configurations dialog and remove the machine size condition items. When you click **Add**, the high availability condition item is now available.

- Click **Add Item** to open the Add Item dialog. Use this dialog to add charge items based on entity type for billing purposes.

Select a charge item from the drop-down list. The list of items derives from the entity type. For certain items, you can select the charge type from a drop-down list—flat rate, per unit, and so forth. You can also set conditions, the same as for configurations in Step 5. For a database metered by service, charges are per service. For a WebLogic Server metered by J2EE application, charges are per application. Make your selection and click **OK**.

The charge plan table now displays a row for the charge item just added. A column appears for each configuration. Click the help icon to see a pop-up description of the charge item.

- In the charge item row, specify the rate and select the frequency for each configuration. Say, for example, you added a CPU count charge item for entity type host, for which you want to charge a \$1 a week per unit for the SPARC architecture, \$.50 a week per unit for the AMD architecture, and \$.75 per unit a week for all other architectures. Make the appropriate entries in the respective columns as displayed in [Figure 43–3](#).

Figure 43–3 Setting a Condition on a Charge Item

Host			
Add Item... Edit Item... Remove Item Setup Configurations...			
Item	Charge by Configuration: Machine Architecture		
	AMD64	sparc sun4u	Other
CPU Count	\$ 0.50 / Week	\$ 1.00 / Week	\$ 0.75 / Week
▽ Universal Rate Adjustments			
▶ CPU Rate Factor	1x	1x	1x
▶ Memory Rate Factor	1x	1x	1x
▶ Storage Rate Factor	1x	1x	1x

- Repeat Steps 6 and 7 to include additional charge items for the entity type.
- Optional. Make rate adjustments to the universal charge plan basic metrics for this extended charge plan. Make adjustments by specifying a factor of the base rate, where 1, the default, represents the prevailing base rate. So, for example, enter 1.5 to increase the rate by 50 percent; enter .5 to decrease the rate by 50 percent. If you want to ignore a universal plan rate altogether, enter 0.

Expand the rate factor for a metric to see what the actual charge is. For example, if the rate adjustment for memory allocation is 1.5 and the rate is \$2 a month, the adjusted rate will be \$3 a month.

The metrics available for an entity type determine which rate adjustments are possible. For example, you cannot make rate adjustments for a WebLogic Server metered by J2EE application.

Suppose, given the example, you want to adjust the CPU rate to 75 percent for the AMD architecture and to 125 percent for the SPARC, leaving the rate as is for the rest. Make appropriate entries as shown in [Figure 43–4](#).

Figure 43–4 Extended Plan Showing Customized Charge Items

Host			
+ Add Item... ✎ Edit Item... ✖ Remove Item ⚙ Setup Configurations...			
Item	Charge by Configuration: Machine Architecture		
	AMD64	sparc sun4u	Other
CPU Count	\$ 0.50 / Week	\$ 1.00 / Week	\$ 0.75 / Week
▼ Universal Rate Adjustments			
☑ CPU Rate Factor	0.75x	1.25x	1x
CPU Usage	\$1.00 / CPU / Day	\$1.00 / CPU / Day	\$1.00 / CPU / Day
Rate Factor x CPU Usage	\$0.75 / CPU / Day	\$1.25 / CPU / Day	\$1.00 / CPU / Day
▶ Memory Rate Factor	1x	1x	1x
▶ Storage Rate Factor	1x	1x	1x

- When done, click the **Save** button in the upper right hand corner to complete the extended charge plan revision for the entity type.

You can now assign the extended charge plan to an entity instance of the appropriate entity type. Remember that extended charge plans are automatically effective from the beginning of the month.

43.2.4.4 Viewing Charge item Metadata

The charge item library enables you to see at-a-glance detailed information about the charge items known within your Chargeback installation. This includes all charge items for well-known Enterprise Manager target types as well as for custom entity types introduced by integrators.

In many cases, charge items can be taken at face value: amount of memory used. In other cases, however, it is not so clear cut. Is the charge for database memory use computed based on allocated SGA memory or on the amount of memory used? What is the underlying metric or configuration used to determine CPU time or DB time usage? In cases such as these the usage value is only a part of some formula or customized query used to compute charges. In any event, you can take advantage of the detailed information available as you create extended charge plans.

- From the **Enterprise** menu, select **Chargeback** and click the **Charge Plans** tab
- Click the **Charge Item Library** icon.

The charge items metadata browser opens, displaying a table of all known charge items.

- Optional. Select **Columns** from the **View** menu to alter the display and to show hidden columns, which might be of interest to you.
- Optional. Click **Export** to save the charge items metadata content in a spreadsheet.

Consider the following as you view charge item metadata:

- The information is organized by entity type.
- Resource category is an internal bucket that Chargeback uses to organize charge items.
- Source type denotes a charge item as usage-based, configuration-based, or fixed.
- Chargeable means a rate can be defined for the item. An item without the check in the Chargeable column does not itself have a rate defined. Machine Architecture, for example, is a condition rather than a chargeable item.
- An Invalid indicator means the selected usage mode is not appropriate for the entity type.
- User-defined distinguishes custom charge items from out-of-box charge items.
- Charge items that are inactive cannot be added to new plans but can still be used in existing plans. They may also have meaning to historical plans.
- Metric Group and Metric Column link a charge item to its Enterprise Manager collection data. See the "Using Metric Extensions" chapter in the *Enterprise Manager Cloud Control Administrator's Guide* for more information.

43.2.4.5 Using Conditions in Charge Plans

Conditions introduce considerable flexibility when creating extended charge plans. You can create variations known as configurations that allow you to determine a set of rates to charge based on entity configuration. You base configurations on a property or attribute of an entity, such as the size of a virtual machine. The sample extended plan (identified as Sample Charge Plan), for example, sets conditions on a VM Guest entity type, based on the machine size of the virtual machine, allowing for different sets of charges to apply depending on machine size. There is also an implied default configuration, which is the charge plan itself if no configurations are set up, or the charge plan of record if there is no match for a configuration condition. The sample extended plan thus has four configurations, one each for machine sizes small, medium, and large, plus the default "Other."

Similarly, you can place a condition on an individual charge item that determines if a charge will be applied. For example a condition set on Partitioning means charge only if partitioning is used.

Use the Like condition operator with string-based entity type and charge items to match a range of string values. For example, set a Like condition on a database instance to match on all 11g releases (Like 11%). Or use it as a wildcard (Like %) to match on any string of characters (or none). Use an underscore (Like _) to match any single character. Use backslash to escape a wildcard character (Like \%). Use a double backslash to escape the escape character (Like \\%).

When you have multiple configurations, you have to set the order of precedence to determine how conditions are applied. Suppose you have the following sequence of configurations based on the host operating system:

- OS Like %Linux%
- OS Like %Linux 6%
- Default

The second condition (Linux 6) will never be tested because the first will always take precedence when the OS is any version of Linux. Thus, you have to make the test for Linux 6 first to base charges specifically on the Linux 6 OS.

Contrast the Like operator with the Equals operator, where the match must be exact, and there is no wildcard recognition. So, for example, Equals 11.2% does not match 11.2.0 or 11.2.1. You must specify Equals 11.2.0 or Equals 11.2.1. Note also that all string matching is case-sensitive. Equals UPPER is not the same as Equals upper. There is also a Not Equals operator with which you can exclude specific string values.

Consider these other condition examples:

- For a shared database, set a condition to base the charge on the nodes of a RAC.
- For a dedicated database instance, use the SQL Executions charge item to set a charge rate on SQL statement executions per second.

Conditions give you flexibility. For example, you may want to create many charge plans with no conditions and assign individually to entities. Or, you can create a single charge plan with many conditions, and assign to many entities.

43.2.4.6 Revising Extended Charge Plans

You can update an extended charge plan in the following ways:

- Make changes to the charge rates in effect for the current or a future cycle.
- Create a plan revision for the next or a later report cycle, based on an existing plan.

To make changes to the charge rates in effect for the current or a future cycle:

1. Select the plan revision in the navigation pane and click **Set Rates**.
2. Make adjustments to the charge items and rates in effect.
3. Click **Save** to update the plan revision.

Note the warning when changing charge rates for the current cycle that the changes are retroactive to the beginning of the cycle.

To create a plan revision for the next or a later report cycle, based on an existing plan revision:

1. Select a plan in the navigation pane, then select **Revision** from the **Create** menu.
2. In the dialog that opens, select the effective date of the revision. The default date is the first month after the most recently added revision. For example, if the current cycle is for May and a June revision already exists, July 01 is the default effective date. Click **OK**.
3. In the familiar create-like model, the configurations, charge items, and rate adjustments for the plan you selected in the navigation pane appear in the plan details table on the right.

Edit the plan details as desired:

- Add and remove entity types.
 - Add and remove configurations.
 - Add, change, and delete charge items.
 - Make adjustments to metric rates.
4. When done, click **Save** to complete the plan revision.

43.2.5 Creating Cost Centers

Cost centers are vehicles for aggregating charges. A cost center can be an individual, a department within an organization, or a multitiered business hierarchy that spreads

charges across the enterprise. You can create a business hierarchy by setting up cost centers and assigning users to the business units.

As part of Enterprise Manager user setup, an administrator can be assigned to a cost center. This cost center property then becomes the parent within Chargeback in place of the default cost center. For example:

- The daily data collection job creates a cost center for each Enterprise Manager user. If a cost center was assigned as part of user setup, it becomes the parent of the user's daily collection cost center; otherwise, the Chargeback default cost center becomes the parent of the user's daily collection cost center.
- A cost center is automatically assigned to an SSA entity during setup. If a cost center was assigned to the SSA requestor as part of Enterprise Manager user setup prior to the SSA entity being added to Chargeback, it becomes the parent of the SSA cost center; otherwise, the Chargeback default cost center becomes the parent of the SSA cost center.

Oracle recommends use of the Enterprise Manager user cost center property as a way to better manage cost center hierarchies within Chargeback.

A cost center can originate in the following ways:

- [Setting the Cost Center Property for an Enterprise Manager User](#)
- [Setting the Cost Center Property on the Target Home Page](#)
- [Creating High-Level Cost Centers in Chargeback](#)
- [Importing a Business Hierarchy from an LDAP Server](#)

43.2.5.1 Setting the Cost Center Property for an Enterprise Manager User

Enterprise Manager users who administrate Chargeback should be assigned to a cost center in their account profile.

1. From the **Setup** menu, select **Security**, then select **Administrators**.
2. Search for and select the administrator in question, then click **Edit**.
3. On the Properties page, enter an appropriate value for the **Cost Center** property as it relates to charges accruing to this user.
4. Advance to the Review page and click **Finish**.

You can of course also set the cost center property as part of the overall user account creation process.

This cost center will take precedence over the default cost center in Chargeback.

43.2.5.2 Setting the Cost Center Property on the Target Home Page

When you make a server request in the process of setting up a self service application, the Cost Center target property of the target, VM Guest for example, is automatically set to the user login of the person making the request. When the entity is configured for Chargeback, the user login is imported and appears in the Cost Center column for that entity on the **Entities** tab. Its parent is the Enterprise Manager user cost center if assigned; otherwise, it is consigned to the Chargeback default cost center.

You cannot change the cost center assignment for an SSA entity, but you can reassign the SSA user out of the default cost center to a more appropriate cost center, if desired, as described in [Section 43.2.5.3](#).

Similarly, you can manually set an entity's Cost Center target property to an appropriate value (user ID), which will subsequently be imported and appear in the

Cost Center column on the **Entities** tab when the entity is configured for Chargeback. Its parent is the Enterprise Manager user cost center if assigned; otherwise, the user ID is consigned to the Chargeback default cost center from which it can subsequently be reassigned to another cost center. This method is relevant only for non-self service entities; it provides a way to automatically set the cost center when the entity is added to Chargeback.

To create a cost center in this fashion:

1. On the All Targets page, select the target in question and go to the target home page.
2. From the target type menu, select **Target Setup**, then select **Properties**.
3. Click **Edit** and enter a value for the **Cost Center** property, then click **OK**.

The value will appear as described when the target is configured for Chargeback.

Note that if you change the Cost Center property for an entity that has already been added to Chargeback, the system does not recognize the new value.

43.2.5.3 Creating High-Level Cost Centers in Chargeback

A user who provisions an entity using the self service portal appears under the associated Enterprise Manager user cost center as a consequence of adding the SSA entity to Chargeback. If there was no Enterprise Manager user cost center assigned, the SSA user appears under the Chargeback default cost center, from which the user can subsequently be reassigned to an appropriate cost center as described in Step 4 of the process below. Reassignment can also be automated using LDAP.

To create a cost center manually:

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Cost Centers** tab and then click the **Add** button.
3. Enter the appropriate information in the **New Cost Center** dialog:
 - The cost center takes a unique name by which it is known internally in the system.
 - The cost center also takes a meaningful name that appears in the user interface and generated reports.
 - Indicate the cost center's position in the tree hierarchy; that is, whether it should be root or nested. You can subsequently change its position in the hierarchy.

When you click **OK**, the new cost center appears in the table.

4. Cost centers typically equate to business organizations. When you select a cost center row, users who are part of the organization appear in the region below. Users can also be unassigned.

In addition to the cost centers you create, there also is a system default cost center that serves as a clearinghouse for unassigned users. These include:

- Self service users; that is, the user login of the person setting up the SSA who do not otherwise have an Enterprise Manager user cost center assigned
- Users designated as the Cost Center target property on the target home page who do not otherwise have an Enterprise Manager user cost center assigned

You can reassign these users to roll up charges to a higher-level cost center.

- a. First, select the default cost center row in the Cost Center table. This exposes the users consigned to the default cost center.
- b. Next, select a user row in the Users table.
- c. Click the **Assign to Cost Center** button that is now active.
- d. In the dialog that opens, designate the cost center to which to assign the user, then click **OK**.

The user now appears in the designated cost center.

5. As the cost centers list grows, you may find that you want to combine cost centers, sales under marketing, for example. To do so, select the cost center row, then select **Move** from the **Action** menu. The change is effective from the beginning of the current reporting cycle.

In the dialog that opens, indicate whether to include nested cost centers and choose where in the tree to move the cost center, then click **OK**.

6. At some point, you may decide to deactivate the cost center. To do so, select the cost center row and click the **Remove** button. Indicate whether to deactivate nested cost centers as well. The change is effective from the beginning of the current reporting cycle. Deactivation means the cost center can no longer be assigned to an entity, but its association with entities remains in previous report cycles; that is, if you run a report for a previous cycle, the entity assignment reflects the deactivated cost center.

Note the following about cost center moves, for example when a cost center (and its users) move to a different parent:

- The user assignment of an entity resource remains the same: the PC assigned to JDoe remains assigned to JDoe.
- Likewise, the resource usage assignment remains the same, but the report rollup reflects the new cost center parent child relationship, unless the administrator changes the assignment. The cost center move effects a change in the usage assignment, which is associated with the cost center and user ID.

43.2.5.4 Importing a Business Hierarchy from an LDAP Server

You can import a business hierarchy from an LDAP server. LDAP servers supported include:

- Oracle Internet Directory
 - Microsoft Active Directory
 - Sun iPlanet
 - Novell eDirectory
 - OpenLDAP
1. From the **Enterprise** menu, select **Chargeback**.
 2. Select the **Cost Centers** tab.
 3. From the **Action** menu, select **LDAP Settings**.
 4. The **LDAP Settings** dialog opens; it takes the following values:
 - Select the LDAP server type from the drop-down list (default is Oracle Internet Directory).
 - Specify host name of the LDAP server.

- Select what to use as the authentication ID (which attribute the LDAP server uses to authenticate: user name or e-mail address).
- If a login is required, mark the check box and provide the credentials (where username is the LDAP server Principal, for example, cn=orcladmin).
- Enter the port number of the LDAP server.
- Check the box for a secure connection.
- Check the box to enter a custom search base (base DN where users are stored; for example, dc=oracle,dc=com).
- Select the level to which to maintain the cost center. This refers to the level within the cost center hierarchy to be synchronized with the LDAP server at the end of each report cycle. Note that any levels lower in LDAP than the specified level are subsumed into the specified level in Chargeback. So, for example, if you specify level 5, and LDAP has 7 levels, LDAP levels 6 and 7 are subsumed into level 5 in Chargeback.

Click **OK**.

An LDAP cost center overwrites a manually created cost center of the same name while maintaining entity assignments. You can opt to reassign entities to some other cost center.

A successfully imported LDAP cost center hierarchy generates a scheduled repeatable job to run at the beginning of each report cycle (typically the first of the month) to sync the hierarchy with its counterpart on the LDAP server. You can also perform this operation on an ad hoc basis by selecting **On-demand LDAP Sync** from the **Action** menu.

Note that the LDAP Sync job only synchronizes existing SSA users; that is, SSA users who are already known to Chargeback as a result of their SSA entities being added to Chargeback. The sync job does not automatically synchronize any other (SSA or other) users in the LDAP directory.

When an SSA entity is added to Chargeback, the SSA user appears in the default cost center automatically. The LDAP Sync job then populates the cost centers hierarchy with default cost center SSA users, based on the management hierarchical structure, as determined by the **MANAGER** attribute in the LDAP directory. The sync job also overwrites the cost centers of any SSA users who were manually reassigned, based on the same management hierarchical structure.

43.2.6 Adding Entities to Chargeback

Decide on the entities whose resources you want to manage within Chargeback. You have to add entities to start collecting metrics against which to calculate charges. Note that if you want to add a Real Application Cluster (RAC) that has member instances already monitored in Chargeback, you must first remove those instances from Chargeback.

For certain database entity types, you have to enable metric collection before you can add entities of these types to Chargeback:

- Database instance where metering is by service
- Cluster database where metering is by service
- CDB (both single instance and RAC)
- Pool databases used for provisioning schema services and pluggable database services provided as part of a PaaS Infrastructure zone

For information on enabling metric collection, see [Section 43.2.6.1](#).

A CDB is a composite entity. When you add a CDB instance, all of its pluggable databases (PDBs) are automatically discovered and reported as children of the CDB instance. Usage and charges are calculated at the PDB level.

When you add a PaaS Infrastructure Zone entity, all of its databases (single instance and RAC), database services, and PDBs are automatically discovered and reported as children of the zone. Usage and charges are calculated at the entity level.

Note: Pool entities that provision services for a PaaS Infrastructure Zone tracked in Chargeback, cannot also be tracked independently as entities in Chargeback. This may lead to nondeterministic behavior in charge plan assignments. So, for example, a CDB that serves as a pool entity for a PDB service entity that is part of a PaaS Infrastructure Zone, cannot also be added to Chargeback as a composite entity.

You must have the `ADD_CHARGEBACK_TARGET` role assigned to add any entity monitored in the Enterprise Manager instance that qualifies for Chargeback support. Without it, the **Add Entities** button is disabled. As in the process of adding entities you can also assign charge plans and cost centers, these privileges must be included: `MANAGE_CBA_ENTITY_OBJ_PRIV`, `ASSIGN_CHAREG_PLAN_PRIV`, and `ASSIGN_CBA_COST_CENTER_PRIV`.

The `VIEW_CAT_TARGET` role allows you to see Chargeback data related to a specific entity. The `VIEW_ANY_CAT_TARGET` role allows you to see Chargeback data related to any entity.

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab and click the **Add Entities** button.

The Add Entities wizard opens, where you perform the following steps:

- a. [Selecting Entities for Chargeback](#)
- b. [Making Assignments](#)
- c. [Reviewing Entity Setup](#)

It may take up to 24 hours after an entity is added to Chargeback for its metering data to appear. To stop collecting data on entities, select the entities involved and click the **Remove Entities** button.

Note: When you remove an entity from Chargeback scope, its usage and charge data are dropped from the current report cycle. A warning to this effect appears as part of the removal process.

As new services for cluster members are discovered as part of the daily collection, they appear automatically in the tree hierarchy under the RAC node. The charge plan in effect is automatically assigned. Make cost center assignments accordingly.

43.2.6.1 Configuring Metric Collection for Enterprise Manager Database Services

Metric collection for Enterprise Manager database services is disabled by default for the following entity types:

- Database instance metered by database service

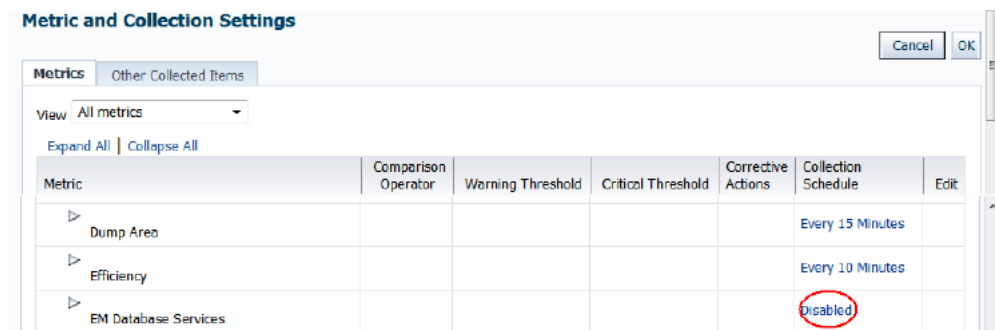
- RAC metered by database service or PDB
- CDB (both single instance and RAC)
- Pool databases used for provisioning schema services and pluggable database services provided as part of a PaaS Infrastructure zone

You have to enable metric collection before Chargeback can manage resources on these entities.

To effect change to metric data collections, you must be assigned the `MANAGE_TARGET_METRICS` role on the specific target.

1. From the **Targets** menu, select **Databases**.
2. Locate the target in the table and open its home page (provide credentials if requested).
3. From the **Oracle Database** menu, select **Monitoring**, then select **Metric and Collection Settings**.
4. On the Metric and Collection Settings page, change the view to **All Metrics**.
5. As shown in [Figure 43–5](#), scroll down to **EM Database Services** (not simply Database Services), click **Disabled**, and complete the enabling process.

Figure 43–5 Enabling Metric Collection for Database Services



Do this for each cluster member in a RAC and for each CDB instance.

Alternatively, you can use the following EMCLI command to enable the metric collection on the corresponding database entity instance:

```
emcli modify_collection_schedule -targetType='oracle_database'
-targetNames=target_name1;target_name2 -collectionStatus='ENABLED'
-collectionName='DBService' -preview='N';
```

Where *target_namen* is an appropriate database target instance.

43.2.6.2 Selecting Entities for Chargeback

Step 1 in the Add Entities wizard is to select the entities you want to add to Chargeback and establish a usage mode where applicable.

For certain database entity types, you have to enable Enterprise Manager metric collection before you can add entities of these types to Chargeback:

- Database instance where metering is by service
- Cluster database where metering is by service
- CDB (both single instance and RAC)

- Pool databases used for provisioning Oracle Database Services and pluggable database services provided as part of a PaaS Infrastructure zone

For information on enabling metric collection, see [Section 43.2.6.1](#).

1. Click the **Add** button.
2. In the dialog that opens search for the entity types you want to add. Use criteria to filter your search.

To add a database as a service entity type (DBaaS or SchaaS), select the PaaS Infrastructure Zone entity type. Database services and PDBs appear as children of the zone parent.

Note: Database (single instance and RAC) and CDB entities that provision service entities for a PaaS Infrastructure Zone cannot themselves be added as entities to Chargeback. To do so may lead to nondeterministic behavior in charge plan assignments.

3. In the search results list, select the specific entities you want to add. Note that you can multiselect entities. Click **Select**.

The dialog closes and a progress indicator notes the search for associated entities. The selected entities then appear in the table. For a composite entity, its members are accounted for in the Members column. The metered flag indicates that metrics and configuration data will be collected for the entity and used in charge calculations. So, for example, the metered flag is not set for a WebLogic domain because data collection occurs at the WebLogic Server level.

4. Optional. Set the usage mode to other than the default where applicable to declare how to perform metering.

Select the usage mode from the drop-down list. Choices depend on the entity type; in some cases, there is only one choice, Metered. A database, for example, offers three choices: Metered by Database Instance, Metered by Service, or Metered by PDB.

5. Click **Next** to make charge plan and cost center assignments.

43.2.6.3 Making Assignments

Step 2 in the Add Entities wizard is to make charge plan and cost center assignments.

Charge plans provide a basis for calculating the cost of resource consumption.

1. Select entities in the table and click the **Assign Plan** button.
2. In the dialog that opens, select the universal or extended charge plan appropriate to entity selection and click **OK**. The dialog closes, and the plan assignment appears in the entity table row.

You can opt not to assign charge plans now and assign them after adding the entities for Chargeback. See [Section 43.2.8](#) for more information.

Cost centers provide a way to aggregate the charges accrued for resource consumption.

1. Select entities in the table and click the **Assign Cost Center** button.
2. In the dialog that opens, select the cost center appropriate to entity selection and click **OK**.

The dialog closes, and the cost center assignment appears in the entity table row.

You can opt not to assign cost centers now and assign them after adding the entities for Chargeback. See [Section 43.2.7](#) for details.

When done, click **Next** to review entity setup and complete the task of adding entities to Chargeback.

43.2.6.4 Reviewing Entity Setup

Step 3 in the Add Entities wizard provides an opportunity to review your selections and assignments, before completing the task. If satisfied, click **Submit**.

You return to the **Entities** tab where a message confirms that n number of entities were successfully added. For more information on what happens after entities are added, see the paragraphs after the three wizard steps in [Section 43.2.6](#).

43.2.7 Assigning Cost Centers to Entities

Cost centers are a way of distributing charges for resource usage. A cost center is automatically assigned to an SSA entity as part of SSA setup (Cost Center target property). Use this manual process only for assigning cost centers to non-SSA entities.

Note: You also can perform cost center assignment when adding an entity for Chargeback. See Step 2 of the Add Entities wizard described in [Section 43.2.6.3](#).

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab.
3. Select the entities to which you want to assign a cost center and click the **Assign Cost Center** button.
4. A dialog opens displaying a list of cost centers. Choose the cost center for the entities and click **OK**.

The table of entity assignments refreshes to reflect the assignment.

When charges are calculated, unassigned entities are assigned to the default cost center. Note that assigning a cost center to a composite entity maps directly to the composite entity, and to any children that otherwise have no direct cost center assignment.

A group member with one cost center assignment who is a member of another group with a different cost center assignment is in conflict as noted on the **Entities** tab for the affected group member. It is also possible that a group member is part of a regular target hierarchy as well as a group. For example, a database (DB1) appears under a zone (PaaS zone 1) and under a group (Group 1). In these cases, charges continue to be calculated, but are charged to the default cost center until an administrator resolves the conflict, at which time charges will accrue against the appropriate cost center.

Shared services under a RAC node can be assigned to different cost centers.

Note: For entities requested and provisioned through SSA, the Cost Center target property is set to the user login. The SSA user appears under the associated Enterprise Manager user cost center as a consequence of adding the SSA entity to Chargeback. If there was no Enterprise Manager user cost center assigned, the SSA user appears under the Chargeback default cost center. You cannot change the cost center assignment of an SSA entity, but you can reassign the SSA user out of the default cost center to a more appropriate cost center, if desired, as described in [Section 43.2.5.3](#).

To unassign a cost center, select the entities involved and select **Unassign Cost Center** from the **Action** menu.

43.2.8 Assigning Charge Plans to Entities

When assigning charge plans to entities, you have the option of assigning plans individually to child members or assigning at an ancestor level and having the child members inherit the assigned plan.

An extended charge plan includes parameters for how to apply universal charge rates to an assigned entity. You also can replace an extended plan by reassigning the universal plan to an entity.

For SSA entities (zones), the person performing SSA setup assigns the charge plan to the zone as part of setup so that all entities within the zone inherit the plan.

Note: You also can perform charge plan assignment when adding an entity for Chargeback. See Step 2 of the Add Entities wizard described in [Section 43.2.6.3](#).

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab. A hierarchical list of entities appears showing assigned cost centers and charge plans.
3. Select the entities to which you want to assign a charge plan and click the **Assign Plan** button.
4. A dialog opens displaying a list of plans that apply only to the entity type selected. Choose the plan you want to assign, then click **OK**.

The table of entity assignments refreshes to reflect the assignment.

Note that assigning a charge plan to a composite entity maps directly to the composite entity, and implicitly to any children that otherwise have no direct plan assignment.

A group member with one plan assignment who is a member of another group with a different plan assignment is in conflict as noted on the **Entities** tab for the affected group member. It is also possible that a group member is part of a regular target hierarchy as well as a group. For example, a database (DB1) appears under a zone (PaaS zone 1) and under a group (Group 1). In these cases, no charges are calculated for the entity until an administrator resolves the conflict, at which time calculations resume. If there is no resolution before the close of the reporting cycle, charges can no longer be calculated.

A RAC can be metered by database instance, database service, or PDB. Each RAC member appears under the RAC node in the tree hierarchy and can be assigned to different charge plans and different cost centers.

To unassign a charge plan, select the entities involved and select **Unassign Plan** from the **Action** menu.

43.2.9 Setting Default Charge Plans for Entity Types

As part of the process of adding entities to Chargeback, you have the option of setting a default charge plan for an entity type. This way, whenever you add an entity of that type or one is discovered, the designated plan will automatically be assigned. Charge plan availability presupposes that at least one extended charge plan has been created for a given entity type; the universal charge plan is available for all entity types.

1. From the **Enterprise** menu, select **Chargeback** and click the **Entities** tab.
2. From the **Action** menu, select **Set Default Plans**.
3. Click an entity type row; a drop-down control appears in the Default Plan column.
4. Select a plan from the drop-down list.
5. When you are finished setting default plans, click **OK**.

When you add an entity for which a default plan has been set, the plan automatically appears in the Charge Plan column when you advance to the Make Assignments step in the Add Entities wizard.

Note the following about default charge plans:

- You can subsequently change the charge plan assignment for an entity that is assigned a default plan.
- A charge plan designated as a default for an entity type cannot be deleted until removed from default status.
- Default assignment and plan inheritance can vary. Consider the following scenarios where default plans are in place for WebLogic Domain and WebLogic Server entity types:
 - You add a WebLogic Domain that has WebLogic Servers. The default plan is assigned only at the domain level.
 - You add a WebLogic Server where there was no WebLogic Domain previously added. The default plan is assigned to the WebLogic Server.
 - You add a WebLogic Server where a WebLogic Domain was previously added. The default plan is not assigned to the WebLogic Server.

43.2.10 Running the Daily Data Collection Job

The daily data collection in Chargeback is an ETL—extract, transform, load—process where information is extracted from one source, transformed into an appropriate format, and loaded into a repository.

Enterprise Manager collects metric and configuration information on entities and stores it in the Management Repository. These collections occur with varying frequencies. When an entity is added to Chargeback, the application extracts the data from the repository and transforms it for use in Chargeback-dedicated tables. This process of extracting and transforming data is the Chargeback data collection process, which is scheduled to run every 24 hours. Chargeback maintains its own data

collection tables because it needs to perform various transformations on the data, and to provide a historical data reference.

Given the 24-hour cycle, any Chargeback activity is not immediately apparent. For example, if you change a cost center assignment, it may take up to 24 hours (until the next data collection job runs) for reports to show the change. To circumvent the cycle, you can run the collection job on-demand to update the tables immediately.

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab.
3. From the **Action** menu, select **On-demand data collection**.

Chargeback data collection tables are updated to reflect the most recent activity.

To check on the job schedule:

1. From the **Enterprise** menu, select **Job**, then select **Activity**.
2. On the Job Activity page, click **Advanced Search**.
3. In the Advanced Search region, select **Chargeback Data Loader** from the Job Type drop-down list, then click **Go**.
4. Check the **Scheduled** column for the next scheduled job execution.

Do not change the job schedule.

Upgrade Consideration

If you upgraded from Chargeback 12.1.0.5 to 12.1.0.6, where you had database or WebLogic Server shared targets, they will not display properly on the **Entities** and **Reports** tabs until you run the daily data collection job on-demand (or the job runs as scheduled). Note that after the job runs, the shared components become Chargeback entities that can be assigned to their own cost center and charge plan, per the new release.

43.3 Accessing Chargeback Information

Once a Chargeback data collection cycle completes, you can begin to parse the information in a variety of ways. This section covers the following topics

- [Following Usage and Charge Trends](#)
- [Viewing an Entity's Collected Metric Data](#)
- [Generating and Distributing Chargeback Reports](#)
- [Viewing Chargeback Information in the Self Service Portal](#)
- [Sharing Chargeback Data with Other Applications](#)

43.3.1 Following Usage and Charge Trends

Once you define charge plans, set up cost centers, and begin to monitor entities, trends in usage and charges emerge. Trending reports show metric or charge trends over a defined period of time and are useful for end users who want to see how their charges change over time. They are also useful to the IT department for capacity planning purposes.

The **Home** tab displays bar graphs that denote usage and charge trends over time. Each trend region has an **Option** link in the upper-right corner that opens a dialog where you can customize the display.

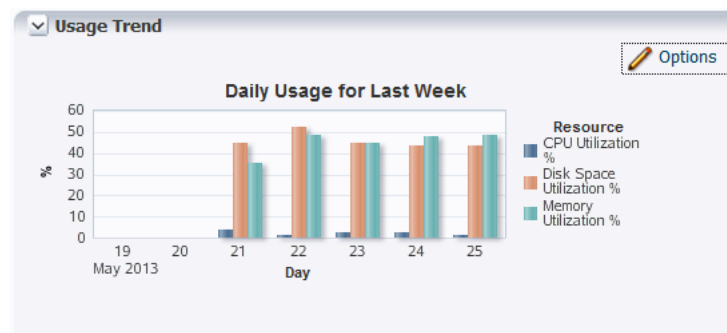
Usage Trend Options

Customize the usage trend display as follows:

- **Time Period**—Select the desired time period to chart usage trends; default is the current year
- **Aggregation**—Select how to group usage across the selected time period; default is monthly
- **Usage Value Type**—Show usage as a percent (utilization) or as a consumptive value; default is utilization
- **Resource**—Show usage in terms of a particular metric (CPU, memory, or storage); default is the three metrics

Figure 43–6 displays a usage trend showing CPU, disk, and memory utilization over the past week, aggregated daily.

Figure 43–6 Sample Usage Trend Graph

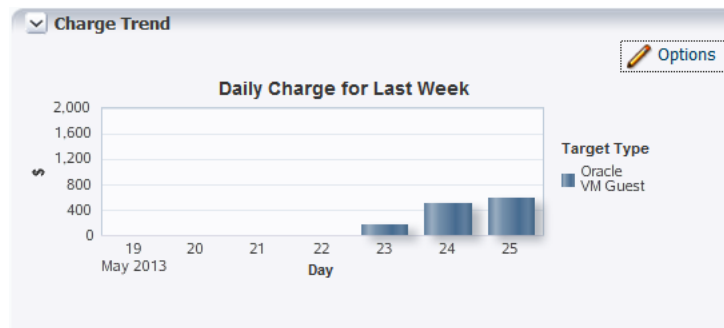


Charge Trend Options

Customize the charge trend display as follows:

- **Time Period**—Select the desired time period to chart charge trends; default is current year
- **Aggregation**—Select how to group charges across the selected time period; default is monthly
- **Group By**—Group charges by either cost center or entity type; default is cost center
- **Cost Center**—Display charge trends for all cost centers, a particular cost center, or for unassigned users; default is all

Figure 43–7 displays a charge trend showing last week’s charges for the VM Guest entity type, aggregated daily.

Figure 43–7 Sample Charge Trend Graph

43.3.2 Viewing an Entity's Collected Metric Data

You can view an entity's metrics in graph form or as a time-stamped report of raw metric data. You can export the latter view to an external application such as a spreadsheet. You also can check metric collection status.

Note that you might have to expand the metric data region at the bottom of the **Entities** tab to expose the subtabs referenced in the instructions below.

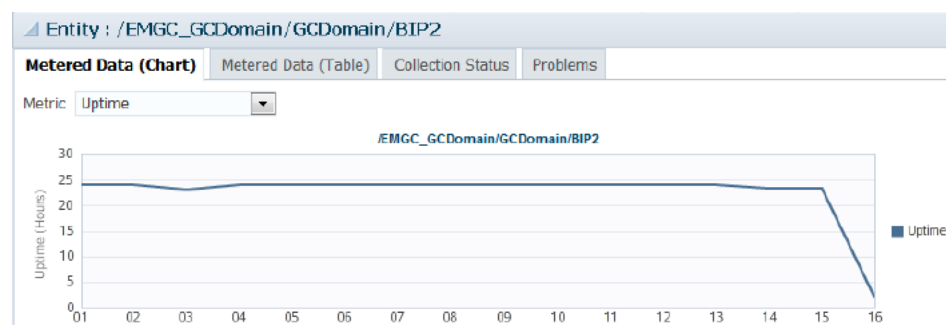
1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Entities** tab and then select an entity to view.
 - Select the **Metered Data (Chart)** subtab below the entities list, to view a wave graph of data metrics for the entity. Select the metric to display from the drop-down list on the right. The metric selection is entity-type dependent. For a WebLogic Server metered by J2EE application, the metrics are per application. For a database metered by service, the metrics are service-related. For a RAC, metrics are represented as a multiline graph grouped by cluster member, where each line maps to usage by a particular member for the selected service.
 - Select the **Metered Data (Table)** subtab to view the raw numbers. In this view, you can filter the data and export it as a csv-formatted file. You also can change the focus to another entity. For a RAC, the view shows the same service data for all cluster members within the RAC.
 - Select the **Collection Status** subtab to glean statistical data such as error count and when metric data was last collected. For a RAC, collection status is for all cluster members within the RAC regardless of service selected.
 - Select the **Problems** subtab to view any problems related to the selected entity such as with the data collection process. The summary entry links directly to Incident Manager where you can learn more about the problem and potential solutions. A service request (SR) number appears if assigned. There is also a **Problems** subtab on the **Home** tab that notes issues related to the whole of Chargeback. There are here likewise direct links to Incident Manager.

Note: Within Incident Manager, you can view, track, and manage the life cycle of a problem and its associated incidents. Support Workbench allows you to further investigate and report a problem. As the Chargeback Administrator, you require full privileges on all hosts and Management Agents associated with the Oracle Management Service to view problem details in the Support Workbench.

- Click the help icon that appears in a charge details row to see a pop-up description of the applicable charge item.

Figure 43–8 shows a chart tracking instance uptime for the selected entity over a span of 16 days.

Figure 43–8 Sample Entity Metric Data



Note that you can see additional details on the Job Activity page.

1. From the **Enterprise** menu, select **Job**, then select **Activity**.
2. Click Advanced Search and specify the following filtering criteria:
 - Select **Chargeback Data Loader** as Job Type.
 - Select **Targetless** as Target Type.
 - Select appropriate values for Status and Scheduled Start.
3. Click **Go**.

The log output for each job step captures any warnings or errors encountered.

43.3.3 Generating and Distributing Chargeback Reports

Chargeback summary reports are a powerful analytical tool for tracking resource usage and charge distributions. These summary reports show information related to charge or resource utilization broken down by Cost Center, Entity Type and Resource. They enable you to quickly assess the entities or cost centers with the greatest charges or resource utilization. Summary reports are primarily useful for drill-down purposes.

Data collection occurs once a day. The daily data collection job for the current cycle is based on charge plan and cost center assignments. The reporting cycle defines the time period for which to calculate charges. The cycle is for the current month starting on the first day of the month.

To generate ad hoc reports:

1. From the **Enterprise** menu, select **Chargeback**.
2. Select the **Reports** tab.
3. Design your report from the following options:
 - Use the current report cycle or customize a date range to report on.
 - Choose between summary and trend report types. A summary report presents a pie-chart breakdown, while a trend report uses a y-axis multiple bar chart to denote usage trends.
 - Select specific cost centers or report on all users.

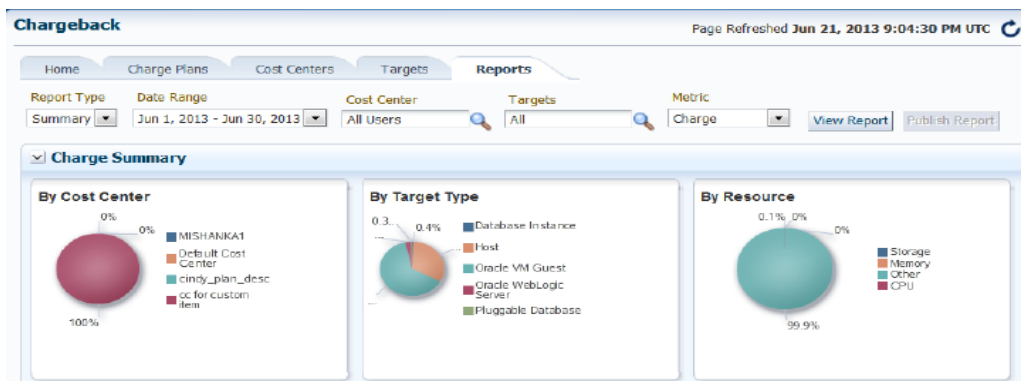
- Select specific entities or entity types or report on all entities within all entity types.
- Choose the metric to report on.

Click **View Report** to see the results.

The report displays color-coded graphs summarizing charges by cost center, entity type, and resource, with details displayed in the table at the bottom. Click a color box link in the respective graph to recalculate the report contents for the color-coded selection, for example memory in the resource graph.

Figure 43–9 displays a summary report showing charges for the current reporting cycle for all cost centers and entity types, with a breakdown by resource.

Figure 43–9 Summary Report for a Cost Center and Entity Type



4. Filter the details by choosing from the drop-down list; the default is All. Use the query-by-example feature (icon to the right of the action buttons) to search report details. The icon acts as a toggle; clicking it alternately shows or hides text and selection boxes above the table columns. The feature is also available in the **View** menu. Enter search criteria in various combinations by selecting a date and by typing values in the respective columns. Press **Enter** to activate the search.
5. Click the **Export** button in the details region to export report contents to file.
6. Click **Publish Report** to make report contents public. This action integrates with BI Publisher, where you can:
 - Save reports in a variety of formats (Excel, PowerPoint, HTML, PDF)
 - Distribute generated reports to e-mail lists (users who do not have access to Enterprise Manager, for example) on a defined schedule

For information on BI Publisher setup, see the "Installing BI Publisher on Enterprise Manager" chapter in the *Enterprise Manager Cloud Control Advanced Installation and Configuration Guide*.

Reporting on Uptime

When you choose to report on the uptime metric, the details display the fractions of hours in a day an entity was available over the course of the reporting cycle. Note that reporting uptime does not prorate charges. The prevailing sense is to put in the hands of the customer how best to make adjustments to charges based on the report results. To this end, export the results to a Microsoft Excel html-formatted file for further analysis and consideration.

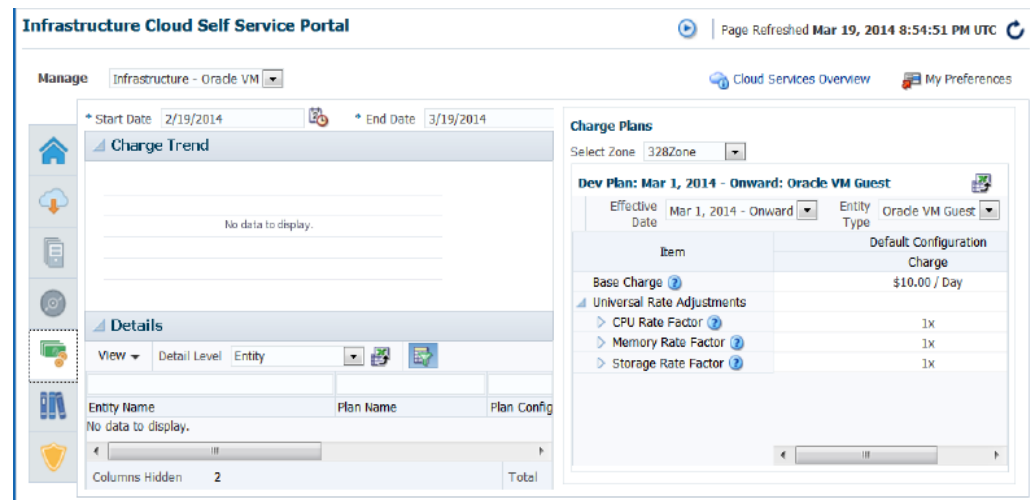
43.3.4 Viewing Chargeback Information in the Self Service Portal

You can access Chargeback information as it relates to self service applications from the self service portal.

1. From the **Enterprise** menu, select **Cloud**, then select **Self Service Portal**.
2. On the Self Service Portal page, select a service type from the **Manage** drop-down menu.
3. Click the **Chargeback** icon in the left pane to view charge trends and details for the selected service type, provided it was configured for Chargeback, to view the following informational breakdown:
 - **Charge Trend** calculates charges across a date range for various metrics. If you hover over a metric, memory for example, the bar graph changes to reflect only that metric. Set a date range and click **Go** to recalculate charges.
 - **Details** below are a reflection of the charges and date range above. You can reorder the data by selecting from the **Detail Level** drop-down menu. You can also display additional information by exposing more columns.
 - **Charge Plans** allows you to select a zone to see the charge plan in effect, in this case, an extended charge plan defined for a specific entity type. That entity type, Oracle VM Guest for example, has certain charge items that were set as part of the plan definition and are displayed on the **Charge Items** tab. The charge plan determines the charges displayed in trends and details on the left. The other tab, **Universal Rate Adjustments**, shows adjustments if any made to the base plan rates (CPU, memory, and storage).

Figure 43–10 shows a sample Chargeback informational breakdown in the self service portal.

Figure 43–10 Chargeback Breakdown for a Self Service Application



43.3.5 Sharing Chargeback Data with Other Applications

Amassed Chargeback data is a valuable commodity that can be made available to other applications. There are several ways to do this:

- Export administrative reports (**Export** button on the **Reports** tab in Chargeback)

- Publish administrative reports via BI Publisher (**Publish** button on the **Reports** tab in Chargeback)
- Export details of charge trends for self service applications (**Export** button on the **Chargeback** tab in the self service portal)
- Execute the EM CLI verb `get_metering_data` to generate comma-separated output on usage and, optionally, charge data (see [Chapter 56, "Chargeback and Metering EMCLI Verbs,"](#) for more information)

In addition, Enterprise Manager supports repository views to access information in the Management Repository for further processing and presentation. There are two views available (`MGMT$EMCT_CBA_CHARGE_HOURLY` and `MGMT$EMCT_CBA_CHARGE_DAILY`) to access Chargeback information in the Management Repository. See the *Enterprise Manager Cloud Control Extensibility Programmer's Reference* for more information.

Using Consolidation Planner

This chapter covers use of the Consolidation Planner feature provided with Oracle Enterprise Manager Cloud Control.

This chapter includes the following sections:

- [Overview of Consolidation Planner](#)
- [Using Consolidation Planner](#)

44.1 Overview of Consolidation Planner

Over the years, the typical enterprise data center will grow steadily due to the addition of servers required to satisfy the needs of the business. This growth typically results in excess servers that occupy rack space, consume a lot of power for cooling, and require system maintenance such as security and patching.

Depending on the procurement cycle or the specific hardware vendor agreement in effect, enterprises may acquire different types of server hardware and operating systems, inadvertently creating a confusing array of systems that administrators need to manage, administer, patch and upgrade. This in turn increases labor and ongoing maintenance and support costs against IT budgets. Enterprises look at consolidation as a way to migrate their disparate systems onto standardized operating systems and hardware, with the ultimate goal of reducing costs.

Enterprises also are increasingly investigating virtualization technologies such as Oracle Virtual Machine by moving from physical to virtual servers. This makes it possible to use the shared hardware infrastructure while getting the benefits of isolation that virtualization provides.

The goal of consolidation is to identify such under-utilized servers and find a way to consolidate them, enabling the enterprise to free up as many servers as possible while continuing to maintain service levels. Since servers have different levels of CPU capacity, Consolidation Planner uses computer benchmark data to normalize the CPU usage for a given hardware in the consolidation process. Specifically, Consolidation Planner uses the following CPU benchmarks for different classes of hardware:

- SPECint®_base_rate2006 for database hosts, application hosts, or mixed-workload hosts
- SPECjbb®2005 for middleware platforms

Consolidation Planner enables you to match managed target sources you want to consolidate with new or existing target destinations. Consolidate source servers to generic physical machines, Oracle engineered systems (Exadata Database Machines or Exalogic Elastic Cloud systems), or Oracle Virtual Machine (VM) servers.

You can also consolidate source servers to physical machines configured in the Oracle Cloud. In a consolidation of this type, an Oracle Cloud Compute configuration mimics a host, except that only memory and CPU capacity are of consequence as resources to be considered.

By leveraging metric and configuration data collected from managed target servers by Enterprise Manager Cloud Control, Consolidation Planner helps you determine the optimum consolidation scenarios that also reflect business and technical constraints in the consolidation process.

44.1.1 Key Concepts

The following concepts are central to using Consolidation Planner.

Source Server

An existing server that will be considered for consolidation.

Destination Server

An existing or yet-to-be-purchased server that a source server will be consolidated to. Can also be thought of as the consolidation target. These may be individual machines, virtual server pools, an engineered system such as the Oracle Exadata Database Machine or an Exalogic Elastic Cloud system, or an Oracle Cloud Compute configuration.

Consolidation Project

Defines the scope of a potential consolidation effort, including:

- The type of consolidation. In the current release, two types of consolidation schemes are supported:
 - P2V: From physical source servers to Oracle Virtual Machine (VM) destination servers
 - P2P: From physical source servers to physical destination servers
- The preliminary set of candidate source servers to consider consolidating *from*
- The preliminary set of candidate destination servers to consider consolidating *to*
- The duration over which data used to generate consolidation scenarios will be collected for the source servers
- The benchmark used to measure CPU capacities when determining how many source servers can be consolidated to a destination server

Consolidation Scenario

Each consolidation project contains one or more consolidation scenarios that are generated based on the inputs provided, which include:

- The source server resource requirements that a destination server must meet, including one or more of the following: CPU, memory, disk I/O, network I/O, and disk storage
- Any business, compliance or technical constraints that must be considered
- The destination servers to consider in the scenario

A set of pre-configured consolidation scenarios are provided, representing conservative, medium, and aggressive consolidation schemes. Each scenario is generated based on inputs you provide. Alternatively, you can create your own

custom scenarios that best suit your situation. Once created, you can compare the various scenarios to determine which consolidation strategy best meets your requirements.

Each scenario also includes initial mappings between each source server and the destination server it may be consolidated to. You can choose to create mappings manually, or allow Consolidation Planner to create them automatically. Once all inputs are specified, you can run the scenario and evaluate the results. Subsequently, you can rerun the scenario to re-evaluate the scenario based on the previously specified conditions with the latest available data. The results of the previous analysis will be over-written. You can also create a new scenario based on an existing scenario, where you tweak certain values to customize the new scenario.

44.1.2 Consolidation Constraints

Consolidation Planner allows you to specify various constraints that must be considered when creating consolidation projects and scenarios.

This section covers the following:

- [Source Server Constraints](#)
- [Destination Server Constraints](#)

44.1.2.1 Source Server Constraints

For source servers, you define constraints on the basis of compatibility or exclusivity.

Compatible Servers

Servers are considered compatible if they match on certain property and configuration values.

Properties include the following:

- Lifecycle Status
- Department
- Location

For example, there may be situations that mandate that specific servers remain within a specific location, such as data center location or geography.

Configuration items include the following:

- Network Domain
- System Vendor
- System Configuration
- CPU Vendor
- CPU Name
- Operating System

For example, there may be an accounting policy that the same system and CPU vendor be used.

You can choose to establish compatibility on none, some, or all of these target properties and configuration items.

Mutually Exclusive Servers

You can choose to exclude servers from consolidation scope because they violate certain Oracle best practices. Set either or both of the following conditions to exclude matching servers:

- Nodes of a RAC Database—do not consolidate nodes of the same RAC database to a single destination server
- Nodes of an Oracle Cluster—do not place nodes of an Oracle cluster in the same failure group

44.1.2.2 Destination Server Constraints

For destination servers, you can scope candidates to either new or existing candidates, but constraints are primarily expressed as a percentage of CPU and memory resource utilization; that is, how much of either resource type can maximally be used on a destination server.

44.2 Using Consolidation Planner

The steps in the consolidation planning process are:

1. Create a consolidation project. See [Section 44.2.1, "Creating a Consolidation Project."](#)
2. Define one or more consolidation scenarios within the project. You have two options:
 - Use a pre-defined consolidation scenario. See [Section 44.2.1.5, "Choosing a Pre-configured Scenario."](#)
 - Create a custom consolidation scenario. See [Section 44.2.2, "Creating a Custom Consolidation Scenario."](#)
3. Evaluate your consolidation scenarios in the Consolidation Planner console to determine the consolidation strategy that best meets your needs. See [Section 44.2.4, "Evaluating a Consolidation Scenario."](#)
4. Modify the settings of your scenarios to generate different results. Continue this process until you have the most optimal scenario(s) for your situation.

Note that in this release, consolidation scenarios can be created for planning purposes only. Execution of scenarios—that is, the actual movement of data from sources to destinations—is not supported.

When consolidating multiple sources to more than one destination, the resource requirements of sources are checked against the resource capacity of the destinations. To consolidate all identified sources to the least number of destinations, Consolidation Planner tries to identify a set of sources that have known resource requirements that will fit into a destination's corresponding available resources as tightly as possible.

For example, if the available memory in a destination server is 2 GB, Consolidation Planner will try to find a set of source candidate servers with a sum of required memory as close to 2 GB as possible then "fit" the source servers in the destination server. The goal is to "fit" the source servers into the least number of destination servers.

This section includes the following:

- [Creating a Consolidation Project](#)
- [Creating a Custom Consolidation Scenario](#)

- [Other Scenario Creation Options](#)
- [Evaluating a Consolidation Scenario](#)
- [Analyzing a Consolidation Scenario](#)
- [Viewing Consolidation Reports](#)
- [Considering Oracle Compute Cloud Shapes](#)
- [Managing Data Collections](#)

44.2.1 Creating a Consolidation Project

You create a consolidation project for each consolidation effort, then add individual consolidation scenarios within it. You can then compare consolidation scenarios to determine which consolidation strategy makes the most sense.

After the project is defined, a Cloud Control job is submitted to collect available data for the specified targets from the Management Repository. Once the job finishes, the project becomes an active project. As long as the project is in an active state, data collection will continue.

Note: To view a visual demonstration on creating a project to consolidate legacy hosts onto an Exadata engineered system, watch the video Oracle Enterprise Manager 12c: Consolidation Planner, using the following URL:

https://apex.oracle.com/pls/apex/f?p=44785:24:0::NO:24:P24_CONTENT_ID,P24_PREV_PAGE:6427,2

A wizard guides you through the creation process and involves the following steps:

- [Declaring the Consolidation Type](#)
- [Specifying Source Candidates](#)
- [Specifying Destination Candidates](#)
- [Setting Data Collection Parameters](#)
- [Choosing a Pre-configured Scenario](#)
- [Reviewing and Saving the Consolidation Project](#)

44.2.1.1 Declaring the Consolidation Type

Specify general information about the consolidation project as follows:

1. From the **Enterprise** menu, select **Consolidation Planner**.
2. Click the **Create Project** button.
3. Enter the consolidation project name and, optionally, a description.
4. Select the host consolidation type: from physical source servers to Oracle VM servers (P2V), or from physical source servers to physical servers (P2P).
5. Click **Next** to specify source candidates.

44.2.1.2 Specifying Source Candidates

Proceed with source selection as follows:

1. Select an appropriate benchmark from the drop-down menu.

- Specify SPECint®_base_rate2006 for database hosts, application hosts, or mixed-workload hosts
 - Specify SPECjbb®2005 for middleware platforms
2. Click **Add Source Servers** to select the source servers to be consolidated from a list of managed server candidates. Use the filtering criteria to refine your target search. Choose from the filtered results, then click **Select**.

The targets you select appear in the table. Note that you can subsequently cull the list by removing selected source servers.
 3. Optionally set server I/O capacities for disk I/O request and network I/O volume capacities. Click **Specify Server I/O Capacity** to estimate these I/O capacities for all source involved in the consolidation project. Note that you can subsequently fine-tune these estimates by clicking a row and editing the values for the various capacities.
 4. Click **Next** to specify destination candidates.

44.2.1.3 Specifying Destination Candidates

Proceed with destination selection as follows:

1. Optionally select one or more existing servers to consolidate the source servers to.
 - If you are consolidating from physical servers to Oracle Virtual Servers (P2V), click **Add Existing Virtual Servers as Destinations** to view a list of existing VM-based Exalogic Elastic Cloud systems and Oracle Virtual Machine destination servers to consolidate the source servers to. Use the target type filter to differentiate the two. Select the servers you want to add, then click **Select**.

The targets you select appear in the table. Note that you can subsequently cull the list by removing selected destination servers.
 - If you are consolidating from physical servers to physical servers (P2P), click **Add Existing Oracle Engineered System as Destinations** to search for the Exadata Database Machine servers or Exalogic Elastic Cloud servers to consolidate the source servers to. Use the target type filter to differentiate the two. Select the servers you want to add, then click **Select**.

The targets you select appear in the table. Note that you can subsequently cull the list by removing selected destination servers.

Note: The consolidation will be either to new destination servers, or to the existing servers that were selected as source servers.

2. Optionally edit estimated CPU capacity, I/O request, and network I/O volume by clicking in a row and changing the value. You can also edit the I/O value by clicking **Specify Server I/O Capacity** to estimate these I/O capacities for all destination servers involved in the consolidation project.
3. Click **Next** to set up data collection.

44.2.1.4 Setting Data Collection Parameters

Specify the duration over which data used to generate consolidation scenarios will be collected for the source servers specified in the project in the Data Collection region.

This data will be used to determine the resource requirements that a destination server must meet.

1. Specify the minimum number of days to collect data. The default minimum value is 21 days. To use existing historical data to run and view consolidation scenarios immediately, set the minimum number of days to 0.
2. Specify the maximum number of days to collect data. The default maximum value is 90 days.
3. Specify when to begin the data collection process.
Note that once data collection begins, you can elect to suspend and resume collecting at any time from the **Actions** menu in the Consolidation Planner console.
4. Optionally select **Continue Data Collection Over the Maximum Days** to purge the oldest day's data when data for a new day is added.
5. Click **Next** to choose a pre-configured scenario.

44.2.1.5 Choosing a Pre-configured Scenario

When creating a consolidation project, you can optionally choose to generate up to three pre-configured consolidation scenarios to add to the project. These out-of-the-box scenarios represent conservative, aggressive, and medium consolidation schemes.

These scenarios are generated using data collected for the source targets defined in the consolidation project at the time the project is created. If no data is available when the project is created, the pre-configured scenarios will be automatically generated once the minimum amount of data has been collected.

Consolidation Planner ships with three out-of-the-box scenarios that represent conservative, aggressive, and medium consolidation schemes.

1. Choose whether to use a pre-configured scenario by clicking the appropriate radio button. Choosing the option displays a list of the out-of-the-box consolidation scenarios available. By default, the scenarios are designated by the method used to aggregate daily source target resource usage:
 - **Aggressive:** Aggregate data based on *average* daily usage per hour.
This typically results in a high consolidation (source:destination) ratio, because more sources will “fit” into each destination. But because more sources are involved, the odds that one or more will not meet the resource requirements are higher.
 - **Conservative:** Aggregate data based on *maximum* daily usage per hour.
This typically results in a lower source:destination ratio, because fewer sources will “fit” into each destination.
 - **Medium:** Aggregate data based on the 80 percentile usage.
This typically results in a source:destination ratio somewhere between Aggressive and Conservative aggregations.
2. Select the pre-configured scenario you want to use. Note that you can select any or all scenarios.
3. Select whether to factor new or existing destinations in the scenario. If you choose a new (phantom) server, provide resource metric estimates.
4. Click **Next** to review the consolidation project.

The pre-configured scenarios will be generated when the project is created using data collected for the source servers defined in the consolidation project.

You can also opt to create your own custom scenario once the consolidation project has been completed.

44.2.1.6 Reviewing and Saving the Consolidation Project

Review the specifics of the consolidation project. Use the **Back** button to return to a given step to make changes. If satisfied, click **Submit**. A message confirms that the project has been created and the job has been submitted.

Once the project is created, it will show up in the Consolidation Planner console. Consolidation scenarios can then be defined for this project.

44.2.2 Creating a Custom Consolidation Scenario

You can create custom consolidation scenarios instead of or in addition to using the pre-configured scenarios. Multiple scenarios can be created within a project, enabling you to compare different scenarios before deciding on a solution. New consolidation scenarios are created within an existing consolidation project.

A wizard guides you through the creation process and involves the following steps:

- [Specifying Scenario Parameters](#)
- [Defining Consolidation Constraints](#)
- [Specifying Destination Candidates](#)
- [Mapping Sources to Destinations](#)
- [Reviewing and Saving the New Scenario](#)

44.2.2.1 Specifying Scenario Parameters

Specify the general parameters of the scenario as follows:

1. From the **Enterprise** menu, select **Consolidation Planner**.
2. Click the consolidation project for which the scenario is intended.
3. Click the **Create Scenario** button.
4. Specify the scenario details, such as scenario name.
5. Specify the source resources to consider. Consolidation Planner will aggregate the specified resources to determine the total requirements.
 - **Resource Type:** The server requirements, such as CPU, memory (GB), and I/O capacity that must be considered.
 - **Scale Factor:** Provide room for growth on the destination for each source. The resource requirement estimate uses the scale factor to pad the estimate for consolidation. So, for example, if the estimated requirement for a given source, based on usage data, is 2 GB of memory, which equates to a scale factor of 1, and you specify a scale factor of 1.1, 2.2 GB will be required to consolidate that source.
 - **Applicable Days:** The days of the week on which resource usage metrics are collected.
 - **Resource Allocation:** The method used to aggregate daily source server resource usage. Values are:

- Aggressive: Aggregate data based on *average* daily usage per hour.
This typically results in a high consolidation (source:destination) ratio, because more sources will “fit” into each destination. But because more sources are involved, the odds that one or more will not meet the resource requirements are higher.
 - Conservative: Aggregate data based on *maximum* daily usage per hour.
This typically results in a lower source:destination ratio, because fewer sources will “fit” into each destination.
 - Medium: Aggregate data based on the 80 percentile usage. This typically results in a source:destination ratio somewhere between Aggressive and Conservative aggregations.
 - The date ranges should define a period of time that is typical of standard resource requirements.
6. Click **Estimated Requirements** to view the estimated total resource requirements.
Resource requirements are shown based on the averaged hourly requirement. The displayed requirements reflect the scale factor (if any) specified for the resource. The 24-hour requirement pattern will be used as the minimum requirements that must be met by consolidation targets.
 7. Click **Next** to define consolidation constraints.

44.2.2.2 Defining Consolidation Constraints

Specify business, corporate or technical constraints that must be enforced. These constraints will be used to:

- Guide the allocation process during automatic source-to-destination mapping; or
 - Calculate violations if manual mapping between sources and destinations is used
1. Select compatible server criteria.
Servers are considered compatible if they have the same specified target properties and configurations. If you are consolidating multiple source servers to a single target server, only compatible servers can be consolidated together on the same target server.
 2. Specify mutually exclusive server criteria.
Certain types of source servers are mutually exclusive and should not be consolidated together on the same destination server due to various reasons. For example, nodes of an Oracle cluster should not be placed in the same failure group.
 3. Click **Preview Effect of Constraints** to view a list of source servers that are not compatible based on the defined constraints.
 4. Click **Next** to specify destination server candidates.

44.2.2.3 Specifying Destination Candidates

Determine the destination candidates needed to meet your requirements. Proceed according to the project type.

- Physical Server to Virtual Server Project
- Physical Server to Physical Server Project

Physical Server to Virtual Server Project

For a P2V project:

1. Choose destination server candidates using either of the following options:
 - Click **Use New (Phantom) Servers** if you plan to use target servers that have yet to be provisioned or purchased, then select either of the following options:
 - **Use Oracle Engineered System** and click the search icon to select an appropriate configuration type for an Exalogic Elastic Cloud system.
 - **Use Generic Servers** and provide the estimated CPU capacity if available; otherwise, click the search icon next to the CPU capacity input field, then select a server configuration that most closely matches your needs.

Adjust the memory and storage estimates as necessary.

In a virtual environment, you can also specify a quantity of the resource to be set aside (reserved) for use by supervisory software in the database machine. This quantity is subtracted from the total capacity of the destination before consolidating source servers into the remaining resource. For example, if your estimated memory requirement is 12 GB and you specify a reserve of 2 GB, only 10 GB is available for consolidation.

Consolidation Planner will determine how many destination servers are required as part of the consolidation results.
 - Click **Use Existing Servers** to specify a set of existing managed servers to use as targets.

These are the servers you specified when defining the scope for the consolidation project. Consolidation Planner will determine the available hardware resources based on collected usage data.

By default, the consolidation process will try to use as few target servers as possible. If you prefer, choose to balance the source load across all destinations.
2. Accept the defaults or edit the percentages for **Maximum Allowed Resource Utilization on Destination Servers**. Contrast these allowances, which provide headroom on destination servers, with the scale factor, which provides headroom for individual source servers.
3. Click **Next** to map the source servers to the destination servers.

Physical Server to Physical Server Project

For a P2P project:

1. Choose destination server candidates using either of the following options:
 - Click **Use New (Phantom) Servers** if you plan to use destination servers that have yet to be provisioned or purchased, or if you are using Oracle Cloud Computing, then select the appropriate option:
 - **Use Oracle Engineered System** and select either Exadata Database Machine or Exalogic Elastic Cloud. Click the search icon and select a configuration type appropriate to either choice.
 - **Use Generic Servers** and provide the estimated CPU capacity if available; otherwise, click the search icon next to the CPU capacity input field, then select a server configuration that most closely matches your needs.

- **Use Oracle Compute Cloud** and select the cloud computing configuration, or shape, to use as the destination. See [Section 44.2.7, "Considering Oracle Compute Cloud Shapes,"](#) for more information.

Adjust the memory and storage estimates as necessary.

- Click **Use Existing Servers** to specify a set of existing managed servers to use as destinations for the project.

These are the servers you specified when defining the scope for the consolidation project. Consolidation Planner will determine the available hardware resources based on collected usage data. If you did not explicitly specify destination candidates, all source servers are potential destinations for consolidation.

By default, the consolidation process will try to use as few destination servers as possible. If you prefer, choose to balance the source load across all destinations.

2. Accept the defaults or edit the percentages for **Maximum Allowed Resource Utilization on Destination Servers**. Contrast these allowances, which provide headroom on destination servers, with the scale factor, which provides headroom for individual source servers.
3. Click **Next** to map the source servers to the destination servers.

44.2.2.4 Mapping Sources to Destinations

Next, map the sources to the destinations they will be consolidated to. The objective is to fit source requirements with each destination's available resources as tightly as possible.

It is recommended that you allow Consolidation Planner to perform this mapping automatically. This will allow the tool to maximize resource utilization of destinations based on resource capabilities and the various consolidation constraints specified.

When you have chosen existing destinations, you can optionally map each source and destination manually:

1. Click a source in the list.
2. Click the flashlight icon to select the destination to map to the source. Note that you can map a single source to a destination or multiple sources to a destination, but a source can be mapped to only one destination.

The resulting consolidation report will show any resource and/or constraint violations due to such manual mapping.

3. Click **Next** to review the consolidation scenario.

44.2.2.5 Reviewing and Saving the New Scenario

Finally, review the various parameters set in the new scenario. Note that you can optionally save the scenario as a template. Use the **Back** button if you need to make changes; otherwise, proceed as follows:

- Optionally, you can save the scenario as a template, which can then be shared with other users. If you want to do this, click **Save Scenario as a Template**. In the dialog that opens, browse to a location in the local file system and save the template as an XML file.

- Click **Submit**. A message appears confirming that a job has been submitted for further analysis of the scenario. Results appear at the bottom of the Consolidation Planner page when done.

44.2.3 Other Scenario Creation Options

You can also create a consolidation scenario based on an existing scenario. Select an applicable scenario under a consolidation project and then select **Create Like Scenario** from the **Actions** menu. Modify the scenario as desired, provide a meaningful name, and submit for analysis as usual.

If you saved a scenario as a template, you can subsequently import the scenario into another environment.

1. On the Consolidation Planner home page, select **Create Scenario from Template** from the **Actions** menu.
2. Browse to a saved template XML file in the local file system. Click **Open**.
3. Indicate the extent to which you want replicate the saved template; that is, in terms of the resources, constraints, and targets planning represented by the template. Click **Update** if you make any changes.
4. Click **OK** to import the saved template.

The imported scenario opens in the wizard where you can edit and save it in Consolidation Planner.

44.2.4 Evaluating a Consolidation Scenario

You can view details of your consolidation scenarios using the Consolidation Planner console. After evaluating the consolidation scenario results, you can define different plans as well as rerun existing scenarios to re-evaluate them based on the previously specified conditions with the latest available data. The results of the previous analysis will be over-written. You can also create a new scenario based on an existing scenario, where you tweak certain values to customize the new scenario. This iterative process helps you obtain the optimized consolidation scenario which is generated by compromising various factors and weighing different trade-offs.

Compare the consolidation scenarios you create to determine which consolidation strategy best meets your requirements.

Your objective is to:

- Match source resource requirements with destinations best able to meet those requirements.
- Fit source requirements with each destination's available resources as tightly as possible, so you can get maximum usage of destination capacity.
- Provide room for growth on destinations by allowing for headroom as a factor of resource requirements.
- Optionally balance the source workload across all available destinations.

In the current release, consolidation scenarios can be created for planning purposes only. Consolidation scenarios cannot be executed using Consolidation Planner.

1. From the **Enterprise** menu, select **Consolidation Planner**.
2. First, examine the project containing the scenario you want to view.

- The **Status** column indicates the status of data collection, based on the minimum and maximum collection days specified for the project.
 - The **General** tab summarizes the project in terms of type, collection details, number of sources, and so forth.
 - Click the **Sources** tab to view various usage data collected for the sources defined in the project. Data can include utilization rates for CPU, memory, storage, and disk and network I/O, depending on the project type.
 - Click the **Source Workload** tab to view a graph showing source resource usage data collected. Data is shown for each 24 hour period across a monthly span. You can filter the view by source, resource type, and month.
 - Click the **Destination Candidates** tab to view a breakdown of hardware details and projected resource utilization by destination candidate, based on the sources to be consolidated.
 - Click the **Report** button above the table when the project is selected to view summarized information and more details.
3. Next, view the data for a specific scenario. For a completed analysis, click any metric in the row to view details. Clicking the Sources metric takes you to the **General** tab where you can view a summary of the scenario. Clicking the remaining metrics takes you to the respective tab, as follows:
- **Destinations:** The list of destinations to which the sources will be consolidated. Resource configuration and calculated utilization are shown for each destination.

For consolidations to the cloud, resources of consequence are CPU capacity and memory.
 - **Ratio:** The ratio of sources to destinations. By default, Consolidation Planner will try to “fit” sources into as few destinations as possible.
 - **Mapping:** The destinations to which specific sources will be mapped. The analysis includes estimated CPU and memory requirements and utilization, enhanced by suggested CPU and memory allocation figures to consider. These suggestions represent a reasonable compromise between requirements and destination server capacity.
 - **Confidence:** The percentage of the data collected for sources that meet the source usage requirements defined in the scenario. This value is aggregated for all sources defined with the project.
 - **Violations:** The number of violations of technical or business constraints defined in the scenario.
 - **Exclusions:** The number of sources that do not have a qualified mapping to a destination. These are sources that exceed the capacity of available destinations. This metric is applicable only if auto-mapping of sources to destination is used.

A different set of constraints may result in a different optimal scenario. Modify the constraints to come up with different scenario results.

44.2.5 Analyzing a Consolidation Scenario

To analyze a consolidation scenario, Consolidation Planner follows a defined process.

First, Consolidation Planner estimates the hourly and overall resource requirements for each of the consolidation sources. Using metric data collected by Enterprise

Manager, Consolidation Planner calculates the requirement for each hour and for all hours (in the specified collection days), selecting the average, 80th percentile, or maximum value, depending on the selected resource allocation style (Aggressive, Medium, or Conservative). Consolidation Planner adjusts this value if a scale factor is specified. The resource requirement displayed for the source is the overall requirement determined by the resource allocation style and adjustments.

If the consolidation scenario includes existing destinations, Consolidation Planner performs a similar calculation to determine the hourly and overall usage values for each destination. Consolidation Planner does not scale or otherwise adjust these values, but calculates them using average, 80th percentile, or maximum values depending on the resource allocation style.

To consolidate sources into new or existing destinations, Consolidation Planner matches the hourly requirements for each source against the available hourly capacity of a destination. (Existing destinations start this process populated with their existing hourly workloads; new destinations start in an empty state.) If the destination can accommodate all hourly requirements for all resources, a success consolidation occurs. If any requirement cannot be consolidated, Consolidation Planner tries the next destination until one is found with sufficient capacity. If the consolidation is to existing destinations and none have sufficient remaining capacity, the source is excluded from the consolidation. For consolidation to new destinations, another destination is created to accommodate the source. By default, Consolidation Planner consolidates sources to the fewest possible destinations. However, for scenarios with multiple existing destinations, you can choose to spread the workload across all destinations instead.

The scenario Mapping page displays the results of the consolidation. The contents of this page vary depending on the project type and the resources selected for consolidation, but in general displays the following:

- Projected destinations, and the sources consolidated to each destination.
- For each resource, the capacity of the destination, together with the percentage and amount of that resource that will be consumed by the sources consolidated to it and existing workload, if any. Consolidation Planner estimates this amount by finding the largest hourly usage for the resource on the destination. The source line shows the percentage of the destination's resources that will be used by that source.

44.2.6 Viewing Consolidation Reports

You can repurpose consolidation project and scenario details in report form that you can capture in a variety of formats and distribute to a wider audience.

44.2.6.1 Viewing Consolidation Planner Project Reports

To view a project report, select the project on the Consolidation Planner home page and click the **Report** button above the table. The report page repurposes project details as stacked, scrollable tables representing the tabbed information that appears in the project's details on the home page.

Click **Publish Report** to capture report contents. This action integrates with BI Publisher, where you can:

- Save reports in a variety of formats (Excel, PowerPoint, HTML, PDF).
- Distribute generated reports to e-mail lists (users who do not have access to Enterprise Manager, for example) on a defined schedule.

Click **OK** to return to the Consolidation Planner home page.

44.2.6.2 Viewing Consolidation Planner Scenario Reports

To view a project scenario report, select the scenario within the project on the Consolidation Planner Home page and click the **Report** button above the table. The report page repurposes scenario details as stacked, scrollable tables representing the tabbed information that appears in the scenario's details on the home page.

Click **Publish Report** to capture report contents. This action integrates with BI Publisher, where you can:

- Save reports in a variety of formats (Excel, PowerPoint, HTML, PDF).
- Distribute generated reports to e-mail lists (users who do not have access to Enterprise Manager, for example) on a defined schedule.

Click **OK** to return to the Consolidation Planner home page.

44.2.7 Considering Oracle Compute Cloud Shapes

A shape defines the number of Oracle Compute Units (OCPU) and the amount of RAM available for an instance. An (OCPU) provides the equivalent CPU capacity of the current 3.0 GHz 2012 Intel Xeon processor with hyper threading enabled. Each OCPU corresponds to two hardware execution threads, known as vCPUs.

A wide range of shapes is available to help you select a combination of processing power and memory for your instances that best suits your business requirement. While selecting a shape for your instance, consider the nature of applications that you will deploy on the instance, the number of users that you expect to use the application, and also how you expect the load to scale in the future. Remember to also factor in the CPU and memory resources that will be used by the OS.

To determine the shape that meets your resource requirements, you may want to experiment with a shape and test it with a representative workload.

[Table 44-1](#) provides the list of shapes currently available in Oracle Compute Cloud Service. The shapes named OC3 through OC7 represent standard combinations of OCPUs and memory, while shapes named OC1M through OC5M represent high memory configurations, where the memory allocation is double that of the standard configurations.

Table 44-1 Oracle Compute Cloud Service Shapes

Name	OCPUs	vCPUs	Memory (GB)
OC3	1	2	7.5
OC4	2	4	15
OC5	4	8	30
OC6	8	16	60
OC7	16	32	120
OC1M	1	2	15
OC2M	2	4	30
OC3M	4	8	60
OC4M	8	16	120
OC5M	16	32	240

44.2.8 Managing Data Collections

Manage data collections by viewing the status of your projects.

1. On the Consolidation Planner home page select **View Data Collection** from the **Actions** menu.
2. The view lists source targets within a project where you can perform the following tasks:
 - View the latest collection status by project.
 - Select a target to see its collection history and troubleshoot potential problems with the collection.
 - Click the link under Data Collection Jobs to go to the job activity page where you can view and administer the latest data collection job.
 - Update the latest SPECint rates by following the instructions to download a CSV file with the latest rates. After downloading the file, click **Browse** to locate the file in the local file system and click **Load** to update the rates in Consolidation Planner.

Part XVI

Using the Cloud APIs

This section describes the cloud application programming interfaces (APIs) and the RESTful (Representational State Transfer) API.

It contains the following chapters:

- [Chapter 45, "Introduction to Cloud APIs"](#)
- [Chapter 46, "Cloud Resource Models"](#)
- [Chapter 47, "EM CLI Verbs for Database as a Service Administrator."](#)
- [Chapter 48, "Database as a Service Administrator REST APIs."](#)
- [Chapter 49, "Database as a Service SSA User REST APIs."](#)
- [Chapter 50, "DBaaS REST APIs and EM CLI Verbs Based Use Cases."](#)
- [Chapter 51, "SSA Administration REST APIs."](#)
- [Chapter 52, "SSA Portal Management REST APIs."](#)
- [Chapter 53, "WebLogic as a Service REST APIs."](#)
- [Chapter 54, "SOAaaS and OSBaaS APIs"](#)
- [Chapter 55, "Rapid Start Cloud Setup."](#)
- [Chapter 56, "Chargeback and Metering EMCLI Verbs."](#)
- [Chapter 57, "Introduction to Blueprints."](#)
- [Chapter 58, "Cloud Blueprints and Blueprint Reference."](#)
- [Chapter 59, "Infrastructure as a Service REST APIs."](#)
- [Chapter 60, "Testing as a Service REST APIs."](#)

Introduction to Cloud APIs

Cloud computing is a style of computing in which dynamically scalable and deployed resources are provided as a service over the network. Users need not have knowledge of, expertise in, or control over the underlying infrastructure in the cloud that supports the services rendered to the users. As enterprises (companies, governments, and other organizations) integrate their existing IT infrastructures and IT resources with the sharable cloud paradigm, it is imperative for cloud enablers to provide a uniform API that these enterprises can use to tailor the cloud to their business processes and economic models.

The Representational State Transfer (REST) API presented here focuses on the resource models and their attributes.

This chapter contains the following sections:

- [Introduction](#)
- [When to Use Cloud REST APIs](#)
- [Change History](#)
- [Common Behaviors](#)

45.1 Introduction

As IT deployments become more complex, an abstraction of the infrastructure resources becomes more relevant to address concerns of compliance and configuration. Furthermore, such abstractions enable consumers to self serve the exact service they need and operationally control these services without any significant administrator involvement.

The REST API enables an infrastructure provider to service their customers by allowing them to perform the following:

- Browse templates that contain definitions and metadata of a logical unit of service.
- Deploy a template into the cloud and form an IT topology on demand.
- Perform operations (such as ONLINE, OFFLINE) on the resources.

The REST API is based on the HTTP protocol and GET, POST, PUT, and DELETE requests are all used. Resource representations documented here are in JavaScript Object Notation (JSON).

The REST API presupposes no particular structure in the Uniform Resource Identifier (URI) space. The starting point is a URI, supplied by the cloud service provider, that identifies the cloud itself. The cloud's representation contains URIs for the other

resources in the cloud. Operations on the cloud resources are performed by making an HTTP request against the URI of the resource.

The specification of this Cloud REST API includes the following:

- Common behaviors that apply across all requests and responses, error messages, and common resource attributes.
- Resource models, which describe the JSON data structures used in requests and responses.
- Requests that may be sent to cloud resources and the responses expected.

45.2 When to Use Cloud REST APIs

The Cloud REST APIs can be used to integrate Enterprise Manager with custom-built or 3rd party self service consoles and service desks. A few example scenarios include:

- Deploying databases and Oracle VM assemblies from custom-built self-service consoles.
- Integration into a bigger orchestration flow, such as a provisioning preceded with approval workflows.
- Deploying databases and Oracle VM assemblies from service desks.
- As a part of public clouds where the tenant interface of the cloud is typically different and serves service procurement, tenant registration, and so on.

45.3 Change History

The following table describes the high level changes to Enterprise Manager Cloud Control's Cloud Service Portal Plug-in 12.1.0.4 to 12.1.0.5.

Table 45–1 *Changes to the Resource Model (from 12.1.0.4 to 12.1.0.5)*

Abstract	Description	Impacts
Availability of QuotaUsage resource.	Service family type may provide resource quota usage information through the API.	Additional attributes are added to the respective resource models to reference the quota usage.
Availability of ServiceTemplateFinds resource.	Service family type may provide supports to query for Service Template resources.	Cloud level interactions return a list of service templates satisfying the listing criteria.

The following table describes the high level changes to Enterprise Manager Cloud Control's Cloud Service Portal Plug-in 12.1.0.2 to 12.1.0.4.

Table 45–2 Changes to the Resource Model (from 12.1.0.2 to 12.1.0.4)

Abstract	Description	Impacts
Introduction of x-specification-version header.	<p>x-specification-version is a new header introduced in this release. The purpose of this header is to inform the backend server to switch between various supported versions of the Cloud Resource Model.</p> <p>By default, if this header is not specified, the server will automatically use the latest version of the resource model.</p> <p>Each server response will also now include x-specification-version.</p>	<p>If a client wishes to interact with the web service using the previous (pre-12.1.0.4 Cloud Service Portal release) resource model in 12.1.0.4 Cloud Service Portal, the following header can be specified.</p> <p>x-specification-version: 10000</p> <p>For example, GET /em/cloud with x-specification-version: 10000 will return the pre 12.1.0.4 release CloudServicePortal Cloud resource.</p>
Cloud media type is updated to be service oriented.	Before this release, top level Cloud media type is IaaS centric. However, with the additions of Middleware as a Service in this release, the Cloud media type is transformed into a generic service model where additional XaaS can be plugged into the system without further remodel of the media type.	The Cloud media type is no longer backward compatible. (However, using the x-specification-version header can still allow a client to switch back to the older media type).
Consolidate the concept of VDC into Zone.	Resource relationships that are supported by the IaaS centric VDC are now consolidated into the generic Zone resource. The VDC resource is currently not visible from the 12.1.0.4 Cloud Service Portal resource model.	Interacting with the 12.1.0.4 Cloud Service Portal resource model would be centric around Zone instead of VDC.
"media_type" attribute for resources.	Each resource will have a "media_type" attribute to support client introspections in the generic service model. In other words, a Collection attribute in a resource may contain list of resources that are of different media type extending the same abstract media type.	<p>The interaction with the web service may be introspective. For example, the Cloud resource contains "service_templates" attribute that describes the list of service templates that are from various XaaS.</p> <p>Each service template item in the "service_templates" may be of different media types, but these media types should contain all the attributes of the generic ServiceTemplate model.</p>
"Accept" header may be optional.	If the intention of the interaction is clear, you do not need to specify the "Accept" header.	The web service will introspect the resource URI automatically to return the resource with the most specific media type.

Table 45–2 (Cont.) Changes to the Resource Model (from 12.1.0.2 to 12.1.0.4)

Abstract	Description	Impacts
Generic and Specific media types.	<p>This version introduces the concept of Generic and Specific media types to support inheritance. For example, <code>application/oracle.com.cloud.common.ServiceTemplate</code> is a Generic media type and <code>application/oracle.com.cloud.common.VMTemplate</code> is a specific type that extends the above generic type.</p> <p>A specific type can extend another specific type (just like object inheritance).</p>	<p>It is now possible to use the Generic type to inquire about the resource. For example, if an URI represents a resource of specific type Y that extends generic type X, then, GET URI shall also accept the "accept" header of value X.</p> <p>Furthermore, attributes in specific type Y are expected to include the attributes in generic type X, and therefore clients shall be able to interact with the resource on the generic type.</p>

45.4 Common Behaviors

The following sections specify constraints that apply to all the requests and responses that occur in the REST APIs supported by the Oracle Cloud Computing Platform.

45.4.1 Transport Protocol

All of the platform APIs are based on the Hypertext Transfer Protocol (HTTP), version 1.1 (RFC 2616). Each request will be authenticated using HTTP Basic Authentication (RFC 2617) unless otherwise noted. Therefore, requests sent from the public Internet (and not on a secure channel such as a VPN) must use the HTTPS protocol.

45.4.2 URI Space

The resources in the system are identified by URIs. To begin operations, the URI for a resource must be known. Dereferencing the URI yields a representation of the resource containing resource attributes and links to associated resources.

Assumptions about the layout of the URIs or the structure of resource URIs should not be made.

45.4.3 Media Types

In this specification, resource representations and request bodies are encoded in JavaScript Object Notation (JSON), as specified in RFC 4627. Each type of resource has its own media-type, which matches the following pattern:

```
application/oracle.com.cloud.common.Xxxxx+json
```

where `Xxxxx` represents the portion of the identifier unique to a particular representation format for each resource. The identifier must be globally unique in the space of `vnd.com.oracle.cloud`, and the media type should be registered in accordance to RFC 4288.

The Platform must provide representations of all resources available in JSON. The Platform must accept requests encoded in JSON.

45.4.4 Request Headers

In requests made to services implementing Oracle Cloud Platform APIs, several specific HTTP headers are used as described in the following table:

Table 45–3 Request Headers

Header	Supported Values	Description	Required
Accept	Comma-delimited list of media types or media type patterns	Indicates to the server what media types are acceptable.	Recommended on requests that will produce a response message body.
Authorization	“Basic” plus user name and password (per RFC 2617).	Identifies the user making this request.	Yes on most of the requests.
Content-Length	Length (in bytes) of the request message body.	Describes the size of the message body.	Yes on requests that contain a message body.
Content-Type	Media type describing the request message body.	Describes the representation and syntax of the request message body.	Yes on requests that contain a message body.
Host	Identifies the host receiving the message.	Required to allow support of multiple origin hosts at a single IP address.	All requests.
X-YYYYYClient-Specification-Version	String containing a specification version number.	Declares the specification version of the YYYYY API that this client was programmed against.	No.

45.4.5 Response Headers

Specific HTTP headers included in the responses returned from the platform are described in the following table:

Table 45–4 Response Headers

Header	Supported Values	Description	Required
Content-Type	Media type describing the response message body.	Describes the representation and syntax of the response message body.	Yes, on responses that contain a message body.
Location	Canonical URI of the resource, either newly created, or the original referenced resource.	Returns a URI that can be used to request a representation of the resource.	Yes, on responses to requests that create a new resource, or change an existing resource.

Table 45–4 (Cont.) Response Headers

Header	Supported Values	Description	Required
Cache-Control	Max-age, public, no-store, mustrevalidate, proxyrevalidate.	How the representation of the resource should be cached, and its freshness.	No. For public resources (such as a list of public assemblies or templates) that do not change frequently, allowing lenient cache-control to optimize the response. This will never be returned on a privileged resource or a resource request that contains an authorization header.

45.4.6 HTTP Status Codes

Oracle Cloud Computing Platform APIs return standard HTTP response codes as described in the following table, under the conditions listed in the description.

Table 45–5 HTTP Response Codes

Header	Description
100 Continue	The client should continue with its request. This interim response is used to inform the client that the initial part of the request has been received and has not yet been rejected by the platform. The client should continue by sending the remainder of the request or, if the request has already been completed, ignore this response.
200 OK	The request was successfully completed. If this request created a new resource that is addressable with a URI, and a response body is returned containing a representation of the new resource, a 200 status will be returned with a location header containing the canonical URI for the newly created resource.
201 Created	A request that created a new resource was completed and no response body containing a representation of the new resource is being returned. A location header containing the canonical URI for the newly created resource will be returned.
202 Accepted	The request has been accepted for processing, but the processing has not been completed. Per the HTTP/1.1 specification, the returned entity (if any) should include an indication of the request's current status. A location header containing the canonical URI for the not-yet completed resource is returned along with the status attribute indicating its progress.
400 Bad Request	The request could not be processed because it contains missing or invalid information (such as validation error on an input field, a missing required value, and so on).
401 Unauthorized	The authentication credentials included with this request are missing or invalid.
403 Forbidden	The server recognized your credentials, but you do not possess authorization to perform this request.
404 Not Found	The request specified a URI of a resource that does not exist.

Table 45–5 (Cont.) HTTP Response Codes

Header	Description
405 Method Not Allowed	The HTTP verb specified in the request (DELETE, GET, HEAD, POST, PUT) is not supported for this request URI.
406 Not Acceptable	The resource identified by this request is not capable of generating a representation corresponding to one of the media types in the Accept header of the request.
409 Conflict	A creation or update request could not be completed because it would cause a conflict in the current state of the resources supported by the platform. For example, an attempt is made to create a new resource with a unique identifier that is already assigned to some existing resource or an attempt is made to modify a resource attribute which is not yet completed.
410 Gone	The requested resource is no longer available at the server and no forwarding address is known. This condition is expected to be considered permanent. Clients with link editing capabilities should delete references to the Request-URI after user approval. If the server does not know, or has no facility to determine, whether or not the condition is permanent, the status code 404 (Not Found) should be used instead. This response is cacheable unless indicated otherwise.
412 Precondition Failed	The precondition given in one or more of the request-header fields evaluated to + when it was tested on the server. This response code allows the client to place preconditions on the current resource meta-information (header field data) and thus prevent the requested method from being applied to a resource other than the one intended.
500 Internal Server Error	The server encountered an unexpected condition which prevented it from fulfilling the request.
501 Not Implemented	The server does not (currently) support the functionality required to fulfill the request.
503 Service Unavailable	The server is currently unable to handle the request due to temporary overloading or maintenance of the server.

45.4.7 Common Resource Attributes

All the resource entities in this specification may contain the following common resource attributes.

45.4.7.1 Resource State

This attribute denotes the state of the resource describing the lifecycle of the resource. This differs from the status of the entity represented by the resource which has entity specific semantics.

The following table shows the Data Model of this attribute.

Table 45–6 ResourceState Data Model

Field	Type	Description	Occurs
state	String	The current state of the resource as last known. This is a label containing lifecycle state (for example, INITIATED, CREATING, CREATED, DESTROYING, DESTROYED, READY). When there are vendor extensions, the vendor shall publish and document their semantics.	1

Table 45–6 (Cont.) ResourceState Data Model

Field	Type	Description	Occurs
progress	Integer between 0 and 100	This indicates the progress made as an approximate percentage. Not all state labels assign semantic meaning to this field.	0..1
messages	Message[]	Include the message data model instances to denote noteworthy communications.	0..1

45.4.8 Collection

This attribute is a meta resource that represents a collection field in a resource. For example, a VDC contains a collection of VMs and the field that represents the list of VMs is implemented in this type.

In the resource model, a collection field is denoted as Collection<type>, for example, Collection<VM>.

Table 45–7 Collection<type> Data Model

Field	Type	Description	Occurs
uri	URI	URI that represents the collection of entities.	1
type	String	Type of the entity that this collection contains.	1
total	Integer	Total number of elements that can be safely assumed to be in the elements list.	0..1
elements	<TYPE>[]	List of entities in this collection. The URI of the entities must be populated by the platform. When dereferencing the URI, the client must use the type field in the Accept header (except in the case where type = URI). If this is not returned, then the collection is an empty list.	0..1

In addition to the resource type, the collection also supports Collection<URI> where the type field is “URI”. This basic type collection requires additional type casting where the URI can be dereferenced properly.

This basic type collection requires additional type casting where the URI can be dereferenced properly. It is also permissible to have a collection of type collection, for example, Collection<Collection<Server>>.

45.4.9 Error Response Message

Successful requests will generally return an HTTP status code of 200 (OK), 201 (Created), 202 (Accepted), or 204 (No Content) to indicate that the requested action has been successfully performed or submitted.

In addition, a response message body (with an appropriate media type) containing a representation of the requested information might also be included. However, it is possible for a number of things to go wrong.

The various underlying causes are described by various HTTP status codes in the range 400-499 (for client side errors) or 500-599 (for server side problems).

If a response is returned with an error status code (400-499 or 500-599), the server will also return a response message body containing a message data model, with zero or

more message data models, describing what went wrong. The text values of such messages might be used, for example, to communicate with a human user of the client side application.

The entire list of messages included in a single error response is encapsulated in a messages data model. The media type shall be returned in the Content-Type header. The client shall not include the Messages media type in the Accept header.

Table 45–8 Messages Data Model

Field	Type	Description	Occurs
messages	Message	Zero or more message data for each individual message.	0..n

An individual message contains the following fields:

Table 45–9 Individual Message Data Model

Field	Type	Description	Occurs
code	String	Zero or more message data for each individual message.	0..1
field	String	Name of the field from the request data model that this message is associated with.	0..1
hint	String	Localized text further describing the nature of the problem, possibly including potential workarounds that the client could try.	0..1
text	String	Localized text describing the nature of the problem reported by this message.	1
severity	String	Label indicating the severity of the error condition represented by this message. Vendor shall publish the enumerators that are associated with this field and their semantics.	0..1
stack_trace	String	Vendor specific stack trace associated with this message.	0..1
source	String	Symbolic identifier of the service implementation component that triggered this message.	0..1

Cloud Resource Models

This chapter specifies the representations of the resources that the REST API operates on. It contains the following sections:

- [Enterprise Manager Cloud Resource Model 10001](#)
- [About Cloud Resources](#)
- [Resource Data Models](#)

46.1 Enterprise Manager Cloud Resource Model 10001

This version of the Cloud resource model is the culmination of the XaaS implementation for Cloud Service Portal Plug-in, where additional service types can be used to support the creation and lifecycle management of service instances.

For this release of Enterprise Manager Cloud Control's Cloud Service Portal Plug-in, 10001 is the default version when /em/cloud is accessed by the client. Specifically, the client can specify x-specification-version: 10001 in the HTTP header to examine whether or not a resource supports version 10001. It is important to note that the resource type from different versions may not be inter-mixed in a request. For example, 10001 may reject a request where the content is shaped like the 10000 version of the resource.

The following table contains the top level description of the resources:

Table 46–1 Top Level Resource Descriptions

Resource	Description
application/oracle.com.cloud.common	This media type namespace contains "common" resources that are not specific to resource types in XaaS implementation. It is customary that XaaS implementation may extend a common resource type by responding to the request where the accept/content-type is the base type. This is similar to Java's class typing where one can always typecast the base class to an implementation class.
Cloud	This is the top level media type of the entry point /em/cloud where the client can get a high level view of the Cloud as a whole.
ServiceTemplate	This is the common media type that represents a service template each XaaS can extend to create a service instance.
ServiceInstance	This represents the common media type that represents a service instance. Each XaaS can extend this media type to represent the service instances that it supports.
ServiceFamilyType	This represents XaaS or a service family.

Table 46–1 (Cont.) Top Level Resource Descriptions

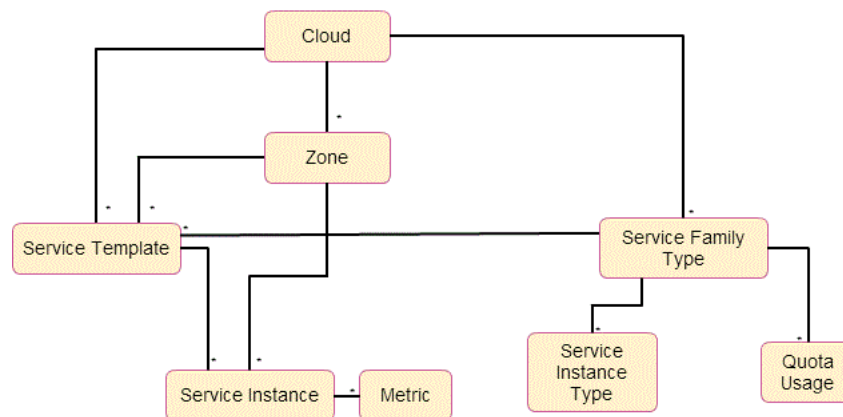
Resource	Description
InstanceType	This represents a type of service instance. For example, VM is an extending media type of ServiceInstance and there is a corresponding InstanceType? that describes what a VM instance may contain.
Metric	This represents a metric of a resource. For example, performance metrics such as CPU utilization and network utilization are metrics of a VM instance. This does not need to be constrained to performance metrics only. Any measurable or observable time series data can be represented as a metric.
MultipartMetric	This extends the Metric, but represents a multi-dimensional observation.
CloudInteractions	This represents the collection of interactions that are supported by the Cloud. The data of this resource would be protocol dependent. For example, in HTTP protocol, the data would consist of the supported HTTP request triple of (request method, accept type, and content type).
QuotaUsage	This represents the quota information in the context of a service family.

46.2 About Cloud Resources

Cloud resource representations are made up of fields, each with a name and value, encoded using a JavaScript Object Notation (JSON) dictionary. The values may be lists, dictionaries, or numeric or string literals, each of which is represented in JSON in accordance with RFC 4627.

Each type of cloud resource has its own Internet Media Type. The media type SHALL conform to the pattern `application/oracle.com.cloud.common.Xxxxxxxx+json`, and the specific media type for each resource model is included in square brackets in the corresponding section header.

Cloud resources are now organized by common service entities where specific services (for example, Infrastructure as a Service) provide resources extending common service entities where appropriate. The figure below shows the resource model relationships on the common resources and Infrastructure as a service specific resources.

Figure 46–1 Cloud Resource Model

46.3 Resource Data Models

The following sections provide details on the different cloud resource data models.

46.3.1 Cloud [application/oracle.com.cloud.common.Cloud+json]

A Cloud represents the user's starting view of all accessible resources. The following table describes the cloud data model.

Table 46–2 Cloud Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	GET against this URI refreshes the client representation of the resources accessible to this user.	12.1.0.1
name	String	1	Human readable name. It is a UNICODE string to support different languages.	12.1.0.1
description	String	0..1	Brief description. This is a UNICODE string to support different languages.	12.1.0.1
service_templates	Collection<ServiceTemplates>	0..1	List of service templates that are accessible to the user.	12.1.0.4
service_family_types	Collection<ServiceFamilyType>	0..1	The list of service family types that are supported by the Cloud.	12.1.0.4
zones	Collection<Zone>	0..1	List of zones that are supported by the cloud and accessible to the user.	12.1.0.2
resource_state	ResourceState	0..1	Cloud that is online and running would have READY as its state. If this field is not returned, the client can assume the cloud is READY. If the state of the returned field is not READY, the client cannot assume the viability of subsequent interactions into the cloud.	12.1.0.1
media_type	String	1	Value of this media type with the payload format. For example, application/oracle.com.cloud.common.Cloud+json.	12.1.0.4

46.3.2 ServiceTemplate [application/oracle.com.cloud.common.ServiceTemplate+json]

A ServiceTemplate represents the definition of the deployable service. For a user, a ServiceTemplate represents the definition of the deployable service. Users can create cloud resources by interacting with the URI of a ServiceTemplate. The cloud shall instantiate the resources and their configurations as specified in the definition of the ServiceTemplate.

VMTemplate is a subclass to the ServiceTemplate resource and therefore it is possible to get the ServiceTemplate from the URI of a VMTemplate. The following table shows the ServiceTemplate Data Model.

Table 46–3 ServiceTemplate Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	GET against this URI refreshes the client representation of the ServiceTemplate definition to this user.	12.1.0.4
name	String	1	Human readable name given to the ServiceTemplate. It is a UNICODE string to support different languages.	12.1.0.4
description	String	0..1	A brief description given to the ServiceTemplate. It is a UNICODE string to support different languages.	12.1.0.4
type	String	1	The string that describes the type of the service template.	12.1.0.4
created	Timestamp	1	Date and time, in ISO 8601 format, when the ServiceTemplate was created.	12.1.0.4
service_family_type	String	0..1	The name of the service family type under which this service template is categorized.	12.1.0.4
default_instance_media_type	String	0..1	The default media type of the service instance that can be created using this template. For example, a VMTemplate would have VM for this attribute to indicate that VMTemplate can be deployed into a VM service instance.	12.1.0.4
resource_state	ResourceState	1	Only a service template with a READY state can be deployed.	12.1.0.4
deployment_params	List of Deployment Parameters	0..1	Contains the list of data structure of Deployment Parameters to indicate the parameters that may be specified during the service instance deployment using this template	12.1.0.4
zones	List of Zones	0..1	Contains the list of Zone resources that this service template can be used to create service instances with	12.1.0.4
service_instances	Collection<?>	0..1	Contains the list of service instances that are created with this template.	12.1.0.4

The following table describes the structure of the Deployment Parameters.

Table 46–4 Deployment Parameter Structure

Field	Type	Occurs	Description
name	String	1	The name of the parameter that needs to be specified during deployment.
description	String	0..1	A brief description of the deployment parameter.

Table 46–4 (Cont.) Deployment Parameter Structure

Field	Type	Occurs	Description
type	String	1	The type of the deployment parameter. It is an enumeration of the following values, STRING, INTEGER, NUMBER, and LIST.
default_value	String	0..1	The default value for this parameter.
required	Boolean	1	TRUE if this parameter is required, FALSE otherwise.
sensitive	Boolean	1	TRUE if this parameter denotes a password. FALSE otherwise.

46.3.3 Zone [application/oracle.com.cloud.common.Zone+json]

A Zone represents a logical boundary where the resources may reside. A Zone can represent a particular geographically location such as Europe Zone, North America Zone, East Asia Zone. A zone can also represent characteristics, such as high network bandwidth or DMZ secured. Furthermore, a Zone can be organizational in nature, such as Financial Department Zone, Testing Zone, and Development Zone.

There should not be any assumption of exclusivity of underlying infrastructures in the Zones unless otherwise noted. For example, Zone A and Zone B can be on the same physical network serving two different departments, but their physical infrastructure setup is transparent to cloud users.

Table 46–5 Zone Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	GET against this URI refreshes the client representation of the Zone definition to this user.	12.1.0.1
name	String	1	Name of the Zone.	12.1.0.1
description	String	0..1	Human readable description of the Zone. It is a UNICODE string to support different languages.	12.1.0.1
media_type	String	1	The media type of the resource.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.1
service_family_type	String	0..1	The name of the service family type that this zone is associated with. Each Zone is contextualized in the service family type.	12.1.0.4
service_templates	Collection <ServiceTemplate>	0..1	Collection of the service templates that this zone supports and can be deployed into.	12.1.0.4
service_instances	Collection <ServiceInstance>	0..1	Collection of the service instances that are in this zone.	12.1.0.4

46.3.4 Service Family Type

[application/oracle.com.cloud.common.ServiceFamilyType+json]

A service family type is a category of services that are offered by the cloud. For example, IaaS is a category that encapsulates infrastructure services. Mwaas is a category that encapsulates middleware services. These categories are predefined.

The following table describes the ServiceFamilyType Data Model

Table 46–6 Service Family Type

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the ServiceFamilyType definition to this user.	12.1.0.4
name	String	1	Name of the ServiceFamilyType.	12.1.0.4
description	String	0..1	Human readable description of the Service Family Type. Shall be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4
service_templates	Collection <ServiceTemplate>	0..1	The collection of service templates that are of this service family type.	12.1.0.4
zones	Collection<Zone>	0..1	The collection of zones that support service instances of this service family type.	12.1.0.4
instance_types	Collection <InstanceType>	0..1	The collection of instance types that are supported by this service family type.	12.1.0.4
quota_usages	Collection <QuotaUsage>	0..1	The collection of quota usages of the perspective family type of the authenticated user.	12.1.0.5
quota_def	Json Object	0..1	The family type specific quota metadata information, this may include some permission information. The structure of this object would be documented in the perspective family type resource model.	12.1.0.5

46.3.5 Service Instance Type

[application/oracle.com.cloud.common.InstanceType+json]

A service instance type describes the common metadata about service instances of the type. This can be interpreted analogously as a Class where the service instance of the type is an instantiation of the class.

The following table describes the ServiceFamilyType Data Model.

Table 46–7 Service Instance Type

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the ServiceInstanceType definition to this user.	12.1.0.4
name	String	1	Name of the ServiceInstanceType.	12.1.0.4
description	String	0..1	Human readable description of the Service Instance Type. Shall be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4
instance_media_type	String	0..1	The media type of the instance of this type.	12.1.0.4
metrics	List<List<String>>	0..1	List of metrics that may be supported by the instance type. Each list element represents the triple of "name", "description", and "type" of the metric.	12.1.0.4

46.3.6 Metric [application/oracle.com.cloud.common.Metric+json]

This resource represents a time series data that may be performance or configuration related. For example, CPU utilization could be a metric for a VM resource, Tablespace usages could be a metric for a Database resource.

The following table describes the Metric Data Model.

Table 46–8 Metric Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the Metric definition to this user.	12.1.0.4
name	String	1	Name of the Metric.	12.1.0.4
description	String	0..1	Human readable description of the Metric. SHALL be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	0..1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4
type	String	1	The type of the metric value. This is an enumeration of STRING, INTEGER, PERCENTAGE, NUMBER, MIX.	12.1.0.4
current_value	String	0..1	The latest known value of the metric	12.1.0.4

Table 46–8 (Cont.) Metric Data Model

Field	Type	Occurs	Description	Since
current_time	ISO 8601 Date	0..1	The UTC time when the current_value was last observed	12.1.0.4
time_range	List of 2 ISO 8601 Dates	0..1	The first one is begin date, and the second one is end date. This range determines the time series window of "values" attribute	12.1.0.4
rollup_unit	String	0..1	The rollup unit for the time series data. Could be one of DAY, DAILY, DAYLY, HOUR, HOURLY, RAW	12.1.0.4
values	List of objects	0..1	For rollup_unit = RAW, this would be a list of object each containing "time_utc", and "value" attributes to indicate a timed observation. For all other rollup_unit, this would be a list of object each containing "time_utc", "average", "min", "max", "std" attributes to indicate an aggregated observations where supported.	12.1.0.4
time_range_epoch	List of 2 Number	0..1	Same as time_range, but in the form of epoch time.	12.1.0.4

46.3.7 Service Instance [application/oracle.com.cloud.common.ServiceInstance+json]

A service instance describes the some common metadata about service instances. This is an abstract media type where the actual implementation would be provided by each XaaS service. It is expected that the extending resources respect GET request with this abstract media type.

The following table describes the Service Instance Data Model.

Table 46–9 Service Instance Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the ServiceInstance definition to this user.	12.1.0.4
name	String	1	Name of the ServiceInstance.	12.1.0.4
description	String	0..1	Human readable description of the Service Instance. Shall be a UNICODE string to support different languages.	12.1.0.4
resource_state	ResourceState	1	The resource state of the resource.	12.1.0.4
media_type	String	1	The media type of the resource.	12.1.0.4
metrics	Collection <Metric>	0..1	Collection of metrics that are observed on the resource.	12.1.0.4

Table 46–9 (Cont.) Service Instance Data Model

Field	Type	Occurs	Description	Since
service_family_type	String	1	The name of the ServiceFamilyType that this service instance is in context of.	12.1.0.4
status	String	0..1	The status of the entity represented by the service instance. For example, for service instance VM, the value could be STARTED, STOPPED, or any other values that are appropriate for VM. Each extending resource should describe the enumeration of status that are applicable.	12.1.0.4
created	ISO 8601 Date	0..1	The date of which the service instance is created.	12.1.0.4

46.3.8 Quota Usage [application/oracle.com.cloud.common.QuotaUsage+json]

A quota usage describes the amount of some resource used by the authentication used in the context of a service family type. For example, in IaaS, there were quota defined for CPU, Memory, number of servers, where the usages of each is encapsulated into a Quota Usage resource.

The following table describes the Quota Usage Data Model.

Table 46–10 QuotaUsage Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the QuotaUsage	12.1.0.5
name	String	1	Name of the QuotaUsage.	12.1.0.5
description	String	0..1	Human readable description of the Service Instance. Shall be a UNICODE string to support different languages.	12.1.0.5
media_type	String	1	The media type of the resource.	12.1.0.5
id	String	1	The identification representation of the resource.	12.1.0.5
type	String	1	The service family type of the resource.	12.1.0.5
used	Number	1	How much of the resource is used. The type is represented by the "unit" attribute.	12.1.0.5
maxAllowed	Number	0..1	What is the maximum amount of resource that may be used by the authenticated user.	12.1.0.5
unit	String	1	The unit of the resource.	12.1.0.5

46.3.9 Service Template Finds

[application/oracle.com.cloud.common.ServiceTemplateFinds+json]

Service Template Finds is a resource that would search and filter service templates under the entire cloud given the search criteria. Each service family type shall document the scope of support (for example, list of filter attributes).

The following table describes the Service Template Finds Data Model.

Table 46–11 ServiceTemplateFinds Data Model

Field	Type	Occurs	Description	Since
uri	URI	1	A GET against this URI refreshes the client representation of the Service TemplateFinds. If service templates were added/removed that matched the criteria, refreshing the link will reflect the changes.	12.1.0.5
name	String	1	Name of the ServiceTemplateFinds.	12.1.0.5
description	String	0..1	Human readable description of the Service Instance. Shall be a UNICODE string to support different languages.	12.1.0.5
filters	Json Object	1	Map of key-value pair to indicate the filter criteria.	12.1.0.5
finds	Collection <*>	1	.Collection of entities (could be any sub type of the service template) that satisfies the filter criteria.	12.1.0.5

The following table describes the attributes supported in the filters:

Table 46–12 Filter Attributes

Attributes	Description	Since
media_type	The specific service template media to search for. This will be an exact match of the media type.	12.1.0.5 Cloud Service Portal Plug-in (IaaS service family type only)
name	A service template will be returned if the name contains the specified string. This is case insensitive, so OEL and oel will return the same result.	12.1.0.5 Cloud Service Portal Plug-in (IaaS service family type only)

46.4 Cloud REST API Examples

The following sections provide examples of different interactions in Enterprise Manager Cloud Control 12.1.0.2 with the 12.1.0.5 Cloud Service Portal Plug-in. These examples illustrate the shape of the various resources. In this version, default x-specification-version is assumed at 10001.

46.4.1 Cloud Resource

Use the top level /em/cloud to introspect the Cloud resource. The following table describes the GET method features:

Table 46–13 Cloud Resource GET Method

Feature	Description
URL	https://example.oracle.com/em/cloud
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI =X-specification-Version: 10001
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

The following returns the Cloud resource:

```
{
  "uri" : "/em/cloud" ,
  "name" : "Oracle Cloud by Enterprise Manager" ,
  "description" : "This represents the Cloud resource of the Oracle Enterprise
Manager Cloud Management solution" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "media_type" : "application/oracle.com.cloud.common.Cloud+json" ,
  "zones" : {
    "media_type" : "application/oracle.com.cloud.common.Zone+json" ,
    "total" : "3" ,
    "elements" :
    [
      {
        "uri" : "/em/cloud/jaas/zone/450121204B4703131FC0FDD72E7BF494" ,
        "name" : "PaaS_Zone_Middleware" ,
        "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
        "service_family_type" : "jaas"
      } ,
      {
        "uri" : "/em/cloud/opc/opczone" ,
        "name" : "OPC Zone" ,
        "media_type" : "application/oracle.com.cloud.opc.OpcZone+json" ,
        "service_family_type" : "opc" ,
        "type" : "opc"
      } ,
      {
        "uri" : "/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D" ,
        "name" : "cloud_zone" ,
        "media_type" : "application/oracle.com.cloud.iaas.Zone+json" ,
        "service_family_type" : "iaas" ,
        "type" : "VM_ZONE"
      }
    ]
  } ,
  "service_templates" : {
    "media_type" : "application/oracle.com.cloud.common.ServiceTemplate+json" ,
    "total" : "7" ,
    "elements" :
    [
      {
        "uri" :
"/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1
%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1" ,
        "name" : "template_sanity" ,
        "media_type" : "application/oracle.com.cloud.common.VMTemplate+json" ,
```

```
        "service_family_type" : "iaas" ,
        "type" : "Template"
    } ,
    {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E88B04D7FEDEDE040578CDA810E49%3A0.1"
,
        "name" : "sidb_assembly" ,
        "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
        "service_family_type" : "iaas" ,
        "type" : "Assembly"
    } ,
    {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC769B1F361529309E040578CDA813D57%3A0.1"
,
        "name" : "wls_assembly" ,
        "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
        "service_family_type" : "iaas" ,
        "type" : "Assembly"
    } ,
    {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76F733BC7A41AF7E040578CDA812CDC%3A0.1"
,
        "name" : "fmw_venkat" ,
        "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
        "service_family_type" : "iaas" ,
        "type" : "Assembly"
    } ,
    {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C144A4A245B62E040578CDA8163B9%3A0.1"
,
        "name" : "fmw_abby" ,
        "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
        "service_family_type" : "iaas" ,
        "type" : "Assembly"
    } ,
    {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC77122B0A916D95CE040578CDA814854%3A0.1"
,
        "name" : "sidbasmA_abby" ,
        "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
        "service_family_type" : "iaas" ,
        "type" : "Assembly"
    } ,
    {
        "uri" :
```



```

"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C8792DE2A0937E040578CDA81795E%3A0.1"
,
    "name" : "WLS_abby" ,
    "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "service_family_type" : "iaas" ,
    "type" : "Assembly"
}
]
} ,
"service_family_types" : {
    "media_type" : "application/oracle.com.cloud.common.ServiceFamilyType+json"
,
    "total" : "4" ,
    "elements" :
[
    {
        "uri" : "/em/cloud/service_family_type/jaas" ,
        "name" : "jaas" ,
        "media_type" :
"application/oracle.com.cloud.common.ServiceFamilyType+json" ,
        "type" : "jaas"
    } ,
    {
        "uri" : "/em/cloud/service_family_type/dbaas" ,
        "name" : "dbaas" ,
        "media_type" :
"application/oracle.com.cloud.common.ServiceFamilyType+json" ,
        "type" : "dbaas"
    } ,
    {
        "uri" : "/em/cloud/service_family_type/opc" ,
        "name" : "opc" ,
        "media_type" :
"application/oracle.com.cloud.common.ServiceFamilyType+json" ,
        "type" : "opc"
    } ,
    {
        "uri" : "/em/cloud/service_family_type/iaas" ,
        "name" : "iaas" ,
        "media_type" :
"application/oracle.com.cloud.iaas.IaasServiceFamilyType+json" ,
        "type" : "iaas"
    }
]
}
}

```

Note: even though the Accept type was not specified, the Web service still unambiguously returns the Cloud resource because "/em/cloud" address uniquely identify the Cloud as the default resource to be returned.

The following table shows the Cloud resource picking up specific attributes

Table 46–14 Cloud Resource GET Method

Feature	Description
URL	https://example.oracle.com/em/cloud?service_family_types,name
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

Here are the selective attributes:

```
{
  "name" : "Oracle Cloud by Enterprise Manager" ,
  "service_family_types" : {
    "media_type" : "application/oracle.com.cloud.common.ServiceFamilyType+json"
  } ,
  "total" : "4" ,
  "elements" : [
    {
      "uri" : "/em/cloud/service_family_type/jaas" ,
      "name" : "jaas" ,
      "media_type" :
"application/oracle.com.cloud.common.ServiceFamilyType+json" ,
      "type" : "jaas"
    } ,
    {
      "uri" : "/em/cloud/service_family_type/dbaas" ,
      "name" : "dbaas" ,
      "media_type" :
"application/oracle.com.cloud.common.ServiceFamilyType+json" ,
      "type" : "dbaas"
    } ,
    {
      "uri" : "/em/cloud/service_family_type/opc" ,
      "name" : "opc" ,
      "media_type" :
"application/oracle.com.cloud.common.ServiceFamilyType+json" ,
      "type" : "opc"
    } ,
    {
      "uri" : "/em/cloud/service_family_type/iaas" ,
      "name" : "iaas" ,
      "media_type" :
"application/oracle.com.cloud.iaas.IaasServiceFamilyType+json" ,
      "type" : "iaas"
    }
  ]
}
```

This feature is supported on all the common resources where only selective attributes would be gathered and returned to the client.

46.4.2 Service Family Type Resource

The following table shows the features of the Service Family Type resource:

Table 46–15 Service Family Type Resource

Feature	Description
URL	https://example.oracle.com/em/cloud/service_family_type/iaas
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

Here is the returned headers and content for this interaction.

```
X-specification-version: 10001
Content-Type: application/oracle.com.cloud.iaas.IaaSServiceFamilyType+json;
charset=ISO-8859-1
{
  "uri" : "/em/cloud/service_family_type/iaas" ,
  "name" : "iaas" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "media_type" : "application/oracle.com.cloud.iaas.IaaSServiceFamilyType+json" ,
  "type" : "iaas" ,
  "service_templates" : {
    "media_type" : "application/oracle.com.cloud.common.ServiceTemplate+json" ,
    "total" : "7" ,
    "elements" :
    [
      {
        "uri" :
"/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1" ,
        "name" : "template_sanity" ,
        "media_type" : "application/oracle.com.cloud.common.VMTemplate+json" ,
        "type" : "Template"
      } ,
      {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E88B04D7FEDEDE040578CDA810E49%3A0.1"
,
        "name" : "sidb_assembly" ,
        "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
        "type" : "Assembly"
      } ,
      {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC769B1F361529309E040578CDA813D57%3A0.1"
,
        "name" : "wls_assembly" ,
        "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
        "type" : "Assembly"
      } ,
      {
        "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76F733BC7A41AF7E040578CDA812CDC%3A0.1"

```

```
,
    "name" : "fmw_venkat" ,
    "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C144A4A245B62E040578CDA8163B9%3A0.1"
  } ,
  {
    "name" : "fmw_abby" ,
    "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC77122B0A916D95CE040578CDA814854%3A0.1"
  } ,
  {
    "name" : "sidbasmA_abby" ,
    "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  } ,
  {
    "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C8792DE2A0937E040578CDA81795E%3A0.1"
  } ,
  {
    "name" : "WLS_abby" ,
    "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
    "type" : "Assembly"
  }
]
} ,
"zones" : {
  "media_type" : "application/oracle.com.cloud.common.Zone+json" ,
  "total" : "1" ,
  "elements" :
[
  {
    "uri" : "/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D" ,
    "name" : "cloud_zone" ,
    "media_type" : "application/oracle.com.cloud.iaas.Zone+json" ,
    "service_family_type" : "iaas" ,
    "type" : "VM_ZONE"
  }
]
} ,
"instance_types" : {
  "media_type" : "application/oracle.com.cloud.common.InstanceType+json" ,
  "total" : "2" ,
  "elements" :
[
  {
    "uri" : "/em/cloud/instance_type/vm%40iaas" ,
    "name" : "vm" ,
```

```

        "media_type" : "application/oracle.com.cloud.common.InstanceType+json"
    ,
    "instance_media_type" : "application/oracle.com.cloud.common.VM+json"
} ,
{
    "uri" : "/em/cloud/instance_type/assembly%40iaas" ,
    "name" : "assembly" ,
    "media_type" : "application/oracle.com.cloud.common.InstanceType+json"
} ,
    "instance_media_type" :
"application/oracle.com.cloud.common.AssemblyInstance+json"
}
]
} ,
"quota_usages" : {
    "media_type" : "application/oracle.com.cloud.common.QuotaUsage+json" ,
    "total" : "6" ,
    "elements" :
    [
        {
            "uri" : "/em/cloud/quota_usage/iaas_3" ,
            "name" : "Local Storage Quota" ,
            "description" : "Local Storage Quota" ,
            "context_id" : "3" ,
            "media_type" : "application/oracle.com.cloud.common.QuotaUsage+json" ,
            "used" : "10240" ,
            "maxAllowed" : "2000" ,
            "unit" : "GB"
        } ,
        {
            "uri" : "/em/cloud/quota_usage/iaas_2" ,
            "name" : "RAM Quota" ,
            "description" : "RAM Quota" ,
            "context_id" : "2" ,
            "media_type" : "application/oracle.com.cloud.common.QuotaUsage+json" ,
            "used" : "512" ,
            "maxAllowed" : "600000" ,
            "unit" : "MB"
        } ,
        {
            "uri" : "/em/cloud/quota_usage/iaas_1" ,
            "name" : "CPU Quota" ,
            "description" : "CPU Quota" ,
            "context_id" : "1" ,
            "media_type" : "application/oracle.com.cloud.common.QuotaUsage+json" ,
            "used" : "1" ,
            "maxAllowed" : "100" ,
            "unit" : "COUNT"
        } ,
        {
            "uri" : "/em/cloud/quota_usage/iaas_6" ,
            "name" : "Servers Quota" ,
            "description" : "Servers Quota" ,
            "context_id" : "6" ,
            "media_type" : "application/oracle.com.cloud.common.QuotaUsage+json" ,
            "used" : "1" ,
            "maxAllowed" : "20" ,
            "unit" : "COUNT"
        }
    ]
}

```

```
    "uri" : "/em/cloud/quota_usage/iaas_5" ,
    "name" : "SWLIB Storage Quota" ,
    "description" : "SWLIB Storage Quota" ,
    "context_id" : "5" ,
    "media_type" : "application/oracle.com.cloud.common.QuotaUsage+json" ,
    "used" : "0" ,
    "maxAllowed" : "-1" ,
    "unit" : "GB"
  } ,
  {
    "uri" : "/em/cloud/quota_usage/iaas_4" ,
    "name" : "Extra Storage Quota" ,
    "description" : "Extra Storage Quota" ,
    "context_id" : "4" ,
    "media_type" : "application/oracle.com.cloud.common.QuotaUsage+json" ,
    "used" : "0" ,
    "maxAllowed" : "-1" ,
    "unit" : "GB"
  }
]
} ,
"quota_def" : {
  "uri" : "/em/cloud/iaas/quota" ,
  "name" : "iaas Quota" ,
  "description" : "iaas Quota" ,
  "media_type" : "application/oracle.com.cloud.iaas.Quota+json"
} ,
"instance_options" :
[
  {
    "name" : "Medium" ,
    "cpu" : "4" ,
    "memory" : "8192" ,
    "local_storage" : "512000" ,
    "id" : "2"
  } ,
  {
    "name" : "Large" ,
    "cpu" : "8" ,
    "memory" : "15360" ,
    "local_storage" : "1024000" ,
    "id" : "3"
  } ,
  {
    "name" : "Small" ,
    "cpu" : "2" ,
    "memory" : "4096" ,
    "local_storage" : "256000" ,
    "id" : "1"
  }
]
}
```

The `application/oracle.com.cloud.iaas.IaaSServiceFamilyType+json` media type is returned automatically as the most detailed resource. Similarly, you can interact with the system by accepting the common type:

Table 46–16 Service Family Type Resource

Feature	Description
URL	https://example.oracle.com/em/cloud/service_family_type/iaas
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Accept-Type: application/oracle.com.cloud.common.ServiceFamilyType+json
Method	GET

The Web service will return the content as shown in the previous interaction.

46.4.3 Quota Resource

The following describes the quota resource that is exposed through the IaaS service family type to introspect the quota definition for IaaS services.

Table 46–17 Service Family Type Resource

Feature	Description
URL	https://example.oracle.com/em/cloud/iaas/quota
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.5 Cloud Service Portal Plug-in

The following example shows the returned headers and content for this interaction:

```
X-specification-version: 10001
Content-Type: application/oracle.com.cloud.iaas.Quota+json; charset=ISO-8859-1
{
  "uri" : "/em/cloud/iaas/quota" ,
  "name" : "iaas Quota" ,
  "description" : "iaas Quota" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "media_type" : "application/oracle.com.cloud.iaas.Quota+json" ,
  "service_family_type" : "iaas" ,
  "allowedSaveToSwlib" : "1" ,
  "allowedSaveToSwlibOnExpiry" : "0" ,
  "resourceQuotas" : {
    "total" : "6" ,
    "elements" :
    [
      {
        "name" : "Local Storage Quota" ,
        "description" : "Local Storage Quota" ,
        "maxAllowed" : "2000" ,
        "unit" : "GB"
      } ,
      {
        "name" : "RAM Quota" ,
        "description" : "RAM Quota" ,
        "maxAllowed" : "600000" ,
        "unit" : "MB"
      }
    ]
  }
}
```

```

        "name" : "CPU Quota" ,
        "description" : "CPU Quota" ,
        "maxAllowed" : "100" ,
        "unit" : "COUNT"
    } ,
    {
        "name" : "Servers Quota" ,
        "description" : "Servers Quota" ,
        "maxAllowed" : "20" ,
        "unit" : "COUNT"
    } ,
    {
        "name" : "SWLIB Storage Quota" ,
        "description" : "SWLIB Storage Quota" ,
        "maxAllowed" : "-1" ,
        "unit" : "GB"
    } ,
    {
        "name" : "Extra Storage Quota" ,
        "description" : "Extra Storage Quota" ,
        "maxAllowed" : "-1" ,
        "unit" : "GB"
    }
    ]
}

```

46.4.4 Service Instance Type Resource

This is the resource that describes the type of services that are provided by a particular Service Family Type.

Table 46–18 Service Instance Type Resource

Feature	Description
URL	https://example.oracle.com/em/cloud/instance_type/vm%40iaas
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

The following is the Service Instance Type resource:

```

{
  "uri" : "/em/cloud/instance_type/vm%40iaas" ,
  "name" : "vm" ,
  "description" : "A Virtual Machine represents a computational unit that contains CPU, Memory, Network Instances, and Disks" ,
  "media_type" : "application/oracle.com.cloud.common.InstanceType+json" ,
  "instance_media_type" : "application/oracle.com.cloud.common.VM+json" ,
  "metrics" :
  [
    [
      "CPU_Utilization" ,
      "CPU Utilization of the Server" ,
      "GENERIC"
    ] ,
    [
      "Total_Network_Throughput" ,

```



```

        "Total Network Throughput of the Server" ,
        "GENERIC"
    ] ,
    [
        "Total_Disk_Throughput" ,
        "Total Disk Throughput of the Server" ,
        "GENERIC"
    ] ,
    [
        "Filesystem_Total_Used" ,
        "Summary of the total file system usage" ,
        "GENERIC"
    ]
] ,
"instance_options" :
[
    {
        "name" : "Medium" ,
        "cpu" : "4" ,
        "memory" : "8192" ,
        "local_storage" : "512000" ,
        "id" : "2"
    } ,
    {
        "name" : "Large" ,
        "cpu" : "8" ,
        "memory" : "15360" ,
        "local_storage" : "1024000" ,
        "id" : "3"
    } ,
    {
        "name" : "Small" ,
        "cpu" : "2" ,
        "memory" : "4096" ,
        "local_storage" : "256000" ,
        "id" : "1"
    }
]
}

```

46.4.5 Zone Resource

The following table shows the features of the Zone resource:

Table 46–19 ZoneResource

Feature	Description
URL	https://example.oracle.com/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

The following is the Zone resource, automatically cast to the application/oracle.com.cloud.iaas.Zone+json media type

```

{
    "uri" : "/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D" ,

```

```
"name" : "cloud_zone" ,
"resource_state" : {
  "state" : "READY"
} ,
"context_id" : "D73AF0D42C8459E11419862797D1F37D" ,
"media_type" : "application/oracle.com.cloud.iaas.Zone+json" ,
"service_family_type" : "iaas" ,
"type" : "VM_ZONE" ,
"service_templates" : {
  "media_type" : "application/oracle.com.cloud.common.ServiceTemplate+json" ,
  "total" : "7" ,
  "elements" :
  [
    {
      "uri" :
"/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1" ,
      "name" : "template_sanity" ,
      "media_type" : "application/oracle.com.cloud.common.VMTemplate+json" ,
      "type" : "Template"
    } ,
    {
      "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E88B04D7FEDEDE040578CDA810E49%3A0.1"
      ,
      "name" : "sidb_assembly" ,
      "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
      "type" : "Assembly"
    } ,
    {
      "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC77122B0A916D95CE040578CDA814854%3A0.1"
      ,
      "name" : "sidbasmA_abby" ,
      "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
      "type" : "Assembly"
    } ,
    {
      "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC769B1F361529309E040578CDA813D57%3A0.1"
      ,
      "name" : "wls_assembly" ,
      "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
      "type" : "Assembly"
    } ,
    {
      "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C144A4A245B62E040578CDA8163B9%3A0.1"
      ,
      "name" : "fmw_abby" ,
      "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
      "type" : "Assembly"
    }
  ]
}
```

```

    },
    {
      "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76C8792DE2A0937E040578CDA81795E%3A0.1"
,
      "name" : "WLS_abby" ,
      "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
      "type" : "Assembly"
    } ,
    {
      "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AC76F733BC7A41AF7E040578CDA812CDC%3A0.1"
,
      "name" : "fmw_venkat" ,
      "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
      "type" : "Assembly"
    }
  ]
},
"service_instances" : {
  "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
  "total" : "0" ,
  "elements" :
[
  ]
} ,
"vnets" : {
  "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
  "total" : "3" ,
  "elements" :
[
    {
      "uri" :
"/em/cloud/iaas/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3AnetConfig%3AC76CEADBBBE6B23FE040578CDA817FB1" ,
      "context_id" :
"oracle:defaultService:em:provisioning:1:netConfig:C76CEADBBBE6B23FE040578CDA817FB
1" ,
      "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
      "id" :
"oracle:defaultService:em:provisioning:1:netConfig:C76CEADBBBE6B23FE040578CDA817FB
1"
    } ,
    {
      "uri" :
"/em/cloud/iaas/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3AnetConfig%3AC77076C8FDEC6BD7E040578CDA813B2B" ,
      "context_id" :
"oracle:defaultService:em:provisioning:1:netConfig:C77076C8FDEC6BD7E040578CDA813B2
B" ,
      "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
      "id" :
"oracle:defaultService:em:provisioning:1:netConfig:C77076C8FDEC6BD7E040578CDA813B2
B"
    } ,
    {
      "uri" :

```

```

"/em/cloud/iaas/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3AnetConfig%3AC76F741AFD7EB760E040578CDA812CD8" ,
    "context_id" :
"oracle:defaultService:em:provisioning:1:netConfig:C76F741AFD7EB760E040578CDA812CD8" ,
    "media_type" : "application/oracle.com.cloud.common.VNet+json" ,
    "id" :
"oracle:defaultService:em:provisioning:1:netConfig:C76F741AFD7EB760E040578CDA812CD8"
  }
}
} ,
"delegated_credentials" : {
  "media_type" :
"application/oracle.com.cloud.iaas.ExalogicZoneCredential+json" ,
  "total" : "0" ,
  "elements" :
  [
  ]
}
}

```

46.4.6 Service Template Resource

As can be seen from the previous examples, the elements in the collection shown all have "media_type" as an attribute to clearly indicate what its resource type is. The following table shows the features of the Service Template resource:

Table 46–20 Service Template Resource

Feature	Description
URL	<code>https://example.oracle.com/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1</code>
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

This is the resource returned as the complete VMTemplate resource.

```

{
  "uri" :
"/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1" ,
  "name" : "template_sanity" ,
  "description" : "test template" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "context_id" :
"oracle:defaultService:em:provisioning:1:cmp:Virtualization:Template:C76CEB5563EA5E13E040578CDA817FAF:0.1" ,
  "media_type" : "application/oracle.com.cloud.common.VMTemplate+json" ,
  "type" : "Template" ,
  "created" : "2012-08-17T11:53:26+0000" ,
  "default_instance_media_type" : "application/oracle.com.cloud.common.VM+json" ,
  "zones" : {
    "media_type" : "application/oracle.com.cloud.iaas.Zone+json" ,
    "total" : "1" ,

```

```

    "elements" :
    [
        {
            "uri" : "/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D" ,
            "name" : "cloud_zone" ,
            "media_type" : "application/oracle.com.cloud.iaas.Zone+json" ,
            "service_family_type" : "iaas" ,
            "type" : "VM_ZONE"
        }
    ]
} ,
"service_instances" : {
    "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
    "total" : "0" ,
    "elements" :
    [
    ]
} ,
"deployment_params" :
[
    {
        "name" : "zone" ,
        "description" : "'zone' attribute is the URI of the zone that the
'application/oracle.com.cloud.common.VM' resource is to be created in" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "based_on" ,
        "description" : "'based_on' attribute is the URI of the service template
or format String of the originated source which the deployed
'application/oracle.com.cloud.common.VM' resource is to be followed" ,
        "type" : "STRING" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "cpu" ,
        "description" : "The information that determined how much 'CPU' is to be
allocated to the deployed resource" ,
        "type" : "LIST" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "memory" ,
        "description" : "The information that determined how much 'MEMORY' is to
be allocated to the deployed resource" ,
        "type" : "NUMBER" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
    {
        "name" : "disks" ,
        "description" : "The list of disks to be included in the deployed
resource" ,
        "type" : "LIST" ,
        "require" : "false" ,
        "sensitive" : "false"
    } ,
]

```

```
{
  "name" : "params.domain_type" ,
  "description" : "The domain type of the Virtual Machine" ,
  "type" : "STRING" ,
  "require" : "false" ,
  "sensitive" : "false"
} ,
{
  "name" : "params.network_profile" ,
  "description" : "The identifier of the network profile to be used for the
network instances of the Virtual Machine" ,
  "type" : "STRING" ,
  "require" : "false" ,
  "sensitive" : "false"
} ,
{
  "name" : "params.server_prefix" ,
  "description" : "The server prefix to be specified for the Virtual
Machine" ,
  "type" : "STRING" ,
  "require" : "true" ,
  "sensitive" : "false"
} ,
{
  "name" : "params.server_size" ,
  "description" : "The name of the server instance size" ,
  "type" : "STRING" ,
  "require" : "false" ,
  "sensitive" : "false"
} ,
{
  "name" : "params.request_name" ,
  "description" : "The request name to be tracked for the Virtual Machine
creation" ,
  "type" : "STRING" ,
  "require" : "false" ,
  "sensitive" : "false"
} ,
{
  "name" : "params.request_description" ,
  "description" : "The request description to be tracked for the Virtual
Machine creation" ,
  "type" : "STRING" ,
  "require" : "false" ,
  "sensitive" : "false"
} ,
{
  "name" : "params.vnc_password" ,
  "description" : "The VNC password for the Virtual Machine" ,
  "type" : "STRING" ,
  "require" : "true" ,
  "sensitive" : "true"
} ,
{
  "name" : "params.root_password" ,
  "description" : "The Root password for the Virtual Machine" ,
  "type" : "STRING" ,
  "require" : "true" ,
  "sensitive" : "true"
} ,
}
```

```

    {
      "name" : "params.start_vm" ,
      "description" : "Whether or not the Virtual Machine should be started
after creation" ,
      "type" : "STRING" ,
      "defaultValue" : "YES" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "params.ha_enabled" ,
      "description" : "Whether or not the Virtual Machine should be HA enabled"
,
      "type" : "STRING" ,
      "defaultValue" : "NO" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "params.disks_overwrite" ,
      "description" : "Whether or not the default Virtual Machine disks should
be overwritten" ,
      "type" : "STRING" ,
      "defaultValue" : "NO" ,
      "require" : "false" ,
      "sensitive" : "false"
    } ,
    {
      "name" : "params.networks" ,
      "description" : "Whether or not the default Virtual Machine disks should
be overwritten" ,
      "type" : "LIST" ,
      "require" : "false" ,
      "sensitive" : "false"
    }
  ] ,
  "directory" : "COMP_Components" ,
  "updated" : "2012-08-17T11:53:26+0000" ,
  "creator" : "DMBHAT1" ,
  "last_modified_by" : "DMBHAT1" ,
  "componenttype" : "Virtualization" ,
  "oracle_owned" : "false"
}

```

46.4.7 Metric Resource

A metric contains time series information and depending on the type of the metric, rollup information can also be retrieved. For example,

Table 46–21 Service Template Resource

Feature	Description
URL	https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

Here is the response from the web service:

```
{
  "uri" : "/em/cloud/metric/iaas%3Avm%3ACPU_
Utilization%3A523CAE80A305928C9C5BE8A67A4181FD" ,
  "name" : "CPU_Utilization" ,
  "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "type" : "NUMBER" ,
  "current_value" : "52.53868103027344" ,
  "current_time" : "2012-08-22T01:28:14+0000" ,
  "time_range" :
  [
    "2012-08-22T01:18:14+0000" ,
    "2012-08-22T01:28:14+0000"
  ] ,
  "time_range_epoch" :
  [
    "1345598294965" ,
    "1345598894965"
  ] ,
  "rollup_unit" : "RAW" ,
  "values" :
  [
    {
      "time_utc" : "2012-08-22T01:21:44+0000" ,
      "value" : "52.53868103027344"
    }
  ] ,
  "key" : "iaas:vm:CPU_Utilization:523CAE80A305928C9C5BE8A67A4181FD"
}
```

The default time range is 10 minutes. To modify the time range, query parameters can be used to specify the time range. For example, the following would get the metric data for the last 50 minutes:

Table 46–22 Service Template Resource

Feature	Description
URL	<code>https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD?time_range_epoch=1345595894965~1345598894965</code>
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

The query parameter "time_range_epoch" contains 2 numbers separated by "~" to indicate FROM time and TO time, inclusive. Here is the response:

```
{
  "uri" : "/em/cloud/metric/iaas%3Avm%3ACPU_
Utilization%3A523CAE80A305928C9C5BE8A67A4181FD" ,
  "name" : "CPU_Utilization" ,
  "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
  "resource_state" : {
    "state" : "READY"
  }
}
```



```

    } ,
    "type" : "NUMBER" ,
    "current_value" : "52.53868103027344" ,
    "current_time" : "2012-08-22T01:29:19+0000" ,
    "time_range" :
    [
        "2012-08-22T00:38:14+0000" ,
        "2012-08-22T01:28:14+0000"
    ] ,
    "time_range_epoch" :
    [
        "1345595894965" ,
        "1345598894965"
    ] ,
    "rollup_unit" : "RAW" ,
    "values" :
    [
        {
            "time_utc" : "2012-08-22T01:21:44+0000" ,
            "value" : "52.53868103027344"
        } ,
        {
            "time_utc" : "2012-08-22T01:16:44+0000" ,
            "value" : "52.67461395263672"
        } ,
        {
            "time_utc" : "2012-08-22T01:11:44+0000" ,
            "value" : "51.93536376953125"
        } ,
        {
            "time_utc" : "2012-08-22T01:06:44+0000" ,
            "value" : "52.61101531982422"
        } ,
        {
            "time_utc" : "2012-08-22T01:01:44+0000" ,
            "value" : "52.30859375"
        } ,
        {
            "time_utc" : "2012-08-22T00:56:44+0000" ,
            "value" : "52.778690338134766"
        } ,
        {
            "time_utc" : "2012-08-22T00:51:44+0000" ,
            "value" : "52.08208084106445"
        } ,
        {
            "time_utc" : "2012-08-22T00:46:44+0000" ,
            "value" : "52.42387771606445"
        } ,
        {
            "time_utc" : "2012-08-22T00:41:44+0000" ,
            "value" : "52.2672004699707"
        }
    ] ,
    "key" : "iaas:vm:CPU_Utilization:523CAE80A305928C9C5BE8A67A4181FD"
}

```

Similarly, to specify a different rollup unit, the following interaction shows the HOURLY rollup for the last 7 hours:

Table 46–23 Service Template Resource

Feature	Description
URL	https://example.oracle.com/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD?time_range_epoch=1345571178252~1345611178252&rollup_unit=HOURLY
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Method	GET
Since	12.1.0.4 Cloud Service Portal Plug-in

Here is the response from the web service for the aggregated information:

```
{
  "uri" : "/em/cloud/metric/iaas%3Avm%3ACPU_Utilization%3A523CAE80A305928C9C5BE8A67A4181FD" ,
  "name" : "CPU_Utilization" ,
  "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
  "resource_state" : {
    "state" : "READY"
  } ,
  "type" : "NUMBER" ,
  "current_value" : "52.37758255004883" ,
  "current_time" : "2012-08-22T04:55:13+0000" ,
  "time_range" :
  [
    "2012-08-21T17:46:18+0000" ,
    "2012-08-22T04:52:58+0000"
  ] ,
  "time_range_epoch" :
  [
    "1345571178252" ,
    "1345611178252"
  ] ,
  "rollup_unit" : "HOUR" ,
  "values" :
  [
    {
      "time_utc" : "2012-08-21T23:00:00+0000" ,
      "average" : "52.6733585993448905" ,
      "min" : "52.130245208740234" ,
      "max" : "53.29022216796875" ,
      "std" : "3.55263697371071501307481053785512321532E-01"
    } ,
    {
      "time_utc" : "2012-08-21T22:00:00+0000" ,
      "average" : "5.24303614298502599166666666666666666666667E01" ,
      "min" : "51.621360778808594" ,
      "max" : "52.85725402832031" ,
      "std" : "3.63521555326025399658498002900543252046E-01"
    } ,
    {
      "time_utc" : "2012-08-21T21:00:00+0000" ,
      "average" : "52.6410032908121745" ,
      "min" : "52.04186248779297" ,
      "max" : "53.23821258544922" ,
      "std" : "3.21552680564547999623645642115362106482E-01"
    }
  ]
}
```

46.5 Service Request REST APIs

This section covers the following REST APIs for rescheduling and deleting DBaaS and MWaaS service requests.

Table 46–24 Supported Methods for Service Request

Method	Query Parameters	Request Payload	Response Payload	Canonical Link	Description
PUT	NA	{ "newdate": "8/23/2013 4:46:12 AM" }	Status Message (json payload)	em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<id>	Reschedules service request based on the id and attributes. Date must be specified in the format yyyy-MM-dd"THH:mm:ss"Z
DELETE	NA	None	None	em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<service-request-id>	Cancels GET specified ServiceRequest
GET	NA	NA	List of requests as json payload	em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/	Retrieves a list of all service requests.

46.6 Service Request Collection

ServiceRequestCollection is a collection resource representing a Cloud Administrator's view of all the accessible Service Request resources (which can be canceled or rescheduled). The following table describes the ServiceRequestCollection data model.

Table 46–25 *ServiceRequestCollection Data Model*

Field	Type	Occurs	Description
name	String	1	Displays the name of this collection resource.
type	String	1	Indicates the type of collection resource.
hasMore	Boolean	1	Indicates whether there are more elements in the collection.
count	Integer	1	Number of elements in the collection resource.
items	Collection <Request>	1	List of ServiceRequest resources. If there are no instance, this list will be blank.
totalCount	Integer	1	Total number of requests.
canonicalLink	URI	1	A GET against this URI refreshes the client representation of this resource.
selfLink	URI	1	Refers to the resource equivalent of the containing elements.

EM CLI Verbs for Database as a Service Administrator

This chapter provides details on the Enterprise Manager Command Line Interface (EM CLI) verbs for Enterprise Manager Self Service Applications administration users for Database as a Service (DBaaS). For other EM CLI verbs related to cloud administration see *Enterprise Manager Command Line Interface Guide*.

The EM CLI enables you to access Enterprise Manager Cloud Control functionality from text-based consoles (shells and command windows) for a variety of operating systems. You can call Enterprise Manager functionality using custom scripts, such as SQL*Plus, OS shell, Perl, or Tcl, thus easily integrating Enterprise Manager Functionality with a company's business process.

The following sections are covered in this chapter:

- [PaaS Zone EM CLI Verbs](#)
- [Software Pool EM CLI Verbs](#)
- [Database Quota EM CLI Verbs](#)
- [Database Request Settings EM CLI Verbs](#)
- [Database Size EM CLI Verbs](#)
- [Database Profile EM CLI Verbs](#)
 - [About Database Provisioning Profile Types](#)
 - [Creating Provisioning Profiles using EM CLI](#)
 - [Sample EM CLI Property Files](#)
 - [Database Profile EM CLI Verbs](#)
 - [Creating a Database Profile Using EM CLI Verbs](#)
 - [Editing a Database Profile Using EM CLI Verbs](#)
 - [Deleting a Database Profile Using EM CLI Verbs](#)
 - [Viewing All the Database Profiles](#)
 - [Refreshing a Database Profile Using EM CLI Verbs](#)
- [Service Template EM CLI Verbs](#)
- [Service Template Executable .json Files](#)
- [Creating a Database Clone Using EM CLI Verbs](#)
- [Refreshing a Database Using EM CLI Verbs](#)

- [Deleting a Database Using EM CLI Verbs](#)
- [Database Fleet Maintenance EM CLI Verbs](#)
- [Database Request Handling EM CLI Verbs](#)
- [Cloning a Pluggable Database](#)
- [Transferring Data Between Databases](#)
- [Backing Up Datafiles and Metadata of a Pluggable Database](#)
- [Importing Data from Export Dumps to a Database](#)
- [Invoking a REST API Using EM CLI Verb](#)

All PaaS infrastructure zone EM CLI operations are available only to users with a EM_CLOUD_ADMINISTRATOR role and Software pool operations are available only to users with a EM_SSA_ADMINISTRATOR role. EM CLI verbs will obtain user information from the security context and grant permission only those users authorized to perform these operations.

47.1 PaaS Zone EM CLI Verbs

The following table provides details of the supported verbs for the PaaS zone resource.

Table 47-1 PaaS Zone EM CLI Verbs

Verb	Description	Format
emcli create_paaS_zone	<p>Creates a PaaS infrastructure zone.</p> <ul style="list-style-type: none"> ■ name - Name of the PaaS infrastructure zone to be created. ■ credential - Global named credentials to be used for provisioning in this PaaS infrastructure zone. ■ hosts - Comma separated list of the host targets to be added as members of this PaaS infrastructure zone. PaaS infrastructure zone can contain either hosts or Oracle VM zones as members. ■ ovm_zones - Comma separated list of the Oracle VM zone targets to be added as members of this PaaS infrastructure zone. ■ roles - Comma separated list of SSA roles that can access this PaaS infrastructure zone. ■ description - Description of the PaaS infrastructure zone. ■ cpu_utilization - This placement policy constraint allows the cloud administrator to set maximum thresholds for any host. Value entered must be between 1 and 100. If not provided, the default value is taken to be 80 percent. This parameter is not needed if Oracle VM zone targets are added as members. ■ memory_utilization - This is a placement policy constraint for the PaaS infrastructure zone. The value entered must be between 1 and 100. If it is not provided, the default value is taken to be 80 percent. This parameter is not needed if Oracle VM zone targets are added as members. <p>Example:</p> <pre>emcli create_paaS_zone -name=MyPaaSZone -credential=AIME_N -hosts=xyxy.example.com -roles="SSA_USER_ROLE1" -description="Test PaaS zone" -cpu_utilization=90 -memory_utilization=90</pre> <p>Sample Output:</p> <pre>PaaS Infrastructure Zone "MyPaaSZone" created successfully.</pre>	<pre>emcli create_paaS_zone -name=<Name of PaaS zone> -credential=<Global Named Credential> [-hosts=<Host1,Host2,Host3...>] [-ovm_ zones=<OVMZone1,OVMZone2,OVMZone3...>] [-roles=<SsaRole1,SsaRole2,...>] [-description=<Description of PaaS zone>] [-cpu_utilization=<Value between 1 and 100>] [-memory_ utilization=<Value between 1 and 100>]</pre>

Table 47–1 (Cont.) PaaS Zone EM CLI Verbs

Verb	Description	Format
emcli update_paaS_zone	<p>Updates a PaaS infrastructure zone.</p> <ul style="list-style-type: none"> name - Name of the existing PaaS infrastructure zone. credential - Global named credentials to be updated. add_hosts - Comma separated list of the host targets to be added as members of the Paas infrastructure zone. The hosts to be added should not have been added to other existing PaaS zones. remove_hosts - Comma separated list of the host targets to be removed from the Paas infrastructure zone. add_ovm_zones - Comma separated list of the Oracle VM zone targets to be added as members of the Paas infrastructure zone. The Oracle VM zones to be added should not have been added to other existing PaaS zones. remove_ovm_zones - Comma separated list of the Oracle VM zone targets to be removed from the Paas infrastructure zone. add_roles - Comma separated list of SSA roles to be added that can access the PaaS infrastructure zone. remove_roles - Comma separated list of SSA roles to be removed from the PaaS infrastructure zone. description - Updated description of the PaaS infrastructure zone. cpu_utilization - This placement policy constraint allows the cloud administrator to set maximum thresholds for any host. The value entered must be between 1 and 100. memory_utilization - This placement policy constraint is for the memory utilization of the PaaS infrastructure zone. The value entered must be between 1 and 100. <p>Example:</p> <pre>emcli update_paaS_zone -name=MyPaaSZone -credential=AIME_N -add_hosts=xyxy.example.com -remove_hosts=xyxy.example.com -add_roles="SSA_USER_ROLE1" -remove_roles="SSA_USER_ROLE2" -description="Test PaaS zone" -cpu_utilization=90 -memory_utilization=90</pre> <p>Sample Output:</p> <pre>PaaS Infrastructure Zone "MyPaaSZone" updated successfully.</pre>	<p>emcli update_paaS_zone</p> <p>-name=<Name of PaaS zone></p> <p>[-description=<Description of PaaS zone>]</p> <p>[-credential=<Global Named Credential>]</p> <p>[-add_hosts=<Host1,Host2,Host3...>]</p> <p>[-remove_hosts=<Host4,Host5...>]</p> <p>[-add_ovm_zones=<OVMZone1,OVMZone2,OVMZone3...>]</p> <p>[-remove_ovm_zones=<OVMZone4,OVMZone5...>]</p> <p>[-add_roles=<SsaRole1,SsaRole2,...>]</p> <p>[-remove_roles=<SsaRole3,SsaRole4,...>]</p> <p>[-cpu_utilization=<Value between 1 and 100>]</p> <p>[-memory_utilization=<Value between 1 and 100>]</p>

Table 47–1 (Cont.) PaaS Zone EM CLI Verbs

Verb	Description	Format
emcli delete_paas_zone	<p>Deletes a PaaS infrastructure zone. The PaaS infrastructure zone cannot be deleted if there is an existing Software pool associated with it.</p> <ul style="list-style-type: none"> name - Name of the existing PaaS infrastructure zone to be deleted. <p>Example:</p> <pre>emcli delete_paas_zone -name=MyPaaSZone</pre> <p>Sample Output:</p> <pre>PaaS Infrastructure Zone "MyPaaSZone" deleted successfully</pre>	<pre>emcli delete_paas_zone -name=<Name of PaaS zone></pre>
emcli get_paas_zone_detail	<p>Retrieves the PaaS infrastructure zone details.</p> <ul style="list-style-type: none"> name - Details of the existing PaaS infrastructure zone, such as Name, Description, Named Credentials, Number of Hosts, Roles, Maximum Memory Allocation (%), and Maximum CPU Utilization (%). <p>Example:</p> <pre>emcli get_paas_zone_detail -name=MyPaaSZone</pre> <p>Sample Output:</p> <pre>Name MyPaaSZone Description TEST zone Named Credentials AIME_N Number of Hosts 1 Roles SSA_USER_ROLE1 Maximum Memory Allocation (%) 90 Maximum CPU Utilization (%) 90</pre>	<pre>emcli get_paas_zone_ detail -name=<Name of PaaS zone></pre>

47.2 Software Pool EM CLI Verbs

The following table provides details of the supported verbs for the Software pool resource.

Table 47-2 Software Pool EM CLI Verbs

Verb	Description	Format
emcli create_pool	<p>Creates a database, schema, or pluggable database pool.</p> <ul style="list-style-type: none"> name - Name of the Software pool to be created. target_type - Target type of the Software pool to be created. For example: <code>mwaas_zone</code> for middleware pool, <code>oracle_cloud_zone</code> for database pool, and <code>schaas_pool</code> for schema pool. paas_zone - Name of PaaS infrastructure zone in which the Software pool is to be created. members - Comma separated list of targets to be added as members of the Software pool. description - Description of the Software pool. placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the database pool in terms of resource consumption. Use the <code>get_pool_allowed_placement_constraints</code> verb to get the available placement constraints for a pool target type. member_constraints - Comma separated key value pairs that restricts the addition of member targets to a software pool with a set criteria. Use to the <code>get_pool_allowed_member_constraints</code> verb to get the available member constraints and their possible values for a pool target type. properties - Comma separated key value pairs for additional properties that need to be specified based on the software pool target type. <p>Note:</p> <ul style="list-style-type: none"> To procure the GUID run the following command: <pre>emcli get_procedures [-type={procedure type}]</pre> <p>Sample command:</p> <pre>emcli get_procedures -type=DBPROV</pre> <ul style="list-style-type: none"> Root credentials are optional. They are required if you want to use the pool for snap cloned database requests. Grid Infrastructure credentials are optional. They are required if you are creating only a RAC database. ASM credentials are optional. They are required if you want to use the database pool for live cloning of a database using ASM. An existing pool with similar configuration can be associated to the new database pool as a standby pool. To do so use the <code>standby_pools</code> property. To associate multiple pools the pool names should be separated using the pipe symbol. <p>Examples:</p> <pre>- Database pool</pre>	<pre>emcli create_pool -name=<Name of Software Pool> -target_type=<Target type of Software Pool> -paas_zone=<PaaS Infrastructure Zone of Software Pool> -members=<Member1, Member2...> [-description=<Descriptio n of Software Pool>] [-placement_ constraints=<constraint1 =value1, constraint2=value2...>] [-member_ constraints=<constraint1 =value1, constraint2=value2>] [-properties=<property1= value1, property2=value2>]</pre>

Table 47-2 (Cont.) Software Pool EM CLI Verbs

Verb	Description	Format
emcli update_pool	<p>Updates a a database, schema, or pluggable database pool (whichever specified).</p> <ul style="list-style-type: none"> name - Name of the existing Software pool. target_type - Target type of the existing Software pool. For example: <code>mwaas_zone</code> for middleware pool, <code>oracle_cloud_zone</code> for database pool, and <code>schaas_pool</code> for schema pool. description - Description of the Software pool. add_members - Comma separated list of targets to be added as members of the Software pool. The targets to be added must satisfy the member constraints of the Software pool. remove_members - Member targets to be removed from the Software pool. placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the Software pool in terms of resource consumption. properties - Comma separated key value pairs for properties that need to be updated based on the Software pool target type. <p>Examples:</p> <ul style="list-style-type: none"> Database pool - <pre>emcli update_pool -name=MyDbPool -target_type=oracle_cloud_zone -paas_zone=MyPaaSZone -add_members= OraDb11g_home1_1_slc03qtn -remove_members= OraDb11g_home1_2_slc01mdr -description="Test Database Pool" -placement_constraints= "MAX_INSTANCES=7" -properties= "host_credential_ guid=DBA449B8967AAF77E040F00A73B11F55, root_credential_ guid=DBA449B8967AAF77E040F00A73B11F55"</pre> <p>Sample Output: Software Pool "MyDbPool" updated successfully.</p> Schema pool - <pre>emcli update_pool -name= MySchemaPool -target_type= schaaS_pool -add_members= simple.us.example.com -remove_members= Simple1.us.example.com -description="Test Database Pool" -placement_constraints= "MAX_SERVICES=17, USE_WORKLOAD=false, MAX_CPU_USAGE=0.0"</pre> 	<pre>emcli update_pool -name=<Name of Software Pool> -target_type=<Target type of Software Pool> [-description=<Descriptio n of Software Pool>] [-add_ members=<Member1, Member2...>] [-remove_ members=<Member4, Member5...>] [-placement_ constraints=<constraint1 =value1,constraint2=valu e2...>] [-properties=<property1= value1, property2=value2>]</pre>

Table 47-2 (Cont.) Software Pool EM CLI Verbs

Verb	Description	Format
emcli delete_pool	<p>Deletes a database, scheme, or pluggable database pool. The software pool cannot be deleted if there is an existing Service template associated with it.</p> <ul style="list-style-type: none"> name - Name of an existing software pool. target - Target type of the software pool. <p>Examples:</p> <ul style="list-style-type: none"> Database pool - <pre>emcli delete_pool -name=MyDbPool -target_type=oracle_cloud_zone</pre> <p>Sample Output: Software Pool "MyDbPool" deleted successfully.</p> Schema pool - <pre>emcli delete_pool -name=MySchemaPool -target_type= schaas_pool</pre> <p>Sample Output: Software Pool "MySchemaPool" deleted successfully.</p> Pluggable database pool - <pre>emcli delete_pool -name= MyPdbPool -target_type= pdbaas_pool</pre> <p>Sample Output: Software Pool "MyPdbPool" deleted successfully.</p> 	<pre>emcli delete_pool -name=<Name of Software Pool> -target_type=<Target type of Software Pool></pre>

Table 47-2 (Cont.) Software Pool EM CLI Verbs

Verb	Description	Format
emcli get_pool_detail	<p>Retrieves the software pool details, such as name, target type, description, PaaS infrastructure zone, number of members, placement constraints, and member constraints.</p> <ul style="list-style-type: none"> ■ name - Name of the Software pool. ■ target - Target type of the Software pool <p>Examples:</p> <ul style="list-style-type: none"> ■ Database pool - <pre>emcli get_pool_detail -name=MyDbPool -target_type=oracle_cloud_zone</pre> <p>Sample Output:</p> <pre>Name MyDbPool Target Type oracle_cloud_zone Description Test Database Pool Paas Infrastructure Zone SLC01MDR_ZONE Number of Members 1 Placement Constraints MAX_INSTANCES : 10 Member Constraints CONFIGURATION : DatabaseInstance VERSION : 11.2.0.2.0 , PLATFORM : Linux x86-64</pre> ■ Schema pool - <pre>emcli get_pool_detail -name=MySchemaPool -target_type= schaas_pool</pre> <p>Sample Output:</p> <pre>Name MyRchemaPool Target Type schaas_pool Description Test Schema Pool Paas Infrastructure Zone SLC01MDR_ZONE Number of Members 1 Placement Constraints MAX_CPU_USAGE : 90 , ENFORCE_CPU : false , MAX_MEMORY_USAGE : 90 , MAX_SERVICES : 17 , USE_WORKLOAD : false Member Constraints VERSION : 11.2.0.2.0 , PLATFORM : Linux x86-64 , TARGET_TYPE : Database Instance</pre> ■ Pluggable database pool - <pre>emcli get_pool_detail -name= MyPdbPool -target_type= pdbaas_pool</pre> <p>Sample Output:</p> <pre>Name MyPdbPool Target Type pdbaas_pool Description Test PDB Pool Paas Infrastructure Zone PDB_ZONE Number of Members 1 Placement Constraints MAX_MEMORY_USAGE_BY_PDBS : 90 , MAX_CPU_USAGE_BY_PDBS : 90 , MAX_PDB_SERVICES : 7 ,</pre> 	<pre>emcli get_pool_detail -name=<Name of Software Pool> -target_type=mwaas_ zone</pre>

47.3 Database Quota EM CLI Verbs

The following table provides details of the supported verbs for Database quota.

Table 47–3 Database Quota Em CLI Verbs

Verb	Description	Format
emcli create_database_quota	<p>Creates database quota for a EM_SSA_USER role.</p> <ul style="list-style-type: none"> ■ role_name: Name of SSA user Role for which quota is to be created ■ databases: Number of database service requests allowed. ■ schema_services: Number of schema service requests allowed. ■ pluggable_databases: Number of pluggable database requests allowed. ■ memory: Amount of memory usage allowed. ■ storage: Amount of storage usage allowed. <p>Example</p> <pre>emcli create_dbaas_quota -role_name="My Role" -databases="10" -schema_services="10" -pluggable_ databases="10" -memory="99" -storage="99"</pre> <p>Sample Output</p> <p>Quota for "MyRole" setup successfully.</p>	<pre>emcli create_dbaas_quota -role_name="<Name of SSA User Role>" -databases="<Number of Database Requests>" -schema_services="<Number of Schema Service Requests>" -pluggable_databases="<Number of Pluggable Database Service Requests>" -memory="<Memory(GB)>" -storage="<Storage(GB)>"</pre>

Table 47–3 (Cont.) Database Quota Em CLI Verbs

Verb	Description	Format
emcli update_dbaas_quota	<p>Updates the database quota for the SSA user role.</p> <ul style="list-style-type: none"> ■ role_name - Name of the SSA user role for which quota is to be updated. ■ databases - Number of database service requests allowed. ■ schema_services - Number of schema service requests allowed. ■ pluggable_databases - Number of PDB service requests allowed. ■ memory - Amount of memory usage allowed. ■ storage - Amount of storage space usage allowed. <p>Example</p> <pre>emcli update_dbaas_quota -role_name="My Role" -databases="10" -schema_services="10" -pluggable_databases="10" -memory="99" -storage="99"</pre> <p>Sample Output</p> <p>Quota for "My Role" updated successfully.</p>	<pre>emcli update_dbaas_quota -role_name="<Name of SSA User Role>" -databases="<Number of Database Requests>" -schema_services="<Number of Schema Service Requests>" -pluggable_databases="<Number of Pluggable Database Service Requests>" -memory="<Memory(GB)>" -storage="<Storage(GB)>"</pre>
emcli delete_dbaas_quota	<p>Deletes the database quota for a SSA User Role.</p> <ul style="list-style-type: none"> ■ role_name - Name of the SSA user role for which quota is to be deleted. <p>Example</p> <pre>emcli delete_dbaas_quota -role_name="My Role"</pre> <p>Sample Output</p> <p>Quota for "My Role" deleted successfully.</p>	<pre>emcli delete_dbaas_quota -role_name="<Name of SSA User Role>"</pre>

Table 47–3 (Cont.) Database Quota Em CLI Verbs

Verb	Description	Format
emcli get_dbaas_quota	<p>Lists the database quota setup for SSA user roles.</p> <p>Example</p> <pre>emcli get_dbaas_quota</pre> <p>Sample Output:</p> <pre>ROLE_NAME: SSA_USER_ROLE1 NUMBER_ OF_SCHEMA_SERVICES: 99 MEMORY: 99 STORAGE: 99 NUMBER_OF_PLUGGABLE_DATABASES: 99 NUMBER_OF_DB_INSTANCES : 99</pre> <p>Quotas for Roles retrieved successfully</p>	emcli get_dbaas_quota

47.4 Database Request Settings EM CLI Verbs

The following table provides details of the supported verbs for Database request settings.

Table 47–4 Database Request Settings EM CLI Verbs

Verb	Description	Format
emcli update_dbaas_request_settings	<p>Updates the Database request settings.</p> <ul style="list-style-type: none"> future_reservation_length - The time duration before which a Self Service user can schedule a request. maximum_archive_duration - The duration of time after which the "Completed", Self service create requests will be purged from the repository. default_retirement_period - The maximum amount of time for which Self service user can retain a service instance. <p>Example:</p> <pre>emcli update_dbaas_request_settings -future_reservation_length="2 Months" -maximum_archive_duration="10 Weeks" -default_retirement_period="No Reservation"</pre> <p>Sample Output:</p> <p>Request settings updated successfully</p>	<p>emcli update_dbaas_request_settings</p> <p>-future_reservation_length="<Future Request Scheduling Period>"</p> <p>-maximum_archive_duration="<Request Purging Duration>"</p> <p>-default_retirement_period="<Default Retention Duration>"</p>

Table 47–4 (Cont.) Database Request Settings EM CLI Verbs

Verb	Description	Format
emcli get_dbaas_request_settings	<p>Retrieves the PaaS infrastructure zone details.</p> <p>Example:</p> <pre>emcli get_dbaas_request_settings</pre> <p>Sample Output:</p> <pre>Future Reservation Length : 2 Months Maximum Archive Duration : 10 Weeks Default Retirement Period : 1 Years Request Settings retrieved successfully.</pre>	emcli get_dbaas_request_settings

47.5 Database Size EM CLI Verbs

The table below lists the supported verbs for Database size resource.

Table 47–5 Database Size EM CLI Verbs

Verb	Description	Format
emcli create_database_size	<p>Specify one or more attributes that make up this database size. The different attributes are separated by a semicolon (;). Attributes specified in the database size override values specified in the service template</p> <ul style="list-style-type: none"> ■ name- Create a name for the size. ■ description - Create a description for the size. ■ attributes - The different attributes are separated by a semicolon (;). Users can specify values for the following attributes: <ul style="list-style-type: none"> ■ cpu: Total number of CPU cores. ■ memory: Total maximum memory in GB. ■ processes: Total number of processes that can simultaneously connect to Oracle. ■ storage: Total storage that is allocated to Oracle (in GB). <p>Example:</p> <pre>emcli create_database_size -name=Small -description="Small size database" -attributes="cpu:4;storage:50;memory:4"</pre> <p>Sample Output:</p> <p>Database size 'Small' has been successfully created.</p>	<pre>emcli create_database_size -name="<Size name>" -description="<Size description>" [-attributes="cpu:<number of cores>; memory:<memory in GB>; processes:<max number of processes>; storage:<Total Storage in GB allocated to database>;"]</pre>

Table 47–5 (Cont.) Database Size EM CLI Verbs

Verb	Description	Format
emcli update_database_size	<p>Specify one or more attributes that have to be modified. The different attributes are separated by a semicolon (;). If you want to remove an attribute from the database size definition, specify 'remove' against that attribute.</p> <ul style="list-style-type: none"> ■ name - Name of the existing database. ■ description - Updates the description of the existing size. ■ attributes - The different attributes are separated by a semicolon (;). Users can specify values for the following attributes: <ul style="list-style-type: none"> ■ cpu: Total number of CPU cores. ■ memory: Total maximum memory in GB. ■ processes: Total number of processes that can simultaneously connect to Oracle. ■ storage: Total storage that is allocated to Oracle (in GB). <p>Example:</p> <pre>emcli update_database_size -name=Small -description="Small size database" -attributes="cpu:4;storage:50;memory:4"</pre> <p>Sample Output:</p> <pre>Database size 'Small' has been successfully updated.</pre>	<pre>emcli update_database_size -name="<Existing size name>" -description="<Size description>" [-attributes="cpu:<number of cores>; memory:<memory in GB>; processes:<max number of processes>; storage:<Total storage in GB allocated to database>;"]</pre>

Table 47–5 (Cont.) Database Size EM CLI Verbs

Verb	Description	Format
emcli delete_database_size	<p>Deletes database size.</p> <p>name - Name of the existing database size.</p> <p>Example:</p> <pre>emcli delete_database_size -name=small</pre> <p>Sample Output:</p> <p>Database size 'Small' has been successfully deleted.</p>	<pre>emcli delete_database_size -name="<Existing size name>"</pre>
emcli list_database_sizes	<p>Lists all the database sizes that have been created.</p> <p>[name]: A complete or a partial string.</p> <p>Example:</p> <pre>eemcli list_database_sizes emcli list_database_sizes -name="Extra*"</pre> <p>Sample Output:</p> <pre>Name:Extra-Small Description:Extra-small CPU(cores):4 Memory(GB):4 Storage(GB):Not Specified Processes(Units):Not Specified Name:Small Description:Small database CPU(cores):8 Memory(GB):8 Storage(GB):Not Specified Processes(Units):Not Specified</pre>	<pre>emcli list_database_sizes [name]: A complete or a partial string.</pre>

47.6 Database Profile EM CLI Verbs

This section explains the different database provisioning profiles used for Database as a Service. It also explains how these profiles can be created using the EM CLI verbs. The following topics are covered:

- [About Database Provisioning Profile Types](#)
- [Creating Provisioning Profiles using EM CLI](#)
- [Creating a Database Profile Using EM CLI Verbs](#)
- [Editing a Database Profile Using EM CLI Verbs](#)
- [Deleting a Database Profile Using EM CLI Verbs](#)
- [Viewing All the Database Profiles](#)
- [Refreshing a Database Profile Using EM CLI Verbs](#)

47.6.1 About Database Provisioning Profile Types

Given below are the four types of Database provisioning profiles used in Database as a Service and Schema as a Service:

- [DBCA Template](#)

- [RMAN](#)
- [Snapclone](#)
- [Schema](#)

47.6.1.1 DBCA Template

The DBCA template supports both structure plus data and structure only types. This database provisioning profile is created from the production or source database registered with Enterprise Manager.

Note: Structure and data requires a shutdown of the database. It should be used for very small databases (< 50GB).

47.6.1.2 RMAN

This data content of this database provisioning profile comprises the RMAN backup pieces. Any of the following methods can be used to create the RMAN profile:

- Hot RMAN backup - This option is enabled only when the archive log mode on the source database is turned ON.
- Cold RMAN backup - In this case, the source database is brought down to take the RMAN backup.
- Existing backup - This option can be used when the RMAN backup is already taken on the source and you want to use one of the existing RMAN backups to create a profile.
- Existing backup pieces when there is no access to the source database - Create profile source database using existing backup pieces when there is no access to the source database. This option can be used when the RMAN backup is already taken on the source and kept in a known location. This option is only supported using EM CLI verbs.

47.6.1.3 Snapclone

The data content of this database provisioning profile is derived from Snapshot information on the filer (NetApp or SunZFS filer) of all the volumes where the datafiles for the source database are residing.

47.6.1.4 Schema

The data content of this database provisioning profile is compiled from an export dump created using the Data pump tool. You can choose to export Schema objects (structure only) or the Schema with data (structure and data).

Note that you cannot export empty schemas or include Oracle schemas (these schemas are not available for selection). Schemas that are filtered out are listed below:

Table 47–6 Filtered Out Schema

ANONYMOUS	DMSYS	OASPUBLIC	OWBSYS	TSMSYS
APEX_030200	EXFSYS	ODM	OWBSYS_AUDIT	WEBSYS
APEX_PUBLIC_USER	FLows_	ODM_MTR	SCOTT	WK_PROXY
APPQOSSYS	FLows_03000	OLAPSYS	SI_INFORMTN_SCHEMA	WK_TEST

Table 47–6 (Cont.) Filtered Out Schema

AURORA\$JIS\$UTILITY\$	FLows_FILES	ORACLE_OCM	SPATIAL_CSW_ ADMIN_USR	WKPROXY
AURORA\$ORB\$UNAUT HENTICATED	LBACSYS	ORDDATA	SPATIAL_WFS_ ADMIN_USR	WKSYS
BI	MDDATA	ORDPLUGINS	SYS	WMSYS
CTXSYS	MDSYS	ORDSYS	SYSMAN	XDB
DBSNMP	MGMT_VIEW	OSE\$HTTP\$ADMIN	SYSTEM	XS\$NULL
DIP	MTSSYS	OUTLN	TRACESRV	

47.6.2 Creating Provisioning Profiles using EM CLI

This method allows the administrators or cloud provisioning operators to create the database provisioning profile using EM CLI verbs. The following is the syntax of the verb:

```
emcli create_dbprofile -input_file=data:<Prop file name>
```

For the verb description and options see [Table 47–13](#).

For the steps to be followed to create a database profile, see [Section 47.6.5, "Creating a Database Profile Using EM CLI Verbs"](#).

This command takes in a property file that completely describes the type of profile that will be created and the options used. For property files of different database provisioning profiles, see [Section 47.6.3, "Sample EM CLI Property Files"](#).

47.6.3 Sample EM CLI Property Files

The following sections provide sample EMCLI property files for the database provisioning profiles:

- [DBCA Template](#)
- [New RMAN Backup from the Source Database](#)
- [Existing RMAN Backup from the Source Database](#)
- [Existing RMAN Backup on the Stage Location](#)
- [Snapclone Database](#)
- [Schema Database](#)

47.6.3.1 DBCA Template

Table 47–7 EMCLI Property Files for DBCA Template

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created.	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=

Table 47–7 (Cont.) EMCLI Property Files for DBCA Template

Name	Required	Description	Variable
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATABASE_GOLD_IMAGE_TYPE=
Create the GI gold image	false	Includes the GI gold image as part of the profile.	GI_GOLD_IMAGE_TYPE=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATA_CONTENT_MODE=
Create mode for the data content	false	The create mode decides whether to use existing data or create new data.	CREATE_DATA_OPTION=
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data.	DATA_CONTENT=
Reference Host Credentials	false	The credentials to be used for OS authentication.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials to be used for performing database related operations.	REF_DB_CREDENTIALS=
Grid Infrastructure Credentials	false	The credentials to be used for OS authentication for grid infrastructure.	REF_GI_CREDENTIALS=
Root Credentials	false	Root credentials to be required to perform privileged operations on host.	REF_HOST_ROOT_CREDENTIALS=
Convert to OFA format	false	Converts to the OFA format.	CONVERT_TO_OFA=
Profile Name	true	Name of the profile.	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in the software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If nothing is specified, the Database version is used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. The default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Create Image version flag	false	Flag to indicate if only the image version needs to be created.	DB_GOLD_IMAGE_CREATE_VERSION_ONLY=

Table 47–7 (Cont.) EMCLI Property Files for DBCA Template

Name	Required	Description	Variable
Create Image version flag	false	Flag to indicate if only the image version needs to be created.	GI_GOLD_IMAGE_CREATE_VERSION_ONLY=
GI Home gold image id	false	Entity ID of the gold image.	GI_GOLD_IMAGE_ID=
Database home gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image name	false	Entity name of the database gold image.	DB_GOLD_IMAGE_ENTITY_NAME=
Grid Infrastructure gold image name	false	Entity name of the database gold image.	GI_GOLD_IMAGE_ENTITY_NAME=
Data gold image name	false	Entity name of the data gold image.	DATA_GOLD_IMAGE_ENTITY_NAME=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared.	STORAGE_TYPE_FOR_SOFTWARE=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_SOFTWARE=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared	STORAGE_TYPE_FOR_DATA=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_DATA=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_DATA=
Is the profile initiated by end user	false	Indicates if the profile initiated by end user ia a part of backup process or the database.	USER_INITIATED=
Is Database target available	false	Indicates if the Database target is available.	DB_TARGET_AVAILABLE=
Platform Name of Source Database	false	Platform Name of Source Database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit) etc.	SOURCE_DB_PLATFORM_NAME=
Schedule for Profile Execution	false	Schedule for the profile execution.	PROFILE_SCHEDULE=

Table 47–7 (Cont.) EMCLI Property Files for DBCA Template

Name	Required	Description	Variable
Profile Single Refresh	false	Single refresh of the profile.	PROFILE_SINGLE_REFRESH=
Profile Purge Policy Type	false	Profile purge policy type.	PROFILE_PURGE_POLICY_TYPE=
Profile Purge Policy Value	false	Profile purge policy value.	PROFILE_PURGE_POLICY_VALUE=
Profile Image Version	false	Profile image version.	PROFILE_IMAGE_VERSION=
Profile location list	false	Location of the profile list.	PROFILE_LOC_LIST

47.6.3.2 New RMAN Backup from the Source Database

Table 47–8 EMCLI Property Files for a New RMAN Backup

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=RMAN
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=

Table 47–8 (Cont.) EMCLI Property Files for a New RMAN Backup

Name	Required	Description	Variable
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Is the profile initiated by end user	true	Is the profile initiated by end user as part of backup process or the database.	USER_INITIATED=false
Is Database target available	false	Is Database target available. Must be set to 'true' for this use case.	DB_TARGET_AVAILABLE=true
Backup Type	false	Backup type.	RMAN.BACKUP_TYPE=
Number of RMAN Channels to use(Default No of Channels : 2	false	Number of Channels to be used. Possible Values: like 1, 2 or 3.	RMAN.RMAN_CHANNELS=
Retain backup until	false	Retain backup until. Format: mm/dd/yyyy.	RMAN.RETAIN_UNTIL=
Encryption Type	false	Encryption Type. Possible Values: ON, OFF.	RMAN.ENCRYPTION_TYPE=
Encryption Password/Key	false	Encryption key which was used to encrypt the backup.	RMAN.ENCRYPTION_PASSWORD=
Compression Type	false	Compression type. Possible Values: HIGH, MEDIUM, LOW.	RMAN.COMPRESSION_TYPE=
RMAN Backup Location	true	Location of the RMAN Backups.	RMAN.RMAN_BACKUP_LOCATION=
Backup file format	false	Backup file format.	RMAN.BACKUP_FILE_FORMAT=

Table 47–8 (Cont.) EMCLI Property Files for a New RMAN Backup

Name	Required	Description	Variable
Backup file tag	false	Backup file tag.	RMAN.BACKUP_FILE_TAG=
Source: Control File Location	false	Location of the Control File.	RMAN.CONTROL_FILE_NAME=
Control File Tag	false	Control File Tag.	RMAN.CONTROL_FILE_TAG=
Source: Database SID	false	Database SID of the source database.	RMAN.ORACLE_DB_SID=
Initialize File Name	false	Initialize file name.	RMAN.INIT_FILE_NAME=
User List File Name	false	Name of the users list file. this file should be kept in location specified for RMAN_BACKUP_LOCATION.	RMAN.USERLIST_FILE_NAME=
GDB Name of source Db	false	GDB Name of source Db.	RMAN.DATABASE_NAME=
use existing RMAN Backup	true	use existing RMAN Backup. This should be set to 'NO' for this use case.	RMAN.USE_EXISTING_BACKUP=NO

47.6.3.3 Existing RMAN Backup from the Source Database

Table 47–9 EMCLI Property Files for a Existing RMAN Backup

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=RMAN
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA

Table 47–9 (Cont.) EMCLI Property Files for a Existing RMAN Backup

Name	Required	Description	Variable
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Is the profile initiated by end user	true	Is the profile initiated by end user as part of backup process or the database.	USER_INITIATED=false
Is Database target available	false	Is Database target available. Must be set to 'true' for this use case.	DB_TARGET_AVAILABLE=true
Platform Name of Source Database	false	Platform Name of Source Database. For example, Linux x86-64 or Oracle Solaris on x86-64 (64-bit).	SOURCE_DB_PLATFORM_NAME=
Backup Type	false	Backup type.	RMAN.BACKUP_TYPE=
Number of RMAN Channels to use(Default No of Channels : 2	false	Number of Channels to be used. Possible Values: like 1, 2 or 3.	RMAN.RMAN_CHANNELS=
Retain backup until	false	Retain backup until. Format: mm/dd/yyyy.	RMAN.RETAIN_UNTIL=
Encryption Type	false	Encryption Type. Possible Values: ON, OFF.	RMAN.ENCRYPTION_TYPE=

Table 47–9 (Cont.) EMCLI Property Files for a Existing RMAN Backup

Name	Required	Description	Variable
Source:Encryption Password/Key	false	Encryption key which was used to encrypt the backup.	RMAN.ENCRIPTION_PASSWORD=
Compression Type	false	Compression type. Possible Values: HIGH, MEDIUM, LOW.	RMAN.COMPRESSION_TYPE=
RMAN Backup Location	true	Location of the RMAN Backups.	RMAN.RMAN_BACKUP_LOCATION=
Backup file format	false	Backup file format.	RMAN.BACKUP_FILE_FORMAT=
Backup file tag	false	Backup file tag.	RMAN.BACKUP_FILE_TAG=
Source: Control File Location	false	Location of the Control File.	RMAN.CONTROL_FILE_NAME=
Control File Tag	false	Control File Tag.	RMAN.CONTROL_FILE_TAG=
Source: Database SID	false	Database SID of the source database.	RMAN.ORACLE_DB_SID=
Initialize File Name	false	Initialize file name.	RMAN.INIT_FILE_NAME=
User List File Name	false	Name of the users list file. this file should be kept in location specified for RMAN_BACKUP_LOCATION.	RMAN.USERLIST_FILE_NAME=
GDB Name of source Db	false	GDB Name of source Db.	RMAN.DATABASE_NAME=
use existing RMAN Backup	true	use existing RMAN Backup. This should be set to 'YES' for this use case.	RMAN.USE_EXISTING_BACKUP=YES

47.6.3.4 Existing RMAN Backup on the Stage Location

Table 47–10 EMCLI Property Files for a Existing RMAN Backup on the Stage Location

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=

Table 47–10 (Cont.) EMCLI Property Files for a Existing RMAN Backup on the Stage

Name	Required	Description	Variable
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=RMAN
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Is the profile initiated by end user	true	Is the profile initiated by end user as part of backup process or the database.	USER_INITIATED=false
Is Database target available	false	Is Database target available. Must be set to 'false' for this use case.	DB_TARGET_AVAILABLE=false

Table 47–10 (Cont.) EMCLI Property Files for a Existing RMAN Backup on the Stage

Name	Required	Description	Variable
Platform Name of Source Database	false	Platform Name of Source Database. For example, Linux x86-64 or Oracle Solaris on x86-64 (64-bit).	SOURCE_DB_PLATFORM_NAME=
Backup Type	false	Backup type.	RMAN.BACKUP_TYPE=
Number of RMAN Channels to use(Default No of Channels : 2	false	Number of Channels to be used. Possible Values: like 1, 2 or 3.	RMAN.RMAN_CHANNELS=
Retain backup until	false	Retain backup until. Format: mm/dd/yyyy.	RMAN.RETAIN_UNTIL=
Encryption Type	false	Encryption Type. Possible Values: ON, OFF.	RMAN.ENCRYPTION_TYPE=
Source:Encryption Password/Key	false	Encryption key which was used to encrypt the backup.	RMAN.ENCRYPTION_PASSWORD=
Compression Type	false	Compression type. Possible Values: HIGH, MEDIUM, LOW.	RMAN.COMPRESSION_TYPE=
RMAN Backup Location	true	Location of the RMAN Backups.	RMAN.RMAN_BACKUP_LOCATION=
Backup file format	false	Backup file format. Possible Values: %U	RMAN.BACKUP_FILE_FORMAT=
Source: Control File Location	false	Location of the Control File.	RMAN.CONTROL_FILE_NAME=
Control File Tag	false	Control File Tag. Default: control01.ctl	RMAN.CONTROL_FILE_TAG=
Source: Database SID	false	Database SID of the source database.	RMAN.ORACLE_DB_SID=
Initialize File Name	false	Initialize file name.	RMAN.INIT_FILE_NAME=
User List File Name	false	Name of the users list file. this file should be kept in location specified for RMAN_BACKUP_LOCATION.	RMAN.USERLIST_FILE_NAME=
GDB Name of source Db	false	GDB Name of source Db.	RMAN.DATABASE_NAME=
RMDB Version	false	RMDBS version	RMAN.DATABASE_VERSION=

47.6.3.5 Snapclone Database

Table 47–11 EMCLI Property Files for Snapclone Database

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created.	REFERENCE_DATABASE=

Table 47–11 (Cont.) EMCLI Property Files for Snapclone Database

Name	Required	Description	Variable
Type of the reference database	true	The target type of the source database (oracle_database or rac_database).	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets.	REF_NODE_SELECTED=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATABASE_GOLD_IMAGE_TYPE=
Create the GI gold image	false	Includes the GI gold image as part of the profile.	GI_GOLD_IMAGE_TYPE=
Create the database gold image	false	Includes the database gold image as part of the profile.	DATA_CONTENT_MODE=
Create mode for the data content	false	The create mode decides whether to use existing data or create new data.	CREATE_DATA_OPTION=
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data.	DATA_CONTENT=
Reference Host Credentials	false	The credentials to be used for OS authentication.	REF_HOST_CREDENTIALS=
Database Credentials	false	The credentials to be used for performing database related operations.	REF_DB_CREDENTIALS=
Grid infrastructure credentials	false	The credentials to be used for OS authentication for grid infrastructure.	REF_GI_CREDENTIALS=
Root Credentials	false	Root credentials that will be required to perform privileged operations on host.	REF_HOST_ROOT_CREDENTIALS=
Convert to OFA format	false	Converts to the OFA format.	CONVERT_TO_OFA=
Profile Name	true	Name of the profile.	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in the software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If nothing is specified, the Database version is used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. The default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=

Table 47–11 (Cont.) EMCLI Property Files for Snapclone Database

Name	Required	Description	Variable
Create Image version flag	false	Flag to indicate if only image version needs to be created.	DB_GOLD_IMAGE_CREATE_VERSION_ONLY=
Create Image version flag	false	Flag to indicate if only image version needs to be created.	GI_GOLD_IMAGE_CREATE_VERSION_ONLY=
GI Home gold image id	false	Entity ID of the gold image.	GI_GOLD_IMAGE_ID=
Database home gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image id	false	Entity ID of the gold image.	DB_GOLD_IMAGE_ID=
Database gold image name	false	Entity name of the database gold image.	DB_GOLD_IMAGE_ENTITY_NAME=
Grid Infrastructure gold image name	false	Entity name of the database gold image.	GI_GOLD_IMAGE_ENTITY_NAME=
Data gold image name	false	Entity name of the data gold image.	DATA_GOLD_IMAGE_ENTITY_NAME=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared.	STORAGE_TYPE_FOR_SOFTWARE=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_SOFTWARE=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE=
Storage Type	false	The list of valid storage types are NFS, AGENT, and OmsShared.	STORAGE_TYPE_FOR_DATA=
Storage Name	false	The storage name as configured in the software library.	STORAGE_NAME_FOR_DATA=
NFS Mount Point	false	Location at which the NFS server is mounted on the host.	NFS_LOCAL_MOUNT_POINT_FOR_DATA=
Is the profile initiated by end user	false	Is the profile initiated by the end user a part of backup process or the database.	USER_INITIATED=
Is Database target available	false	Is the Database target available.	DB_TARGET_AVAILABLE=
Platform Name of Source Database	false	Platform Name of Source Database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit) etc.	SOURCE_DB_PLATFORM_NAME=

Table 47–11 (Cont.) EMCLI Property Files for Snapclone Database

Name	Required	Description	Variable
Schedule for Profile Execution	false	Schedule for profile execution.	PROFILE_SCHEDULE=
Profile Single Refresh	false	Single refresh of the profile.	PROFILE_SINGLE_REFRESH=
Profile Purge Policy Type	false	Profile purge policy type.	PROFILE_PURGE_POLICY_TYPE=
Profile Purge Policy Value	false	Profile purge policy value.	PROFILE_PURGE_POLICY_VALUE=
Profile Image Version	false	Profile image version.	PROFILE_IMAGE_VERSION=
Profile location list	false	Location of the profile list.	PROFILE_LOC_LIST=

47.6.3.6 Schema Database

Table 47–12 EMCLI Property Files for Schema Database

Name	Required	Description	Variable
Reference Database	true	The source database from which the profile will be created	REFERENCE_DATABASE=
Type of the reference database	true	The target type of the source database (oracle_database or rac_database)	REFERENCE_DATABASE_TYPE=
Reference Node	false	The reference node from which the profile will be created. Applicable only for RAC and Cluster targets	REF_NODE_SELECTED=
Backup mechanism for data	false	Variable to identify what mode needs to be used for creating backup data. Possible values are EXPORT, DBCA_TEMPLATE, RMAN, and THIN_PROVISIONING	DATA_CONTENT_MODE=EXPORT
The content that will be included in the backup	false	The data content that gets included in the backup can be metadata or data. Possible values are METADATA_ONLY and METADATA_AND_DATA.	DATA_CONTENT=METADATA_AND_DATA
Reference Host Credentials	true	The credentials that will be used for OS authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against NormalHostCreds.	REF_HOST_CREDENTIALS=

Table 47–12 (Cont.) EMCLI Property Files for Schema Database

Name	Required	Description	Variable
Database Credentials	false	The credentials that will be used for performing database authentication. Format is <Cred Name:Owner>. If this is not provided, preferred credentials will be checked against SysDbuCreds	REF_DB_CREDENTIALS=
Profile Name	true	Name of the profile	PROFILE_NAME=
Profile Description	false	Name with which the profile should be created.	PROFILE_DESC=
Profile location	true	Location of the profile in software library.	PROFILE_LOCATION=
Profile Version	false	Version of the profile. If none is specified, the Database version shall be used.	PROFILE_VERSION=
Profile Vendor	false	Vendor of the profile. Default is Oracle.	PROFILE_VENDOR=
Profile notes	false	Notes for the profile.	PROFILE_NOTES=
Data gold image name	true	Entity name of the data gold image	DATA_GOLD_IMAGE_ENTITY_NAME=
Working Directory	false	Working directory is the location where the files are staged.	WORKING_DIRECTORY=
Schemas to be exported	true	List of schemas that needs to be included as part of the export.	EXPORT.SCHEMA_INCLUDE_LIST.0=
Dump Directories	false	List of directory objects that needs to be used for storing export. Format: directory=dir1,file_name=file1%U.dmp[,max_size=1MB].	EXPORT.DUMP_DIRECTORY_LIST.0=
Log Directory	false	Log directory location where the log file generated during export.	PORT.LOG_FILE_DIRECTORY=
Degree of Parallelism	false	Degree of Parallelism indicates the number of threads. For example, 1 or 2 or 3...	EXPORT.DEGREE_OF_PARALLELISM=

47.6.4 Database Profile EM CLI Verbs

The table below provides the verbs related to database profile.

Table 47–13 Database Profile EM CLI Verbs

Verb	Description	Format
emcli create_dbprofile	<p>Creates a new database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> ▪ -input_file - A property file which completely describes the type of profile that will be created and the options used. Enter <code>emcli help describe_dbprofile_input</code> for help with populating values for the property file. For property file details see Section 47.6.3, "Sample EM CLI Property Files". ▪ -schedule <ul style="list-style-type: none"> ▪ frequency: Frequency type with which the Database Profile will be created. It can be interval(in minutes), weekly, monthly or yearly. ▪ start_time: Denotes the starting time of database profile component creation in the format yy-MM-dd HH:mm. ▪ end_time: Denotes the end time of database profile component creation repetition in the format yy-Mm-dd HH:mm. ▪ repeat: Repetition rate at which database profile will be created. If the frequency is interval, then repeat will be in minutes. 	<pre>emcli create_dbprofile -input_file=data:"absolute file path" [-schedule= [frequency:interval weekly monthly yearly]; start_time:yy-MM-dd HH:mm; end_time:yy-MM-dd HH:mm; [repeat:#m]; [months:##,##,...]; [days:##,##,...]; [tz:{timezone ID}]; [grace_period:xxx];] [-purge_ policy=DAYS SNAPSHOTS: number]</pre>

Table 47–13 (Cont.) Database Profile EM CLI Verbs

Verb	Description	Format
emcli edit_dbprofile	<p>Updates the cloned database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> ▪ [-comp_loc] - Indicates the database profile component location in the software library. ▪ [-schedule] - Indicates the schedule for cloning. <ul style="list-style-type: none"> ▪ [frequency:interval daily weekly monthly yearly] ▪ start_time:yy-MM-dd HH:mm; ▪ end_time:yy-MM-dd HH:mm; ▪ [repeat:#m]; ▪ [months:#,#,#,...]; ▪ [days:#,#,#,...]; ▪ [tz:{java timezone ID}]; ▪ [grace_period:xxx]; ▪ [-purge_policy] - Indicates the duration after which the purge occurs. <p>Example:</p> <pre>emcli edit_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_ x64/Database xyxy.us.example.com Profile100" -schedule="start_time:14-07-22 03:00;frequency:interval;end_ time:14-07-22 23:00;repeat:30" -purge_policy="DAYS:1"</pre>	<pre>emcli edit_dbprofile -comp_loc="Database Profile component location in software library" [-schedule= [frequency:interval daily weekly monthly yearly]; start_time:yy-MM-dd HH:mm; end_time:yy-MM-dd HH:mm; [repeat:#m]; [months:#,#,#,...]; [days:#,#,#,...]; [tz:{java timezone ID}]; [grace_period:xxx]; [-purge_policy=days snapshots: number]</pre>

Table 47–13 (Cont.) Database Profile EM CLI Verbs

Verb	Description	Format
emcli delete_dbprofile	<p>Deletes the database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> ■ comp_loc - Indicates the database profile component location in the software library. ■ [-version] - Indicates the database profile component version name. <p>Examples:</p> <ul style="list-style-type: none"> ■ emcli delete_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/Database xyxy.example.com Profile101" ■ emcli delete_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/Database xyxy.example.com Profile101" -version="THIN_PROVISIONING_07_25_2014_03_00_AM" 	<p>emcli delete_dbprofile</p> <p>-comp_loc="Database Profile component location in software library"</p> <p>[-version="Database Profile component version name"]</p>
emcli list_dbprofiles	<p>Lists the database profiles.</p> <p>Option:</p> <ul style="list-style-type: none"> ■ [-details] - Provides details of the database profiles. <p>Example:</p> <p>emcli list_dbprofiles -details</p>	emcli list_dbprofiles [-details]
emcli refresh_dbprofile	<p>Refreshes the database profile.</p> <p>Options:</p> <ul style="list-style-type: none"> ■ -comp_loc - Indicates the database profile component location in the software library. <p>Example:</p> <p>emcli refresh_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/Database xyxy.example.com Profile102"</p>	<p>emcli refresh_dbprofile</p> <p>-comp_loc="Database Profile component location in software library"</p>
emcli refresh_database	<p>Refreshes the database.</p> <p>Options:</p> <ul style="list-style-type: none"> ■ -target_name - Indicates the target database name. ■ -target_type - Indicates the target database type. ■ -input_file - Indicates the input file that defines the input field values. <p>Example:</p> <p>emcli refresh_database -target_name="database" -target_type="oracle_database" -input_file=data:"/tmp/refr.txt"</p>	<p>emcli refresh_database</p> <p>-target_name="database target name"</p> <p>-target_type="database target type"</p> <p>-input_file=data:"file:path"</p>

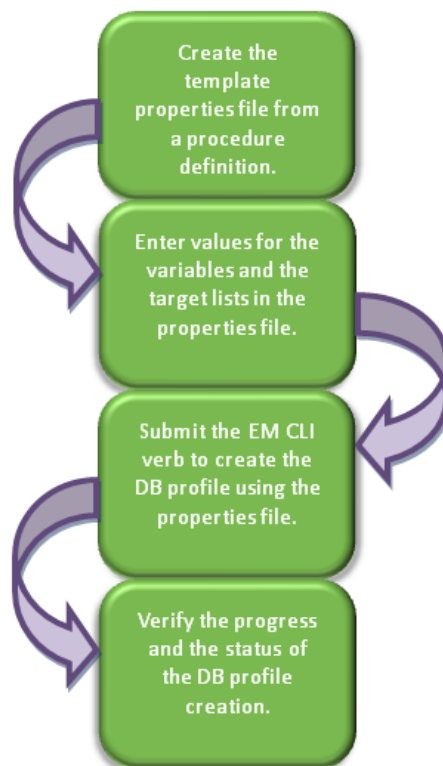
Table 47–13 (Cont.) Database Profile EM CLI Verbs

Verb	Description	Format
emcli delete_database	<p>Deletes the database.</p> <p>Options:</p> <ul style="list-style-type: none"> inputFile - Indicates the file containing properties required for deleting a database. For details, see Section 47.11, "Deleting a Database Using EM CLI Verbs". <p>Example:</p> <pre>emcli delete_database -inputFile=/u01/files/delete_clone.props</pre>	<p>emcli delete_database</p> <p>-inputFile="File containing properties required for deleting a clone"</p>

47.6.5 Creating a Database Profile Using EM CLI Verbs

This section describes the procedure to create a database profile, RMAN backup, RMAN image backup or a Snapshot backup using EM CLI verbs.

Note: The procedure to create a RMAN backup, RMAN image backup or Snapshot database is the same as the procedure to be followed to create a database profile. However, the only difference is in the property file used for the different flavours.

Figure 47–1 Creating a Database Profile Using EM CLI Verbs

Follow the steps below to create a database profile:

1. Create a template properties file from a procedure definition.

To create a template properties file follow the steps below:

- a. Retrieve the GUID or the name of the procedure. Run the following command to retrieve these.

```
emcli get_procedures
[-type={procedure type}]
```

Sample command:

```
emcli get_procedures -type=DBPROV
```

Sample output:

GUID	Type	Name	DisplayName
Version Owner	Parent	Procedure	
0A15E9DC285B2EF5E053E87BF00A6701	DBPROV	CLOUD_DEPLOY_SOFTWARE_NAME	14.52 ORACLE
0A15E9DC20712EF5E053E87BF00A6701	DBPROV	CLEANUP_DB_PROC	13.0 ORACLE
0A15E9DC205C2EF5E053E87BF00A6701	DBPROV	DBREPLAYCLIENTDP_NG	14.0 ORACLE
0A15E9DC204E2EF5E053E87BF00A6701	DBPROV	SIHA_SIDB_PROC	14.0 ORACLE

- b. Input the GUID or the name as an input value in the following command to generate a template properties file.

```
emcli describe_procedure_input
[-procedure={procedure GUID}]
[-name={procedure name or procedure configuration}]
[-owner={owner of the procedure or procedure configuration}][-parent_
proc={procedure of the procedure configuration. This only applies to
describe a procedure configuration with the same name}]
```

Sample command:

```
emcli describe_procedure_input -procedure=0A15E9DC204E2EF5E053E87BF00A6701>
/tmp/snapprofile.txt
```

2. Enter new values in the properties file.

Use an editor to edit the properties file. Enter the desired values for the variables and save the properties file.

For different flavours of database profile see the following:

- To create a new database profile with data and structure configure the mandatory parameters, and required optional parameter (DATA_CONTENT=METADATA_AND_DATA) in the [Table 47–14, "Sample Properties File for Creating a New Database Profile"](#).
- To create a new database profile with data only configure the mandatory parameters, and required optional parameter (DATA_CONTENT=DATA) in the [Table 47–14, "Sample Properties File for Creating a New Database Profile"](#).
- To create an RMAN backup, see [Table 47–15, "Sample Properties File for Creating a Full Backup Profile"](#).
- To create an RMAN image backup see [Table 47–16, "Sample Properties File for Creating a Thin Backup Profile"](#).

- To create an snapshot database, configure the mandatory parameters along with the REF_NODE_SELECTED, DATA_CONTENT, REF_HOST_CREDENTIALS, REF_DB_CREDENTIALS, PROFILE_VERSION, and PROFILE_VENDOR parameters in [Table 47–15, "Sample Properties File for Creating a Full Backup Profile"](#).

Table 47–14 Sample Properties File for Creating a New Database Profile

Parameters	Sample values	Description
Mandatory Parameters		
REFERENCE_DATABASE	REFERENCE_DATABASE=dbname.xyz.com	The source database from which the profile is to be created.
REFERENCE_DATABASE_TYPE	REFERENCE_DATABASE_TYPE=oracle_database	The target type of the source database. Accepted values are oracle_database or rac_database.
DATA_CONTENT_MODE	DATA_CONTENT_MODE=STORAGE_SNAPSHOT	Data Mode for which the database profile needs to be submitted. The accepted values are: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, and STORAGE_SNAPSHOT.
PROFILE_NAME	PROFILE_NAME=Profile_snap	Name of the profile.
PROFILE_LOCATION	PROFILE_LOCATION=Database Provisioning Profiles/11.2.0.4.0/linux_x64/	Location of the profile in the software library.
Optional Parameters		
REF_NODE_SELECTED	REF_NODE_SELECTED=xyy.us.example.com	The reference node from which the profile is to be created. This parameter is applicable only for RAC and cluster targets.
DATABASE_GOLD_IMAGE_TYPE		Includes the database gold image as part of the profile.
GI_GOLD_IMAGE_TYPE		Includes the GI gold image as part of the profile.
CREATE_DATA_OPTION		Indicates if existing data is to be used or to create new data.
DATA_CONTENT	DATA_CONTENT=METADATA_AND_DATA	The data content that gets included in the backup can be METADATA_AND_DATA or DATA.
REF_HOST_CREDENTIALS	REF_HOST_CREDENTIALS=AE_2COOL:ARA1	The credentials for OS authentication.
REF_DB_CREDENTIALS	REF_DB_CREDENTIALS=SYS_WD:RAH	The credentials for performing database related operation.
REF_GI_CREDENTIALS		The credentials for OS authentication of grid infrastructure.
REF_HOST_ROOT_CREDENTIALS	REF_HOST_ROOT_CREDENTIALS= AE_2COOL:RA1	Root credentials required to perform privileged operations on host.
CONVERT_TO_OFA		Converts to OFA format.

Table 47–14 (Cont.) Sample Properties File for Creating a New Database Profile

Parameters	Sample values	Description
PROFILE_DESC	PROFILE_DESC=11204 SnapClone profile 1	Description of the profile.
PROFILE_VERSION		Version of the profile. If this parameter is not specified, the database version is used.
PROFILE_VENDOR		Vendor of the profile. The default is Oracle.
PROFILE_NOTES		Notes for the profile.
DB_GOLD_IMAGE_CREATE_VERSION_ONLY		Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_CREATE_VERSION_ONLY		Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_ID		Entity ID of the GI gold image.
DB_GOLD_IMAGE_ID		Entity ID of the DB gold image.
DB_GOLD_IMAGE_ENTITY_NAME		Entity name of the database gold image.
GI_GOLD_IMAGE_ENTITY_NAME		Entity name of the GI gold image.
DATA_GOLD_IMAGE_ENTITY_NAME		Entity name of the data gold image.
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	Working directory is the location where the files are staged.
STORAGE_TYPE_FOR_SOFTWARE		The list of valid storage types are NFS, AGENT, and OmsShare.
STORAGE_NAME_FOR_SOFTWARE		The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE		Location at which the NFS server is mounted on the host.
STORAGE_TYPE_FOR_DATA		The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_DATA		The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_DATA		Location at which the NFS server is mounted on the host.
USER_INITIATED		Indicates if the profile initiated by end user is a part of backup process or the database.
DB_TARGET_AVAILABLE		Indicates if the database target is available.
SOURCE_DB_PLATFORM_NAME		Platform name of source database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit), etc.
PROFILE_SCHEDULE		Schedule for profile execution.

Table 47–14 (Cont.) Sample Properties File for Creating a New Database Profile

Parameters	Sample values	Description
PROFILE_SINGLE_REFRESH		Single refresh of the profile.
PROFILE_PURGE_POLICY_TYPE		Type of profile purge policy. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.
PROFILE_PURGE_POLICY_VALUE		Value of profile purge policy.
PROFILE_IMAGE_VERSION		Version of the profile image.

Table 47–15 Sample Properties File for Creating a Full Backup Profile

Parameters	Sample values	Description
Mandatory Parameters		
REFERENCE_DATABASE	REFERENCE_DATABASE=dbname.xyz.com	The source database from which the profile will be created.
REFERENCE_DATABASE_TYPE	REFERENCE_DATABASE_TYPE=oracle_database	The target type of the source database. It can be oracle_database or rac_database.
DATA_CONTENT_MODE	DATA_CONTENT_MODE=STORAGE_SNAPSHOT	Data Mode for which the database profile needs to be submitted. It can have the following values: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, and STORAGE_SNAPSHOT
PROFILE_NAME	PROFILE_NAME=Profile_snap	Name of the profile.
PROFILE_LOCATION	PROFILE_LOCATION=Database Provisioning Profiles/11.2.0.4.0/linux_x64/	Location of the profile in software library.
BACKUP_FILE_TAG	BACKUP_FILE_TAG=data_backup_1419417051961	Tag of backup files.
BACKUP_TYPE	BACKUP_TYPE=OFFLINE	Type of backup. Accepted values are OFFLINE or ONLINE. The default is OFFLINE.
BACKUP_FILE_FORMAT	BACKUP_FILE_FORMAT=backup_%U	Format of backup file.
RMAN_CHANNELS	RMAN_CHANNELS=2	Number of RMAN channels.
RMAN_BACKUP_LOCATION	RMAN_BACKUP_LOCATION=/oradbnas/ame_slc05ntg/sec	Location where RMAN backup files will be created. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN or DNFS.
Optional Parameters		

Table 47–15 (Cont.) Sample Properties File for Creating a Full Backup Profile

Parameters	Sample values	Description
REF_NODE_SELECTED	REF_NODE_SELECTED=slch.xyz.com	The reference node from which the profile will be created. This parameter is applicable only for RAC and cluster targets.
DATABASE_GOLD_IMAGE_TYPE		Includes the database gold image as part of the profile.
GI_GOLD_IMAGE_TYPE		Includes the GI gold image as part of the profile.
CREATE_DATA_OPTION		Indicates if existing data is to be used or to create new data.
DATA_CONTENT	DATA_CONTENT=METADATA_AND_DATA	The data content that gets included in the backup can be METADATA_AND_DATA or DATA.
REF_HOST_CREDENTIALS	REF_HOST_CREDENTIALS=AE_2COL:RA1	The credentials for OS authentication.
REF_DB_CREDENTIALS	REF_DB_CREDENTIALS=SYS_WL1:RA1	The credentials for performing database related operation.
REF_GI_CREDENTIALS		The credentials for OS authentication of grid infrastructure.
REF_HOST_ROOT_CREDENTIALS	REF_HOST_ROOT_CREDENTIALS= AE_2L:RA1	Root credentials required to perform privileged operations on host.
CONVERT_TO_OFA		Converts to OFA format.
PROFILE_DESC	PROFILE_DESC=11204 SnapClone profile 1	Description of the profile.
PROFILE_VERSION		Version of the profile. If this parameter is not specified, the database version is used.
PROFILE_VENDOR		Vendor of the profile. The default is Oracle.
PROFILE_NOTES		Notes for the profile.
DB_GOLD_IMAGE_CREATE_VERSION_ONLY		Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_CREATE_VERSION_ONLY		Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_ID		Entity ID of the GI gold image.
DB_GOLD_IMAGE_ID		Entity ID of the DB gold image.
DB_GOLD_IMAGE_ENTITY_NAME		Entity name of the database gold image.
GI_GOLD_IMAGE_ENTITY_NAME		Entity name of the GI gold image.
DATA_GOLD_IMAGE_ENTITY_NAME		Entity name of the data gold image.

Table 47–15 (Cont.) Sample Properties File for Creating a Full Backup Profile

Parameters	Sample values	Description
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	Working directory is the location where the files are staged.
STORAGE_TYPE_FOR_SOFTWARE		The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_SOFTWARE		The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE		Location at which the NFS server is mounted on the host.
STORAGE_TYPE_FOR_DATA		The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_DATA		The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_DATA		Location at which the NFS server is mounted on the host.
USER_INITIATED		Indicates if the profile initiated by end user is a part of backup process or the database.
DB_TARGET_AVAILABLE		Indicates if the database target is available.
SOURCE_DB_PLATFORM_NAME		Platform name of source database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit), etc.
PROFILE_SCHEDULE		Schedule for profile execution.
PROFILE_SINGLE_REFRESH		Single refresh of the profile.
PROFILE_PURGE_POLICY_TYPE		Type of profile purge policy. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.
PROFILE_PURGE_POLICY_VALUE		Value of profile purge policy.
PROFILE_IMAGE_VERSION		Version of the profile image.

Table 47–16 Sample Properties File for Creating a Thin Backup Profile

Parameters	Sample values	Description
Mandatory Parameters		
REFERENCE_DATABASE	REFERENCE_DATABASE=dbname.example.com	The source database from which the profile will be created.
REFERENCE_DATABASE_TYPE	REFERENCE_DATABASE_TYPE=oracle_database	The target type of the source database. It can be oracle_database or rac_database.

Table 47–16 (Cont.) Sample Properties File for Creating a Thin Backup Profile

Parameters	Sample values	Description
DATA_CONTENT_MODE	DATA_CONTENT_MODE=STORAGE_SNAPSHOT	Data Mode for which the database profile needs to be submitted. It can have the following values: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, and STORAGE_SNAPSHOT
PROFILE_NAME	PROFILE_NAME=Profile_snap	Name of the profile.
PROFILE_LOCATION	PROFILE_LOCATION=Database Provisioning Profiles/11.2.0.4.0/linux_x64/	Location of the profile in software library.
DNFS.BACKUP_FILE_TAG	DNFS.BACKUP_FILE_TAG=data_backup_1419417051961	Tag of backup files.
DNFS.BACKUP_TYPE	DNFS.BACKUP_TYPE=OFFLINE	Type of backup. Accepted values are OFFLINE or ONLINE. The default is OFFLINE.
DNFS.BACKUP_FILE_FORMAT	DNFS.BACKUP_FILE_FORMAT=backup_%U	Format of backup file.
DNFS.BACKUP_LOCATION	DNFS.BACKUP_LOCATION=/oradbnas/ame_slc05ntg/suk	Location where RMAN backup files will be created. It is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN or DNFS.
DNFS.BACKUP_IMAGE_MODE	DNFS.BACKUP_IMAGE_MODE=OfflineImage	Backup Image Mode
DNFS.BACKUP_IMAGE_TYPE	DNFS.BACKUP_IMAGE_TYPE=RMANImage	Type of backup Image.
Optional Parameters		
REF_NODE_SELECTED	REF_NODE_SELECTED=slnh.us.example.com	The reference node from which the profile will be created. This parameter is applicable only for RAC and cluster targets.
DATABASE_GOLD_IMAGE_TYPE		Includes the database gold image as part of the profile.
GI_GOLD_IMAGE_TYPE		Includes the GI gold image as part of the profile.
CREATE_DATA_OPTION		Indicates if existing data is to be used or to create new data.
DATA_CONTENT	DATA_CONTENT=METADATA_AND_DATA	The data content that gets included in the backup can be METADATA_AND_DATA or DATA.
REF_HOST_CREDENTIALS	REF_HOST_CREDENTIALS=AE_2CL:RA1	The credentials for OS authentication.
REF_DB_CREDENTIALS	REF_DB_CREDENTIALS=SYS_W1:RA1	The credentials for performing database related operation.
REF_GI_CREDENTIALS		The credentials for OS authentication of grid infrastructure.

Table 47–16 (Cont.) Sample Properties File for Creating a Thin Backup Profile

Parameters	Sample values	Description
REF_HOST_ROOT_CREDENTIALS	REF_HOST_ROOT_CREDENTIALS= AE_2CL:RA1	Root credentials required to perform privileged operations on host.
CONVERT_TO_OFA		Converts to OFA format.
PROFILE_DESC	PROFILE_DESC=11204 SnapClone profile 1	Description of the profile.
PROFILE_VERSION		Version of the profile. If this parameter is not specified, the database version is used.
PROFILE_VENDOR		Vendor of the profile. The default is Oracle.
PROFILE_NOTES		Notes for the profile.
DB_GOLD_IMAGE_CREATE_VERSION_ONLY		Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_CREATE_VERSION_ONLY		Flag to indicate if only image version needs to be created.
GI_GOLD_IMAGE_ID		Entity ID of the GI gold image.
DB_GOLD_IMAGE_ID		Entity ID of the DB gold image.
DB_GOLD_IMAGE_ENTITY_NAME		Entity name of the database gold image.
GI_GOLD_IMAGE_ENTITY_NAME		Entity name of the GI gold image.
DATA_GOLD_IMAGE_ENTITY_NAME		Entity name of the data gold image.
WORKING_DIRECTORY	WORKING_DIRECTORY=/tmp	Working directory is the location where the files are staged.
STORAGE_TYPE_FOR_SOFTWARE		The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_SOFTWARE		The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_SOFTWARE		Location at which the NFS server is mounted on the host.
STORAGE_TYPE_FOR_DATA		The list of valid storage types are NFS, AGENT, and OmsShared.
STORAGE_NAME_FOR_DATA		The storage name as configured in the software library.
NFS_LOCAL_MOUNT_POINT_FOR_DATA		Location at which the NFS server is mounted on the host.
USER_INITIATED		Indicates if the profile initiated by end user is a part of backup process or the database.
DB_TARGET_AVAILABLE		Indicates if the database target is available.

Table 47–16 (Cont.) Sample Properties File for Creating a Thin Backup Profile

Parameters	Sample values	Description
SOURCE_DB_PLATFORM_NAME		Platform name of source database. For example: Linux x86-64, Oracle Solaris on x86-64 (64-bit), etc.
PROFILE_SCHEDULE		Schedule for profile execution.
PROFILE_SINGLE_REFRESH		Single refresh of the profile.
PROFILE_PURGE_POLICY_TYPE		Type of profile purge policy. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.
PROFILE_PURGE_POLICY_VALUE		Value of profile purge policy.
PROFILE_IMAGE_VERSION		Version of the profile image.
USE_EXISTING_BACKUP		Whether exiting backup is to be used.

3. Execute the following EM CLI verb to create a database profile, using the updated properties file as the input file.

```
emcli create_dbprofile
    -input_file=data:"file:path"
    [-schedule=
        [frequency:interval|daily|weekly|monthly|yearly];
        start_time:yy-MM-dd HH:mm;
        end_time:yy-MM-dd HH:mm;
        [repeat:#m];
        [months:#,#,#,...];
        [days:#,#,#,...];
        [tz:{java timezone ID}];
        [grace_period:xxx];
    ]
    [-purge_policy=days|snapshots: number]
```

Samples:

```
emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt"
-schedule="start_time:14-06-23 01:00;frequency:yearly;end_time:14-05-28
01:00;days:1,3,8,7,10;months:1,3,9,11,1" -purge_policy="SNAPSHOTS:1"

emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt"
-schedule="start_time:14-05-28 01:00;frequency:monthly;end_time:14-05-28
01:00;days:1,3,8,7" -purge_policy="DAYS:1"

emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt"
-schedule="start_time:14-05-28 01:00;frequency:weekly;end_time:14-05-28
01:00;days:1,3,7" -purge_policy="SNAPSHOTS:1"

emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt"
-schedule="start_time:14-05-28 01:00;frequency:daily;end_time:14-05-28 01:00"
-purge_policy="DAYS:1" -purge_policy="SNAPSHOTS:1"

emcli create_dbprofile -input_file=data:"/tmp/snapprofile.txt"
-schedule="start_time:14-07-22 03:00;frequency:interval;end_time:14-07-22
07:00;repeat:30" -purge_policy="SNAPSHOTS:1"
```

Sample output:

Create Database Profile deployment procedure has been submitted successfully with the instance name :
 'CreateDatabaseProfile_SYSMAN_06_23_2014_01_00_PM' and execution_guid='0AE6096550756B26E0539878B10A6FF5'
 You can track the status of profile creation using the following command:
 emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -showJobOutput

4. Verify the status of the database profile creation by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]
```

Sample:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

Sample Output:

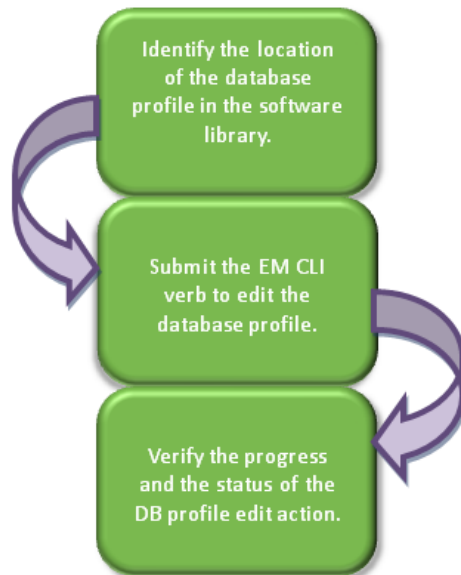
```
0AE6096550716B26E0539878B10A6FF5, PROFILE, CreateDatabaseProfile_SYSMAN_12_23_2014_23_18_PM, Running
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details -showJobOutput
```

47.6.6 Editing a Database Profile Using EM CLI Verbs

This section describes the procedure to edit a database profile using EM CLI verbs.

Figure 47–2 Editing a Database Profile Using EM CLI Verbs

Follow the steps below to edit a database profile:

1. Identify the location of the database profile in the software library.

Execute the following command to locate the database profile.

```
emcli list_dbprofiles
[-details]
```

Sample command:

```
emcli list_dbprofiles
```

Sample output:

```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/
Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/
```

2. Edit the database profile with the following command, using the obtained location.

```
emcli edit_dbprofile
-comp_loc="Database Profile component location in software library"
[-schedule=
    [frequency:interval| daily |weekly|monthly|yearly];
    start_time:yy-MM-dd HH:mm;
    end_time:yy-MM-dd HH:mm;
    [repeat:#m];
    [months:#,#,#,...];
    [days:#,#,#,...];
    [tz:{java timezone ID}];
    [grace_period:xxx];
]
[-purge_policy=days| snapshots: number]
```

Sample command:

```
emcli edit_dbprofile -comp_loc="Database Provisioning
Profiles/11.2.0.4.0/linux_x64/Profile_snap " -schedule="start_time:14-07-22
```

```
03:00;frequency:interval;end_time:14-07-22 23:00;repeat:30" -purge_
policy="DAYS:1"
```

Sample output:

The Create Database Profile deployment procedure with new schedule and purge policy has been submitted successfully with the instance name :

```
'CreateDatabaseProfile_SYSMAN_07_22_2014_03_00_PM' and execution_guid=
'0AE6096550756B26E0539878B10A6FF5'
```

You can track the status of profile creation using the following command:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details
-showJobOutput
```

3. Verify the status of the database profile edit by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]]
```

Sample:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

Sample output:

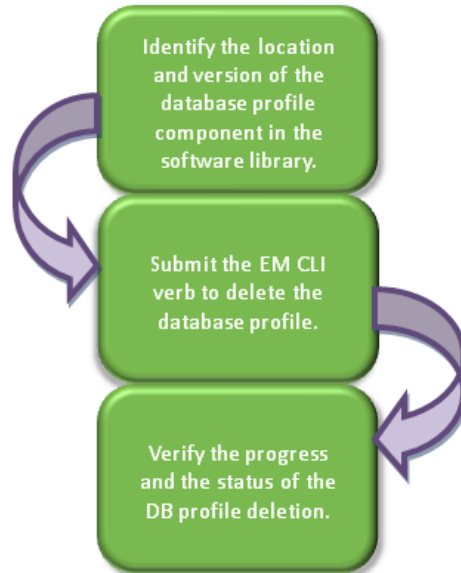
```
0AE6096550716B26E0539878B10A6FF5, PROFILE, CreateDatabaseProfile_SYSMAN_07_22_
2014_03_00_PM, Running
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details
-showJobOutput
```

47.6.7 Deleting a Database Profile Using EM CLI Verbs

This section describes the procedure to delete a database profile using EM CLI verbs.

Figure 47–3 Deleting a Database Profile Using EM CLI Verbs

Follow the steps below to delete a database profile:

1. Identify the location and version of the database profile component in the software library.

Execute the following command to locate the database profile.

```
emcli list_dbprofiles
[-details]
```

Sample command:

```
emcli list_dbprofiles
```

Sample output:

```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/,Type=STORAGE_SNAPSHOT,Status=Ready,Description= Database Reference Profile 05-11-2014 12:40 PM from database.mycompany.com
Version: STORAGE_SNAPSHOT_05_11_2014_12_40_PM: ,contains=STORAGE_SNAPSHOT(s),removalOverdue=0, sourceDatabaseName=database.mycompany.com.
```

```
Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/,Type=RMAN,Status=Ready,Description=Database Reference Profile 04-11-2014 12:40 PM from database.mycompany.com
Version : RMAN_04_11_2014_12_40_PM,contains=RMAN(s),removalOverdue=0, sourceDatabaseName=database.mycompany.com.
```

2. Delete the database profile with the following command, using the obtained location and version.

```
emcli delete_dbprofile
-comp_loc="Database Profile component location in software library"
[-version="Database Profile component version name"]
```

Sample command:

```
emcli delete_dbprofile -comp_loc="Database Provisioning Profiles/11.2.0.4.0/linux_x64/Profile_snap"
```

```
emcli delete_dbprofile -comp_loc="Database Provisioning
Profiles/11.2.0.4.0/linux_x64/ Profile_snap" -version="STORAGE SNAPSHOT_05_11_
2014_12_40_PM"
```

Sample output:

Delete Database Profile deployment procedure has been submitted successfully with the instance name : 'DeleteDatabaseProfile_SYSMAN_07_22_2014_03_00_PM' and execution_guid='0AE6096550756B26E0539878B10A6FF5'

You can track the status of profile creation using the following command:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details
-showJobOutput
```

3. Verify the status of the database profile deletion by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]
```

Sample:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

Sample output:

```
0AE6096550716B26E0539878B10A6FF5, PROFILE, DeleteDatabaseProfile_SYSMAN_07_22_
2014_03_00_PM, COMPLETED
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details
-showJobOutput
```

47.6.8 Viewing All the Database Profiles

Execute the following command to view all the database profiles with their details.

```
emcli list_dbprofiles
[-details]
```

Sample command:

```
emcli list_dbprofiles
```

Sample output:

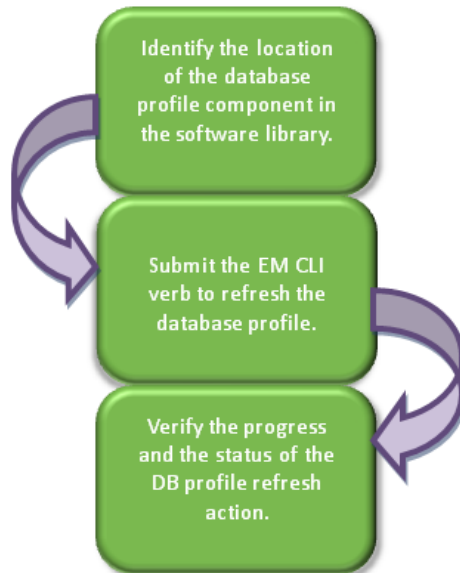
```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/linux_
x64/,Type=STORAGE_SNAPSHOT,Status=Ready,Description= Database Reference Profile
05-11-2014 12:40 PM from database.mycompany.com
Version: STORAGE SNAPSHOT_05_11_2014_12_40_PM: ,contains=STORAGE_
SNAPSHOT(s),removalOverdue=0, sourceDatabaseName=database.mycompany.com.
```

```
Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/linux_
x64/,Type=RMAN,Status=Ready,Description=Database Reference Profile 04-11-2014
12:40 PM from database.mycompany.com
Version : RMAN_04_11_2014_12_40_PM,contains=RMAN(s),removalOverdue=0,
sourceDatabaseName=database.mycompany.com.
```

47.6.9 Refreshing a Database Profile Using EM CLI Verbs

This section describes the procedure to refresh a database profile using EM CLI verbs.

Figure 47–4 Refreshing a Database Profile Using EM CLI Verbs



Follow the steps below to refresh a database profile:

1. Identify the location of the database profile component in the software library.

Execute the following command to locate the database profile.

```
emcli list_dbprofiles
[-details]
```

Sample command:

```
emcli list_dbprofiles
```

Sample output:

```
Name=Profile_snap,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/
Name=Profile_rman,Location=Database Provisioning Profiles/11.2.0.4.0/linux_x64/
```

2. Refresh the database profile with the following command, using the obtained location.

```
emcli refresh_dbprofile
-comp_loc="Database Profile component location in software library"
```

Sample command:

```
emcli refresh_dbprofile -comp_loc="Database Provisioning
Profiles/11.2.0.4.0/linux_x64/ Profile_snap"
```

Sample output:

```
A Refresh Single Profile procedure has been submitted successfully with the
instance name :
'RefreshSingleProfile_SYSMAN_07_22_2014_03_00_PM' and execution_guid=
'0AE6096550756B26E0539878B10A6FF5'
You can track the status of profile creation using the following command:
```



```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details
-showJobOutput
```

3. Verify the status of the database profile refresh by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]]
```

Sample:

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5
```

Sample output:

```
0AE6096550716B26E0539878B10A6FF5, PROFILE, RefreshSingleProfile_SYSMAN_07_22_
2014_03_00_PM, Running
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AE6096550756B26E0539878B10A6FF5 -xml -details
-showJobOutput
```

47.7 Service Template EM CLI Verbs

The table below lists the supported verbs for Service Template resource.

The .json file content samples are provided in [Section 47.8, "Service Template Executable .json Files"](#).

Table 47–17 Service Template EM CLI Verbs

Verb	Description	Format
emcli create_service_template	<p>Creates a database, schema, or pluggable database service template.</p> <p>The <code>input_file</code> should be a JSON based metadata file which should have the necessary configuration for the specific service template creation.</p> <p>Samples of the JSON service executable metadata files are available at Section 47.8, "Service Template Executable json Files".</p> <p>Examples:</p> <ul style="list-style-type: none"> Database service template- <pre>emcli create_service_template -name="Database service template" -service_family="DBAAS" -service_type="DB" -pool_target_type="oracle_ cloud_zone" -software_pools="MyPoolOH" -roles="SSA_USER_ROLE" -description="Database small instance service template." -input_ file="data:executable.json"</pre> <p>Sample Output: Service Template "My Service Template" created successfully</p> Schema service template- <pre>emcli create_service_template -name="Schema service template" -service_family="DBAAS" -service_type="SCHEMA" -pool_target_type="schaas_pool" -software_pools="MySCHPool" -roles="SSA_USER_ROLE" -description="Schema small instance service template." -input_ file="data:executable.json"</pre> <p>Sample Output: Service Template "My Schema Service Template" created successfully</p> Pluggable database service template - <pre>emcli create_service_template -name="PDB service template" -service_family="DBAAS" -service_type="PDB" -pool_target_type="pdbaas_pool" -software_pools="MyPDBPool" -roles="SSA_USER_ROLE" -description="PDB small instance service template." -input_ file="data:executable.json"</pre> <p>Sample Output:</p> 	<pre>emcli create_service_ template -name="<Name of Service Template>" -service_ family="<Service family for which the Service Template is being created>" -service_type="<Service type for which the Service Template is being created>"] -pool_target_ type="Target type of Software Pools to be associated with the Service Template" -software_ pools="<SwPool1,SwPool 2,SwPool3,...>" [-roles="<SsaRole1,SsaRol e2,..>"] [-description="<Descripti on of Service Template>"] [-input_file="data:<Name of Service executable MetaData File>"]</pre>

Table 47–17 (Cont.) Service Template EM CLI Verbs

Verb	Description	Format
emcli delete_service_template	<p>Deletes the Service template.</p> <p>Example:</p> <pre>emcli delete_service_template -name="Database service template" -service_family="DBAAS"</pre> <p>Sample Output:</p> <p>Service Template with name " Database service template " and service family " DBAAS " deleted successfully.</p>	<pre>emcli delete_service_template -name="<Name of Service Template>" -service_family="<Service family to which the Service Template belongs>"]</pre>
emcli get_service_templates	<p>Retrieves the list of available service templates based on the service family passed.</p> <p>Example:</p> <pre>emcli get_service_templates -service_family="DBAAS"</pre> <p>Sample Output:</p> <pre>Name Service Family Description ServiceTemplate1 DBAASServiceTemplate1Description</pre>	<pre>emcli get_service_templates [-service_family="<Service family filter used for filtering the service templates>"]</pre>

47.8 Service Template Executable .json Files

Samples of Service Template executable .json files are listed below:

- [DBCA Based Service Template .json File](#)
- [Standby DBCA Based Service Template .json File](#)
- [RMAN Based Single Instance Database Service Template .json File](#)
- [RMAN Based Single Instance Database with Single Instance Standby Service Template .json File](#)
- [RMAN Based RAC One Node Database Service Template .json File](#)
- [RMAN Based RAC One Node Database with Standby Service Template .json File](#)
- [RMAN Based RAC Database with Single Instance Standby Service Template .json File](#)
- [RAC Database with Standby Using a DBCA Template Service Template .json File](#)
- [DNFS Based Database Service Template .json File](#)
- [Snap Clone Single Instance Database with Archiving Enabled Service Template .json File](#)
- [Schema Based Service Template .json File](#)
- [Pluggable Database Service Template .json File](#)
- [RAC Pluggable Database Using an Empty Pluggable Database Service Template .json File](#)
- [RAC Pluggable Database Using a Profile Pluggable Database Service Template .json File](#)
- [Clone DB Based Service Template .json File](#)

- [Full Clone Using an RMAN Duplicate Service Template .json File](#)
- [Snapclone Database Using Live Clone Template on EMC Storage Service Template .json File](#)

47.8.1 DBCA Based Service Template .json File

```
{
  "name": "Create ST for SI Db using DBCA Template - ASM Subh_2",
  "description": "Creates Single Instance DB",
  "roles": [ "SSA_USER_ROLE" ],
  "serviceType": "DB",
  "serviceTemplateTypeId": "61",
  "rscProvAssocOption": [ "byRscProvInst" ],
  "resourceProvider": {
    "lookupCharacteristics": [
      {
        "characteristics": [
          {
            "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
            "values": [ "137F74D7A8359A60762ED550341A5F47" ],
            "targetType": {
              "targetType": "oracle_cloud_zone",
              "targetTypeName": "Database Pool",
              "parentTargetType": "self_service_zone",
              "parentTargetTypeName": "PaaS Infrastructure Zone"
            }
          }
        ]
      },
      {
        "purposeId": 1
      }
    ]
  },
  "payloads": [ { "name": "PROFILE_COMPONENT_URN", "value":
    "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
    DbProfile:269BA6C90E6A5000E053C075B10A51A3:0.1" } ],
  "configurations": [
    { "name": "REF_ZONE", "value": "Salt Lake City Zone" },
    { "name": "REF_POOL", "value": "SI Databases Pool_Oracle_DB_11g" },
    { "name": "REF_HOST", "value": "xyz.example.com" },
    { "name": "REF_TGT", "value": "xyz.example.com" },
    { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },
    { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES", "value": "Y" },
    { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "4038" },
    { "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "DATA" },
    { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },
    { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y" },
    { "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": "RECO" },
    { "name": "DATABASE_TYPE", "value": "oracle_database" },
    { "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" },
    { "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE", "values": [ "DBCA_TEMPLATE" ]
  },
  { "name": "ENTITY_TYPE", "value": "USE_PROFILE" },
  { "name": "PROFILE_COMPONENT_URN", "value":
    "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
    DbProfile:269BA6C90E6A5000E053C075B10A51A3:0.1" },
  {
    "name": "USER_PRIVILEGES",
    "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
    OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB,
```

```
CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY"
    },
    { "name": "SID_OPTION", "value": "ssauser" },
    { "name": "SELECT_ORACLE_HOME_OPTION", "value": "SELECT_ORACLE_HOME_AT_
RUNTIME"},
    { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome"},
    { "name": "DB_ADMIN_PASSWORD_SAME", "value": "true" },
    { "name": "INIT_PARAMS", "values": [
        "sga_target=1073741824",
        "pga_aggregate_target=1073741824"
    ]
    },
    { "name": "LISTENER_PORT", "value": "1521" },
    { "name": "TARGET_PROP_LIST",
      "values": [
        "Site:null:false:false",
        "Contact:xxxx:false:true",
        "Downtime Contact:null:false:false",
        "Location:null:false:false",
        "LifeCycle Status:null:false:false",
        "Department:null:false:false",
        "Comment:Testing:false:true",
        "Line of Business:null:false:false"
      ]
    }
  ]
}
```

Note: In the JSON body mentioned above:

- To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below,

```
oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```

is the ID.

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceTemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF_ZONE indicates the reference zone among the zones to be associated with the template.
- REF_POOL indicates the reference pool among the pools to be associated with the template.
- REF_HOST indicates the host of the reference target from the pool targets.
- REF_TGT indicates the reference target from the pool targets.
- SELECT_ORACLE_HOME_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

47.8.2 Standby DBCA Based Service Template .json File

```
{
  "name": "TestDbTemplate1",
  "serviceType": "DB",
```

```

"serviceFamily": "DBAAS",
"description": "This is a test database dbca service template 1",
"poolIds": [ "D125A1536E9ADC36CC24EAB058B9E7AC" ],
  "serviceExecutableMeta": {
"type": "CDP",
"configurations": [
  { "name": "PROFILE_COMPONENT_URN",
"value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:F1EA40D2AE964994E0436051F20AFE32:0.1" },
  { "name": "DATABASE_TYPE", "value": "rac_database" },
  { "name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome" },
  { "name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome" },
  { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" },
  { "name": "DB_ADMIN_PASSWORD_SAME", "value": "true" },
  { "name": "INSTANCE_COUNT", "value": "2" },
  { "name": "SID_OPTION", "value": "ssauser" },
  { "name": "COMMON_DB_SID", "value": "mydb1" },
  { "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" },
  { "name": "LISTENER_PORT", "value": "1521" },
  { "name": "STAGE_LOCATION", "value": "/scratch" },
  { "name": "REF_ZONE", "value": "SLC00ECPQ_ZONE" },
  { "name": "REF_POOL", "value": "PRIMARY_RAC_POOL" },
  { "name": "REF_HOST", "value": "xyxy.example.com" },
  { "name": "REF_TGT", "value": "xxy.example.com" },
  { "name": "ROLE_NAME", "value": "ROLE_Oct_31_2014_17_59_PM" },
  { "name": "ROLE_DESC", "value": "New database role to be assigned to master account." },
  { "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY" },
  { "name": "DEFAULT_DATABASE_SIZE", "value": "small" },
  { "name": "DATABASE_SIZES", "value": "", "values": ["small", "medium"] },
  { "name": "TARGET_PROP_LIST", "value": "",
    "values": [
      "Department:value:false:false",
      "Location:null:false:false",
      "Comment:null:false:false",
      "LifeCycle Status:null:false:false",
      "Line of Business:null:false:false",
      "Contact:null:false:false"
    ]
  },
  { "name": "CUSTOM_TARGET_PROP_LIST", "value": "",
    "values": [
      "Department:value:false:false"
    ]
  },
  { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },
  { "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "DATA" },
  { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES", "value": "Y" },
  { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y" },
  { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "2048" },
  { "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": "RECO" },
  { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },
  {
"name": "INIT_PARAMS",
"subconfigurations": [
  { "name": "INIT_PARAMS:1", "value": "sga_target=1073741824" },
  { "name": "INIT_PARAMS:2", "value": "pga_aggregate_target=1073741824" }
]
}
}

```



```

    ],
    { "name": "STANDBY_REQUIRED", "value": "true" },
    { "name": "STANDBY_REQUIRED_LOCK", "value": "false" },
    { "name": "STANDBY_WORK_DIR", "value": "/tmp" },
    { "name": "PRIMARY_PROTECTION_MODE", "value": "MAXIMIZE AVAILABILITY" },
    { "name": "DBAAS_SSA_STANDBY_CUSTOM_PRE_SCRIPTS_URN", "value": "" },
    { "name": "DBAAS_SSA_STANDBY_CUSTOM_POST_SCRIPTS_URN", "value": "" },
    { "name": "STANDBY_DB_DETAILS", "value": "", "values": [
      "pool=RAC_11204_Tier_2;databaseSIDPrefix=;databaseType=rac_
      database;standbyConfigName=Near
      DR;redoMode=SYNC;realtimeQuery=true;databaseRACInstanceCount=2;databaseDelay=30;da
      tabaseUniqueName=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;
      standbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com",
      "pool=SI_11204;databaseSIDPrefix=;databaseType=oracle_
      database;standbyConfigName=Far
      DR;redoMode=ASYN;realtimeQuery=false;databaseRACInstanceCount=2;databaseDelay=60;
      databaseUniqueName=;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=F
      S;standbyFRALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com"]
    ]
  }
}

```

47.8.3 RMAN Based Single Instance Database Service Template .json File

```

{
  "name": "Database Service - RMAN Based with archiving with SI Standby",
  "description": "This creates Database Archiving log mode.",
  "serviceType": "DB",
  "serviceTemplateTypeId": "81",
  "rscProvAssocOption": [
    "byRscProvInst"
  ],
  "resourceProvider": {
    "lookupCharacteristics": [
      {
        "characteristics": [
          {
            "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
            "values": [
              "1898CF93BD39C19BF032672271BC4B44"
            ],
            "targetType": {
              "targetType": "oracle_cloud_zone",
              "targetTypeName": "Database Pool",
              "parentTargetType": "self_service_zone",
              "parentTargetTypeName": "PaaS Infrastructure Zone"
            }
          }
        ],
        "purposeId": 1
      }
    ],
    "payloads": [
      {
        "name": "PROFILE_COMPONENT_URN",

```

```
        "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"
    },
    ],
    "configurations": [
        {
            "name": "STAGE_LOCATION",
            "value": "/scratch/emga/backups/rman/"
        },
        {
            "name": "PROFILE_COMPONENT_URN",
            "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"
        },
        {
            "name": "SELECT_ORACLE_HOME_OPTION",
            "value": "SELECT_ORACLE_HOME_FROM_REQUEST"
        },
        {
            "name": "REF_TGT",
            "value": "xyz.example.com"
        },
        {
            "name": "REF_HOST",
            "value": "xyz.example.com"
        },
        {
            "name": "REF_ZONE",
            "value": "Salt Lake City Zone"
        },
        {
            "name": "zoneTargetName",
            "value": "Salt Lake City Zone"
        },
        {
            "name": "REF_POOL",
            "value": "Databases Pool"
        },
        {
            "name": "DATABASE_TYPE",
            "value": "oracle_database"
        },
        {
            "name": "COMMON_DB_SYS_PASSWORD",
            "value": "welcome"
        },
        {
            "name": "LISTENER_PORT",
            "value": "1521"
        },
        {
            "name": "PROFILE_VERSION",
            "value": "latest"
        },
        {
            "name": "COMMON_DB_SID",
            "value": "db"
        },
        {
            "name": "TARGET_PROP_LIST",
```

```

    "values": [
      "Contact:9980697299:false:false",
      "Location:null:false:false",
      "LifeCycle Status:null:false:false",
      "Department:null:false:false",
      "Comment:null:false:false",
      "Line of Business:null:false:false"
    ]
  },
  {
    "name": "USER_PRIVILEGES",
    "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE"
  },
  {
    "name": "RMAN.DB_STORAGE_TYPE",
    "value": "FS"
  },
  {
    "name": "RMAN.FRA_STORAGE_TYPE",
    "value": "FS"
  },
  {
    "name": "RMAN.FRA_SIZE",
    "value": "4038"
  },
  {
    "name": "RMAN.USE_ARCHIVING",
    "value": "YES"
  },
  {
    "name": "RMAN.DATA_FILE_LOCATION",
    "value": "/scratch/emga/app/emga/oradata"
  },
  {
    "name": "RMAN.REDO_FILE_LOCATION",
    "value": "/scratch/emga/app/emga/fast_recovery_area"
  },
  {
    "name": "RMAN.RECOVERY_FILE_LOCATION",
    "value": "/scratch/emga/app/emga/fast_recovery_area"
  },
  {
    "name": "RMAN.WORK_DIR_LOC",
    "value": "/tmp/work"
  },
  {
    "name": "RMAN.DB_ADMIN_PASSWORD_SAME",
    "value": "Y"
  },
  {
    "name": "RMAN.DATABASE_PASSWORDS",
    "value": "welcome"
  },
  {
    "name": "RMAN.BACKUP_LOCATION",
    "value": "/scratch/emga/backups/rman/"
  },
  {
    "name": "RMAN.USE_OFA",

```

```
        "value": "N"
    },
    {
        "name": "COMMON_DOMAIN_NAME",
        "value": "us.example.com"
    },
    {
        "name": "STANDBY_DB_DETAILS",
        "values": [
            "pool=Near DR Pool;databaseSIDPrefix=;databaseType=oracle_
database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standby
StorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;stand
byFRASize=;standbyLsnrPort=;domainName=us.example.com"
        ]
    }
]
```

Note: In the JSON body mentioned above:

- To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.
- ```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
  - To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
  - To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceTemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
  - REF\_ZONE indicates the reference zone among the zones to be associated with the template.
  - REF\_POOL indicates the reference pool among the pools to be associated with the template.
  - REF\_HOST indicates the host of the reference target from the pool targets.
  - REF\_TGT indicates the reference target from the pool targets.
  - SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

---

## 47.8.4 RMAN Based Single Instance Database with Single Instance Standby Service Template .json File

```
{
```

```
"name": "Database Service - RMAN Based with archiving with SI Standby",
"description": "This creates Database Archiving log mode.",
"serviceType": "DB",
"serviceTemplateTypeId": "81",
"rscProvAssocOption": [
 "byRscProvInst"
],
"resourceProvider": {
 "lookupCharacteristics": [
 {
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
 "values": [
 "1898CF93BD39C19BF032672271BC4B44"
],
 "targetType": {
 "targetType": "oracle_cloud_zone",
 "targetTypeName": "Database Pool",
 "parentTargetType": "self_service_zone",
 "parentTargetTypeName": "PaaS Infrastructure Zone"
 }
 }
],
 "purposeId": 1
 }
],
 "payloads": [
 {
 "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"
 }
],
 "configurations": [
 {
 "name": "STAGE_LOCATION",
 "value": "/scratch/emga/backups/rman/"
 },
 {
 "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"
 },
 {
 "name": "SELECT_ORACLE_HOME_OPTION",
 "value": "SELECT_ORACLE_HOME_FROM_REQUEST"
 },
 {
 "name": "REF_TGT",
 "value": "xyz.example.com"
 },
 {
 "name": "REF_HOST",
 "value": "xyz.example.com"
 },
 {
 "name": "REF_ZONE",
 "value": "Salt Lake City Zone"
 }
]
}
```

```

 },
 {
 "name": "zoneTargetName",
 "value": "Salt Lake City Zone"
 },
 {
 "name": "REF_POOL",
 "value": "Databases Pool"
 },
 {
 "name": "DATABASE_TYPE",
 "value": "oracle_database"
 },
 {
 "name": "COMMON_DB_SYS_PASSWORD",
 "value": "welcome"
 },
 {
 "name": "LISTENER_PORT",
 "value": "1521"
 },
 {
 "name": "PROFILE_VERSION",
 "value": "latest"
 },
 {
 "name": "COMMON_DB_SID",
 "value": "db"
 },
 {
 "name": "TARGET_PROP_LIST",
 "values": [
 "Contact:9980697299:false:false",
 "Location:null:false:false",
 "LifeCycle Status:null:false:false",
 "Department:null:false:false",
 "Comment:null:false:false",
 "Line of Business:null:false:false"
]
 },
 {
 "name": "USER_PRIVILEGES",
 "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE"
 },
 {
 "name": "RMAN.DB_STORAGE_TYPE",
 "value": "FS"
 },
 {
 "name": "RMAN.FRA_STORAGE_TYPE",
 "value": "FS"
 },
 {
 "name": "RMAN.FRA_SIZE",
 "value": "4038"
 },
 {
 "name": "RMAN.USE_ARCHIVING",
 "value": "YES"
 }
]
}

```

```

 },
 {
 "name": "RMAN.DATA_FILE_LOCATION",
 "value": "/scratch/emga/app/emga/oradata"
 },
 {
 "name": "RMAN.REDO_FILE_LOCATION",
 "value": "/scratch/emga/app/emga/fast_recovery_area"
 },
 {
 "name": "RMAN.RECOVERY_FILE_LOCATION",
 "value": "/scratch/emga/app/emga/fast_recovery_area"
 },
 {
 "name": "RMAN.WORK_DIR_LOC",
 "value": "/tmp/work"
 },
 {
 "name": "RMAN.DB_ADMIN_PASSWORD_SAME",
 "value": "Y"
 },
 {
 "name": "RMAN.DATABASE_PASSWORDS",
 "value": "welcome"
 },
 {
 "name": "RMAN.BACKUP_LOCATION",
 "value": "/scratch/emga/backups/rman/"
 },
 {
 "name": "RMAN.USE_OFA",
 "value": "N"
 },
 {
 "name": "COMMON_DOMAIN_NAME",
 "value": "us.example.com"
 },
 {
 "name": "STANDBY_DB_DETAILS",
 "values": [
 "pool=Near DR Pool;databaseSIDPrefix=;databaseType=oracle_
database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standby
StorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;stand
byFRASize=;standbyLsnrPort=;domainName=us.example.com"
]
 }
]
}

```



---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below,  

```
oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```

is the ID.

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceTemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

---

## 47.8.5 RMAN Based RAC One Node Database Service Template .json File

```
{
 "name": "Create Databases on RAC One database",
 "description": "Creates Databases on RAC.",

```

```
"serviceType": "DB",
"serviceTemplateTypeId": "81",
"rscProvAssocOption": [
 "byRscProvInst"
],
"resourceProvider": {
 "lookupCharacteristics": [
 {
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
 "values": [
 "647E8750A1C3835557165B499B269FB3"
],
 "targetType": {
 "targetType": "oracle_cloud_zone",
 "targetTypeName": "Database Pool",
 "parentTargetType": "self_service_zone",
 "parentTargetTypeName": "PaaS Infrastructure Zone"
 }
 }
],
 "purposeId": 1
 }
],
 "payloads": [
 {
 "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"
 }
],
 "configurations": [
 { "name": "STAGE_LOCATION",
 "value": "/scratch/emga/backups/rman/" },
 { "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1" },
 { "name": "SELECT_ORACLE_HOME_OPTION",
 "value": "SELECT_ORACLE_HOME_FROM_REQUEST" },
 { "name": "REF_TGT",
 "value": "abc.example.com" },
 { "name": "REF_HOST",
 "value": "adc.example.com" },
 { "name": "REF_ZONE",
 "value": "Salt Lake City Zone" },
 { "name": "zoneTargetName",
 "value": "Salt Lake City Zone" },
 { "name": "REF_POOL",
 "value": "RAC Databases Pool" },
 { "name": "DATABASE_TYPE",
 "value": "rac_database" },
 { "name": "IS_RAC_ONE",
 "value": "Y" },
 { "name": "COMMON_DB_SYS_PASSWORD",
 "value": "welcome" },
 { "name": "LISTENER_PORT",
 "value": "1521" },
 { "name": "PROFILE_VERSION",
```

```

 "value": "latest"},
 {"name": "COMMON_DB_SID",
 "value": "db"},
 {"name": "TARGET_PROP_LIST",
 "values": [
 "Contact:9980697299:false:false",
 "Location:null:false:false",
 "LifeCycle Status:null:false:false",
 "Department:null:false:false",
 "Comment:null:false:false",
 "Line of Business:null:false:false"
]
 },
 {"name": "USER_PRIVILEGES",
 "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE"},
 {"name": "RMAN:DB_STORAGE_TYPE",
 "value": "FS"},
 {"name": "RMAN:FRA_SIZE",
 "value": "4038"},
 {"name": "RMAN:USE_ARCHIVING",
 "value": "NO"},
 {"name": "RMAN:DATA_FILE_LOCATION",
 "value": "/scratch/emga/app/emga/oradata"},
 {"name": "RMAN:WORK_DIR_LOC",
 "value": "/tmp/work"},
 {"name": "RMAN:DB_ADMIN_PASSWORD_SAME",
 "value": "Y"},
 {"name": "RMAN:DATABASE_PASSWORDS",
 "value": "welcome"},
 {"name": "RMAN:BACKUP_LOCATION",
 "value": "/oradbnas/backups/rman/"},
 {"name": "RMAN:USE_OFA",
 "value": "N"},
 {"name": "COMMON_DOMAIN_NAME",
 "value": "us.example.com"}
]
}

```

---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/service templates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

---

## 47.8.6 RMAN Based RAC One Node Database with Standby Service Template .json File

```
{
 "name": "RAC One Database Provisioning with RAC One Standby and SI Standby",
 "description": "Creates RAC One Databases with RAC One Standby and SI Standby.",

```

```

"serviceType": "DB",
"serviceTemplateTypeId": "81",
"rscProvAssocOption": [
 "byRscProvInst"
],
"resourceProvider": {
 "lookupCharacteristics": [
 {
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
 "values": [
 "647E8750A1C3835557165B499B269FB3"
],
 "targetType": {
 "targetType": "oracle_cloud_zone",
 "targetTypeName": "Database Pool",
 "parentTargetType": "self_service_zone",
 "parentTargetTypeName": "PaaS Infrastructure Zone"
 }
 }
],
 "purposeId": 1
 }
],
 "payloads": [
 {
 "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"
 }
],
 "configurations": [
 {
 "name": "STAGE_LOCATION",
 "value": "/scratch/emga/backups/rman/"
 },
 {
 "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"
 },
 {
 "name": "SELECT_ORACLE_HOME_OPTION",
 "value": "SELECT_ORACLE_HOME_FROM_REQUEST"
 },
 {
 "name": "REF_TGT",
 "value": "adc.example.com"
 },
 {
 "name": "REF_HOST",
 "value": "adc.example.com"
 },
 {
 "name": "REF_ZONE",
 "value": "Salt Lake City Zone"
 },
 {
 "name": "zoneTargetName",
 "value": "Salt Lake City Zone"
 },
 {
 "name": "REF_POOL",
 "value": "RAC Databases Pool"
 },
 {
 "name": "DATABASE_TYPE",
 "value": "rac_database"
 },
 {
 "name": "IS_RAC_ONE",
 "value": "Y"
 },
 {
 "name": "COMMON_DB_SYS_PASSWORD",
 "value": "welcome"
 },
 {
 "name": "LISTENER_PORT",
 "value": "1521"
 },
 {
 "name": "PROFILE_VERSION",
 "value": "latest"
 },
 {
 "name": "COMMON_DB_SID",

```

```

 "value": "db"},
 {"name": "TARGET_PROP_LIST",
 "values": [
 "Contact:9980697299:false:false",
 "Location:null:false:false",
 "LifeCycle Status:null:false:false",
 "Department:null:false:false",
 "Comment:null:false:false",
 "Line of Business:null:false:false"
]
 },
 {"name": "USER_PRIVILEGES",
 "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE"},
 {"name": "RMAN:DB_STORAGE_TYPE",
 "value": "FS"},
 {"name": "RMAN:FRA_SIZE",
 "value": "4038"},
 {"name": "RMAN:USE_ARCHIVING",
 "value": "NO"},
 {"name": "RMAN:DATA_FILE_LOCATION",
 "value": "/scratch/emga/app/emga/oradata"},
 {"name": "RMAN:WORK_DIR_LOC",
 "value": "/tmp/work"},
 {"name": "RMAN:DB_ADMIN_PASSWORD_SAME",
 "value": "Y"},
 {"name": "RMAN:DATABASE_PASSWORDS",
 "value": "welcome"},
 {"name": "RMAN:BACKUP_LOCATION",
 "value": "/oradbnas/backups/rman/"},
 {"name": "RMAN:USE_OFA",
 "value": "N"},
 {"name": "COMMON_DOMAIN_NAME",
 "value": "us.example.com"},
 {"name": "STANDBY_REQUIRED",
 "value": "true"},
 {"name": "STANDBY_DB_DETAILS",
 "value": "",
 "values": [
 "pool=SI Databases Zone - Oracle 11g -
Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standby
StorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;stand
byFRASize=;standbyLsnrPort=;domainName=us.example.com"
]
 }
]
}

```

---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below,  

```
oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```

 is the ID.
 

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceTemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

---

### 47.8.7 RMAN Based RAC Database with Single Instance Standby Service Template .json File

```
{
```

```
"name" : "Create Databases on RAC with SI Standby",
"description" : "Creates Databases on RAC.",
"serviceType" : "DB",
"serviceTemplateTypeId" : "81",
"rscProvAssocOption" : ["byRscProvInst"],
"resourceProvider" : {
 "lookupCharacteristics" : [{
 "characteristics" : [{
 "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
 "values" : ["647E8750A1C3835557165B499B269FB3"],
 "targetType" : {
 "targetType" : "oracle_cloud_zone",
 "targetTypeName" : "Database Pool",
 "parentTargetType" : "self_service_zone",
 "parentTargetTypeName" : "PaaS Infrastructure Zone"
 }
 }
]],
 "purposeId" : 1
}],
},
"payloads" : [{
 "name" : "PROFILE_COMPONENT_URN",
 "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"
}],
"configurations" : [{
 "name" : "STAGE_LOCATION",
 "value" : "/scratch/emga/backups/rman/"},
{ "name" : "PROFILE_COMPONENT_URN",
 "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1" },
{ "name": "SELECT_ORACLE_HOME_OPTION",
 "value": "SELECT_ORACLE_HOME_FROM_REQUEST" },
{ "name" : "REF_TGT",
 "value" : "adc.us.example.com"},
{ "name" : "REF_HOST",
 "value" : "adc.us.example.com"},
{ "name" : "REF_ZONE",
 "value" : "Salt Lake City Zone"},
{ "name" : "zoneTargetName",
 "value" : "Salt Lake City Zone"},
{ "name" : "REF_POOL",
 "value" : "RAC Databases Pool"},
{ "name" : "DATABASE_TYPE",
 "value" : "oracle_database"},
{ "name" : "COMMON_DB_SYS_PASSWORD",
 "value" : "welcome"},
{ "name" : "LISTENER_PORT",
 "value" : "1521"},
{ "name" : "PROFILE_VERSION",
 "value" : "latest"},
{ "name" : "COMMON_DB_SID",
 "value" : "db"},
{ "name" : "TARGET_PROP_LIST",
 "values" : ["Contact:9980697299:false:false", "Location:null:false:false",
"LifeCycle Status:null:false:false", "Department:null:false:false",
"Comment:null:false:false", "Line of Business:null:false:false"] },
{ "name" : "USER_PRIVILEGES",
 "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE" },
```



```

 {"name" : "RMAN:DB_STORAGE_TYPE",
 "value" : "FS"},
 {"name" : "RMAN:FRA_SIZE",
 "value" : "4038"},
 {"name" : "RMAN:USE_ARCHIVING",
 "value" : "NO"},
 {"name" : "RMAN:DATA_FILE_LOCATION",
 "value" : "/scratch/emga/app/emga/oradata"},
 {"name" : "RMAN:WORK_DIR_LOC",
 "value" : "/tmp/work"},
 {"name" : "RMAN:DB_ADMIN_PASSWORD_SAME",
 "value" : "Y"},
 {"name" : "RMAN:DATABASE_PASSWORDS",
 "value" : "welcome"},
 {"name" : "RMAN:BACKUP_LOCATION",
 "value" : "/oradbnas/backups/rman/"},
 {"name" : "RMAN:USE_OFA",
 "value" : "N"},
 {"name" : "COMMON_DOMAIN_NAME",
 "value" : "us.example.com"},
 {"name": "CUSTOM_PRE_CREATE_SCRIPTS_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},
 {"name": "CUSTOM_POST_CREATE_SCRIPTS_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},
 {"name": "STANDBY_REQUIRED",
 "value": "true"},
 {"name": "STANDBY_DB_DETAILS",
 "value": "",
 "values": [
 "pool=SI Databases Zone - Oracle 11g -
Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standby
StorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;stand
byFRASize=;standbyLsnrPort=;domainName=us.example.com"
]
 }
]
}

```

---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.
- ```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
 - To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
 - To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/service templates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
 - REF_ZONE indicates the reference zone among the zones to be associated with the template.
 - REF_POOL indicates the reference pool among the pools to be associated with the template.
 - REF_HOST indicates the host of the reference target from the pool targets.
 - REF_TGT indicates the reference target from the pool targets.
 - SELECT_ORACLE_HOME_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

47.8.8 RAC Database with Standby Using a DBCA Template Service Template .json File

```
{
  "name": "Create RAC Db with Standby using DBCA Template - BofA -ASM",
  "description": "Service Template for Non-CDB; 12cR1_2(12.1.0.2); RAC; ASM",
```

```

"serviceType": "DB",
"serviceTemplateTypeId": "61",
"rscProvAssocOption": [
  "byRscProvInst"
],
"roles": [
  "SSAUSERROLE"
],
"resourceProvider": {
  "lookupCharacteristics": [
    {
      "characteristics": [
        {
          "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
          "values": [
            "4C5795E605D71F59BAF9F6AD702E25E1"
          ],
          "targetType": {
            "targetType": "oracle_cloud_zone",
            "targetTypeName": "Database Pool",
            "parentTargetType": "self_service_zone",
            "parentTargetTypeName": "PaaS Infrastructure Zone"
          }
        }
      ],
      "purposeId": 1
    }
  ],
  "payloads": [
    {
      "name": "PROFILE_COMPONENT_URN",
      "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:246E84D11ED13BD0E050F90AE5852BC8:0.1"
    }
  ],
  "configurations": [
    {
      "name": "REF_ZONE",
      "value": "Clusters Zone - Oracle DB 12c"
    },
    {
      "name": "REF_HOST",
      "value": "xyz.example.com"
    },
    {
      "name": "REF_POOL",
      "value": "RAC Databases Pool_Oracle_DB_12c"
    },
    {
      "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE",
      "value": "ASM"
    },
    {
      "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_FILES",
      "value": "Y"
    },
    {
      "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE",
      "value": "N"
    }
  ]
}

```

```

    },
    {
      "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE",
      "value": "4038"
    },
    {
      "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION",
      "value": "DATA"
    },
    {
      "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION",
      "value": "DATA1"
    },
    {
      "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION",
      "value": "DATA1"
    },
    {
      "name": "DATABASE_TYPE",
      "value": "rac_database"
    },
    {
      "name": "INSTANCE_COUNT",
      "value": "2"
    },
    {
      "name": "COMMON_DOMAIN_NAME",
      "value": "us.example.com"
    },
    {
      "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE",
      "values": [
        "DBCA_TEMPLATE"
      ]
    },
    {
      "name": "ENTITY_TYPE",
      "value": "USE_PROFILE"
    },
    {
      "name": "REF_TGT",
      "value": "xyz.example.com"
    },
    {
      "name": "SID_OPTION",
      "value": "prefix"
    },
    {
      "name": "PROFILE_COMPONENT_URN",
      "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:246E84D11ED13BD0E050F90AE5852BC8:0.1"
    },
    {
      "name": "PROFILE_VERSION",
      "value": "latest"
    },
    {
      "name": "USER_PRIVILEGES",
      "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB,

```

```

CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY"
    },
    {
      "name": "COMMON_DB_SID",
      "value": "RFTDB"
    },
    {
      "name": "INIT_PARAMS",
      "subconfigurations": [
        "sga_target=1073741824",
        "pga_aggregate_target=1073741824"
      ]
    },
    {
      "name": "SELECT_ORACLE_HOME_OPTION",
      "value": "SELECT_ORACLE_HOME_AT_RUNTIME"
    },
    {
      "name": "COMMON_DB_SYS_PASSWORD",
      "value": "welcome1"
    },
    {
      "name": "DB_ADMIN_PASSWORD_SAME",
      "value": "true"
    },
    {
      "name": "LISTENER_PORT",
      "value": "1521"
    },
    {
      "name": "STANDBY_REQUIRED",
      "value": "true"
    },
    {
      "name": "STANDBY_DB_DETAILS",
      "value": "",
      "values": [
        "pool=SI Databases Zone - Oracle 11g -
Standby;databaseSIDPrefix=st;databaseType=oracle_database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=;standby
StorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFRALocation=;stand
byFRASize=;standbyLsnrPort=;domainName=us.example.com"
      ]
    },
    {
      "name": "DATABASE_SIZES",
      "values": [
        "Big",
        "Small"
      ]
    },
    {
      "name": "DEFAULT_DATABASE_SIZE",
      "value": "Big"
    }
  ]
}

```

Note: In the JSON body mentioned above:

- To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.


```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/service templates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF_ZONE indicates the reference zone among the zones to be associated with the template.
- REF_POOL indicates the reference pool among the pools to be associated with the template.
- REF_HOST indicates the host of the reference target from the pool targets.
- REF_TGT indicates the reference target from the pool targets.
- SELECT_ORACLE_HOME_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

47.8.9 DNFS Based Database Service Template .json File

```
{
  "name" : "DB Clones",
  "description" : "This clones a database based on NFS.",

```

```

"serviceType" : "DB",
"serviceTemplateTypeId" : "81",
"rscProvAssocOption" : [ "byRscProvInst" ],
"resourceProvider" : {
  "lookupCharacteristics" : [ {
    "characteristics" : [ {
      "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
      "values" : [ "1898CF93BD39C19BF032672271BC4B44" ],
      "targetType" : {
        "targetType" : "oracle_cloud_zone",
        "targetTypeName" : "Database Pool",
        "parentTargetType" : "self_service_zone",
        "parentTargetTypeName" : "PaaS Infrastructure Zone"
      }
    }
  ] ],
  "purposeId" : 1
} ],
},
"payloads" : [ {
  "name" : "PROFILE_COMPONENT_URN",
  "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"
} ],
"configurations" : [ {
  "name" : "STAGE_LOCATION",
  "value" : "/scratch/emga/backups/rman/"
}, {
  "name" : "PROFILE_COMPONENT_URN",
  "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"
}, {
  "name" : "SELECT_ORACLE_HOME_OPTION",
  "value" : "SELECT_ORACLE_HOME_FROM_REQUEST"
}, {
  "name" : "REF_TGT",
  "value" : "abc.example.com"
}, {
  "name" : "REF_HOST",
  "value" : "abc.example.com"
}, {
  "name" : "REF_ZONE",
  "value" : "Salt Lake City Zone"
}, {
  "name" : "zoneTargetName",
  "value" : "Salt Lake City Zone"
}, {
  "name" : "REF_POOL",
  "value" : "Databases Pool"
}, {
  "name" : "DATABASE_TYPE",
  "value" : "oracle_database"
}, {
  "name" : "COMMON_DB_SYS_PASSWORD",
  "value" : "welcome"
}, {
  "name" : "LISTENER_PORT",
  "value" : "1521"
}, {
  "name" : "PROFILE_VERSION",
  "value" : "latest"
}, {
  "name" : "COMMON_DB_SID",
  "value" : "db"
}, {
  "name" : "TARGET_PROP_LIST",
  "values" : [ "Contact:9980697299:false:false", "Location:null:false:false",
"LifeCycle Status:null:false:false", "Department:null:false:false",
"Comment:null:false:false", "Line of Business:null:false:false" ]
}, {
  "name" : "USER_PRIVILEGES",
  "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE"
}, {
  "name" : "DNFS.DATA_FILE_LOCATION",
  "value" : "/scratch/emga/app/emga/oradata"
}

```

```
{
  "name" : "DNFS.REDO_FILE_LOCATION",
  "value" : "/scratch/emga/app/emga/fast_recovery_area"}
{"name" : "DNFS.RECOVERY_FILE_LOCATION",
 "value" : "/scratch/emga/app/emga/fast_recovery_area"}
{"name" : "DNFS.FRA_SIZE",
 "value" : "4038"}
{"name" : "DNFS.USE_ARCHIVING",
 "value" : "YES"}
{"name" : "DNFS.WORK_DIR_LOC",
 "value" : "/tmp/work"}
{"name" : "DNFS.DB_ADMIN_PASSWORD_SAME",
 "value" : "Y"}
{"name" : "DNFS.BACKUP_LOCATION",
 "value" : "/scratch/emga/backups/rman_image/"}
{"name" : "DNFS.USE_OFA",
 "value" : "N"}
{"name" : "COMMON_DOMAIN_NAME",
 "value" : "us.example.com"} ]
}
```

Note: In the JSON body mentioned above:

- To get the software library ID of the "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN" and "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.
- ```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
  - To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
  - To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceTemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
  - REF\_ZONE indicates the reference zone among the zones to be associated with the template.
  - REF\_POOL indicates the reference pool among the pools to be associated with the template.
  - REF\_HOST indicates the host of the reference target from the pool targets.
  - REF\_TGT indicates the reference target from the pool targets.
  - SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

---

## 47.8.10 Snap Clone Single Instance Database with Archiving Enabled Service Template .json File

```
{
```

```

"name" : "Create Snap Database using Snapshots",
"description" : "Creates Databases on SI hosts.",
"serviceType" : "DB",
"serviceTemplateTypeId" : "81",
"rscProvAssocOption" : ["byRscProvInst"],
"resourceProvider" : {
 "lookupCharacteristics" : [{
 "characteristics" : [{
 "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
 "values" : ["503073C7912B1C65B66E240C433012A9"],
 "targetType" : {
 "targetType" : "oracle_cloud_zone",
 "targetTypeName" : "Database Pool",
 "parentTargetType" : "self_service_zone",
 "parentTargetTypeName" : "PaaS Infrastructure Zone"
 }
 }
]],
 "purposeId" : 1
}],
},
"payloads" : [{
 "name" : "PROFILE_COMPONENT_URN",
 "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:247BF4B378FF253FE053C075B10A794A:0.1"
}],
"configurations" : [{
 "name" : "STAGE_LOCATION",
 "value" : "/scratch/emga/backups/rman/"
}, {
 "name" : "PROFILE_COMPONENT_URN",
 "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:247BF4B378FF253FE053C075B10A794A:0.1"
}, {
 "name" : "REF_TGT",
 "value" : "xyz.example.com"
}, {
 "name" : "REF_HOST",
 "value" : "xyz.example.com"
}, {
 "name" : "REF_ZONE",
 "value" : "Single Instances Zone"
}, {
 "name" : "zoneTargetName",
 "value" : "Single Instances Zone"
}, {
 "name" : "REF_POOL",
 "value" : "SI Databases Pool - Version 11_2_0_4"
}, {
 "name" : "DATABASE_TYPE",
 "value" : "oracle_database"
}, {
 "name" : "COMMON_DB_SYS_PASSWORD",
 "value" : "welcome"
}, {
 "name" : "LISTENER_PORT",
 "value" : "1521"
}, {
 "name" : "PROFILE_VERSION",
 "value" : "latest"
}, {

```

```

 "name" : "COMMON_DB_SID",
 "value" : "db"
 }, {
 "name" : "TARGET_PROP_LIST",
 "values" : ["Contact:9980697299:false:false", "Location:null:false:false",
"LifeCycle Status:null:false:false", "Department:null:false:false",
"Comment:null:false:false", "Line of Business:null:false:false"]
 }, {
 "name" : "USER_PRIVILEGES",
 "value" : "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE"
 }, {
 "name" : "THIN_PROVISIONING:LISTENER_PORT",
 "value" : "1522"
 }, {
 "name" : "THIN_PROVISIONING:REDO_LOG_GROUP_COUNT",
 "value" : "2"
 }, {
 "name" : "THIN_PROVISIONING:TEMP_TABLESPACE_SIZE",
 "value" : "520"
 }, {
 "name" : "THIN_PROVISIONING:USE_ARCHIVING",
 "value" : "YES"
 }, {
 "name" : "THIN_PROVISIONING:MOUNT_POINT_LIST",
 "values" : ["/hkdb"]
 }, {
 "name" : "THIN_PROVISIONING:MOUNT_ADDL_SIZE_LIST",
 "values" : ["5.0"]
 }, {
 "name" : "THIN_PROVISIONING:REDO_LOG_FILE_TYPE",
 "value" : "Same as source"
 }, {
 "name" : "INIT_PARAMS",
 "values" : ["sga_target=1073741824", "pga_aggregate_target=1073741824"]
 }, {
 "name" : "COMMON_DOMAIN_NAME",
 "value" : "us.example.com"
 }]
}

```

---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "DBAAS\_SSA\_CUSTOM\_PRE\_SCRIPTS\_URN" and "DBAAS\_SSA\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "values" (under "lookupCharacteristics"), execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/service templates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as `SELECT_ORACLE_HOME_AT_RUNTIME`, or to be selected by the SSA user by entering the value as `SELECT_ORACLE_HOME_FROM_REQUEST`.

These parameters are mandatory and are required to identify the reference target to create the database.

---

### 47.8.11 Schema Based Service Template .json File

```
{
 "name": "TestSchaasTemplate3",
 "serviceType": "SCHEMA",

```

```

"serviceFamily":"DBAAS",
"description":"This is a test schaas service template 1",
"poolIds":["9D3187DE6B1115791D71D2827FB98558"],
"roles":[
 { "name":"SSA_USER_ROLE1" }
],
 "serviceExecutableMeta":{
"type":"CDP",
"configurations":[
 { "name":"ROLE_NAME", "value":"SampleRole" },
 { "name":"MAX_NUMBER_OF_SCHEMAS", "value":"2" },
 { "name":"ENFORCE_STORAGE_CONSTRAINT", "value":"NO_LIMIT" },
 { "name":"AUTO_EXTEND_BLOCK_SIZE", "value":"1024" },
 { "name":"REF_ZONE", "value":"ABC_ZONE" },
 { "name":"REF_POOL", "value":"SCH_POOL" },
 { "name":"REF_HOST", "value":"abc.mycompany.com" },
 { "name":"REF_DB", "value":"simple.us.example.com" },
 { "name":"CREATE_SCHEMA_OPTION", "value":"EMPTY_SCHEMAS" },
 { "name":"SCHAAS_CUSTOM_PRE_SCRIPTS_
URN", "value":"oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},
 { "name":"SCHAAS_CUSTOM_POST_SCRIPTS_
URN", "value":"oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},
 {
 "name":"REMAP_TABLESPACE_LIST",
 "value":"",
 "values":["TBSP1", "TBSP2", "TBSP3"]
 },
 {
 "name":"REMAP_TABLESPACE_INIT_SIZE_LIST",
 "value":"",
 "values":["TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3"]
 },
 {
 "name":"REMAP_TABLESPACE_INCR_SIZE_LIST",
 "value":"",
 "values":["TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3"]
 },
 {
 "name":"REMAP_TABLESPACE_MAX_SIZE_LIST",
 "value":"",
 "values":["TBSP1:50.0", "TBSP2:30", "TBSP3:20"]
 },
 { "name":"CREATE_SCHEMA_OPTION", "value":"EMPTY_SCHEMAS" },
 {
 "name":"WORKLOADS",
 "subconfigurations":[
 {
 "name":"WORK_LOADS:1",
 "subconfigurations":[
 { "name":"name", "value":"large " },
 { "name":"description", "value":"large workload" },
 { "name":"default", "value":"Y" },
 { "name":"CPU", "value":"6" },
 { "name":"Memory", "value":"4048" },
 { "name":"Storage", "value":"2024" }
]
 }
]
 }
]

```

```

]
}
]
}
}

```

## 47.8.12 Pluggable Database Service Template .json File

```

{
 "name": "TestPdbTemplate1",
 "serviceType": "PDB",
 "serviceFamily": "DBAAS",
 "description": "This is a test pluggable database service template 1",
 "poolIds": ["FF394120842D8C71CC92BE6A4D5A488E"],
 "roles": [
 { "name": "SSA_USER_ROLE1" }
],
 "serviceExecutableMeta": {
 "type": "CDP",
 "configurations": [
 {
 "name": "TABLESPACE_ENCRYPTION_ALGORITHM",
 "subconfigurations": [
 { "name": "name", "value": "NONE" }
]
 },
 { "name": "MAX_TABLESPACE_ALLOWED", "value": "2" },
 { "name": "PDB_SID_PREFIX", "value": "mypdb" },
 { "name": "ENFORCE_STORAGE_CONSTRAINT", "value": "NO_LIMIT" },
 { "name": "AUTO_EXTEND_BLOCK_SIZE", "value": "1024" },
 { "name": "REF_DATA_ZONE", "value": "PDB_Zone" },
 { "name": "REF_DATA_TARGET", "value": "database" },
 { "name": "REF_DATA_TARGET_TYPE", "value": "oracle_database" },
 { "name": "REF_DATA_POOL", "value": "PDB_POOL" },
 { "name": "REF_DATA_HOST", "value": "abc.mycompany.com" },
 { "name": "SELECT_TARGET_OPTION", "value": "SELECT_TARGET_FROM_REQUEST" },
 { "name": "CREATE_PDB_OPTION", "value": "EMPTY_PDB" },
 { "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1" },
 { "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1" },
 { "name": "PRIVILEGES",
 "value": "",
 "values": ["CREATE TYPE", "CREATE VIEW", "CREATE DIMENSION", "CREATE SESSION", "CREATE TRIGGER", "CREATE OPERATOR", "CREATE SYNONYM", "CREATE TABLE", "CREATE PROCEDURE", "CREATE INDEXTYPE", "CREATE SEQUENCE"]
 },
 { "name": "ROLE_OPTION", "value": "CUSTOM_NEW_ROLE" },
 {
 "name": "INIT_PARAMS",
 "subconfigurations": [
 { "name": "INIT_PARAMS:1", "value": "*cursor_sharing=EXACT" },
 { "name": "INIT_PARAMS:2", "value": "*open_cursors=200" }
]
 },
 {
 "name": "WORKLOADS",
 "subconfigurations": [

```

```
{
 "name": "WORK_LOADS:1",
 "subconfigurations": [
 { "name": "name", "value": "SmallPdb" },
 { "name": "description", "value": "small workload" },
 { "name": "default", "value": "N" },
 { "name": "CPU", "value": "2" },
 { "name": "Memory", "value": "2048" },
 { "name": "Storage", "value": "1024" },
 { "name": "Sessions", "value": "100" }
]
}
]
```

---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "PDBAAS\_CUSTOM\_PRE\_SCRIPTS\_URN" and "PDBAAS\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_DATA\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/service templates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_DATA\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_DATA\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_DATA\_HOST indicates the host of the reference target from the pool targets.
- REF\_DATA\_TARGET indicates the reference target from the pool targets.
- In the table above, the SELECT\_TARGET\_OPTION parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

These parameters are mandatory and are required to identify the reference target to create the database.

---



### 47.8.13 RAC Pluggable Database Using an Empty Pluggable Database Service Template .json File

```
{
 "name": "Create RAC PDBs using empty PDB option",
 "description": "Creates PDBs on cluster.",
 "serviceType": "PDB",
 "serviceTemplateTypeId": "94",
 "rscProvAssocOption": [
 "byRscProvInst"
],
 "roles": [
 "SSA_USER_ROLE"
],
 "resourceProvider": {
 "lookupCharacteristics": [
 {
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",
 "values": [
 "DFB8F2A53429AF99EF2020C56E11FEE9"
],
 "targetType": {
 "targetType": "pdbaas_pool",
 "targetTypeName": "Pluggable Database Pool",
 "parentTargetType": "self_service_zone",
 "parentTargetTypeName": "PaaS Infrastructure Zone"
 }
 }
]
 },
 {
 "purposeId": 1
 }
]
 },
 "payloads": [
 {
 "name": "DBDELETE_PRESCRIPT",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D511C1CFFE053C075B10AEF2D:0.1"
 },
 {
 "name": "DBDELETE_POSTSCRIPT",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D51201CFFE053C075B10AEF2D:0.1"
 }
],
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
 "displayName": "Department",
 "value": "Development",
 "required": true,
 "editable": false,
 "visible": true
 },
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
 "displayName": "Location",
 "values": "Bangalore",

```

```

 "required": false,
 "editable": true,
 "visible": true
 }
],
"configurations": [
 {
 "name": "REF_DATA_ZONE",
 "value": "Single Instances Zone"
 },
 {
 "name": "SELECT_TARGET_OPTION",
 "value": "SELECT_TARGET_FROM_REQUEST"
 },
 {
 "name": "CUSTOM_ROLE_NAME",
 "value": "PDBAAS_NOV_13_2015_16_51_PM"
 },
 {
 "name": "TARGET_PROP_LIST",
 "values": [
 "Site:null:false:false",
 "Contact:null:false:false",
 "Downtime Contact:null:false:false",
 "Location:null:false:false",
 "LifeCycle Status:null:false:false",
 "Department:Development:true:true",
 "Comment:This is for testing:false:false",
 "Line of Business:null:false:false"
]
 },
 {
 "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:2469CA4C8C7B4E34E053C075B10A74AD:0.2"
 },
 {
 "name": "WORKLOADS",
 "subvalues": [
 {
 "name": "Small",
 "subvalues": [
 {
 "name": "name",
 "value": "SmallPdb"
 },
 {
 "name": "description",
 "value": "small workload"
 }
]
 },
 {
 "name": "default",
 "value": "N"
 },
 {
 "name": "CPU",
 "value": "2"
 },
 {
 "name": "Memory",

```

```

 "value": "2"
 },
 {
 "name": "Storage",
 "value": "5"
 },
 {
 "name": "Sessions",
 "value": "100"
 }
]
 },
 {
 "name": "PRIVILEGES",
 "type": "VECTOR",
 "description": "List of privileges of custom new role that will be applied
on pluggable database administrator.",
 "displayName": "PRIVILEGES",
 "required": false,
 "secret": false,
 "values": [
 "CREATE SESSION",
 "ALTER SESSION",
 "CREATE DIMENSION",
 "CREATE INDEXTYPE",
 "CREATE ANY OPERATOR",
 "CREATE ANY PROCEDURE",
 "CREATE ANY SEQUENCE",
 "CREATE ANY INDEX",
 "CREATE JOB",
 "CREATE ANY MATERIALIZED VIEW",
 "CREATE ANY TABLE",
 "CREATE ANY TRIGGER",
 "CREATE ANY TYPE",
 "CREATE ANY VIEW",
 "CREATE ANY SYNONYM",
 "CREATE ANY DIRECTORY",
 "SELECT ANY DICTIONARY",
 "SELECT ANY TABLE"
]
 },
 {
 "name": "REF_DATA_TARGET_TYPE",
 "value": "rac_database"
 },
 {
 "name": "REF_DATA_ZONE",
 "value": "Clusters Zone - Oracle DB 12c"
 },
 {
 "name": "REF_DATA_HOST",
 "value": "xyz.example.com"
 },
 {
 "name": "REF_DATA_TARGET",
 "value": "cdbfs"
 },
 {

```

```
 "name": "REF_DATA_POOL",
 "value": "RAC Pluggable DBs"
 },
 {
 "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:2469CA4C8C7F4E34E053C075B10A74AD:0.2"
 },
 {
 "name": "SELECT_TARGET_OPTION",
 "value": "SELECT_TARGET_AT_RUNTIME"
 },
 {
 "name": "MAX_TABLESPACE_ALLOWED",
 "value": "1"
 },
 {
 "name": "ROLE_OPTION",
 "value": "CUSTOM_NEW_ROLE"
 },
 {
 "name": "CREATE_PDB_OPTION",
 "value": "EMPTY_PDB"
 }, {
 "name": "INIT_PARAMS",
 "values": [
 "*.cursor_sharing=EXACT",
 "*.open_cursors=300"
]
 }
]
}
```

---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "PDBAAS\_CUSTOM\_PRE\_SCRIPTS\_URN" and "PDBAAS\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```

- To derive the REF\_DATA\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_DATA\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_DATA\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_DATA\_HOST indicates the host of the reference target from the pool targets.
- REF\_DATA\_TARGET indicates the reference target from the pool targets.
- In the table above, the SELECT\_TARGET\_OPTION parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as SELECT\_TARGET\_FROM\_REQUEST, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to SELECT\_TARGET\_AT\_RUNTIME, then the placement algorithm selects the CDB.

These parameters are mandatory and are required to identify the reference target to create the database.

---

## 47.8.14 RAC Pluggable Database Using a Profile Pluggable Database Service Template .json File

```
{
 "name": "Create RAC PDBs using Profile PDB option",
 "description": "Creates PDBs on cluster.",
 "serviceType": "PDB",
 "serviceTemplateTypeId": "94",
 "rscProvAssocOption": [
 "byRscProvInst"
],
 "roles": [
 "SSA_USER_ROLE"
],
 "resourceProvider": {
 "lookupCharacteristics": [
 {
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",
 "values": [
 "DFB8F2A53429AF99EF2020C56E11FEE9"
],
 "targetType": {
 "targetType": "pdbaas_pool",
 "targetTypeName": "Pluggable Database Pool",
 "parentTargetType": "self_service_zone",
 "parentTargetTypeName": "PaaS Infrastructure Zone"
 }
 }
]
 },
 {
 "purposeId": 1
 }
]
 },
 "payloads": [
 {
 "name": "DBDELETE_PRESCRIPT",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D511C1CFE053C075B10AEF2D:0.1"
 },
 {
 "name": "DBDELETE_POSTSCRIPT",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:246A484D51201CFE053C075B10AEF2D:0.1"
 }
],
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
 "displayName": "Contact",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true
 },
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
 "displayName": "Cost Center",
 "values": []
 }
]
}
```

```

 "required": false,
 "editable": true,
 "visible": true
 },
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
 "displayName": "Department",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true
 },
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DOWNTIME_CONTACT",
 "displayName": "Downtime Contact",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true
 },
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
 "displayName": "Lifecycle Status",
 "values": [
 "Development",
 "MissionCritical",
 "Production",
 "Stage",
 "Test"
],
 "required": false,
 "editable": true,
 "visible": true
 },
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
 "displayName": "Line of Business",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true
 },
 {
 "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
 "displayName": "Location",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true
 }
],
"configurations": [
 {
 "name": "REF_DATA_ZONE",
 "value": "Single Instances Zone"
 },
 {
 "name": "SELECT_TARGET_OPTION",
 "value": "SELECT_TARGET_FROM_REQUEST"
 }
],

```

```

 {
 "name": "TARGET_PROP_LIST",
 "values": [
 "Site:null:false:false",
 "Contact:null:false:false",
 "Downtime Contact:null:false:false",
 "Location:null:false:false",
 "LifeCycle Status:null:false:false",
 "Department:Development:true:true",
 "Comment:This is for testing:false:false",
 "Line of Business:null:false:false"
]
 },
 {
 "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:2469CA4C8C7B4E34E053C075B10A74AD:0.2"
 },
 {
 "name": "WORKLOADS",
 "subvalues": [
 {
 "name": "Small",
 "subvalues": [
 {
 "name": "name",
 "value": "SmallPdb"
 },
 {
 "name": "description",
 "value": "small workload"
 },
 {
 "name": "default",
 "value": "N"
 },
 {
 "name": "CPU",
 "value": "2"
 },
 {
 "name": "Memory",
 "value": "2"
 },
 {
 "name": "Storage",
 "value": "5"
 },
 {
 "name": "Sessions",
 "value": "100"
 }
]
 }
]
 },
 {
 "name": "ROLE_OPTION",
 "value": "CUSTOM_NEW_ROLE"
 },
],
 {
 "name": "ROLE_OPTION",
 "value": "CUSTOM_NEW_ROLE"
 },

```



```

{
 "name": "CUSTOM_ROLE_NAME",
 "value": "PDBAAS_NOV_13_2015_16_51_PM"
},
{
 "name": "CUSTOM_ROLE_DESC",
 "value": "New db role to be assigned to pluggable database administrator."
},
{
 "name": "PRIVILEGES",
 "values": [
 "CREATE SESSION",
 "ALTER SESSION",
 "CREATE DIMENSION",
 "CREATE INDEXTYPE",
 "CREATE ANY OPERATOR",
 "CREATE ANY PROCEDURE",
 "CREATE ANY SEQUENCE",
 "CREATE ANY INDEX",
 "CREATE JOB",
 "CREATE ANY MATERIALIZED VIEW",
 "CREATE ANY TABLE",
 "CREATE ANY TRIGGER",
 "CREATE ANY TYPE",
 "CREATE ANY VIEW",
 "CREATE ANY SYNONYM",
 "CREATE ANY DIRECTORY",
 "SELECT ANY DICTIONARY",
 "SELECT ANY TABLE"
]
},
{
 "name": "REF_DATA_TARGET_TYPE",
 "value": "rac_database"
},
{
 "name": "REF_DATA_ZONE",
 "value": "Clusters Zone - Oracle DB 12c"
},
{
 "name": "REF_DATA_HOST",
 "value": "xyz.example.com"
},
{
 "name": "REF_DATA_TARGET",
 "value": "cdbfs"
},
{
 "name": "REF_DATA_POOL",
 "value": "RAC Pluggable DBs"
},
{
 "name": "PDBAAS_CUSTOM_POST_SCRIPTS_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_
Directives:none:2469CA4C8C7F4E34E053C075B10A74AD:0.2"
},
{
 "name": "SELECT_TARGET_OPTION",
 "value": "SELECT_TARGET_AT_RUNTIME"
},

```

```
{
 "name": "MAX_TABLESPACE_ALLOWED",
 "value": "1"
},
{
 "name": "CREATE_PDB_OPTION",
 "value": "PDB_FROM_PROFILE"
},
{
 "name": "PROFILE_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:246C1E85296C29A1E053C075B10A7DFA:0.1"
},
{
 "name": "SHARED_STAGE_LOCATION",
 "value": "/u04/app/hhkaur/product/12.1.0/dbhome_2/rdbms/xml/schema"
},
{
 "name": "TABLESPACE_SIZE",
 "values": [
 "0.7715",
 "0.6152",
 "0.0586",
 "0.0049"
]
},
{
 "name": "INIT_PARAMS",
 "values": [
 "/*.cursor_sharing=EXACT",
 "/*.open_cursors=300"
]
},
{
 "name": "PDB_SID_PREFIX",
 "value": "prp"
}
]
```

---

**Note:** In the JSON body mentioned above:

- To get the software library ID of the "PDBAAS\_CUSTOM\_PRE\_SCRIPTS\_URN" and "PDBAAS\_CUSTOM\_POST\_SCRIPTS\_URN" run the EM CLI command `emcli list_swlib_entities -name="<Pre or Post Standby Database Script>" -show_entity_rev_id`. The ID is provided at the end of the output. For example, in the output shown below, `oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1` is the ID.  
  

```
Pre or Post Standby Database Script,0.1,Pre or Post Standby
Database
Script,Ready,Directives,,Production,ORACLE,,oracle:defaultServ
ice:em:provisioning:1:cmp:COMP_
Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1
```
- To derive the REF\_DATA\_ZONE to be associated with the Service template, execute a GET request as shown in [Section 46.4.1, "Cloud Resource"](#).
- To derive the ID of the Software Pool that needs to be entered as "poolIds", execute a GET request as shown in [Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"](#).
- To derive the serviceTemplateTypeId value, perform a GET operation on the URI - `em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceTemplates/templatetypes` and locate `serviceType:DB` in the JSON response. Note the `serviceTemplateTypeId` under `serviceType:DB` and use the value in the POST body shown above.
- REF\_DATA\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_DATA\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_DATA\_HOST indicates the host of the reference target from the pool targets.
- REF\_DATA\_TARGET indicates the reference target from the pool targets.
- In the table above, the SELECT\_TARGET\_OPTION parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

These parameters are mandatory and are required to identify the reference target to create the database.

---

### 47.8.15 Clone DB Based Service Template .json File

```
{
```

```

"type": "CDP",
"configurations": [
 {
 "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_DbProfile:E9F67B964802DD32E040F20A60514EB5:0.1" },
 {
 "name": "DATABASE_TYPE", "value": "oracle_database" },
 {
 "name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome" },
 {
 "name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome" },
 {
 "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" },
 {
 "name": "COMMON_DB_SID", "value": "norm" },
 {
 "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" },
 {
 "name": "LISTENER_PORT", "value": "1521" },
 {
 "name": "STAGE_LOCATION", "value": "/tmp/rman_backup/backup1383140909156" },
 {
 "name": "REF_ZONE", "value": "SLC01HZK_ZONE" },
 {
 "name": "SID_OPTION", "value": "ssauser" },
 {
 "name": "COMMON_DB_SID", "value": "mydb1" },
 {
 "name": "REF_POOL", "value": "PRIMARY_DB2" },
 {
 "name": "REF_HOST", "value": "xyxy.example.com" },
 {
 "name": "REF_TGT", "value": "xxxy.example.com" },
 {
 "name": "ROLE_NAME", "value": "ROLE_Oct_31_2014_17_59_PM" },
 {
 "name": "ROLE_DESC", "value": "New database role to be assigned to master account." },
 {
 "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY DICTIONARY" },
 {
 "name": "DEFAULT_DATABASE_SIZE", "value": "small" },
 {
 "name": "DATABASE_SIZES", "value": "", "values": ["small", "medium"] },
 {
 "name": "ENTITY_TYPE", "value": "USE_PROFILE" },
 {
 "name": "PROFILE_VERSION", "value": "latest" },
 {
 "name": "TARGET_PROP_LIST", "value": "",
 "values": [
 "Department:value:false:false",
 "Location:null:false:false",
 "Comment:null:false:false",
 "LifeCycle Status:null:false:false",
 "Line of Business:null:false:false",
 "Contact:null:false:false"
]
 },
 {
 "name": "CUSTOM_TARGET_PROP_LIST", "value": "",
 "values": [
 "Department:value:false:false"
]
 },
 {
 "name": "RMAN:DB_STORAGE_TYPE", "value": "FS" },
 {
 "name": "RMAN:FRA_STORAGE_TYPE", "value": "FS" },
 {
 "name": "RMAN:DATA_FILE_LOCATION", "value": "/scratch/app/oracle/oradata" },
 {
 "name": "RMAN:RECOVERY_FILE_LOCATION", "value": "/scratch/app/oracle/fra" },
 {
 "name": "RMAN:REDO_FILE_LOCATION", "value": "/scratch/app/oracle/fra" },
 {
 "name": "RMAN:FRA_SIZE", "value": "5000" },
 {
 "name": "RMAN:REC_STORAGE_TYPE_SAME_AS_DB_FILES", "value": "Y" },
 {
 "name": "RMAN:ARCHIVE_LOG_MODE", "value": "Y" },
 {
 "name": "RMAN:FLASH_RECOVERY_AREA_SIZE", "value": "5000" },
 {
 "name": "CLONE_OR_FULL_DB", "value": "CLONE_DB" },
 {
 "name": "USER_INITIATED_BACKUP_LOCATION", "value": "/tmp" },
 {
 "name": "ALLOW_BACKUPS", "value": "true" },
 {
 "name": "MAX_BACKUPS_ALLOWED", "value": "7" },
 {
 "name": "STAGE_LOCATION", "value": "/tmp" },
 {
 "name": "RMAN:USE_ARCHIVING", "value": "Y" },

```

```

{
 "name": "INIT_PARAMS",
 "subconfigurations": [
 { "name": "INIT_PARAMS:1", "value": "sga_target=314572800" },
 { "name": "INIT_PARAMS:2", "value": "pga_aggregate_target=209715200" },
 { "name": "INIT_PARAMS:3", "value": "*.control_
files='/scratch/app/oracle/oradata/simple/control01.ctl','/scratch/app/oracle/fast
_recovery_area/simple/control02.ctl'" },
 { "name": "INIT_PARAMS:4", "value": "*.db_name='simple'" }
]
}

```

## 47.8.16 Full Clone Using an RMAN Duplicate Service Template .json File

```

{
 "type": "CDP",
 "configurations": [
 { "name": "DATABASE_TYPE", "value": "oracle_database" },
 { "name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome" },
 { "name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome" },
 { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" },
 { "name": "COMMON_DB_SID", "value": "norm" },
 { "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" },
 { "name": "LISTENER_PORT", "value": "1521" },
 { "name": "STAGE_LOCATION", "value": "/tmp/rman_backup/backup1383140909156" },
 { "name": "REF_ZONE", "value": "SLC01HZK_ZONE" },
 { "name": "SID_OPTION", "value": "ssauser" },
 { "name": "COMMON_DB_SID", "value": "mydb1" },
 { "name": "REF_POOL", "value": "PRIMARY_DB2" },
 { "name": "REF_HOST", "value": "xyxy.example.com" },
 { "name": "REF_TGT", "value": "xxxy.example.com" },
 { "name": "ROLE_NAME", "value": "ROLE_Oct_31_2014_17_59_PM" },
 { "name": "ROLE_DESC", "value": "New database role to be assigned to master account." },
 { "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE
INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE
ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY
TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY
DIRECTORY, SELECT ANY DICTIONARY" },
 { "name": "DEFAULT_DATABASE_SIZE", "value": "small" },
 { "name": "DATABASE_SIZES", "value": "", "values": ["small", "medium"] },
 { "name": "LIVE_CLONE_DATABASE_GUID", "value": "75D1AA10AE406B671F72A601AA8DC86F" },
 { "name": "ENTITY_TYPE", "value": "USE_DATABASE" },
 { "name": "LIVE_CLONE_TYPE", "value": "USE_FULLCLONE" },
 { "name": "SRC_HOST_CREDS", "value": "CREDNAME:OWNER" },
 { "name": "SRC_DB_CREDS", "value": "CREDNAME:OWNER" },
 { "name": "TARGET_PROP_LIST", "value": "",
 "values": [
 "Department:value:false:false",
 "Location:null:false:false",
 "Comment:null:false:false",
 "LifeCycle Status:null:false:false",
 "Line of Business:null:false:false",
 "Contact:null:false:false"
]
 },
 { "name": "CUSTOM_TARGET_PROP_LIST", "value": "",
 "values": [
 "Department:value:false:false"
]
 }
]
}

```

```

]
 },
 {
 "name": "INIT_PARAMS"
 "subconfigurations": [
 { "name": "INIT_PARAMS:1", "value": "sga_target=314572800" },
 { "name": "INIT_PARAMS:2", "value": "pga_aggregate_target=209715200" },
 { "name": "INIT_PARAMS:3", "value": "*.control_
files='/scratch/app/oracle/oradata/simple/control01.ctl','/scratch/app/oracle/fast
_recovery_area/simple/control02.ctl'" },
 { "name": "INIT_PARAMS:4", "value": "*.db_name='simple'" }
]
 }
]
}

```

## 47.8.17 Snapclone Database Using Live Clone Template on EMC Storage Service Template .json File

```

{
 "type": "CDP",
 "configurations": [
 { "name": "DATABASE_TYPE", "value": "oracle_database" },
 { "name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome" },
 { "name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome" },
 { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" },
 { "name": "COMMON_DB_SID", "value": "norm" },
 { "name": "COMMON_DOMAIN_NAME", "value": "us.example.com" },
 { "name": "LISTENER_PORT", "value": "1521" },
 { "name": "STAGE_LOCATION", "value": "/tmp/rman_backup/backup1383140909156"},
 { "name": "REF_ZONE", "value": "SLC01HZK_ZONE" },
 { "name": "SID_OPTION", "value": "ssauser" },
 { "name": "COMMON_DB_SID", "value": "mydb1" },
 { "name": "REF_POOL", "value": "PRIMARY_DB2" },
 { "name": "REF_HOST", "value": "xyxy.example.com" },
 { "name": "REF_TGT", "value": "xxxy.example.com" },
 { "name": "ROLE_NAME", "value": "ROLE_Oct_31_2014_17_59_PM" },
 { "name": "ROLE_DESC", "value": "New database role to be assigned to master account." },
],
 { "name": "USER_PRIVILEGES", "value": "CREATE SESSION, ALTER SESSION, CREATE
INDEXTYPE, CREATE ANY OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE
ANY INDEX, CREATE JOB, CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY
TRIGGER, CREATE ANY TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY
DIRECTORY, SELECT ANY DICTIONARY" },
 { "name": "DEFAULT_DATABASE_SIZE", "value": "small" },
 { "name": "DATABASE_SIZES", "value": "", "values": ["small", "medium"] },
 { "name": "LIVE_CLONE_DATABASE_GUID", "value": "75D1AA10AE406B671F72A601AA8DC86F" },
 { "name": "ENTITY_TYPE", "value": "USE_DATABASE" },
 { "name": "LIVE_CLONE_TYPE", "value": "USE_SNAPCLONE" },
 { "name": "SRC_HOST_CREDS", "value": "CREDNAME:OWNER" },
 { "name": "SRC_DB_CREDS", "value": "CREDNAME:OWNER" },
 { "name": "TARGET_PROP_LIST", "value": "",
 "values": [
 "Department:value:false:false",
 "Location:null:false:false",
 "Comment:null:false:false",
 "LifeCycle Status:null:false:false",
 "Line of Business:null:false:false",
 "Contact:null:false:false"
]
 }
}

```

```

{ "name": "CUSTOM_TARGET_PROP_LIST", "value": "",
 "values": [
 "Department:value:false:false"
]
},
{
 "name": "INIT_PARAMS",
 "subconfigurations": [
 { "name": "INIT_PARAMS:1", "value": "sga_target=314572800" },
 { "name": "INIT_PARAMS:2", "value": "pga_aggregate_target=209715200" },
 { "name": "INIT_PARAMS:3", "value": "*.control_
files='/scratch/app/oracle/oradata/simple/control01.ctl','/scratch/app/oracle/fast
_recovery_area/simple/control02.ctl'" },
 { "name": "INIT_PARAMS:4", "value": "*.db_name='simple'" }
]
}
]
}

```

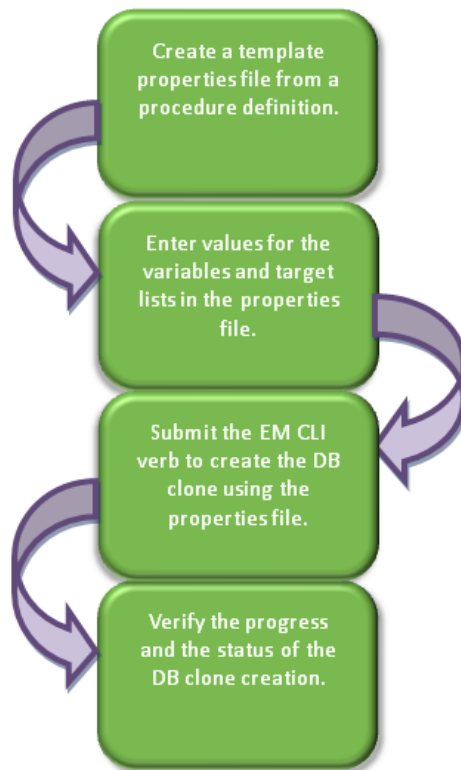
## 47.9 Creating a Database Clone Using EM CLI Verbs

This section describes the procedure to create a database clone using EM CLI verbs.

---

**Note:** The procedure to create a Test master database is the same as the procedure to be followed to create a database clone. However, the only difference is in the property file parameters used to create the clone when compared to the property file parameters for Test master database.

---

**Figure 47–5 Creating a Database Clone Using EM CLI Verbs**

Follow the steps below to create a database clone or a Test master database:

1. Create a template properties file from a procedure definition.

There are two approaches for creating a template properties file. Follow either method 1 or method 2 (given below).

- **Method 1: Using Enterprise Manager UI to create a clone of a database and generate the properties file from it**

To create a template properties file follow the steps below:

- a. Create a database clone via the Enterprise Manager UI.

Note down the **Deployment Procedure Instance Name** while creating the clone.

For example, Deployment Procedure Instance Name = CloneDatabase\_SYSMAN\_12\_24\_2014\_15\_58\_PM.

- b. Use the instance name in the following command to generate a template properties file.

```
emcli get_instance_data
[-instance={instance_guid}]
[-exec={execution_guid}]
[-name={execution name}]
[-owner={execution owner}]
```

**Sample:**



```
emcli get_instance_data -name='CloneDatabase_SYSMAN_12_24_2014_15_58_
PM' -owner='SYSMAN' > /tmp/create_clone.props
```

## ■ Method 2: Generating the properties file using EM CLI verbs

To create a template properties file using EM CLI verbs, follow the steps below:

- a. Retrieve the GUID or the name of the procedure. Run the following command to retrieve these.

```
emcli get_procedures
[-type={procedure type}]
```

### Sample command:

```
emcli get_procedures -type=DBConfig
```

### Sample output:

| GUID                             | Type     | Name                       |
|----------------------------------|----------|----------------------------|
| DisplayName                      | Version  | Owner Parent Procedure     |
| 0A15E9DC20772EF5E053E87BF00A6701 | DBConfig | db_clone_eb_procedure      |
| db_clone_eb_procedure            | 2.12     | ORACLE                     |
| 0A15E9DC20A12EF5E053E87BF00A6701 | DBConfig | db_config_procedure        |
| DB Snap Clone                    | 2.2      | ORACLE                     |
| 0A15E9DC20422EF5E053E87BF00A6701 | DBConfig | config_db_create_procedure |
| Create Oracle Database           | 1.5      | ORACLE                     |

- b. Input the GUID or the name as an input value in the following command to generate a template properties file.

```
emcli describe_procedure_input
[-procedure={procedure GUID}]
[-name={procedure name or procedure configuration}]
[-owner={owner of the procedure or procedure configuration}]
[-parent_proc={procedure of the procedure configuration. This only
applies to describe a procedure configuration with the same name}]
```

### Sample command:

```
emcli describe_procedure_input
-procedure=0A15E9DC20A12EF5E053E87BF00A6701 > /tmp/create_clone.props
```

## 2. Enter new values in the properties file.

Use an editor to edit the properties file. Enter the desired values for the variables and save the properties file.

The table below shows the properties file parameters used to create a database clone. To see the properties file parameters for creating a Test master database, see [Table 47–19, "Sample Properties File for Creating a Test Master Database"](#).

**Table 47–18 Sample Properties File for Creating a Database Clone**

| Parameters                  | Sample values                              | Description                                                                     |
|-----------------------------|--------------------------------------------|---------------------------------------------------------------------------------|
| <b>Mandatory Parameters</b> |                                            |                                                                                 |
| CLONE_TYPE                  | CLONE_<br>TYPE=DUPLICATE                   | Type of clone. Valid values are DUPLICATE, SNAP, DNFS_PROFILE and RMAN_PROFILE. |
| SRC_DB_TARGET_NAME          | SRC_DB_TARGET_<br>NAME=xyyy.us.example.com | Source database target name.                                                    |

**Table 47–18 (Cont.) Sample Properties File for Creating a Database Clone**

| Parameters                 | Sample values                                        | Description                                                                                                     |
|----------------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| SRC_DB_TARGET_TYPE         | SRC_DB_TARGET_TYPE=oracle_database                   | Source database target type. Valid values are oracle_database and rac_database.                                 |
| SRC_DB_CRED                | SRC_DB_CRED=NC_CRED:SYSCO                            | Source database credentials in the format: <NAME:OWNER>.                                                        |
| SRC_HOST_NORMAL_NAMED_CRED | SRC_HOST_NORMAL_NAMED_CRED=NC_HOST_CRED:SYSCO        | Source host credentials in the format: <NAME:OWNER>.                                                            |
| COMMON_GLOBAL_DB_NAME      | COMMON_GLOBAL_DB_NAME=clonedb.example.com            | Global database name of the clone database.                                                                     |
| COMMON_DB_SID              | COMMON_DB_SID=clonedb                                | SID of the clone database.                                                                                      |
| DB_TARGET_NAME             | DB_TARGET_NAME=clonedb.xxy.example.com               | Clone database target name.                                                                                     |
| DATABASE_TYPE              | DATABASE_TYPE=dbTypeSI                               | Indicates the type of database. Accepted values are - dbTypeSI and dbTypeRAC.                                   |
| TARGET_HOST_LIST           | TARGET_HOST_LIST=desthost.example.com                | Destination host name where the clone database will be created.                                                 |
| ORACLE_HOME_NAME           | ORACLE_HOME_NAME=OraDB12Home2_29                     | Name of destination Oracle home.                                                                                |
| ORACLE_HOME_LOC            | ORACLE_HOME_LOC=/scratch/app/product/11.2.0/dbhome_1 | Location of destination Oracle home.                                                                            |
| ORACLE_BASE_LOC            | ORACLE_BASE_LOC=/scratch/app                         | Location of destination Oracle base.                                                                            |
| HOST_NORMAL_NAMED_CRED     | HOST_NORMAL_NAMED_CRED=NC_HOST_CRED:SYSCO            | Destination host credentials in the format: <NAME:OWNER>.                                                       |
| DB_STORAGE_TYPE            | DB_STORAGE_TYPE=FS                                   | Database files storage type. Valid values are FS and ASM.                                                       |
| DB_FILE_LOC                | DB_FILE_LOC=/scratch/app/oradata                     | Location where database files will be created for the clone database..                                          |
| FRA_STORAGE_TYPE           | FRA_STORAGE_TYPE=FS                                  | Fast Recovery Area storage type. Valid values are FS and ASM.                                                   |
| FLASH_REC_AREA             | FLASH_REC_AREA=/scratch/user/app/fra                 | Location where recovery related files (archived redo logs, RMAN backups, and other related files) are created.  |
| FRA_SIZE                   | FRA_SIZE=4395                                        | Fast Recovery Area size.                                                                                        |
| ARCHIVE_LOG_MODE           | ARCHIVE_LOG_MODE=NO                                  | Whether the clone database should be in ARCHIVELOG mode. Accepted values are YES and NO.                        |
| DEST_LISTENER_SELECTION    | DEST_LISTENER_SELECTION=DEST_DB_HOME                 | Indicates whether the listener specified is a Grid Home listener. Valid values are GRID_INFRA and DEST_DB_HOME. |

**Table 47–18 (Cont.) Sample Properties File for Creating a Database Clone**

| Parameters                         | Sample values                                      | Description                                                                                                              |
|------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| LISTENER_PORT                      | LISTENER_PORT=1526                                 | Port of the listener with which the clone database is to be registered.                                                  |
| ENABLE_LIVE_CLONE                  | ENABLE_LIVE_CLONE=true                             | Indicates if live clone is to be enabled. Accepted values are true and false.                                            |
| DB_ADMIN_PASSWORD_SAME             | DB_ADMIN_PASSWORD_SAME=true                        | Indicates if the passwords for SYSTEM, SYS and DBSNMP users are same or different. Accepted values are true or false.    |
| DATABASE_PASSWORDS                 | DATABASE_PASSWORDS=right1                          | Common password of SYSTEM, SYS and DBSNMP users. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=true. |
| DB_TEMPLATE_STAGE                  | DB_TEMPLATE_STAGE=/tmp                             | Temporary staging area used to store files transferred from source host.                                                 |
| <b>Optional Parameters</b>         |                                                    |                                                                                                                          |
| CLUSTERNAME                        | CLUSTERNAME=cluster                                | Name of the destination cluster. This is applicable only if DATABASE_TYPE=dbTypeRAC.                                     |
| RAC_CONFIG_TYPE                    | RAC_CONFIG_TYPE=ADMIN_MANAGED                      | Destination cluster database type. This is applicable only if DATABASE_TYPE=dbTypeRAC. Valid value is ADMIN_MANAGED.     |
| RAC_NODE_LIST                      | RAC_NODE_LIST=node1,node2                          | List of RAC nodes where the clone database will be created. This is applicable only if DATABASE_TYPE=dbTypeRAC.          |
| IS_RAC_ONE                         | IS_RAC_ONE=false                                   | Indicates if it's a RAC One node. This is applicable only if DATABASE_TYPE=dbTypeRAC.                                    |
| SRC_HOST_NORMAL_PREF_CRED_SET_NAME | SRC_HOST_NORMAL_PREF_CRED_SET_NAME=HostCredsNormal | Source database preferred credentials.                                                                                   |
| ASMSYSPWD                          | ASMSYSPWD=String1                                  | Source ASM password. This is applicable only if the source database is on ASM.                                           |
| HOST_NORMAL_PREF_CRED_SET_NAME     | HOST_NORMAL_PREF_CRED_SET_NAME=HostCredsNormal     | Destination host preferred credentials.                                                                                  |
| HOST_PRIV_NAMED_CRED               | HOST_PRIV_NAMED_CRED=HOST_PRIV_CRED:SYSCO          | Destination host root credentials. This is applicable only if CLONE_TYPE=SNAP.                                           |
| HOST_PRIV_PREF_CRED_SET_NAME       | HOST_PRIV_PREF_CRED_SET_NAME=HostCredsPriv         | Destination host preferred root credentials. This is applicable only if CLONE_TYPE=SNAP.                                 |
| PROFILE_INTERNAL_PATH              |                                                    | Profile internal path of the backup. This is applicable only if a profile is used for clone.                             |
| PROFILE_VERSION_URN                |                                                    | Profile version URN of the backup. This is applicable only if a profile is used for clone.                               |
| BACKUP_LOCATION_NAME               | BACKUP_LOCATION_NAME=/scratch/databkp              | Database backups' location. This is applicable if it's not a live clone.                                                 |

**Table 47–18 (Cont.) Sample Properties File for Creating a Database Clone**

| Parameters                | Sample values                                         | Description                                                                                                                                           |
|---------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| BACKUP_TAG                |                                                       | Datafiles tag of the RMAN legacy backup. This is applicable only if using non-profile based RMAN backups for clone.                                   |
| CONTROL_FILE_TAG          |                                                       | Control files tag of the RMAN legacy backup. This is applicable only if using non-profile based RMAN backups for clone.                               |
| PIT_DATETIME              |                                                       | Point in time recovery using date and time. This is applicable if it's not a live clone.                                                              |
| PIT_SCN                   |                                                       | Point in time recovery using SCN. This is applicable if it's not a live clone.                                                                        |
| IS_SAVE_PROFILE           |                                                       | Indicates that a snapshot profile of the source database will be created. This is applicable only if CLONE_TYPE=SNAP.                                 |
| COMMON_DOMAIN_NAME        | COMMON_DOMAIN_NAME=xy.example.com                     | Domain of clone database.                                                                                                                             |
| COMMON_DB_DBSNMP_PASSWORD | COMMON_DB_DBSNMP_PASSWORD=right                       | DBSNMP user password for the clone database. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=false.                                 |
| COMMON_DB_SYSTEM_PASSWORD | COMMON_DB_SYSTEM_PASSWORD=right                       | SYSTEM user password for the clone database. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=false.                                 |
| COMMON_DB_SYS_PASSWORD    | COMMON_DB_SYS_PASSWORD=right                          | SYS user password for the clone database. This is applicable only when the parameter DB_ADMIN_PASSWORD_SAME=false.                                    |
| MOUNT_POINT_PREFIX        | MOUNT_POINT_PREFIX=/vol1/prefix                       | Mount point prefix. This parameter is applicable only if CLONE_TYPE=SNAP.                                                                             |
| MOUNT_POINT_LIST          | MOUNT_POINT_LIST=volname1                             | Storage Volume name. This parameter is applicable only if CLONE_TYPE=SNAP.                                                                            |
| MOUNT_ADDL_SIZE_LIST      | MOUNT_ADDL_SIZE_LIST=2                                | Writable space. This parameter is applicable only if CLONE_TYPE=SNAP.                                                                                 |
| USE_OFA                   | USE_OFA=false                                         | Indicates if Oracle Flexible Architecture should be used for customizations of the database storage files locations. Valid values are true and false. |
| OFA_TEMP_FILE_LOCATION    | OFA_TEMP_FILE_LOCATION=/scratch/user/app/oradata/temp | Location where temporary files are to be created. This parameter is applicable only if USE_OFA=true.                                                  |
| OFA_REDO_LOG_LOCATION     | OFA_REDO_LOG_LOCATION==/scratch/user/app/oradata/rlog | Location where Redo log files are to be created. This parameter is applicable only if USE_OFA=true.                                                   |
| OFA_CONTROL_FILE_LOCATION | OFA_CONTROL_FILE_LOCATION==/scratch/user/app/control  | Location where the control files are to be created. This parameter is applicable only if USE_OFA=true.                                                |

**Table 47–18 (Cont.) Sample Properties File for Creating a Database Clone**

| Parameters                 | Sample values                                                                                                       | Description                                                                                                                                  |
|----------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| IS_SAVE_TARGET_PROFILE     | IS_SAVE_TARGET_PROFILE=Y                                                                                            | Indicates if a profile of the clone database should be created. Valid values are Y and N.                                                    |
| NEW_PROFILE_LOCATION       | NEW_PROFILE_LOCATION=Database Provisioning Profiles/12.1.0.1.0/Linux86_64                                           | Location of the profile in software library. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.                                  |
| NEW_PROFILE_NAME           | NEW_PROFILE_NAME=Clone Profile                                                                                      | Name of the new DB Profile to be created. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y                                      |
| PROFILE_DESC               | PROFILE_DESC=Database Reference Profile<br>24-12-2014 04:00 PM from<br>orcl.xyc.example.com<br>Version : 12.1.0.1.0 | Description of the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.                                                   |
| PROFILE_NOTES              | PROFILE_NOTES=Host Name: xyz.example.com<br>Database:<br>orcl.xyc.example.com                                       | Notes for the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.                                                        |
| PROFILE_VENDOR             | PROFILE_VENDOR=Oracle                                                                                               | Vendor of the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y                                                         |
| PROFILE_VERSION            | PROFILE_VERSION=12.1.0.1.0                                                                                          | Version of the profile. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y                                                        |
| DATA_CONTENT_MODE          | DATA_CONTENT_MODE=RMAN                                                                                              | Data mode for the database profile. The accepted values are: RMAN, and DNFS. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.  |
| RMAN_BACKUP_LOCATION       | RMAN_BACKUP_LOCATION=/scratch/user/app/backup                                                                       | Location where RMAN backup files will be created. This is applicable only if IS_SAVE_TARGET_PROFILE=Y and DATA_CONTENT_MODE is RMAN or DNFS. |
| BACKUP_FILE_TAG            | BACKUP_FILE_TAG=data_backup_1419417051961                                                                           | Tag to be associated with backup files. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN.     |
| BACKUP_TYPE                | BACKUP_TYPE=OFFLINE                                                                                                 | Type of backup. It can be OFFLINE or ONLINE. The default is Offline. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.          |
| PROFILE_PURGE_POLICY_TYPE  | PROFILE_PURGE_POLICY_TYPE=SNAPSHOTS,                                                                                | Profile purge policy type. Accepted values are SNAPSHOTS or DAYS. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y.             |
| PROFILE_PURGE_POLICY_VALUE | PROFILE_PURGE_POLICY_VALUE=1                                                                                        | Profile purge policy value. This parameter is applicable only if IS_SAVE_TARGET_PROFILE=Y                                                    |
| PROFILE_SCHEDULE           |                                                                                                                     | Schedule for profile creation.                                                                                                               |

**Table 47–18 (Cont.) Sample Properties File for Creating a Database Clone**

| Parameters                    | Sample values                       | Description                                                                                                                 |
|-------------------------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| IS_TESTMASTER_DATABASE        | IS_TESTMASTER_DATABASE=N            | Indicates your choice of creating the clone database as the Test master database. Accepted values are Y or N.               |
| ENABLE_DATA_MASK              | ENABLE_DATA_MASK=true               | Indicates if data mask needs to be applied. Accepted values are true and false.                                             |
| MASKING_DEFINITION_NAME       | MASKING_DEFINITION_NAME=MASK_DEF_10 | Name of the masking definition. This parameter is applicable only if ENABLE_DATA_MASK= true.                                |
| CUSTOM_PRE_SCRIPTS_URN        |                                     | URN of the pre-cloning script in software library.                                                                          |
| CUSTOM_POST_SCRIPTS_URN       |                                     | URN of the post-cloning script in software library.                                                                         |
| POST_SQL_SCRIPT_URN           |                                     | URN of the post-cloning SQL script in software library.                                                                     |
| RUN_AS_USER                   | RUN_AS_USER =sys                    | Name of the user to run post-cloning SQL script. This parameter is applicable only if POST_SQL_SCRIPT_URN is specified.     |
| RUN_AS_USER_PWD               | RUN_AS_USER_PWD =right              | Password of the user to run post-cloning SQL script. This parameter is applicable only if POST_SQL_SCRIPT_URN is specified. |
| EXECUTION_MODE                | EXECUTION_MODE = PROVISIONING       | Mode of execution.                                                                                                          |
| CONFIGURE_WITH_ORACLE_RESTART | CONFIGURE_WITH_ORACLE_RESTART=N     | Indicates if the clone database should be configured with Oracle restart.                                                   |

**Table 47–19 Sample Properties File for Creating a Test Master Database**

| Parameters                  | Sample values                         | Description                                               |
|-----------------------------|---------------------------------------|-----------------------------------------------------------|
| <b>Mandatory Parameters</b> |                                       |                                                           |
| CLONE_TYPE                  | CLONE_TYPE=DUPLICATE                  | Type of clone. The default value is DUPLICATE.            |
| COMMON_DB_DBSNMP_PASSWORD   | COMMON_DB_DBSNMP_PASSWORD=come        | Password to be set for DBSNMP user in the clone database. |
| COMMON_DB_SID               | COMMON_DB_SID=clonedb                 | SID of the clone database.                                |
| COMMON_DB_SYSTEM_PASSWORD   | COMMON_DB_SYSTEM_PASSWORD=sysco       | Password to be set for SYSTEM user in the clone database. |
| COMMON_DB_SYS_PASSWORD      | COMMON_DB_SYS_PASSWORD=sysco          | Password to be set for SYS user in the clone database.    |
| DATABASE_PASSWORDS          | DATABASE_PASSWORDS=Sysco1             | Password of clone database.                               |
| COMMON_GLOBAL_DB_NAME       | COMMON_GLOBAL_DB_NAME=clonedb.xyz.com | Global clone database name.                               |

**Table 47–19 (Cont.) Sample Properties File for Creating a Test Master Database**

| Parameters                 | Sample values                                         | Description                                                                                                                              |
|----------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| DB_ADMIN_PASSWORD_SAME     | DB_ADMIN_PASSWORD_SAME=true                           | Whether the passwords for SYSTEM, SYS and DBSNMP users are same or different. Accepted values are true or false.                         |
| DEST_LISTENER_SELECTION    | DEST_LISTENER_SELECTION=DEST_DB_HOME                  | Oracle home location of the destination.                                                                                                 |
| HOST_NORMAL_NAMED_CRED     | HOST_NORMAL_NAMED_CRED=HOST:SYSCO                     | Credentials of the host.                                                                                                                 |
| IS_TESTMASTER_DATABASE     | IS_TESTMASTER_DATABASE=Y                              | Indicates if you want create the clone database as Test master database. Accepted values are Y or N. The default value is N.             |
| USAGE_MODE                 | USAGE_MODE = testMaster                               | Mode of use of the clone database.                                                                                                       |
| CLOUD_TARGET               | CLOUD_TARGET = true                                   | Indicates if the cloud target is allowed.                                                                                                |
| LISTENER_PORT              | LISTENER_PORT=1526                                    | Port of the listener with which the clone database is to be registered.                                                                  |
| ORACLE_BASE_LOC            | ORACLE_BASE_LOC=/scratch/app                          | Location of Oracle base.                                                                                                                 |
| ORACLE_HOME_LOC            | ORACLE_HOME_LOC=/scratch/app/product/11.2.0./dbhome_1 | Location of Oracle home.                                                                                                                 |
| EM_USER                    | EM_USER=sys                                           | EM user name.                                                                                                                            |
| EM_PWD                     | EM_PWD=Sys1                                           | EM password.                                                                                                                             |
| SRC_DB_CRED                | SRC_DB_CRED=DB:SYSCO                                  | Credentials of the source database.                                                                                                      |
| SRC_DB_TARGET_NAME         | SRC_DB_TARGET_NAME=orcl.xyz.com                       | Source database target name.                                                                                                             |
| SRC_HOST_NORMAL_NAMED_CRED | SRC_HOST_NORMAL_NAMED_CRED=HOST:SYSCO                 | Credentials of the host database.                                                                                                        |
| TARGET_HOST_LIST           | TARGET_HOST_LIST=blr22.xyz.com                        | List of target hosts.                                                                                                                    |
| <b>Optional Parameters</b> |                                                       |                                                                                                                                          |
| ARCHIVE_LOG_MODE           | ARCHIVE_LOG_MODE=NO                                   | Indicates if the clone database should be in archive log mode. The default value is NO.                                                  |
| BACKUP_FILE_TAG            | BACKUP_FILE_TAG=data_backup_1419417051961             | Tag to be associated with backup files. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN. |
| BACKUP_TYPE                | BACKUP_TYPE=OFFLINE                                   | Type of backup. Accepted values are OFFLINE or ONLINE. The default value is OFFLINE.                                                     |
| COMMON_DOMAIN_NAME         | COMMON_DOMAIN_NAME=xy.example.com                     | Domain of the clone database.                                                                                                            |

**Table 47–19 (Cont.) Sample Properties File for Creating a Test Master Database**

| Parameters                    | Sample values                                                                                                       | Description                                                                                                                                                |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONFIGURE_WITH_ORACLE_RESTART | CONFIGURE_WITH_ORACLE_RESTART=N                                                                                     | Indicates if you want to configure clone database with oracle restart. The default value is N.                                                             |
| DATABASE_TYPE                 | DATABASE_TYPE=dbTypeSI                                                                                              | Accepted values are - Single Instance Database, RAC Database and RAC One Node Database. The default value is Single Instance Database.                     |
| DATA_CONTENT_MODE             | DATA_CONTENT_MODE=RMAN                                                                                              | Data mode for which the database profile needs to be submitted. It can have the following values: EXPORT, DBCA_TEMPLATE, RMAN, DNFS, and STORAGE_SNAPSHOT. |
| DB_FILE_LOC                   | DB_FILE_LOC=/scratch/app/oradata                                                                                    | Location where data files, tmp files, redo log files, and control files are created.                                                                       |
| DB_STORAGE_TYPE               | DB_STORAGE_TYPE=FS                                                                                                  | Database storage type. Accepted values are File System (FS) and ASM. The default value is FS.                                                              |
| DB_TARGET_NAME                | DB_TARGET_NAME=clonedb.xxy.example.com                                                                              | Clone database target name.                                                                                                                                |
| DB_TEMPLATE_STAGE             | DB_TEMPLATE_STAGE=/scratch/view_storage/emagent/gcagent/em_staging                                                  | Staging area used to store files transferred from source host.                                                                                             |
| ENABLE_LIVE_CLONE             | ENABLE_LIVE_CLONE=true                                                                                              | Indicates if live clone is to be enabled. The default value is true.                                                                                       |
| IS_SAVE_TARGET_PROFILE        | IS_SAVE_TARGET_PROFILE=Y                                                                                            | Indicates if you want to create a DB profile using the clone database. Accepted values are Y or N. The default value is N.                                 |
| NEW_PROFILE_LOCATION          | NEW_PROFILE_LOCATION=Database Provisioning Profiles/12.1.0.1.0/Linux86_64                                           | Location of the profile in software library. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y.                                            |
| NEW_PROFILE_NAME              | NEW_PROFILE_NAME=Clone Profile                                                                                      | Name of the new DB profile to be created. It is mandatory if IS_SAVE_TARGET_PROFILE is set to Y.                                                           |
| ORACLE_HOME_NAME              | ORACLE_HOME_NAME=OraDB12Home2_29_idc.example.com                                                                    | Name of Oracle home.                                                                                                                                       |
| PDB_ADMIN_PASSWORD            |                                                                                                                     | Pluggable database admin password.                                                                                                                         |
| PROFILE_DESC                  | PROFILE_DESC=Database Reference Profile<br>24-12-2014 04:00 PM from<br>orcl.xyc.example.com<br>Version : 12.1.0.1.0 | Description of the profile.                                                                                                                                |



**Table 47–19 (Cont.) Sample Properties File for Creating a Test Master Database**

| Parameters                     | Sample values                                                                                                           | Description                                                                                                                                                                                            |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PROFILE_NOTES                  | PROFILE_NOTES=Host<br>Name: xyz.example.com<br>Database:<br>orcl.xyz.example.com<br>Data Content: Structure<br>and Data | Notes for the profile.                                                                                                                                                                                 |
| PROFILE_VENDOR                 | PROFILE_<br>VENDOR=Oracle                                                                                               | Vendor of the profile. The default is Oracle.                                                                                                                                                          |
| PROFILE_VERSION                | PROFILE_<br>VERSION=12.1.0.1.0                                                                                          | Version of the profile. If no value is specified, the database version is used.                                                                                                                        |
| RMAN_BACKUP_<br>LOCATION       | RMAN_BACKUP_<br>LOCATION=/scratch/app<br>/backup                                                                        | Location where RMAN backup files is to be created. This parameter is mandatory if IS_SAVE_TARGET_PROFILE is set to Y and DATA_CONTENT_MODE is RMAN or DNFS.                                            |
| SRC_DB_TARGET_<br>TYPE         | SRC_DB_TARGET_<br>TYPE=oracle_database                                                                                  | Type of source database.                                                                                                                                                                               |
| MASKING_<br>DEFINITION_NAME    | MASKING_DEFINITION_<br>NAME=MASK_DEF_10                                                                                 | Name of the masking definition to be applied after cloning the database.                                                                                                                               |
| ENABLE_DATA_<br>MASK           | ENABLE_DATA_<br>MASK=true                                                                                               | Indicates if data mask is to be enabled. The default value is false.                                                                                                                                   |
| PROFILE_PURGE_<br>POLICY_TYPE  | PROFILE_PURGE_<br>POLICY_<br>TYPE=SNAPSHOTS,                                                                            | Profile purge policy type. Accepted values are SNAPSHOTS or DAYS. The default value is NONE.                                                                                                           |
| PROFILE_PURGE_<br>POLICY_VALUE | PROFILE_PURGE_<br>POLICY_VALUE=1                                                                                        | Profile purge policy value.                                                                                                                                                                            |
| PROFILE_SCHEDULE               |                                                                                                                         | Schedule for profile execution.                                                                                                                                                                        |
| WORKING_<br>DIRECTORY          | WORKING_<br>DIRECTORY=/tmp                                                                                              | The location where the files are staged.                                                                                                                                                               |
| FLASH_REC_AREA                 |                                                                                                                         | Location where recovery related files (archived redo logs, RMAN backups, and other related files) are created. The storage type of Fast Recovery Area will be same as that of database files location. |
| FRA_STORAGE_TYPE               |                                                                                                                         | Is the same as Database storage type.                                                                                                                                                                  |

3. Execute the following EM CLI verb to create a database clone (or Test master), using the updated properties file as the input file.

```
emcli create_clone
-input_file="File containing properties required for cloning a database"
```

**Sample:**

```
emcli create_clone -inputFile=/tmp/create_clone.props
```

**Sample output:**

```
Submitting clone database procedure...
0AF491A8D9FE29F2E0539878B10A6333
Deployment procedure submitted successfully
```

4. Verify the status of the database clone creation by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]
```

**Sample:**

```
emcli get_instance_status -instance=0AF491A8D9FE29F2E0539878B10A6333
```

**Sample output:**

```
0AF491A8DA0529F2E0539878B10A6333, DBConfig, db_config_procedure 1419435633924,
COMPLETED
```

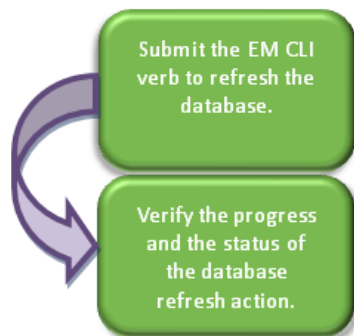
To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -instance=0AF491A8D9FE29F2E0539878B10A6333 -xml
-details -showJobOutput
```

## 47.10 Refreshing a Database Using EM CLI Verbs

This section describes the procedure to refresh a database using EM CLI verbs.

**Figure 47–6 Refreshing a Database Using EM CLI Verbs**



Follow the steps below to refresh a database:

1. Refresh the database by executing the `emcli refresh_database` command mentioned below.

The EM CLI command requires a properties file as an input. The properties file details are mentioned in the table below.

**Table 47–20 Sample Properties File for Refreshing a Database**

| Parameters                  | Sample values                  | Description                                                    |
|-----------------------------|--------------------------------|----------------------------------------------------------------|
| <b>Mandatory Parameters</b> |                                |                                                                |
| DB_TEMPLATE_STAGE           | DB_TEMPLATE_STAGE=/tmp         | Staging area used to store files transferred from source host. |
| COMMON_DB_SYSTEM_PASSWORD   | COMMON_DB_SYSTEM_PASSWORD=come | Password to be set for SYSTEM user.                            |

**Table 47–20 (Cont.) Sample Properties File for Refreshing a Database**

| Parameters                 | Sample values                                              | Description                                                                                                                      |
|----------------------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| COMMON_DB_DBSNMP_PASSWORD  | COMMON_DB_DBSNMP_PASSWORD=come                             | Password to be set for DBSNMP user.                                                                                              |
| COMMON_DB_SYS_PASSWORD     | COMMON_DB_SYS_PASSWORD=come                                | Password to be set for SYS user.                                                                                                 |
| ASMSYSPWD                  | ASMSYSPWD=come                                             | ASM SYS password to login to ASM. This parameter is only applicable if database files are on ASM. Otherwise, it is not required. |
| CLONE_TYPE                 | CLONE_TYPE=RMAN_PROFILE                                    | Type of clone.                                                                                                                   |
| <b>Optional Parameters</b> |                                                            |                                                                                                                                  |
| TARGET_TYPE                | TARGET_TYPE=rac_database                                   | Type of target. Accepted values are oracle_database or rac_database.                                                             |
| ORACLE_HOME                | ORACLE_HOME_LOC=/u01/user/app/user/product/11.2.0/dbhome_1 | Location of Oracle home.                                                                                                         |
| SRC_SYS_PWD                | SRC_SYS_PWD=Come                                           | Source SYS password.                                                                                                             |
| SRC_SID                    | SRC_SID=orcl                                               | Source database SID.                                                                                                             |
| TARGET_NAME                |                                                            | Name of the target.                                                                                                              |

```
emcli refresh_database
 -target_name="database target name"
 -target_type="database target type"
 -input_file=data:"file:path"
```

**Sample:**

```
emcli refresh_database -target_name="database" -target_type="oracle_database"
-input_file=data:"/tmp/refr.txt"
```

**Output:**

```
Refresh Database deployment procedure has been submitted successfully with the
instance
name:"RefreshDatabase_SYSMAN_06_23_2014_01_00_PM" and execution_
guid='0AE6096550756B26E0539878B10A6FF5'
```

To know the status of the procedure in xml format, execute the following command.

```
emcli get_instance_status -exec=0AE6096550756B26E0539878B10A6FF5 -xml -details
-showJobOutput
```

## 2. Verify the status of the database refresh by executing the following EM CLI verb.

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]
```

**Sample:**

```
emcli get_instance_status -exe=0AFDFE7D36525B18E0539878B10A39FB
```

**Sample output:**

```
00AFDFE7D36555B18E0539878B10A39FB, DBPROV, RefreshDatabase_SYSMAN_06_23_2014_01_00_PM, COMPLETED
```

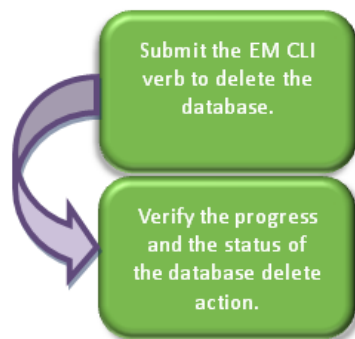
To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -exe=0AF491A8D9FE29F2E0539878B10A6333 -xml -details -showJobOutput
```

## 47.11 Deleting a Database Using EM CLI Verbs

This section describes the procedure to delete a database using EM CLI verbs.

**Figure 47–7 Deleting a Database Using EM CLI Verbs**



Follow the steps below to delete a database:

1. Delete the database with the `emcli delete_database` command mentioned below.

The EM CLI command requires a properties file as an input. The properties file details are mentioned in the table below.

**Table 47–21 Sample Properties File for Deleting a Database**

| Parameters                  | Sample values                                   | Description                                                                                                                                   |
|-----------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mandatory Parameters</b> |                                                 |                                                                                                                                               |
| HOST_CREDS                  | HOST_CREDS=sys:come,                            | Credentials of the host in <Credentials name>:<Credentials owner> format.                                                                     |
| DB_TARGET_GUID              | DB_TARGET_GUID=083B2D3F9B911BD3E0539878B10A3096 | GUID of the target database.<br>Select the Target_GUID from mgmt\$target, where target_name='MyDB.example.com' and target_type='rac_database' |
| DATABASE_TYPE               | DATABASE_TYPE=dbTypeSI,                         | Type of database.<br>Permissible values are either dbTypeSI or dbTypeRAC.                                                                     |
| DB_ORACLE_HOME_LOC          | DB_ORACLE_HOME_LOC=/u01/oracle/product/dbhome,  | Location of Oracle home.                                                                                                                      |

**Table 47–21 (Cont.) Sample Properties File for Deleting a Database**

| Parameters                | Sample values               | Description                                                                                                                                                                                                                                                                                                                              |
|---------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DB_TARGET_NAME            | DB_TARGET_NAME=m2.xyz.com,  | Name of the target database.                                                                                                                                                                                                                                                                                                             |
| DB_SID                    | DB_SID=clem                 | Database SID.<br>In case of a RAC database provide the same value as provided for DB_TARGET_NAME.                                                                                                                                                                                                                                        |
| HOST_NAME                 | HOST_NAME=abc.example.com,  | Name of the host in case of a SI database.<br>In case of a RAC database enter the Cluster database target host name. To retrieve it, use the EM repository query (select host_name from mgmt\$target where target_name='MyDB.example.com' and target_type='rac_database').                                                               |
| ORACLE_BASE               | ORACLE_BASE=/u01/app/oracle | Oracle base location.                                                                                                                                                                                                                                                                                                                    |
| DBNAME                    | DBNAME=clem                 | Database name in case of SI database.<br>In case of a RAC database enter the Cluster database target 'DBName' Target property. To retrieve this property use the EM repository query (select property_value from mgmt\$target_properties where target_name='MyDB.example.com' and target_type='rac_database' and property_name='DBName') |
| <b>Optional Parameter</b> |                             |                                                                                                                                                                                                                                                                                                                                          |
| ROOT_CREDS                | ROOT_CREDS=ABDCGA45268SDF   | Privileged credentials GUID. This parameter is required if the target database is snapshot based and mounted on a volume.                                                                                                                                                                                                                |

```
emcli delete_database
-inputFile="File containing properties required for deleting a clone"
```

**Sample:**

```
emcli delete_database -inputFile=/u01/files/delete_clone.props
```

**Output:**

```
Submitting delete database procedure...
0AFDFE7D36525B18E0539878B10A39FB
Deployment procedure submitted successfully
```

**2. Verify the status of the database deletion by executing the following EM CLI verb.**

```
emcli get_instance_status
[-instance={instance guid}]
[-exe=execution guid]
[-xml]
[-details]
[-showJobOutput]
[-tailLength={last N characters}]]
```

**Sample:**

```
emcli get_instance_status -instance=0AFDFE7D36525B18E0539878B10A39FB
```

**Output:**

```
0AFDFE7D36555B18E0539878B10A39FB, DBPROV, DB_CLEANUP_PROC 1419457116034,
COMPLETED
```

To know the complete status of each of the steps in xml format, execute the following command.

```
emcli get_instance_status -instance=0AF491A8D9FE29F2E0539878B10A6333 -xml
-details -showJobOutput
```

## 47.12 Database Fleet Maintenance EM CLI Verbs

The following table provides details of the verbs supported for Database fleet maintenance.

---

---

**Note:** The EM CLI verb options mentioned in square brackets - [] are optional.

---

---



**Table 47–22 Database Software Maintenance EM CLI Verbs**

| Verb                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Format                                                                                                                                                                                                                      |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli db_software_maintenance<br>-createSoftwareImage | <p>Creates a new software image provided in the oracle home. The createSoftwareImage verb takes either data (a .txt file) or getInputVariableList from the command line.</p> <ul style="list-style-type: none"> <li>input_file- Path of the input file.</li> <li>getInputVariableList - Provides the list of variables to be specified in the input file.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>To get the list of all the parameters to be passed inside the data file, run the following command:<br/><br/> <pre>emcli db_software_maintenance -createSoftwareImage -getInputVariableList=true</pre> </li> <li>To create a new image and a version, use the following example:<br/><br/> <pre>emcli createSoftwareImage -input_ file="data:"/home/user/input_rac"</pre> <p>Where the contents of the input_rac file are:</p> <ul style="list-style-type: none"> <li>IMAGE_NAME=DbGoldImage</li> <li>IMAGE_DESCRIPTION=Gold Image for 11g db</li> <li>REF_TARGET_NAME=ORACLE_HOME</li> <li>IMAGE_SWLIB_LOC=Oracle Home Provisioning</li> <li>Profiles/11.2.0.3.0/linux_x64</li> <li>REF_HOST_CREDENTIALS=ZONE_CREDS:TEST SUPERADMIN</li> <li>WORKING_DIRECTORY=/tmp</li> <li>STORAGE_TYPE_FOR_SWLIB=Oms Shared</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>emcli db_software_maintenance<br/>-createSoftwareImage<br/>-getInputVariableList=true</li> <li>emcli<br/>createSoftwareImage<br/>-input_file="data:"/home/user/input_rac"</li> </ul> |



**Table 47–22 (Cont.) Database Software Maintenance EM CLI Verbs**

| Verb                                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Format                                                                                                                                   |
|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| emcli db_software_maintenance<br>-createVersion       | <p>Creates a new version in an existing image using an existing software library component.</p> <ul style="list-style-type: none"> <li>version_name - Name of the version.</li> <li>image_id - Name of the image.</li> <li>external_id - External ID of the version. For example, the URN of the software library gold image.</li> <li>status - Status of the version. For example, DRAFT, ACTIVE, CURRENT, or RESTRICTED.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance -createVersion -version_ name="Version1" -image_ id="01B5F14FD57D7B89E05313B2F00A739F" -external_ id="oracle:defaultService:em:provisio ning:1:cmp:COMP_Component:SUB_ OracleDB:0191172464DD36B6E05313B2F00A B90A:0.1" -status=CURRENT</pre> | <pre>emclu db_software_ maintenance -createVersion-version_ name="Versionx" -image_id="xxxx" -external_id="yyyy" -status="CURRENT"</pre> |
| emcli db_software_maintenance<br>-subscribeTarget     | <p>Creates a new or modifies the existing target subscription.</p> <ul style="list-style-type: none"> <li>target_name - Name of the target.</li> <li>target_type - Target type.</li> <li>[parent_target_name] - Parent target name.</li> <li>[parent_target_type] - Parent target type.</li> <li>image_id - Name of the image.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance -subscribeTarget -target_name="POOL NAME" -target_type=oracle_cloud_zone -image_ id=FE55AD7AB28974EFE04313B2F00AD4A0</pre>                                                                                                                                                                                                               | <pre>emcli db_software_ maintenance -subscribeTarget -target_ name="xxx" -target_type="yyy" -image_id=zzz</pre>                          |
| emcli db_software_maintenance<br>-updateVersionStatus | <p>Updates version of the image.</p> <ul style="list-style-type: none"> <li>version_id - Id of the version.</li> <li>status - Status of the version. For example, DRAFT, ACTIVE, CURRENT, or RESTRICTED.</li> </ul> <p>Example:</p> <pre>emcli db_software_maintenance -updateVersionStatus -version_ id=02A635AOD8D904A4E05362F3E40ADFD8 -status=CURRENT</pre>                                                                                                                                                                                                                                                                                                                                                                       | <pre>emcli db_software_ maintenance -updateVersionStatus -version_id="xxx" -status="CURRENT"</pre>                                       |

**Table 47-22 (Cont.) Database Software Maintenance EM CLI Verbs**

| Verb                                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Format                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli db_software_maintenance<br>-getImageSubscriptions | Returns the list of subscribed targets.<br><ul style="list-style-type: none"> <li>image_id- Name of the image.</li> </ul> Example:<br>emcli db_software_maintenance<br>-imageSubscriptions -image_id="01B5F14FD57D7B89E05313B2F00A739F"                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | emcli db_software_maintenance<br>-getImageSubscriptions<br>-image_id="xxx"                                                                                                                                                                                                              |
| emcli db_software_maintenance<br>-deleteImage           | Deletes an image.<br><ul style="list-style-type: none"> <li>image_id - Name of the image to be deleted.</li> <li>[force] - Deletes forcibly even if the image has subscribed targets.</li> </ul> Example:<br>emcli db_software_maintenance<br>-deleteImage -image_id="01B5F14FD57D7B89E05313B2F00A739F"                                                                                                                                                                                                                                                                                                                                                                                                     | emcli db_software_maintenance<br>-deleteImage<br>-image_id="xxxx"                                                                                                                                                                                                                       |
| emcli db_software_maintenance<br>-unsubscribeTarget     | Unsubscribes the target.<br><ul style="list-style-type: none"> <li>target_name - Name of the target.</li> <li>target_type - Target type.</li> <li>image_id - Name of the image.</li> </ul> Example:<br>emcli db_software_maintenance<br>-unsubscribeTarget -target_name="POOL NAME" -target_type=oracle_cloud_zone -image_id=FE55AD7AB28974EFE04313B2F00AD4A0                                                                                                                                                                                                                                                                                                                                               | emcli db_software_maintenance<br>-unsubscribeTarget<br>-target_name="xxx"<br>-target_type=yyyy<br>-image_id=zzz                                                                                                                                                                         |
| emcli db_software_maintenance<br>-searchImage           | Searches the image based on the provided filters. Use '%' for wildcard.<br><ul style="list-style-type: none"> <li>[name_pattern] - Indicates the name pattern.</li> <li>[version_pattern] - Indicates the version pattern.</li> <li>[description_pattern] - Indicates the version pattern.</li> <li>[owner] - Indicates the owner name.</li> <li>[target_type] - Indicates the target type.</li> <li>[platform_id] - Indicates the platform ID. For example, 226 for Linux x86_64.</li> </ul> Examples:<br><ul style="list-style-type: none"> <li>emcli db_software_maintenance<br/>-searchImage -name_pattern="%GI%"</li> <li>emcli db_software_maintenance<br/>-searchImage -platform_id="226"</li> </ul> | emcli db_software_maintenance<br>-searchImage<br>-platform_id="xxx"<br>-[name_pattern= "name_pattern"]<br>-[version_pattern= "version_pattern"]<br>-[description_pattern= "description_pattern"]<br>-[owner= "owner"]<br>-[target_type= "target_type"]<br>-[platform_id= "platform_id"] |

**Table 47–22 (Cont.) Database Software Maintenance EM CLI Verbs**

| Verb                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                                                           | Format                                                                                                                           |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| emcli db_software_maintenance<br>-getTargetSubscriptions       | Returns the list of subscriptions for the given target.<br><ul style="list-style-type: none"> <li>target_name - Name of the target.</li> <li>target_type - Target type.</li> <li>image_type - Type of the image.</li> </ul> Example:<br>emcli db_software_maintenance<br>-getTargetSubscriptions -target_name="POOL NAME" -target_type="oracle_cloud_zone"                                                                            | emcli db_software_maintenance<br>-getTargetSubscriptions<br>-target_name="xxxx"<br>-target_type="yyyy"<br>-image_type="zzzz"     |
| emcli db_software_maintenance<br>-getVersions                  | Returns the list of the versions for the given image.<br><ul style="list-style-type: none"> <li>image_id - Name of the image.</li> <li>[version_status] - Status filter for the version.</li> </ul> Example:<br>emcli db_software_maintenance<br>-getVersions image_id="01B5F14FD57D7B89E05313B2F00A739F"<br>-version_status=CURRENT                                                                                                  | emcli db_software_maintenance<br>-getVersions<br>-image_id="xxxx"<br>-version_status=CURRENT                                     |
| emcli db_software_maintenance<br>-getImages                    | Returns the list of image present in the system.<br>Example:<br>emcli db_software_maintenance<br>-getImages                                                                                                                                                                                                                                                                                                                           | emcli db_software_maintenance - getImages                                                                                        |
| emcli db_software_maintenance<br>-getSubscriptionsForContainer | Return the subscriptions for the container target such as the database pool.<br><ul style="list-style-type: none"> <li>image_id - Name of the image.</li> <li>target_name - Name of the target.</li> <li>target_type - Target type in EM.</li> </ul> Example:<br>emcli db_software_maintenance<br>-getSubscriptionsForContainer<br>-target_name="POOL NAME" -target_type=oracle_cloud_zone -image_id=FE55AD7AB28974EFE04313B2F00AD4A0 | emcli db_software_maintenance<br>-getSubscriptionsForContainer<br>-target_name="xxxx"<br>-target_type="yyyy"<br>-image_id="zzzz" |
| emcli db_software_maintenance<br>-activateSoftware             | Activates a new software of the pool.<br><ul style="list-style-type: none"> <li>pool_name - Name of the pool.</li> <li>pool_type - Type of the pool.</li> <li>[force] - Forcibly activates the new members.</li> </ul> Example:<br>emcli db_cloud_maintenance<br>-activateSoftware -pool_name=POOL<br>-pool_type=oracle_cloud_zone<br>-force=true                                                                                     | emcli db_cloud_maintenance<br>-activateSoftware<br>-pool_name=xxxx<br>-pool_type="yyy"<br>-force="true"                          |

**Table 47-22 (Cont.) Database Software Maintenance EM CLI Verbs**

| Verb                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Format                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli db_software_maintenance<br>-performOperation | <p>Creates a new cloud maintenance operation.</p> <ul style="list-style-type: none"> <li>■ name= "name" - Name of the operation.</li> <li>■ description= "description" - Description of the operation.</li> <li>■ purpose= "purpose" - Purpose of the maintenance window.</li> </ul> <p>The possible values are: UPDATE_DB, UPDATE_RACDB, UPDATE_GI, DEPLOY_DB_SOFTWARE, DEPLOY_GI_SOFTWARE, DEPLOY_RAC_SOFTWARE, ROLLBACK_DB, ROLLBACK_GI, ROLLBACK_RACDB, and CLEANUP_SOFTWARE.</p> <ul style="list-style-type: none"> <li>■ [start_schedule= "start_schedule"] - Start Schedule. The input for start_schedule is of the format- yyyy-MM-dd HH:mm:ss. For example, start_schedule="2013-11-11 12:15:30". The default start time is - immediate.</li> <li>■ pool_name= "pool_name" - Name of the pool.</li> <li>■ pool_type= "pool_type" - Type of the pool.</li> <li>■ [input_file= "data:input_file"] - Input data for the maintenance action. For example, input_file="data:~/input_files/data."</li> <li>■ [target_type= "target_type"] - Target type. The default target type is identified based on the purpose. For example, if purpose is DEPLOY_DB, the default target type is oracle_home.</li> <li>■ [target_list= "target_list"] - Comma separated target list.</li> </ul> <p>The target list is the list of entities based on the target type that is selected. For example, target_type=rac_database target_list="rac1.example.com,rac2.example.com". The default target_list is based on the purpose. For example if the purpose is DEPLOY_DB, the default target list is the list of oracle homes present in the pool.</p> <p>Example:</p> <pre>emcli db_cloud_maintenance -performOperation -name="Update RAC Database " -description="Update RAC database Instance" -purpose="UPDATE_ RACDB" -start_schedule="start_ time:2014/09/01 00:00" -pool_ name="POOL NAME" -pool_type=oracle_ cloud_zone -target_type=rac_database -target_list="rac1.example.com"</pre> | <pre>emcli db_cloud_maintenance -performOperation -name="update" -description="Update RAC database Instance" -purpose="UPDATE_RACDB" -start_schedule="start_ time:2014/09/01 00:00" -pool_name="xxx" -pool_type="yyy" -target_type=rac_database -target_ list="rac1.example.com"</pre> |

## 47.13 Database Request Handling EM CLI Verbs

The table below lists the supported verbs for database request handling.



**Table 47–23 Force Cleanup EM CLI Verbs**

| Verb                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Format                                                                                                                                                                                                    |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| cleanup_dbaas_requests | <p>Cleans up a failed request from the host and EM.</p> <p>Cleans up all failed requests from a pool. Optionally, it cleans up failed requests for a specific user.</p> <p>The options -ids and -pool_name cannot be used together.</p> <ul style="list-style-type: none"> <li>ids - The request ID to be used for filtering cloud requests separated by semicolon(;).</li> <li>pool_name - The name of the pool from which requests have to be cleaned up.</li> <li>pool_type - The type of pool. The possible values are: <ul style="list-style-type: none"> <li>For Database pools: database</li> <li>For Schema pools: schema</li> <li>For Pluggable database pools: pluggable_database</li> </ul> </li> <li>user - User Name to be used for filtering requests for delete.</li> <li>all - Cleans up all requests - both successful and failed, cancels the requests that are in scheduled state, and leaves the "in progress" requests as is. If this option is not specified, cleanup will be performed on failed requests only.</li> </ul> <p><b>Note:</b></p> <p>The clean-up operation explained here can also be performed using a REST API. For details, see <a href="#">Section 51.7.2.4, "Clearing a Collection of Service Requests"</a>.</p> <p>Example:</p> <pre>emcli cleanup_dbaas_requests -ids="10" emcli cleanup_dbaas_requests -ids="10;11;12" emcli cleanup_dbaas_requests -pool_name="database_pool" -pool_type="database" emcli cleanup_dbaas_requests -pool_name="database_pool" -pool_type="database" -all emcli cleanup_dbaas_requests -pool_name="database_pool" -pool_type="database" -all -user="SSA_USER"</pre> <p><b>EM CLI Verbs for Database as a Service Administrator 47-131</b></p> <p>Sample Output:</p> <pre>Service Template "My Schema Service Template" created successfully</pre> | <pre>emcli cleanup_dbaas_requests [-ids="&lt;request id&gt;"] [-pool_name="&lt;pool name&gt;"] [-pool_type="&lt;database   schema   pluggable_database&gt;"] [-user="&lt;SSA User name&gt;"] [-all]</pre> |

## 47.14 Cloning a Pluggable Database

The EM CLI verb `emcli pdb_clone_management` creates a new clone of an existing pluggable database.

The details of the verb are as follows:

**Table 47–24 Pluggable Database Cloning EM CLI Verb**

| Verb                                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Format                                                                                                                   |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <code>emcli pdb_clone_management</code> | <p>Creates a new clone of an existing pluggable database.</p> <ul style="list-style-type: none"> <li>▪ <code>-input_file</code> - Location of the file containing properties required for cloning the pluggable database. See <a href="#">Table 47–25</a> for details.</li> <li>▪ <code>[-cloneToOracleCloud]</code> - Indicates that the destination container database (CDB) is on Oracle Cloud.</li> </ul> <p>Example:</p> <pre>emcli pdb_clone_management -input_file=data:/u01/files/pdb_clone.props</pre> | <p><code>emcli pdb_clone_management</code></p> <p><code>-input_file</code></p> <p><code>[-cloneToOracleCloud]</code></p> |

The table below explains the required parameters and values in the properties file that needs to be used as an input file for cloning a pluggable database. You can either have a full clone of the pluggable database or a snapshot clone. For details of full clone and snapshot clones see, [Section 47.14.1, "Pluggable Database Full Clone Methods"](#), and [Section 47.14.2, "Pluggable Database Snapshot Clone Types"](#).

**Table 47–25 Sample Properties File for Cloning a Pluggable Database**

| Parameters                   | Sample values                                             | Description                                                                                                                                                      |
|------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mandatory Parameters</b>  |                                                           |                                                                                                                                                                  |
| <code>SRC_PDB_TARGET</code>  | <code>SRC_PDB_TARGET=cdb_prod_PDB</code>                  | Enterprise Manager (EM) target name of the source pluggable database (PDB).                                                                                      |
| <code>SRC_HOST_CREDS</code>  | <code>SRC_HOST_CREDS=NC_HOST_SHYSSCO</code>               | Named credentials for the source target host.                                                                                                                    |
| <code>SRC_CDB_CREDS</code>   | <code>SRC_CDB_CREDS=NC_DB_SYS:SYSCO</code>                | Named credentials for the source CDB.                                                                                                                            |
| <code>SRC_WORK_DIR</code>    | <code>SRC_WORK_DIR=/tmp/source</code>                     | Work directory at the source host where files are temporarily stored. If this parameter is not provided, the agent work directory is used.                       |
| <code>DEST_HOST_CREDS</code> | <code>DEST_HOST_CREDS=NC_SLEO_SSH:SYSCO</code>            | Named credentials for the destination target host. If destination host is on Oracle Cloud, then the value for this parameter should be the host SSH credentials. |
| <code>DEST_LOCATION</code>   | <code>DEST_LOCATION=/scratch/app/cdb_tm/HR_TM_PDB6</code> | Data file location in the destination where the new PDB should be hosted.                                                                                        |
| <code>DEST_CDB_TARGET</code> | <code>DEST_CDB_TARGET=cdb_tm</code>                       | EM target name of CDB where the new PDB should be cloned.                                                                                                        |
| <code>DEST_CDB_TYPE</code>   | <code>DEST_CDB_TYPE=oracle_database</code>                | EM target type of the destination CDB.                                                                                                                           |



**Table 47–25 (Cont.) Sample Properties File for Cloning a Pluggable Database**

| Parameters                 | Sample values                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEST_CDB_CREDS             | DEST_CDB_CREDS=NC_DB_SYS:SYSCO                                | Named credentials for the destination CDB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| DEST_PDB_NAME              | DEST_PDB_NAME=HR_TM_PDB6                                      | Name of the new PDB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Optional Parameters</b> |                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| SRC_CDB_TARGET             | SRC_CDB_TARGET=cdb_prodt_DB                                   | EM target name of the CDB containing the source PDB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| SRC_CDB_TYPE               |                                                               | EM target type of the CDB containing the source PDB.                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| IS_SNAPSHOT_COPY           | IS_SNAPSHOT_COPY=true                                         | Indicates that the clone is a snapshot clone.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| SRC_HOST                   | SRC_HOST=xyz.example.com                                      | EM target name of the host containing the source CDB. If this value is not provided, it will be derived from the CDB.                                                                                                                                                                                                                                                                                                                                                                                                             |
| DEST_HOST                  | DEST_HOST=xyz.example.com                                     | EM target name of host containing the destination CDB. If this value is not provided, it will be derived from the CDB.                                                                                                                                                                                                                                                                                                                                                                                                            |
| EXISTING_BACKUP            | EXISTING_BACKUP=/user1/pdbbackup/app/PROD_PDB_Backup_14297779 | Indicates the absolute location of the existing backup in the file system, and if it should be used to clone the new PDB.                                                                                                                                                                                                                                                                                                                                                                                                         |
| EXISTING_BACKUP_METADATA   | EXISTING_BACKUP_METADATA=/user1/pdbbackup                     | Absolute location of the metadata template of the backup. This parameter is required, if EXISTING_BACKUP is provided.                                                                                                                                                                                                                                                                                                                                                                                                             |
| BACKUP_TYPE                | BACKUP_TYPE=OSIMAGE                                           | Indicates the backup type. The accepted values are TAR, OSIMAGE, and RMAN.<br><br>If an existing backup (EXISTING_BACKUP parameter) is provided, this parameter represents the type of the backup. If not, this parameter represents the type of backup that should be taken during job execution. If both, EXISTING_BACKUP and BACKUP_TYPE are not provided, the source PDB, will be unplugged, and copied over to the destination for creating a new clone. Once the datafiles are copied, the source PDB will be plugged back. |

### 47.14.1 Pluggable Database Full Clone Methods

The different methods of full cloning that are possible with a pluggable database are mentioned below. The process of achieving them are by configuring certain parameters in the properties file, while using the `emcli pdb_clone_management` verb.

- Operating System (OS) Image backup (supported only for Oracle Cloud)  
Takes a backup of the source PDB and creates a new PDB. The BACKUP\_TYPE parameter should specify the type of backup. The EXISTING\_BACKUP and EXISTING\_BACKUP\_METADATA parameters should not be provided.
- Existing backup (supported for on-premise PDBs and Oracle Cloud PDBs)

Uses an existing backup of the source PDB and creates a new PDB. The `BACKUP_TYPE` parameter should specify the type of backup. The `EXISTING_BACKUP` parameter should specify the location with the backup name and `EXISTING_BACKUP_METADATA` should specify the location and the metadata file name for the backup.

---

**Note:** If the destination PDB and the source PDB are in different CDBs wherein, both the CDBs are on-premise (or on Oracle Cloud), then ensure that the source PDB is in read-write mode. This is necessary since a database link is created in the destination CDB for cloning the PDB, and a temporary user is created in the source PDB for using the database link. If there is an existing database link in the destination CDB that connects to the source PDB, then use the parameter `EXISTING_DB_LINK_NAME` to provide the database link name in the properties file.

---

- Unplug/plug (supported only for Oracle Cloud)  
Unplugs the source PDB and creates a new PDB at the destination using the unplugged source, and then plugs the source back. Both, `EXISTING_BACKUP` and `BACKUP_TYPE` parameters should not be provided.

### 47.14.2 Pluggable Database Snapshot Clone Types

The different methods of snapshot cloning that are possible with a pluggable database on-premise are mentioned below. The process of achieving them are by configuring certain parameters in the properties file, while using the `emcli pdb_clone_management verb`.

---

**Note:** For all the snapshot clone types, in addition to the mandatory parameters in [Table 47-25](#), add the parameter `IS_SNAPSHOT_COPY=true`, to the properties file.

---

- Exadata sparse clone snapshot  
The Exadata sparse clone snapshot will work only if the destination PDB data file location is in sparse ASM disk group in an Exadata machine, and the source and destination PDB data files share the same ASM instance.  
Set the value of the `DEST_LOCATION` to create an Exadata sparse clone. The `DEST_LOCATION` should be the name of the ASM sparse disk group. For example, `+SPARCEDG`.
- ACFS (ASM cluster file system) snapshot  
The ACFS snapshot will work only if the source and destination PDB data file location is in common ACFS file system.
- CLONEDB initialization parameter set to FALSE  
When you create a snapshot clone of a source PDB and the `CLONEDB` initialization parameter of the destination host is set to `FALSE`, the underlying file system for the source PDB's files must support storage snapshots. Such file systems include Oracle Automatic Storage Management Cluster File System (Oracle ACFS) and Direct NFS Client storage.

- CLONEDB initialization parameter set to TRUE

When you create a clone of a source PDB and the CLONEDB initialization parameter of the destination host is set to TRUE, the underlying file system for the source PDB's files can be any local file system, network file system (NFS), or clustered file system that has Direct NFS enabled. However, the source PDB must remain in open read-only mode as long as any clones exist.

## 47.15 Creating a Test Master Pluggable Database

The EM CLI verb `emcli pdb_clone_management` creates a new clone of an existing pluggable database. The same verb is used to create a Test Master of a pluggable database. However, the properties file used for the verb is different. For details of the verb see [Table 47–24](#). For details of the properties file used to create the Test Master see [Table 47–26](#).

**Table 47–26 Sample Properties File for Creating a Pluggable Database Test Master**

| Parameters                                                                                | Sample values                                | Description                                                                                                                                                      |
|-------------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mandatory Parameters to Create a Test Master</b>                                       |                                              |                                                                                                                                                                  |
| SRC_PDB_TARGET                                                                            | SRC_PDB_TARGET=cdb_prod_PDB                  | Enterprise Manager (EM) target name of the source pluggable database (PDB).                                                                                      |
| SRC_HOST_CREDS                                                                            | SRC_HOST_CREDS=NC_HOST_SAY:SYSCO             | Named credentials for the source target host.                                                                                                                    |
| SRC_CDB_CREDS                                                                             | SRC_CDB_CREDS=NC_DB_SYS:SYSCO                | Named credentials for the source CDB.                                                                                                                            |
| SRC_WORK_DIR                                                                              | SRC_WORK_DIR=/tmp/source                     | Work directory at the source host where files are temporarily stored. If this parameter is not provided, the agent work directory is used.                       |
| DEST_HOST_CREDS                                                                           | DEST_HOST_CREDS=NC_SLO_SSH:SYSCO             | Named credentials for the destination target host. If destination host is on Oracle Cloud, then the value for this parameter should be the host SSH credentials. |
| DEST_LOCATION                                                                             | DEST_LOCATION=/scratch/app/cdb_tm/HR_TM_PDB6 | Data file location in the destination where the new PDB should be hosted.                                                                                        |
| DEST_CDB_TARGET                                                                           | DEST_CDB_TARGET=cdb_tm                       | EM target name of CDB where the new PDB should be cloned.                                                                                                        |
| DEST_CDB_TYPE                                                                             | DEST_CDB_TYPE=oracle_database                | EM target type of the destination CDB.                                                                                                                           |
| DEST_CDB_CREDS                                                                            | DEST_CDB_CREDS=NC_DB_SYS:SYSCO               | Named credentials for the destination CDB.                                                                                                                       |
| DEST_PDB_NAME                                                                             | DEST_PDB_NAME=HR_TM_PDB6                     | Name of the new PDB.                                                                                                                                             |
| IS_CREATE_AS_TESTMASTER                                                                   | IS_CREATE_AS_TESTMASTER=true                 | Flag to set the cloned PDB as a Test Master PDB in the EM.                                                                                                       |
| <b>Mandatory Parameters (along with the above) to Create a Test Master on Exadata ASM</b> |                                              |                                                                                                                                                                  |
| ACL_DF_GROUP                                                                              | ACL_DF_GROUP=oinstall                        | Group name to provide the permission to the Exadata ASM disk group data files of the cloned PDB.                                                                 |

**Table 47–26 (Cont.) Sample Properties File for Creating a Pluggable Database Test**

| Parameters                 | Sample values                                                                                                                   | Description                                                                                                            |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| ACL_DF_OWNER               | ACL_DF_OWNER=oracle                                                                                                             | Owner name to provide the required permission to the Exadata ASM disk group data files of the cloned PDB.              |
| <b>Optional Parameters</b> |                                                                                                                                 |                                                                                                                        |
| MASKING_DEFINITION_NAME    | MASKING_DEFINITION_NAME=CRM_Masking_Defn                                                                                        | Name of the masking definition in EM that will be applied on the cloned PDB.                                           |
| CUSTOM_PRE_SCRIPTS_URN     | CUSTOM_PRE_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:14288BACD7BB765FE0533B79B10AA480:0.3    | Software library URN of the script to be run before creating the clone PDB in the destination host.                    |
| CUSTOM_POST_SCRIPTS_URN    | CUSTOM_POST_SCRIPTS_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Directives:none:14288BACD7C1765FE0533B79B10AA480:0.3   | Software library URN of the script to be run after creating the clone PDB in the destination host.                     |
| POST_SQL_SCRIPT_URN        | POST_SQL_SCRIPT_URN=oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_Generic:142899134B2C25E8E0533B79B10A2D54:0.1 | Software library URN of the SQL script to be run in the destination CDB after creating the clone PDB.                  |
| RUN_AS_USER                | RUN_AS_USER=sys                                                                                                                 | User name to run the post SQL script.                                                                                  |
| RUN_AS_USER_PWD            | RUN_AS_USER_PWD=gosad                                                                                                           | Password to run the post SQL script.                                                                                   |
| ACL_DF_GROUP_PERM          | ACL_DF_GROUP_PERM=read only                                                                                                     | Level of permission to be given to the group for the Exadata ASM disk group data files of the cloned PDB.              |
| ACL_DF_OWNER_PERM          | ACL_DF_OWNER_PERM=read only                                                                                                     | Level of permission to be given to the owner for the Exadata ASM disk group data files of the cloned PDB.              |
| ACL_DF_OTHER_PERM          | ACL_DF_OTHER_PERM=read only                                                                                                     | Level of permission to be given to others for the Exadata ASM disk group data files of the cloned PDB.                 |
| SRC_CDB_TARGET             | SRC_CDB_TARGET=cdb_prod_t_DB                                                                                                    | EM target name of the CDB containing the source PDB.                                                                   |
| SRC_CDB_TYPE               |                                                                                                                                 | EM target type of the CDB containing the source PDB.                                                                   |
| SRC_HOST                   | SRC_HOST=xyz.example.com                                                                                                        | EM target name of the host containing the source CDB. If this value is not provided, it will be derived from the CDB.  |
| DEST_HOST                  | DEST_HOST=xyz.example.com                                                                                                       | EM target name of host containing the destination CDB. If this value is not provided, it will be derived from the CDB. |

**Table 47–26 (Cont.) Sample Properties File for Creating a Pluggable Database Test**

| Parameters               | Sample values                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EXISTING_BACKUP          | EXISTING_BACKUP=/user1/pdbbackup/app/PROD_PDB_Backup_14297779 | Indicates the absolute location of the existing backup in the file system, and if it should be used to clone the new PDB.                                                                                                                                                                                                                                                                                                                                                                                                         |
| EXISTING_BACKUP_METADATA | EXISTING_BACKUP_METADATA=/user1/pdbbackup                     | Absolute location of the metadata template of the backup. This parameter is required, if EXISTING_BACKUP is provided.                                                                                                                                                                                                                                                                                                                                                                                                             |
| BACKUP_TYPE              | BACKUP_TYPE=OSIMAGE                                           | Indicates the backup type. The accepted values are TAR, OSIMAGE, and RMAN.<br><br>If an existing backup (EXISTING_BACKUP parameter) is provided, this parameter represents the type of the backup. If not, this parameter represents the type of backup that should be taken during job execution. If both, EXISTING_BACKUP and BACKUP_TYPE are not provided, the source PDB, will be unplugged, and copied over to the destination for creating a new clone. Once the datafiles are copied, the source PDB will be plugged back. |

## 47.16 Transferring Data Between Databases

The details of the EM CLI verb used to transfer data are as follows:

**Table 47–27 Data Transfer EM CLI Verb**

| Verb                | Description                                                                                                                                                                                                                                                                                                                                                       | Format                             |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| emcli data_transfer | Transfers data from the source database to the target database.<br><br><ul style="list-style-type: none"> <li>-input_file - Location of the file containing the properties required for transferring data. See <a href="#">Table 47–28</a> for details.</li> </ul> <p>Example:</p> <pre>emcli data_transfer -input_file=data:/u01/files/data_transfer.props</pre> | emcli data_transfer<br>-input_file |

The table below explains the required parameters and values in the properties file that needs to be used as an input file for transferring data.

**Table 47–28 Sample Properties File for Transferring Data**

| Parameters                  | Sample values                                      | Description                              |
|-----------------------------|----------------------------------------------------|------------------------------------------|
| <b>Mandatory Parameters</b> |                                                    |                                          |
| SOURCE_LOCATION             | SOURCE_LOCATION=/tmp/newp/PDB_Backup_1428003803938 | Location of the data at the source host. |
| SRC_HOST                    | SRC_HOST=bl.example.com                            | The source host containing the data.     |

**Table 47–28 (Cont.) Sample Properties File for Transferring Data**

| Parameters      | Sample values                             | Description                                                                                                                                        |
|-----------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| SRC_HOST_CREDS  | SRC_HOST_CREDS=NC_HOST_SHY:SYS            | Credentials for the host on which the data is located. If the source host is on Oracle Cloud, the value should be host SSH credentials.            |
| DEST_HOST       | DEST_HOST=slc0.example.com                | The destination host where the data should be copied to.                                                                                           |
| DEST_HOST_CREDS | DEST_HOST_CREDS=NC_SLO_SSH                | Credentials for the host where the data should be copied to. If the destination host is on Oracle Cloud, the value should be host SSH credentials. |
| DEST_LOCATION   | DEST_LOCATION=/scratch/app3/oradata/migda | Location on the destination host where the data should be copied to.                                                                               |

## 47.17 Backing Up Datafiles and Metadata of a Pluggable Database

The details of the EM CLI verb used to backup datafiles and metadata of a pluggable database are as follows:

**Table 47–29 EM CLI Verb for Datafile and Metadata Backup of Pluggable Databases**

| Verb             | Description                                                                                                                                                                                                                                                                                                                                                                            | Format                          |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| emcli pdb_backup | <p>Takes a backup of datafiles and metadata xml of the specified pluggable database.</p> <ul style="list-style-type: none"> <li>-input_file - Location of the file containing the properties required for taking a backup of the PDB. See <a href="#">Table 47–30</a> for details.</li> </ul> <p>Example:</p> <pre>emcli pdb_backup -input_file=data:/u01/files/pdb_backup.props</pre> | emcli pdb_backup<br>-input_file |

The table below explains the required parameters and values in the properties file that needs to be used as an input file for backup of datafiles and metadata of a pluggable database.

**Table 47–30 Sample Properties File for Datafile and Metadata Backup of a Pluggable Database**

| Parameters                  | Sample values                              | Description                                                                           |
|-----------------------------|--------------------------------------------|---------------------------------------------------------------------------------------|
| <b>Mandatory Parameters</b> |                                            |                                                                                       |
| TARGET_HOST_LIST            | TARGET_HOST_LIST=xyz.abccorp.com           | Host on which the target Container database (CDB)/Pluggable database (PDB) is hosted. |
| HOST_NORMAL_NAMED_CRED      | HOST_NORMAL_NAMED_CRED=XYZ_CRED:CRED_OWNER | Host credentials.                                                                     |
| SRC_CDB_NAMED_CRED          | SRC_CDB_NAMED_CRED=CDB1_CRED:CRED_OWNER    | SYSDBA credentials of the source CDB.                                                 |
| SRC_CDB_TARGET_NAME         | SRC_CDB_TARGET_NAME=CDB1                   | The target name of the CDB which hosts the PDB.                                       |

**Table 47–30 (Cont.) Sample Properties File for Datafile and Metadata Backup of a Pluggable Database**

| Parameters          | Sample values                                               | Description                                                   |
|---------------------|-------------------------------------------------------------|---------------------------------------------------------------|
| SRC_CDB_TARGET_TYPE | SRC_CDB_TARGET_TYPE=oracle_database                         | CDB target type.                                              |
| SRC_PDB_TARGET_NAME | SRC_PDB_TARGET_NAME=CDB1_PDB1                               | The target name of the PDB whose backup is required.          |
| BACKUP_LOCATION     | BACKUP_LOCATION=/scratch/pdbBackup                          | Path of the file system where the backup should be copied to. |
| WORK_DIR_LOCATION   | WORK_DIR_LOCATION=/tmp                                      | Temporary staging location on the source host.                |
| ORACLE_HOME_LOC     | ORACLE_HOME_LOC=/scratch/d121hmcasm/product/12.1.0/dbhome_1 | Oracle home of the CDB.                                       |

## 47.18 Importing Data from Export Dumps to a Database

The details of the EM CLI verb used to import data from export dumps to a database are as follows:

**Table 47–31 EM CLI Verb for Importing Data from Export Dumps to a Database**

| Verb           | Description                                                                                                                                                                                                                                                                                                                                                            | Format                        |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| emcli dbimport | <p>Imports data from export dumps to the specified database target.</p> <ul style="list-style-type: none"> <li>-input_file - Location of the file containing the properties required for importing data from export dumps. See <a href="#">Table 47–32</a> for details.</li> </ul> <p>Example:</p> <pre>emcli dbimport -inputFile=data:/u01/files/dbimport.props</pre> | emcli dbimport<br>-input_file |

The table below explains the required parameters and values in the properties file that needs to be used as an input file for importing data from export dumps to a database.

**Table 47–32 Sample Properties File for Importing Data from Export Dumps to a Database**

| Parameters                  | Sample values                           | Description                                                                |
|-----------------------------|-----------------------------------------|----------------------------------------------------------------------------|
| <b>Mandatory Parameters</b> |                                         |                                                                            |
| DESTINATION_TARGET          | DESTINATION_TARGET=SS_OPC_DB            | Destination PDB target (or DB target) where the schema should be imported. |
| DESTINATION_TARGET_TYPE     | DESTINATION_TARGET_TYPE=oracle_database | The destination target type.                                               |
| DATABASE_CREDENTIAL         | DATABASE_CREDENTIAL=SYSDBA:SYS          | SYSDBA credentials of the target.                                          |

**Table 47–32 (Cont.) Sample Properties File for Importing Data from Export Dumps to a Database**

| Parameters                | Sample values                                                                                                                                                              | Description                                                                                    |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| HOST_NAMED_CREDENTIAL     | HOST_NAMED_CREDENTIAL=AE_NC:SYS                                                                                                                                            | Credentials of the host where the destination target is hosted.                                |
| PROFILE_LOCATION          | PROFILE_LOCATION=Database Provisioning Profiles/12.1.0.1.0/linux_x64/Export Dump of Sample schemas10                                                                       | Location of the profile which is created during export.                                        |
| REMAP_SCHEMA_LIST.(x)     | REMAP_SCHEMA_LIST.0=HR:HR<br>REMAP_SCHEMA_LIST.1=OE:OE<br>REMAP_SCHEMA_LIST.2=PM:PM<br>REMAP_SCHEMA_LIST.3=IX:IX<br>REMAP_SCHEMA_LIST.4=SH:SH<br>REMAP_SCHEMA_LIST.5=BI:BI | List of schemas that needs to be imported.                                                     |
| REMAP_TABLESPACE_LIST.(x) | REMAP_TABLESPACE_LIST.0=EXAMPLE:MYTBS P1<br>REMAP_TABLESPACE_LIST.1=USERS:MYTBSP1<br>REMAP_TABLESPACE_LIST.2=SYSTEM:MYTBSP1                                                | Schema corresponding tablespaces for the schema import.                                        |
| DEGREE_OF_PARALLELISM     | DEGREE_OF_PARALLELISM=1                                                                                                                                                    | Indicates if the data needs to imported in parallel.                                           |
| DUMP_FILE_LIST.(x)        | DUMP_FILE_LIST.0=/scratch/aime/du mpdir/sampschemas.dmp                                                                                                                    | Location of the dump file in the destination host.                                             |
| IMPORT_LOG_FILE_DIRECTORY | IMPORT_LOG_FILE_DIRECTORY=DATA_PUMP_DIR                                                                                                                                    | Location where the log files should be stored. This is a directory object inside the database. |
| FORWARDER_HOST            | FORWARDER_HOST=slo.us.example.com                                                                                                                                          | Indicates the forwarder host.                                                                  |
| FORWARDER_CRED            | FORWARDER_CRED=AIME_NC:SYSMAN                                                                                                                                              | Indicates the forwarder host credentials.                                                      |
| WORKING_DIRECTORY         | WORKING_DIRECTORY=/tmp                                                                                                                                                     | Temporary staging location on the source host.                                                 |

## 47.19 Invoking a REST API Using EM CLI Verb

`emcli invoke_ws` is an EM CLI verb used to invoke a REST API to perform the action expected by the REST API. The medium however is Enterprise Manager command line interface.



**Table 47–33 Invoking a REST API Using an EM CLI Verb**

| Verb            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Format                                                                                                                                                                                                                                            |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli invoke_ws | <p>Invokes the Enterprise Manager Web service to act as per the REST API passed via this verb.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>■ -wsname - Indicates the URI of the resource.</li> <li>■ -method - Specifies of the REST method.</li> <li>■ -payload - Indicates the json/xml input payload.</li> <li>■ -accept - Payload type. These are standard REST API values.</li> <li>■ -type - Standard REST API response types.</li> <li>■ -param - This option is used to pass a form/query parameter value. For example, -param="name:value". More than one parameter can be specified. For example, -param="name:value" -param="zip:12345".</li> </ul> <p>The parameter can be provided through a file. For example, the parameters can be specified in a text file with name file.txt and the command can have the options as: -param="name:tag" -input_file="tag:file.txt", wherein the parameter name will derive the value from the input file file.txt.</p> <ul style="list-style-type: none"> <li>■ -input_file - Use this option to pass in payload or param value from file.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>■ <pre>emcli invoke_ws -wsname=/em/websvcs/restful/emws/ core/v0/list/dataservice -method=get -param="name:Administrators"</pre> <p>Invokes list resource and sources all administrators</p></li> <li>■ <pre>emcli invoke_ws -wsname=/em/websvcs/restful/emws/ core/v0/list/dataservice -method=get -param="name:tag" -input_file="tag:file.txt"</pre> <p>Invokes list resource and sources all administrators. The name parameter is read from file.txt.</p></li> </ul> | <pre>emcli invoke_ws -wsname=&lt;WebService Name&gt; -method=&lt;method name&gt; [-payload=&lt;Payload&gt;] [-accept=&lt;accept type&gt;] [-type=response type] [-param=Query Parameters] [-input_file=&lt;Input File for payload data&gt;]</pre> |

A sample of the contents of the file.txt is shown below.

```
Name:Administrators
Zip:23456
```



## Database as a Service Administrator REST APIs

This chapter describes the resource models for the Administration flows of Database as a Service (DBaaS) REST APIs, and their responses. The following topics are covered in this chapter:

- [Summary of Database as a Service Administrator REST APIs](#)
- [Creating a New DBaaS Cloud Setup Using REST APIs](#)
- [Database as a Service Administrator Operations REST APIs](#)
  - [PaaS Zones and PaaS Zone REST APIs](#)
  - [Software Pools and Software Pool REST APIs](#)
  - [Database Request Settings REST APIs](#)
  - [Database Quota REST APIs](#)
  - [Service Template REST APIs](#)

### 48.1 Summary of Database as a Service Administrator REST APIs

The table below shows a summary of all the DBaaS Administrator REST APIs covered in this chapter.

**Table 48–1** Summary of Administrator DBaaS REST APIs

| Resource       | Data Model                  | GET                                | POST                                                                                                                                                                                                                                         | PUT                                                                                                                                                                                                                                        | DELETE                             |
|----------------|-----------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|
| PaaS zones     | <a href="#">Table 48–3</a>  | <a href="#">Section 48.3.1.3.1</a> | <a href="#">Section 48.3.1.3.3</a>                                                                                                                                                                                                           | <a href="#">Section 48.3.1.3.4</a>                                                                                                                                                                                                         | Not supported                      |
| PaaS zone      | <a href="#">Table 48–5</a>  | <a href="#">Section 48.3.1.3.2</a> | Not supported                                                                                                                                                                                                                                | Not supported                                                                                                                                                                                                                              | <a href="#">Section 48.3.1.3.5</a> |
| Software pools | <a href="#">Table 48–12</a> | <a href="#">Section 48.3.2.3.1</a> | <ul style="list-style-type: none"> <li>■ Database pool - <a href="#">Section 48.3.2.3.4</a>;</li> <li>■ Schema pool - <a href="#">Section 48.3.2.3.6</a>;</li> <li>■ Pluggable database pool - <a href="#">Section 48.3.2.3.8</a></li> </ul> | <ul style="list-style-type: none"> <li>■ Database pool - <a href="#">Section 48.3.2.3.5</a></li> <li>■ Schema pool - <a href="#">Section 48.3.2.3.7</a></li> <li>■ Pluggable database pool - <a href="#">Section 48.3.2.3.9</a></li> </ul> | Not supported                      |

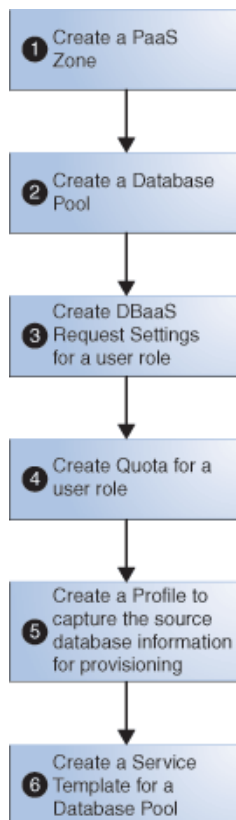
**Table 48–1 (Cont.) Summary of Administrator DBaaS REST APIs**

| Resource               | Data Model                  | GET                                                                                                                                  | POST                               | PUT                                | DELETE                              |
|------------------------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|-------------------------------------|
| Software pool          | <a href="#">Table 48–14</a> | <ul style="list-style-type: none"> <li>■ <a href="#">Section 48.3.2.3.2</a></li> <li>■ <a href="#">Section 48.3.2.3.3</a></li> </ul> | Not supported                      | Not supported                      | <a href="#">Section 48.3.2.3.10</a> |
| DBaaS request settings | <a href="#">Table 48–26</a> | <a href="#">Section 48.3.3.4.1</a>                                                                                                   | <a href="#">Section 48.3.3.4.2</a> | Not supported                      | Not supported                       |
| DBaaS quota            | <a href="#">Table 48–30</a> | <a href="#">Section 48.3.4.4.1</a>                                                                                                   | <a href="#">Section 48.3.4.4.2</a> | <a href="#">Section 48.3.4.4.3</a> | <a href="#">Section 48.3.4.4.4</a>  |
| Service templates      | <a href="#">Table 48–36</a> | <a href="#">Section 48.3.5.3.1</a>                                                                                                   | <a href="#">Section 48.3.5.3</a>   | Not supported                      | Not supported                       |
| Service template       | <a href="#">Table 48–38</a> | <a href="#">Section 48.3.5.3.2</a>                                                                                                   | Not supported                      | Supported                          | <a href="#">Section 48.3.5.3.17</a> |

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## 48.2 Creating a New DBaaS Cloud Setup Using REST APIs

The Cloud Administrator sets up the cloud infrastructure for DBaaS. The figure below illustrates the steps to be followed to setup the DBaaS cloud setup.

**Figure 48–1 Creating a New DBaaS Cloud Resource**

As an example, [Table 48–2](#) illustrates a step-by-step process to create DBaaS using REST APIs and EM CLI verbs (where necessary).

---

**Note:** The process below provides references to the REST APIs wherever possible. However, you can perform the same operations using EM CLI verbs. To know the corresponding EM CLI verbs refer to Chapter 10, EM CLI Verbs for Database as a Service Administrator.

---

**Table 48–2** *Creating DBaaS using REST APIs*

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | <p>Create a PaaS infrastructure zone.</p> <p>Refer to <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a>.</p> <p><b>Note:</b> To view the existing PaaS zones perform a GET operation. Refer to <a href="#">Section 48.3.1.3.1, "Viewing Details of the PaaS Zones Resource"</a>.</p>                                                                                                                                                                                                                                                                                                       |
| 2    | <p>Create one of the following Database Pools:</p> <ul style="list-style-type: none"> <li>■ Database Pool - refer to <a href="#">Section 48.3.2.3.4, "Creating a Database Pool"</a></li> <li>■ Schema Pool - refer to <a href="#">Section 48.3.2.3.6, "Creating a Schema Pool"</a></li> <li>■ Pluggable Database Pool - refer to <a href="#">Section 48.3.2.3.8, "Creating a Pluggable Database Pool"</a></li> </ul> <p><b>Note:</b> To view the existing Database Pools perform a GET operation. Refer to <a href="#">Section 48.3.2.3.1, "Viewing Details of the Software Pools Resource"</a></p> |
| 3    | <p>Create DBaaS Request Settings for a user role. Refer to <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 4    | <p>Create Quota for a user role. Refer to <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>.</p> <p><b>Note:</b> This step is optional.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 5    | <p>Create a Profile to capture the source database information for provisioning. Refer to <a href="#">Chapter 47, "EM CLI Verbs for Database as a Service Administrator"</a>.</p> <p>A profile can represent a complete database or a set of related schemas that form an application.</p>                                                                                                                                                                                                                                                                                                          |

**Table 48–2 (Cont.) Creating DBaaS using REST APIs**

| Step | Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6    | <p>Create a Service Template for any one of the following based on the selected Database Pool:</p> <ul style="list-style-type: none"> <li>■ Database Pool - refer to: <ul style="list-style-type: none"> <li>■ <a href="#">Section 48.3.5.3.3, "Creating a Service Template for DBCA Based Database"</a></li> <li>■ <a href="#">Section 48.3.5.3.4, "Creating a Service Template for RMAN Based Single Instance Database"</a></li> <li>■ <a href="#">Section 48.3.5.3.5, "Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby"</a></li> <li>■ <a href="#">Section 48.3.5.3.6, "Creating a Service Template for RMAN Based RAC One Node Database"</a></li> <li>■ <a href="#">Section 48.3.5.3.7, "Creating a Service Template for RMAN Based RAC One Node Database With Standby"</a></li> <li>■ <a href="#">Section 48.3.5.3.8, "Creating a Service Template for RMAN Based RAC Database With Standby"</a></li> <li>■ <a href="#">Section 48.3.5.3.10, "Creating a Service Template for DNFS Based Database"</a></li> </ul> </li> <li>■ Schema Pool - refer to <a href="#">Section 48.3.5.3.13, "Creating a Service Template for a Schema"</a></li> <li>■ Pluggable Database Pool - refer to <a href="#">Section 48.3.5.3.14, "Creating a Service Template for a Pluggable Database"</a></li> </ul> |

The DBaaS cloud setup is ready to be administered.

## 48.3 Database as a Service Administrator Operations REST APIs

This section covers all the REST APIs for the Cloud Administrator flows. The REST APIs in this section are classified as follows:

- [PaaS Zones and PaaS Zone REST APIs](#)
- [Software Pools and Software Pool REST APIs](#)
- [Database Request Settings REST APIs](#)
- [Database Quota REST APIs](#)
- [Service Template REST APIs](#)

### 48.3.1 PaaS Zones and PaaS Zone REST APIs

The REST APIs in this section are categorized as PaaS zones REST APIs and PaaS zone REST APIs. PaaS zone represents a PaaS Infrastructure Zone whereas PaaS zones is a collection resource representing a Cloud Administrator's view of a group of all the accessible individual PaaS zone resources.

This section covers the following:

- [PaaS Zones REST APIs](#)

- [PaaS Zone REST APIs](#)
- [PaaS Zones and PaaS Zone REST API Examples](#)

#### 48.3.1.1 PaaS Zones REST APIs

PaaS zones is a collective representation of all the individual PaaS zone resources. PaaS zones has the media type `application/oracle.com.cloud.common.PaaSZones+json`.

The following table describes the PaaS zones data model.

**Table 48–3 PaaS Zones Data Model**

| Field         | Type                     | Description                                                                                          | Occurs |
|---------------|--------------------------|------------------------------------------------------------------------------------------------------|--------|
| Name          | String                   | Displays name of this collection resource.                                                           | 1      |
| Type          | String                   | Type of this collection resource.                                                                    | 1      |
| hasMore       | Boolean                  | Indicates whether there are more elements in the collection.                                         | 1      |
| Count         | Integer                  | Number of elements returned.                                                                         | 1      |
| Items         | Collection<br><PaaSZone> | List of PaaS zone resources. If there are no instances, the items will be present but will be empty. | 1      |
| totalCount    | Integer                  | Total number of PaaS zone resources.                                                                 | 1      |
| canonicalLink | URI                      | A GET against this URI refreshes the client representation of this resource.                         | 1      |
| selfLink      | URI                      | Refers to the resource equivalent to the containing elements.                                        | 1      |

##### 48.3.1.1.1 Supported Request Methods for PaaS Zones

The following table lists all the operations that are supported on the PaaS zones resources.

**Table 48–4 Supported Request Methods for PaaS Zones**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | Yes  | Yes | No     |

#### 48.3.1.2 PaaS Zone REST APIs

This resource represents a PaaS Infrastructure Zone. PaaS zone has the media type `application/oracle.com.cloud.common.PaaSZone+json`.

The following table describes the PaaS zone data model.

**Table 48–5 PaaS Zone Data Model**

| Field       | Name   | Description                                                               | Occurs |
|-------------|--------|---------------------------------------------------------------------------|--------|
| Name        | String | A human readable name given to the PaaS zone. This field is non-editable. | 1      |
| displayName | String | Display name for the PaaS zone.                                           | 0..1   |
| guid        | String | Unique GUID of the PaaS zone that identifies the resource.                | 1      |
| description | String | A brief description of the PaaS zone.                                     | 0..1   |
| targetType  | String | Target type of the PaaS zone to be created..                              | 1      |

**Table 48–5 (Cont.) PaaS Zone Data Model**

| Field                | Name                            | Description                                                                                                                     | Occurs |
|----------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------|--------|
| Members              | Collection<members>             | Members of PaaS zone. These must be added as EM targets in advance.                                                             | 1      |
| credentials          | Collection<PaaSzone_Credential> | Credentials associated with the PaaS zone.                                                                                      | 1      |
| placementConstraints | Collection<EntityValueHolder>   | Placement constraints for the PaaS zone that allows the cloud administrator to set a maximum ceilings for resource utilization. | 0..1   |
| characteristics      | Collection<EntityValueHolder>   | Characteristics associated with the PaaS zone.                                                                                  | 1      |
| canonicalLink        | URI                             | A GET against this URI refreshes the client representation of the PaaS zone.                                                    | 1      |

**48.3.1.2.1 Supported Request Methods for PaaS Zone**

The following table lists all the operations that are supported on the PaaS zone resources.

**Table 48–6 Supported Request Methods for PaaS Zone**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | No   | No  | Yes    |

**48.3.1.3 PaaS Zones and PaaS Zone REST API Examples**

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered:

- [Viewing Details of the PaaS Zones Resource](#)
- [Viewing Details of the PaaS Zone Resource](#)
- [Creating a PaaS Zone](#)
- [Updating a PaaS Zone](#)
- [Deleting a PaaS Zone](#)

**48.3.1.3.1 Viewing Details of the PaaS Zones Resource**

A GET request issued on the Resource Providers resource with the query parameter "type=self\_service\_zone" provides the details of all the individual PaaS zones which are already existing in the PaaS zones resource.

**Table 48–7 GET Request Configuration for Viewing Details of the PaaS Zones Resource**

| Feature         | Description                                                                                   |
|-----------------|-----------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders?type=self_service_zone |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json               |
| Body            | None                                                                                          |



**Table 48–7 (Cont.) GET Request Configuration for Viewing Details of the PaaS Zones**

| Feature        | Description |
|----------------|-------------|
| Request method | GET         |

A sample of the response received is shown below:

```
{
 "name": "Resource Providers",
 "type": "Resource Provider",
 "canonicalLink": {
 "href":
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceceproviders"
 },
 "totalResults": 1,
 "cfwItems": [
 {
 "id": "15",
 "name": "pzone1",
 "type": "self_service_zone",
 "guid": "A3CF2D49CFF3F3E664D073303EA51F8E",
 "canonicalLink": {
 "href":
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceceproviders/15"
 }
 },
 {
 "id": "16",
 "name": "Test Zone 2",
 "type": "self_service_zone",
 "guid": "EF3830C71CC54B50B963376F9217AB95",
 "canonicalLink": {
 "href":
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceceproviders/16"
 }
 },
 {
 "id": "17",
 "name": "test paas zone",
 "type": "self_service_zone",
 "guid": "5D7548C1B879A51CFD894CEA8D5FB19B",
 "canonicalLink": {
 "href":
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceceproviders/17"
 }
 },
 {
 "id": "18",
 "name": "Test Zone",
 "type": "self_service_zone",
 "guid": "34405E0876B271E754B1A829BDFD06B9",
 "canonicalLink": {
 "href":
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceceproviders/18"
 }
 }
]
}
```

```

 }
]
}

```

#### 48.3.1.3.2 Viewing Details of the PaaS Zone Resource

The GET request on the PaaS zone resource can be issued to retrieve its details. The configuration for GET to PaaS zone is as follows:

**Table 48–8 GET Request Configuration for Viewing Details of the PaaS Zones Resource**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below:

```

{
 "name": "My Test Zone",
 "type": "self_service_zone",
 "memberTargetType": "host",
 "members": [
 "example.com"
],
 "credentials": [
 { "name": "normal_credential_guid",
 "value": "NC_HOST_2015-10-09-095917" }
],
 "placementConstraints": [
 { "name": "MAX_CPU_UTILIZATION",
 "value": ["80"] },
 { "name": "MAX_MEMORY_ALLOCATION",
 "value": ["80"] }
],
 "memberConstraints": [],
 "characteristics": [
 { "name": "ORACLE.SYSMAN.CFW.SELF_SERVICE_ZONE",
 "value": ["34405E0876B271E754B1A829BDFD06B9"] },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
 "value": [] },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
 "value": [] },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
 "value": [] },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DOWNTIME_CONTACT",
 "value": [] },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
 "value": [] },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
 "value": [] },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
 "value": [] }
],
 "canonicalLink": { "href":

```

```
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23"}
}
```

#### 48.3.1.3.3 Creating a PaaS Zone

A PaaS zone is created with a POST request on the PaaS zones collection resource.

The configuration for POST to PaaS zones is as follows:

**Table 48–9 POST Request Configuration for Creating a PaaS Zone**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders                                                                                                                                                                                                                                                                                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                |
| Body            | { "useExistingTarget": false,<br>"name": "My Test Zone",<br>"type": "self_service_zone",<br>"credentials": [<br>{ "name": "normal_credential_guid",<br>"value": "MY_ZONE_CREDS0afb3e85-f" }<br>],<br>"memberTargetType": "host",<br>"members": [ "example.com" ],<br>"placementConstraints": [<br>{ "name": "MAX_CPU_UTILIZATION",<br>"value": "90" }<br>] } } |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                           |

A sample of the response received is shown below.

```
{
 "message": "Resource provider with name \"My Test Zone\" and type \"self_service_zone\" created successfully.",
 "canonicalLink": {
 "href":
 "https://example.com:44533/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23"
 }
}
```

#### 48.3.1.3.4 Updating a PaaS Zone

The PUT request with payload updates an existing PaaS Infrastructure Zone.

The configuration for PUT to PaaS zones is as follows:

**Table 48–10 PUT Request Configuration for Updating a PaaS Zone**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–10 (Cont.) PUT Request Configuration for Updating a PaaS Zone**

| Feature        | Description                                                                                                                                                                                                                                                                  |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "memberTargetType": "host",   "credentials": [     {       "name": "normal_credential_guid",       "value": "NC_HOST_2015-10-09-095917"     }   ],   "placementConstraints": [     {       "name": "MAX_CPU_UTILIZATION",       "value": [ "92" ]     }   ] }</pre> |
| Request method | PUT                                                                                                                                                                                                                                                                          |

A sample of the response received is shown below.

```
{
 "message": "Resource provider with ID \"23\" updated successfully."
}
```

#### 48.3.1.3.5 Deleting a PaaS Zone

The DELETE request on the URI of the PaaS zone can be issued to delete a PaaS zone Instance.

The configuration for deleting in PaaS zone is as follows:

**Table 48–11 DELETE Request Configuration to delete a PaaS Zone**

| Feature         | Description                                                               |
|-----------------|---------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/23 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                             |
| Body            | None                                                                      |
| Request method  | DELETE                                                                    |

```
{
 "message": "Resource provider with ID \"23\" deleted successfully."
}
```

## 48.3.2 Software Pools and Software Pool REST APIs

This section covers the following:

- [Software Pools](#)
- [Software Pool](#)
- [Software Pool REST API Examples](#)

### 48.3.2.1 Software Pools

Software pools is a collection resource representing an SSA Administrator's view of all the accessible individual Software pool resources. Software pools has the media type `application/oracle.com.cloud.common.SoftwarePools+json`.

The following table describes the Software pools data model.

**Table 48–12 Software Pools Data Model**

| Field         | Type                     | Description                                                                                          | Occurs |
|---------------|--------------------------|------------------------------------------------------------------------------------------------------|--------|
| Name          | String                   | Displays name of this collection resource.                                                           | 1      |
| Type          | String                   | Type of this collection resource.                                                                    | 1      |
| hasMore       | Boolean                  | Indicates whether there are more elements in the collection.                                         | 1      |
| Count         | Integer                  | Number of elements returned.                                                                         | 1      |
| Items         | Collection<br><PaaSZone> | List of PaaS zone resources. If there are no instances, the items will be present but will be empty. | 1      |
| totalCount    | Integer                  | Total number of PaaS zone resources.                                                                 | 1      |
| canonicalLink | URI                      | A GET against this URI refreshes the client representation of this resource.                         | 1      |
| selfLink      | URI                      | Refers to the resource equivalent to the containing elements.                                        | 1      |

**48.3.2.1.1 Supported Request Methods for Software Pools**

The following table lists all the operations that are supported on the Software pools resources.

**Table 48–13 Supported Request Methods for Software Pools**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | Yes  | Yes | No     |

**48.3.2.2 Software Pool**

A Software pool resource represents a collection of homogeneous servers or clusters that are used to service requests within a PaaS Infrastructure Zone. All members within a Software pool must be of the same type and must belong to the same PaaS Infrastructure Zone.

Software pool has the media type

`application/oracle.com.cloud.common.SoftwarPool+json.`

The following table describes the Software pool data model.

**Table 48–14 Software Pool Data Model**

| Field          | Type                   | Description                                                                                                                                                                | Occurs |
|----------------|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Name           | String                 | A human readable name given to the Software pool.                                                                                                                          | 1      |
| ID             | String                 | Pool GUID that uniquely identifies the resource.                                                                                                                           | 1      |
| Description    | String                 | As brief description given to the software pool.                                                                                                                           | 0..1   |
| poolTargetType | String                 | Target type of the Software Pool to be created. Example : "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool, "pdbaas_pool" for Pluggable Database Pool. | 1      |
| paasZone       | String                 | Name of the PaaS zone associated with this Software Pool.                                                                                                                  | 1      |
| Members        | Collection<br><String> | Members of PaaS zone. They can be either Host members or Oracle VM Zone members.                                                                                           | 1      |

**Table 48–14 (Cont.) Software Pool Data Model**

| Field           | Type                                | Description                                                                                                                             | Occurs |
|-----------------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|--------|
| memberType      | String                              | The target type of the members of PaaS zone. It can be either "host" for Host members or "oracle_vm_zone" for Oracle VM Zone members.   | 1      |
| Constraints     | Collection<br><Entity Value Holder> | Placement Policy Constraints for a software pool allow the self service administrator to set maximum ceilings for resource utilization. | 0..1   |
| Filters         | Collection<br><Entity Value Holder> | Filters on a Software Pool restrict the addition of member targets to it with a set criteria.                                           | 1      |
| Properties      | Collection<br><String>              | Additional properties that need to be specified for a specific pool target type.                                                        | 1      |
| membersToAdd    | Collection<br><String>              | Targets to be added to an existing Software Pool while editing it.                                                                      | 0..1   |
| membersToRemove | Collection<br><String>              | Targets to be removed from an existing Software Pool while editing it.                                                                  | 0..1   |
| canonicalLink   | URI                                 | A GET against this URI refreshes the client representation of this resource.                                                            | 1      |

**48.3.2.2.1 Supported Request Methods for Software Pool**

The following table lists all the operations that are supported on the Software pool resources.

**Table 48–15 Supported Request Methods for Software Pool**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | No   | No  | Yes    |

**48.3.2.3 Software Pool REST API Examples**

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered here:

- [Viewing Details of the Software Pools Resource](#)
- [Viewing Details of a Software Pool Resource](#)
- [Viewing Details of a Software Pool Capacity](#)
- [Creating a Database Pool](#)
- [Updating a Database Pool](#)
- [Creating a Schema Pool](#)
- [Updating a Schema Pool](#)
- [Creating a Pluggable Database Pool](#)
- [Updating a Pluggable Database Pool](#)
- [Deleting a Database / Schema / Pluggable Database Pool](#)

**48.3.2.3.1 Viewing Details of the Software Pools Resource**

**Table 48–16** *GET Request Configuration for Viewing Details of the Software Pools Resource*

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name": "Software Pools",
 "type": "Software Pool",
 "hasMore": false,
 "count": 4,
 "items": [
 {
 "name": "SI Databases Zone",
 "type": "oracle_cloud_zone",
 "id": "EF658526512C5CFEF593EB295D0CFAD5",
 "zoneName": "Salt Lake City Zone",
 "canonicalLink":
 "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
 softwarepools/EF658526512C5CFEF593EB295D0CFAD5"
 },
 {
 "name": "Pluggable Databases Pool",
 "type": "pdbaas_pool",
 "id": "9FC634F035161C9260CD943970BAC1C8",
 "zoneName": "Salt Lake City Zone",
 "canonicalLink":
 "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
 softwarepools/9FC634F035161C9260CD943970BAC1C8"
 },
 {
 "name": "Primary DB Pool",
 "type": "oracle_cloud_zone",
 "id": "B1E3A8872D1A503DA1F1756CD18207B4",
 "zoneName": "Salt Lake City II",
 "canonicalLink":
 "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
 softwarepools/B1E3A8872D1A503DA1F1756CD18207B4"
 },
 {
 "name": "Standby DB Pool",
 "type": "oracle_cloud_zone",
 "id": "A5B6272EC680EFAB1B53842EC4256AAB",
 "zoneName": "Salt Lake City II",
 "canonicalLink":
 "https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
 softwarepools/A5B6272EC680EFAB1B53842EC4256AAB"
 }
],
 "totalCount": 4,
 "canonicalLink":
```

```

"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools",
 "selfLink":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/
softwarepools"
}

```

#### 48.3.2.3.2 Viewing Details of a Software Pool Resource

The GET request on the Software pool URI can be issued to retrieve its details.

The configuration for GET on Software pool is as follows:

**Table 48–17 GET Request Configuration for Viewing Details of the Software Pool Resource**

| Feature         | Description                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                     |
| Body            | None                                                                                                |
| Request method  | GET                                                                                                 |

A sample of the response received is shown below.

```

{
 "name": "DB_POOL",
 "description": "Database Pool of Oracle Homes",
 "type": "Database Zone",
 "id": "E827809080C16F75E040F20A60511EA2",
 "zoneName": "SLC01MDR_ZONE",
 "members": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/a
dmin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/members",
 "numberOfPoolMembers": "1"
 },
 "constraints": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/a
dmin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/constraints",
 "numberOfConstraints": "1"
 },
 "filters": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/a
dmin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/filters",
 "numberOfFilters": "3"
 },
 "properties": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ad
min/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/properties",
 "numberOfPropertiess": "0"
 },
 "createdOn": "2013-10-07 06:27:17",
 "createdBy": null,

```



```

"modifiedOn":null,
"modifiedBy":null,
"owner":"SYSMAN",
"etag":null,
"lastModified":null,
"canonicalLink":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2",
"selfLink":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2"
}

```

#### 48.3.2.3.3 Viewing Details of a Software Pool Capacity

The GET request on the Software pool capacity URI can be issued to retrieve its details.

In the table below, the URI to view the Software pool capacity is

/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/C0DE0DEB3A8195A4707704360463060B/capacity. However, it can be modified to add certain query parameters to view the desired output. The query parameters and their descriptions are given below:

- **showUsageSummary:** Includes resource utilization data at pool level. Values can be “yes”, “y”, or “true” which are all case insensitive. If value is not provided or if the given value is other than the listed values, "usageSummary" will not be available in the response.
- **showMemberLevelUsage:** Includes resource utilization data at pool member level. Values can be “yes”, “y”, or “true” which are all case insensitive. If value is not provided or if the given value is other than the listed values, "memberLevelUsage" will not be available in the response.
- **diskGroups:** Provides the list of ASM disk group names for storage computation. If the value is not provided, storage values will not be available in the response. Multiple values can be provided by using the format given below in the request URI:  
  
diskGroups=<Value1>&diskGroups=<Value2>&...
- **cpuMemAveUtilDays:** Indicates the number of days to include the collected metrics for computing CPU and memory utilization. If no value is provided, the default value is taken as 7 days.

The configuration for GET on Software pool is as follows:

**Table 48–18 GET Request Configuration for Viewing Details of the Software Pool Capacity**

| Feature         | Description                                                                                                                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E284FAAA7FBA6A06F7090115A3E07299/capacity?showMemberLevelUsage=y&showUsageSummary=true&diskGroups=RECOC1&diskGroups=DATAC1&cpuMemAveUtilDays=3 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                   |
| Body            | None                                                                                                                                                                                                              |
| Request method  | GET                                                                                                                                                                                                               |

A sample of the response received is shown below.

```
{
 "name": "DB Pool 1",
 "type": "oracle_cloud_zone",
 "poolInfo": {
 "poolName": "DB Pool 1",
 "poolId": "CODE0DEB3A8195A4707704360463060B",
 "poolDescription": "Exadata hosts Oracle Home",
 "dbConfiguration": "Cluster Database",
 "dbVersion": "12.1.0.2.0",
 "paasZone": "zone1"
 },
 "standByPools": [
 {
 "poolName": "Standby Pool 1",
 "poolId": "6AF0F5A23BE120F4EAEC29236853D6B8",
 "poolDescription": "Standby Oracle Home",
 "dbConfiguration": "Cluster Database",
 "dbVersion": "12.1.0.2.0",
 "paasZone": "zone2"
 }
],
 "usageSummary": {
 "numberOfDbs": "2",
 "numberOfHosts": "2",
 "cores": {
 "total": "64",
 "allocated": "8",
 "available": "56",
 "unit": "cores"
 },
 "memory": {
 "total": "504",
 "allocated": "3.53",
 "available": "500.47",
 "unit": "GB"
 },
 "storage": {
 "total": "29073.24",
 "allocated": "12765.99",
 "available": "16307.25",
 "unit": "GB"
 }
 },
 "memberLevelUsage": [
 {
 "host": "MyHost1.example.com",
 "oracleHomeLocation": "/u01/app/oracle/product/12.1.0.2/dbhome_1",
 "numberOfDbs": "1",
 "cores": {
 "total": "32",
 "allocated": "4",
 "available": "28",
 "unit": "cores"
 },
 "cpuUtilizationPercentage": "12.77",
 "memory": {
 "total": "251.99",
 "allocated": "1.77",
 "available": "250.23",
 "unit": "GB",
 "memoryUtilizationPercentage": "59.66"
 }
 },
 {
 "host": "MyHost2.example.com",
 "oracleHomeLocation": "/u01/app/oracle/product/12.1.0.2/dbhome_1",
 "numberOfDbs": "1",
 "cores": {
 "total": "32",
 "allocated": "4",
 "available": "28",
 "unit": "cores"
 },
 "cpuUtilizationPercentage": "9.45",
 "memory": {

```

```
{
 "total": "251.99",
 "allocated": "1.77",
 "available": "250.23",
 "unit": "GB",
 "memoryUtilizationPercentage": "66.75"
}],
"canonicalLink": "https://MyHost.example.com:4900/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/C0DE0DEB3A8195A4707704360463060B/capacity"}
```

48.3.2.3.4 Creating a Database Pool

A POST operation is issued on Software Pools Collection resource to create a Database Pool.

The configuration for POST to Software pools is as follows:

Table 48–19 POST Request Configuration for Creating a Database Pool

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–19 (Cont.) POST Request Configuration for Creating a Database Pool**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre>{   "name": "DB_POOL",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "SLC01MDR_ZONE",   "members": [     "OraDb11g_home1_2_slc01mdr"   ],   "serviceFamily": "DBAAS",   "serviceType": "DBAAS",   "constraints": {     "items": [       { "name": "MAX_INSTANCES",         "value": "10" }     ]   },   "filters": {     "items": [       { "name": "CONFIGURATION",         "value": "oracle_database" },       { "name": "VERSION",         "value": "11.2.0.2.0" },       { "name": "PLATFORM",         "value": "226" }     ]   },   "properties": {     "items": [       { "name": "host_credential_guid",         "value": "E84E88308E46A725E040F20A605125DD" },       { "name": "root_credential_guid",         "value": "E84E88308E46A725E040F20A605125DD" },       { "name": "standby_pools",         "value": "DB_POOL1  DB_POOL2" }     ]   } }</pre> |

**Note:**

- **name:** Indicates the name of the pool.
- **poolTargetType:** Indicates the target type for DBaaS pool. `oracle_cloud_zone` is the target type specific for DB OH pool.
- **paasZone:** Indicates the name of the PaaS infrastructure zone.
- **members:** Is a comma and string separated list of target names of Oracle homes, and members of the pool.
- **constraints:** Indicates the constraints on the pool. Allowed values is `MAX_INSTANCES`.
- **filters:** Indicates the filters applicable to define the version and type of the oracle homes of the pool, including `VERSION`, `CONFIGURATION` (`oracle_database`, `rac_database`) and `PLATFORM` (provide reference to list of code, for example, 226 for linux).
- **properties:** Indicates the collection resource to define properties of the pool like Host credential GUID, Root credential GUID, and Standby pools. To identify the Named credential GUID use the EM CLI verb `emcli list_named_credential` or `emcli get_named_credential`.

**Table 48–19 (Cont.) POST Request Configuration for Creating a Database Pool**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "name": "DB_POOL",
 "description": "Database Pool of Oracle Homes",
 "type": "Database Zone",
 "id": "E827809080C16F75E040F20A60511EA2",
 "zoneName": "SLC01MDR_ZONE",
 "members": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/members",
 "numberOfPoolMembers": "1"
 },
 "constraints": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/constraints",
 "numberOfConstraints": "1"
 },
 "filters": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/filters",
 "numberOfFilters": "3"
 },
 "properties": {

 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2/properties",
 "numberOfPropertiess": "0"
 },
 "createdOn": "2013-10-07 06:27:17",
 "createdBy": null,
 "modifiedOn": null,
 "modifiedBy": null,
 "owner": "SYSMAN",
 "etag": null,
 "lastModified": null,
 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2",
 "selfLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2"
}
```

#### 48.3.2.3.5 Updating a Database Pool

A PUT operation is issued on Software Pools Collection resource to update a Database Pool.

The configuration for PUT to Software pools is as follows:

**Table 48–20 PUT Request Configuration for Updating a Database Pool**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Body            | <pre>{   "name": "DB_POOL",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "membersToAdd": [     "OraDb11g_home1_2_abc"],   "membersToRemove": [     "OraDb11g_home1_2_abc"],   "constraints":     { "items": [{"name": "MAX_INSTANCES", "value":       "8"}]},   "properties":     { "items": [       { "name": "host_credential_guid", "value":         "E84E88308E46A725E040F20A605125DD"},       { "name": "root_credential_guid", "value":         "E84E88308E46A725E040F20A605125DD"},       { "name": "standby_pools", "value": "DB_POOL" }     ]} }</pre> <p><b>Note:</b> Ensure at least one member remains as a part of the pool while issuing the request. If all the members are added to the membersToRemove attribute, the PUT request may fail.</p> |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 message: "Software Pool " DB_POOL" updated successfully."
}
```

#### 48.3.2.3.6 Creating a Schema Pool

A POST operation is issued on Software Pools Collection resource to create a Software Pool.

The configuration for POST to Software pools is as follows:

**Table 48–21 POST Request Configuration for Creating a Schema Pool**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–21 (Cont.) POST Request Configuration for Creating a Schema Pool**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "SCHEMA_POOL",   "poolTargetType": "schaas_pool",   "description": "Schema Service Pool",   "paasZone": "SLC01MDR_ZONE",   "members": ["simple.example.com"],   "serviceFamily": "DBAAS",   "serviceType": "SCHEMA",   "constraints":   {     "items": [       {"name": "MAX_SERVICES", "value": "20"},       {"name": "USE_WORKLOAD", "value": "true"},       {"name": "MAX_CPU_USAGE", "value": "90"},       {"name": "MAX_MEMORY_USAGE", "value": "90"},       {"name": "ENFORCE_CPU", "value": "true"}     ]   },   "filters":   {     "items": [       {"name": "TARGET_TYPE", "value": "oracle_database"},       {"name": "VERSION", "value": "11.2.0.2.0"},       {"name": "PLATFORM", "value": "226"}     ]   } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
 "name": "SCHEMA_POOL",
 "description": "Schema Service Pool",
 "type": "Schema Pool",
 "id": "2CFF36A9E92AAD533253871374857D8C",
 "zoneName": "SLC01MDR_ZONE",
 "members": {

 "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/members",
 "numberOfPoolMembers": "1"},
 "constraints": {

 "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/constraints",
 "numberOfConstraints": "5"},
 "filters": {

 "canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/filters",
 "numberOfFilters": "3"},
 "properties": {
```

```

"canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C/properties",
 "numberOfPropertiess": "0"},
"createdOn": "2013-10-07 08:13:48",
"createdBy": null,
"modifiedOn": null,
"modifiedBy": null,
"owner": "SYSMAN",
"etag": null,
"lastModified": null,
"canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C",
"selfLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/2CFF36A9E92AAD533253871374857D8C"
}

```

#### 48.3.2.3.7 Updating a Schema Pool

A PUT operation is issued on Software Pools Collection resource to update a Software Pool.

The configuration for PUT to Software pools is as follows:

**Table 48–22 PUT Request Configuration for Updating a Schema Pool**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Body            | <pre> {   "name": "SCHEMA_POOL",   "poolTargetType": "schaas_pool",   "description": "Schema Service Pool",   "membersToAdd": [     "xyxy.example.com"],   "membersToRemove": [     "simple.us.example.com"],   "constraints":   {     "items": [       {"name": "MAX_SERVICES", "value": "10"},       {"name": "USE_WORKLOAD", "value": "false"},       {"name": "MAX_CPU_USAGE", "value": "90"},       {"name": "MAX_MEMORY_USAGE", "value": "90"},       {"name": "ENFORCE_CPU", "value": "false"}     ]   }, } </pre> <p><b>Note:</b> Ensure at least one member remains as a part of the pool while issuing the request. If all the members are added to the membersToRemove attribute, the PUT request may fail.</p> |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

A sample of the response received is shown below.

```

Status 200 OK
Content-Type: application/json

```



```
{
 message: "Software Pool "SCHEMA_POOL" updated successfully.
}
```

#### 48.3.2.3.8 Creating a Pluggable Database Pool

A POST operation is issued on Software Pools collection resource to create a Software Pool.

The configuration for POST to Software pools is as follows:

**Table 48–23 POST Request Configuration for Creating a Pluggable Database Pool**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Body            | <pre>{   "name": "PDB_POOL",   "poolTargetType": "pdbaas_pool",   "description": "Pluggable Database Pool",   "paasZone": "PDB_ZONE",   "members": ["database"],   "serviceFamily": "DBAAS",   "serviceType": "PDB",   "constraints": {     "items": [       {"name": "MAX_PDB_SERVICES", "value": "20"},       {"name": "PDBS_USE_WORKLOAD", "value": "true"},       {"name": "MAX_CPU_USAGE_BY_PDBS", "value": "90"},       {"name": "MAX_MEMORY_USAGE_BY_PDBS", "value": "90"},       {"name": "PDBS_ENFORCE_CPU", "value": "true"}     ]   },   "filters": {     "items": [       {"name": "TARGET_TYPE_CDB", "value": "oracle_database"},       {"name": "VERSION_CDB", "value": "12.1.0.1.0"},       {"name": "PLATFORM_CDB", "value": "226"}     ]   } }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
 "name": "PDB_POOL",
 "description": "Pluggable Database Pool",
 "type": "Pdb Pool",
 "id": "E82952BD4C94D443E040F20A605114E6",
 "zoneName": "PDB_ZONE",
 "members": {
```

```

"canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudserv
ices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/members",
 "numberOfPoolMembers": "1"
},
"constraints": {

"canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudserv
ices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/constraints",
 "numberOfConstraints": "5"
},
"filters": {

"canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudserv
ices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/filters",
 "numberOfFilters": "3"
},
"properties": {

"canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudserv
ices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6/properties",
 "numberOfPropertiess": "0"},
"createdOn": "2013-10-07 08:29:51",
"createdBy": null,
"modifiedOn": null,
"modifiedBy": null,
"owner": "SYSMAN",
"etag": null,
"lastModified": null,
"canonicalLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudserv
ices/admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6",
"selfLink": "https://xyxy.example.com:11180/em/websvcs/restful/extws/cloudservices/
admin/cfw/v1/softwarepools/E82952BD4C94D443E040F20A605114E6"
}

```

#### 48.3.2.3.9 Updating a Pluggable Database Pool

A PUT operation is issued on Software Pools Collection resource to update a Software Pool.

The configuration for PUT to Software pools is as follows:

**Table 48–24 PUT Request Configuration for Updating a Pluggable Database Pool**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–24 (Cont.) PUT Request Configuration for Updating a Pluggable Database Pool**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "PDB_POOL",   "poolTargetType": "pdbaas_pool",   "description": "Pluggable Database Pool",   "membersToAdd": [     "simple.us.example.com"],   "membersToRemove": [     "simple1.us.example.com"],   "constraints":     {       "items": [         {"name": "MAX_PDB_SERVICES", "value": "10"},         {"name": "PDBS_USE_WORKLOAD", "value": "false"},         {"name": "MAX_CPU_USAGE_BY_PDBS", "value": "90"},         {"name": "MAX_MEMORY_USAGE_BY_PDBS", "value": "90"},         {"name": "PDBS_ENFORCE_CPU", "value": "false"}       ]     }, }</pre> <p><b>Note:</b> Ensure at least one member remains as a part of the pool while issuing the request. If all the members are added to the membersToRemove attribute, the PUT request may fail.</p> |
| Request method | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 message: "Software Pool "PDB_POOL" updated successfully."
}
```

#### 48.3.2.3.10 Deleting a Database / Schema / Pluggable Database Pool

To delete a SoftwarePool Instance raise the DELETE request on the URI of the Database pool.

The configuration for deleting a Software pool is as follows:

**Table 48–25 DELETE Request Configuration for Deleting a Database/Schema/Pluggable Database Pool**

| Feature         | Description                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E827809080C16F75E040F20A60511EA2 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                       |
| Body            | None                                                                                                |
| Request method  | DELETE                                                                                              |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 message: "Software Pool " E827809080C16F75E040F20A60511EA2" deleted successfully."
}
```

}

### 48.3.3 Database Request Settings REST APIs

This section describes the REST request/response interactions for Database Request Settings.

---

**Note:** Request Settings REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.7.0 and higher.

---

The topics covered in this section are:

- [Database Request Settings Resource Model](#)
- [Dbaas Request Settings Resource](#)
- [Supported Operations for Dbaas Request Settings](#)
- [Dbaas Request Settings REST API Examples](#)

#### 48.3.3.1 Database Request Settings Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Database Request Settings) provide resources by extending these common service entities. The Database Request Settings is a cloud resource for which instance does not exist.

The following sections describe the resources that are supported by the Database Request Settings REST APIs and provide examples of supported operations.

#### 48.3.3.2 Dbaas Request Settings Resource

The Dbaas Request Settings extends the cloud resource. It describes the database request settings related to service instances. Dbaas Request Settings has media type - `application/oracle.com.cloud.common.DbaasRequestSettings+json`.

The following table describes the Dbaas Request Settings data model.

**Table 48–26 DBaaS Request Settings Data Model**

| Field               | Type          | Description                                                                                                                                                         | Occurs |
|---------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                 | URI           | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                | String        | A human readable name given to the template.                                                                                                                        | 1      |
| description         | String        | A brief description given to the template                                                                                                                           | 1      |
| resource_state      | ResourceState | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| media_type          | String        | The media type of the service template.                                                                                                                             | 1      |
| service_family_type | String        | Dbaas                                                                                                                                                               | 1      |
| canonicalLink       | URI           | Can be used to perform cloud interactions like GET and POST.                                                                                                        | 1      |
| RequestSettings     | String        | The current database request settings.                                                                                                                              | 1      |

### 48.3.3.3 Supported Operations for DbaaS Request Settings

The following table lists all the operations that are supported on the database quota service resources.

**Table 48–27 Supported Operations for DBaaS Request Settings**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | Yes  | Yes | Yes    |

### 48.3.3.4 DbaaS Request Settings REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered:

- [Viewing Details of the DbaaS Request Settings Resource](#)
- [Creating Database Request Settings](#)

#### 48.3.3.4.1 Viewing Details of the DbaaS Request Settings Resource

The table below shows the REST API configuration for viewing details of the DBaaS request setting resource.k

**Table 48–28 GET Request Configuration for Viewing Details of the DBaaS Request Setting Resource**

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| URI             | em/cloud/dbaas/requestsettings                |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= |
| Body            | None                                          |
| Request method  | GET                                           |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/requestsettings" ,
 "name" : "DbaaS Request Settings" ,
 "description" : "DbaaS Request settings" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "media_type" : "application/oracle.com.cloud.common.DbaaSRequestSettings+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/requestsettings" ,
 "Request Settings" : {
 "futureReservationLength" : "No Reservation" ,
 "defaultRetirementPeriod" : "No Reservation" ,
 "maximumArchiveDuration" : "No Reservation"
 }
}
```

#### 48.3.3.4.2 Creating Database Request Settings

This section describes how to create the request settings using the cloud resources.

The configuration for POST to DbaaSRequestSettings is as follows:

**Table 48–29 POST Request Configuration for Creating DBaaS Request Settings**

| Feature         | Description                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/cloud/dbaas/requestsettings                                                                                                                                                                                      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbaasRequestSettings+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbaasRequestSettings+json |
| Body            | {<br>"future_reservation_length" : "2 Months",<br>"maximum_archive_duration" : "10 Weeks",<br>"default_retirement_period" : "No Reservation"<br>}                                                                   |
| Request method  | POST                                                                                                                                                                                                                |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/requestsettings" ,
 "name" : "Dbaas Request Settings" ,
 "description" : "Dbaas Request settings" ,
 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T09:13:03+0000" ,
 "text" : "Request settings have been updated."
 }
]
 } ,
 "media_type" : "application/oracle.com.cloud.common.DbaasRequestSettings+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/requestsettings"
}
```

#### 48.3.4 Database Quota REST APIs

This section describes the REST request/response interactions for setting up Quota.

---

**Note:** Quota REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.7.0 and higher.

---

The topics covered in this section are:

- [Database Quota Resource Model](#)
- [Dbaas Quota Resource](#)
- [Supported Operations for DbaaS Quota](#)
- [Database Quota REST API Examples](#)

### 48.3.4.1 Database Quota Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Database Quota) provide resources by extending these common service entities. The Database Quota is a cloud resource for which an instance does not exist.

The following sections describe the resources that are supported by the Database Quota REST APIs and provide examples of supported operations.

### 48.3.4.2 DbaaS Quota Resource

The DbaaS Quota extends the cloud resource. It describes the quota settings for all roles. DbaaS Quota has the media type `application/oracle.com.cloud.common.DbaaSQuota+json`.

The following table describes the DbaaS Quota data model.

**Table 48–30 DbaaS Quota Data Model**

| Field               | Type   | Description                                                                                                                                                         | Occurs |
|---------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                 | URI    | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                | String | A human readable name given to the template.                                                                                                                        | 1      |
| description         | String | A brief description given to the template                                                                                                                           | 1      |
| resource_state      | String | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| media_type          | String | The media type of the service template that this type represents                                                                                                    | 1      |
| service_family_type | String | DbaaS                                                                                                                                                               | 1      |
| canonicalLink       | URI    | Can be used to perform cloud interactions like GET and POST.                                                                                                        | 1      |
| databases           | String | The databases usage report.                                                                                                                                         | 1      |
| schema_services     | String | The schema services usage report.                                                                                                                                   | 1      |
| pluggable_databases | String | The pluggable databases usage report.                                                                                                                               | 1      |
| memory              | String | The memory usage report.                                                                                                                                            | 1      |
| storage             | String | The storage usage report.                                                                                                                                           | 1      |
| Quota               | String | The Quota setup details for a role.                                                                                                                                 | 1      |

### 48.3.4.3 Supported Operations for DbaaS Quota

The following table lists all the operations that are supported on the Database quota resources.

**Table 48–31 Supported Operations for DbaaS Quota**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | Yes  | Yes | Yes    |

#### 48.3.4.4 Database Quota REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered:

- [Viewing Details of the DBaaS Quota Resource](#)
- [Creating DBaaS Quota for a Role](#)
- [Updating DBaaS Quota for a Role](#)
- [Deleting DBaaS Quota for a Role](#)

##### 48.3.4.4.1 Viewing Details of the DBaaS Quota Resource

**Table 48–32** *GET Request Configuration for Viewing Details of the DBaaS Quota Resource*

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| URI             | em/cloud/dbaas/quota                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= |
| Body            | None                                          |
| Request method  | GET                                           |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/quota" ,
 "name" : "Dbaas User Quota" ,
 "description" : "User Quota for the user" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "media_type" : "application/oracle.com.cloud.common.DbaasQuota+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/quota" ,
 "databases" : {
 "quota" : "Unlimited" ,
 "used" : "1" ,
 "unit" : "Instance"
 } ,
 "schema_services" : {
 "quota" : "Unlimited" ,
 "used" : "1" ,
 "unit" : "Instance"
 } ,
 "pluggable_databases" : {
 "quota" : "Unlimited" ,
 "used" : "1" ,
 "unit" : "Instance"
 } ,
 "memory" : {
 "quota" : "Unlimited" ,
 "used" : "0.79" ,
 "unit" : "GB"
 } ,
 "storage" : {
 "quota" : "Unlimited" ,
```



```

 "used" : "3.38" ,
 "unit" : "GB"
 } ,
 "Quotas" :
 [
 {
 "Role Name" : "DBAAS_ROLE" ,
 "Memory(GB)" : "99" ,
 "Storage(GB)" : "99" ,
 "Number of Database Requests" : "99" ,
 "Number of Schema Service Requests" : "99" ,
 "Number of Pluggable database Service Requests" : "99"
 }
]
}

```

#### 48.3.4.4.2 Creating DBaaS Quota for a Role

This section describes how to create/setup a quota for a role using the Cloud resources.

The configuration for POST to Dbaas Quota is as follows:

**Table 48–33 POST Request Configuration for Creating a DBaaS Quota for a Role**

| Feature         | Description                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/cloud/dbaas/quota                                                                                                                                                                    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.DbaasQuota+json<br>Accept:<br>application/oracle.com.cloud.common.DbaasQuota+json |
| Body            | {<br>"role_name" : "DBAAS_ROLE",<br>"databases" : "10",<br>"schema_services" : "21",<br>"pluggable_databases" : "22",<br>"storage" : "99",<br>"memory" : "99"<br>}                      |
| Request method  | POST                                                                                                                                                                                    |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/quota" ,
 "name" : "Dbaas User Quota" ,
 "description" : "User Quota for the user" ,
 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T08:58:48+0000" ,
 "text" : "Quota for Role DBAAS_ROLE setup successfully."
 }
]
 }
}

```

```

 "media_type" : "application/oracle.com.cloud.common.DbaasQuota+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/quota"
}

```

#### 48.3.4.4.3 Updating DBaaS Quota for a Role

This section describes how update the quota already setup for a role using the Cloud resources.

The configuration for PUT to DBaaS Quota is as shown in the table below.

**Table 48–34 PUT Request Configuration for Updating a DBaaS Quota for a Role**

| Feature         | Description                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/cloud/dbaas/quota                                                                                                                                                                    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.DbaasQuota+json<br>Accept:<br>application/oracle.com.cloud.common.DbaasQuota+json |
| Body            | {<br>"role_name" : "DBAAS_ROLE",<br>"databases" : "10",<br>"schema_services" : "21",<br>"pluggable_databases" : "22",<br>"storage" : "99",<br>"memory" : "99"<br>}                      |
| Request method  | PUT                                                                                                                                                                                     |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/quota" ,
 "name" : "Dbaas User Quota" ,
 "description" : "User Quota for the user" ,
 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T09:01:56+0000" ,
 "text" : "Quota for Role DBAAS_ROLE updated successfully."
 }
]
 } ,
 "media_type" : "application/oracle.com.cloud.common.DbaasQuota+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/quota"
}

```

#### 48.3.4.4.4 Deleting DBaaS Quota for a Role

This section describes how delete the quota setup for a role using the Cloud resources.

The configuration for deleting in DBaaS Quota is as follows:

**Table 48–35 DELETE Request Configuration for Deleting a DBaaS Quota for a Role**

| Feature         | Description                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/cloud/dbaas/quota                                                                                                                                                                    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.DbaasQuota+json<br>Accept:<br>application/oracle.com.cloud.common.DbaasQuota+json |
| Body            | {<br>"role_name" : "SSA_USER_ROLE"<br>}                                                                                                                                                 |
| Request method  | DELETE                                                                                                                                                                                  |

A sample of the response received is shown below.

```
{
 "uri": "/em/cloud/dbaas/quota",
 "name": "Dbaas User Quota",
 "description": "User Quota for the user",
 "resource_state": {
 "state": "READY",
 "messages": [
 {
 "text": "Quota for Role SSA_USER_ROLE deleted successfully.",
 "date": "2015-12-08T07:18:08+0000"
 }
]
 },
 "media_type": "application/oracle.com.cloud.common.DbaasQuota+json",
 "service_family_type": "dbaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/quota"
}
```

## 48.3.5 Service Template REST APIs

This section covers the following:

- [Service Templates Resource](#)
- [Service Template Resource](#)
- [Service Templates and Service Template REST API Examples](#)

### 48.3.5.1 Service Templates Resource

Service Templates is a collection resource representing a Cloud Administrator's view of all the accessible service template resources. Service Templates has the media type application/oracle.com.cloud.common.ServiceTemplates+json.

The following table describes the Service Templates data model.

**Table 48–36 Service Templates Data Model**

| Field         | Type                            | Description                                                                  | Occurs |
|---------------|---------------------------------|------------------------------------------------------------------------------|--------|
| Name          | String                          | Displays name of this collection resource.                                   | 1      |
| Type          | String                          | Type of this collection resource.                                            | 1      |
| hasMore       | Boolean                         | Indicates whether there are more elements in the collection.                 | 1      |
| Count         | Integer                         | Number of elements returned.                                                 | 1      |
| Items         | Collection<br><ServiceTemplate> | The elements of this collection.                                             | 1      |
| totalCount    | Integer                         | Total number of PaaS zone resources.                                         | 1      |
| canonicalLink | URI                             | A GET against this URI refreshes the client representation of this resource. | 1      |
| selfLink      | URI                             | Refers to the resource equivalent to the containing elements.                | 1      |

**48.3.5.1.1 Supported Operations for Service Templates**

The following table lists all the operations that are supported on the Service Templates resource.

**Table 48–37 Supported Operations for Service Templates**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | Yes  | No  | No     |

**48.3.5.2 Service Template Resource**

A service template is a standardized service definition that can be used by self service users to provision a service instance. Service Template has the media type `application/oracle.com.cloud.common.ServiceTemplate+json`.

The following table describes the Service Template data model.

**Table 48–38 Service Template Data Model**

| Field         | Type                   | Description                                                                  | Occurs |
|---------------|------------------------|------------------------------------------------------------------------------|--------|
| Name          | String                 | A human readable name given to the ServiceTemplate.                          | 1      |
| ID            | String                 | Service Template ID that uniquely identifies the resource.                   | 1      |
| Description   | String                 | As brief description given to the zone.                                      | 0..1   |
| canonicalLink | URI                    | A GET against this URI refreshes the client representation of this resource. | 1      |
| serviceFamily | String                 | Service family                                                               | 1      |
| serviceType   | String                 | Service type.                                                                | 1      |
| Roles         | Collection<br><Role>   | SSA roles that can access this service template.                             | 0..1   |
| poolIds       | Collection<br><String> | Software Pool Ids associated with this service template.                     | 1      |

**Table 48–38 (Cont.) Service Template Data Model**

| Field         | Type                   | Description                                        | Occurs |
|---------------|------------------------|----------------------------------------------------|--------|
| createdOn     | String(Date/Time)      | Time when the resource was created.                | 0..1   |
| createdBy     | String                 | The user who created the resource.                 | 1      |
| modifiedOn    | String(Date/Time)      | Time when the resource was last modified.          | 0..1   |
| rolesToRemove | Collection<br><String> | SSA roles to be deleted while editing a PaaS zone. | 0..1   |

**48.3.5.2.1 Supported Operations for Service Template**

The following table lists all the operations that are supported on the Service Template resource.

**Table 48–39 Supported Operations for Service Template**

| GET | POST | PUT | DELETE |
|-----|------|-----|--------|
| Yes | No   | Yes | Yes    |

**48.3.5.3 Service Templates and Service Template REST API Examples**

The following sections provide examples of interaction with Enterprise Manager Cloud Control 12.1.0.3 with Cloud Application plug-in 12.1.0.7 and higher. The following examples are covered:

- [Viewing Details of the Service Templates Resource](#)
- [Viewing Details of the ServiceTemplate Resource](#)
- [Creating a Service Template for DBCA Based Database](#)
- [Creating a Service Template for RMAN Based Single Instance Database](#)
- [Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby](#)
- [Creating a Service Template for RMAN Based RAC One Node Database](#)
- [Creating a Service Template for RMAN Based RAC One Node Database With Standby](#)
- [Creating a Service Template for RMAN Based RAC Database With Standby](#)
- [Creating a Service Template for RAC Database with Standby Using a DBCA Template](#)
- [Creating a Service Template for DNFS Based Database](#)
- [Creating a Service Template for Snap Clone Single Instance Database \(with Archiving Enabled\)](#)
- [Creating a Service Template for Snap Clone Single Instance Database \(without Archiving Enabled\)](#)
- [Creating a Service Template for a Schema](#)
- [Creating a Service Template for a Pluggable Database](#)
- [Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database](#)

- [Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database](#)
- [Deleting a Database / Schema / Pluggable Database Service Template](#)

#### 48.3.5.3.1 Viewing Details of the Service Templates Resource

The configuration for GET request is shown in the table below.

**Table 48–40 GET Request Configuration for Viewing Details of the Service Templates Resource**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name": "Service Templates",
 "type": "Service Template",
 "totalResults": 5,
 "cfwItems": [
 {
 "id": "1",
 "name": "Database Creation on Individual Hosts",
 "guid": "203D5C842C2C17C3E053C075B10A73E3",
 "canonicalLink": {
 "href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/1"
 }
 },
 {
 "id": "21",
 "name": "Create Databases on 12_1_0_1_x",
 "guid": "204E31F679D421E8E053C075B10A409A",
 "canonicalLink": {
 "href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/21"
 }
 },
 {
 "id": "81",
 "name": "Create Databases on Clusters - Based on DB Template",
 "guid": "2068CDF3C0200D7CE053C075B10A7811",
 "canonicalLink": {
 "href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/81"
 }
 }
],
 {
```

```

 "id": "61",
 "name": "RMAN ST",
 "guid": "205046BB4D38762EE053C075B10AF091",
 "canonicalLink": {
 "href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/61"
 }
 },
 {
 "id": "41",
 "name": "Database Creation on Cluster",
 "guid": "204F067E22C12CFDE053C075B10A8A26",
 "canonicalLink": {
 "href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/41"
 }
 }
],
 "canonicalLink": {
 "href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates"
 }
}

```

#### 48.3.5.3.2 Viewing Details of the ServiceTemplate Resource

The GET request on the ServiceTemplate URI can be issued to retrieve its details.

The configuration for GET to ServiceTemplate is as follows:

**Table 48–41 GET Request Configuration for Viewing Details of the Service Template Resource**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/<br>cloudservices/admin/cfw/v2/servicetemplates/61    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

{
 "id": "61",
 "guid": "205046BB4D38762EE053C075B10AF091",
 "name": "RMAN ST",
 "displayName": "RMAN ST",
 "serviceType": "DB",
 "serviceTemplateTypeId": "81",
 "createdOn": "2015-09-22T05:32:07Z",
 "createdBy": "SYSMAN",
 "modifiedOn": "2015-09-22T05:32:07Z",
 "owner": "SYSMAN",
 "lastModified": "2015-09-22T05:32:07Z",

```

```
"payloads": [
 { "name": "SERVICE_TEMPLATE_PROV_SOURCE",
 "value": null,
 "required": null},
 { "name": "PROFILE_COMPONENT_URN",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:204D498A85D42C6AE053C075B10A6B09:0.1",
 "required": null},
 { "name": "DBDELETE_PRESCRIPT",
 "value": null,
 "required": null},
 { "name": "DBDELETE_POSTSCRIPT",
 "value": null,
 "required": null}
],
"characteristics": [
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
 "displayName": "Contact",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true},
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
 "displayName": "Cost Center",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true},
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
 "displayName": "Department",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true},
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DOWNTIME_CONTACT",
 "displayName": "Downtime Contact",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true},
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
 "displayName": "Lifecycle Status",
 "values": [
 "Development",
 "MissionCritical",
 "Production",
 "Stage",
 "Test"
],
 "required": false,
 "editable": true,
 "visible": true},
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
 "displayName": "Line of Business",
 "values": [],
 "required": false,
 "editable": true,
 "visible": true},
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
 "displayName": "Location",
```



```

 "values": [],
 "required": false,
 "editable": true,
 "visible": true},
 { "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE",
 "displayName": "Provisioning Type",
 "values": ["RMAN"],
 "required": false,
 "editable": false,
 "visible": false}
],
 "resourceProvider": {
 "lookupCharacteristics": [
 {
 "purposeId": 1,
 "characteristics": [
 { "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",
 "displayName": "oracle.sysman.ssa.oracle_cloud_zone",
 "targetType": {
 "targetType": "oracle_cloud_zone",
 "targetTypeName": "Database Pool",
 "parentTargetType": "self_service_zone",
 "parentTargetTypeName": "PaaS Infrastructure Zone"},
 "targets": [
 { "guid": "0CAF930826EDE90D8072E4E3ACA8072A",
 "displayName": "RAC Databases Pool _11_2_0_4" }
]
 }
]
 }
]
 },
 "configurations": [
 { "name": "ssaUser",
 "type": "STRING",
 "value": "",
 "displayName": "ssaUser",
 "required": false,
 "secret": false},
 { "name": "STANDBY_WORK_DIR",
 "type": "STRING",
 "value": "",
 "displayName": "STANDBY_WORK_DIR",
 "required": false,
 "secret": false},
 { "name": "SID_OPTION",
 "type": "STRING",
 "description": "Database SID Option to be used. values are ssauser/prefix",
 "value": "prefix",
 "displayName": "Database SID Option",
 "required": false,
 "secret": false},
 { "name": "PROFILE_VERSION",
 "type": "STRING",
 "description": "Profile version to use",
 "value": "latest",
 "displayName": "Profile version",
 "required": false,
 "secret": false},
 { "name": "DB_TARGET_DISPLAY_NAME",

```

```
 "type": "STRING",
 "value": "",
 "displayName": "DB_TARGET_DISPLAY_NAME",
 "required": false,
 "secret": false},
 { "name": "REF_TGT",
 "type": "STRING",
 "value": "xxy.example.com",
 "displayName": "REF_TGT",
 "required": false,
 "secret": false},
 { "name": "USER_PRIVILEGES",
 "type": "STRING",
 "description": "Comma Seperated List of privileges that will be applied on
role assigned to the master account.",
 "value": "CREATE SESSION, ALTER SESSION, CREATE INDEXTYPE, CREATE ANY
OPERATOR, CREATE ANY PROCEDURE, CREATE ANY SEQUENCE, CREATE ANY INDEX, CREATE JOB,
CREATE ANY MATERIALIZED VIEW, CREATE ANY TABLE, CREATE ANY TRIGGER, CREATE ANY
TYPE, CREATE ANY VIEW, CREATE ANY SYNONYM, CREATE ANY DIRECTORY, SELECT ANY
DICTIONARY",
 "displayName": "User Privileges",
 "required": false,
 "secret": false},
 { "name": "COMMON_DB_SID",
 "type": "STRING",
 "description": "Database SID Prefix",
 "value": "rmanri",
 "displayName": "Database SID Prefix",
 "required": false,
 "secret": false},
 { "name": "DBAAS_SSA_STANDBY_CUSTOM_PRE_SCRIPTS_URN",
 "type": "STRING",
 "description": "Urn of the software library component which has the standby
custom post sql script",
 "value": "",
 "displayName": "URN of the standby pre sql custom script",
 "required": false,
 "secret": false},
 { "name": "DBAAS_SSA_STANDBY_CUSTOM_POST_SCRIPTS_URN",
 "type": "STRING",
 "description": "Urn of the software library component which has the standby
custom post sql script",
 "value": "",
 "displayName": "URN of the standby post sql custom script",
 "required": false,
 "secret": false},
 { "name": "ssaTargetName",
 "type": "STRING",
 "value": "",
 "displayName": "ssaTargetName",
 "required": false,
 "secret": false},
 { "name": "DB_USER_NAMES",
 "type": "STRING",
 "description": "Database users from source",
 "value": "",
 "displayName": "Database Users from source",
 "required": false,
 "secret": false},
 { "name": "ssaTargetType",
```

```

 "type": "STRING",
 "value": "",
 "displayName": "ssaTargetType",
 "required": false,
 "secret": false},
 { "name": "RAC_ONE_SERVICE_NAME",
 "type": "STRING",
 "description": "The name of service for RAC One Node database.",
 "value": "",
 "displayName": "RAC One Service Name",
 "required": false,
 "secret": false},
 { "name": "RUN_AS_USER",
 "type": "STRING",
 "value": "sys",
 "displayName": "RUN_AS_USER",
 "required": false,
 "secret": false},
 { "name": "NONADMIN_SSA_ACC_DB_USER_NAMES",
 "type": "STRING",
 "description": "Database users from source",
 "value": "OUTLN,ORACLE_
OCM,APPQOSSYS,WMSYS,EXFSYS,CTXSYS,XDB,ORDSYS,ORDDATA,ORDPLUGINS,SI_INFORMTN_
SCHEMA,MDSYS,OLAPSYS,SYSMAN,APEX_030200,FLows_FILES,SCOTT,OWBSYS_AUDIT,OWBSYS",
 "displayName": "Database Users from source",
 "required": false,
 "secret": false},
 { "name": "INIT_PARAMS",
 "type": "VECTOR",
 "description": "The list of initialization values that are as
paramName=paramValue",
 "displayName": "INIT_PARAMS",
 "required": false,
 "secret": false,
 "values": [
 "*.db_block_size=8192",
 "*.audit_trail='db'",
 "*.db_name='mdb00008'",
 "*.cpu_count=0",
 "myracdb1.__sga_target=1275068416",
 "*.diagnostic_dest='/u01/app/emga/11.2.0.4'",
 "*.control_
files='/oradbnas/mdb00008/controlfile/control01.ctl','/oradbnas//mdb00008/controlf
ile/control02.ctl'",
 "*.audit_file_dest='/u01/app/emga/11.2.0.4/admin/mdb00008/adump'",
 "*.pga_aggregate_target=423624704",
 "*.processes=150",
 "*.db_create_file_dest='/oradbnas/mdb00008'",
 "*.db_recovery_file_dest='/oradbnas//mdb00008'",
 "*.log_archive_format='%t_%s_%r.dbf'",
 "*.compatible='11.2.0.4.0'",
 "*.db_recovery_file_dest_size=2097152000",
 "*.open_cursors=300",
 "*.remote_login_passwordfile='exclusive'",
 "*.undo_tablespace='UNDOTBS01'",
 "*.db_domain='' "
]
 },
 { "name": "COMMON_DB_DBSNMP_PASSWORD",
 "type": "STRING",
 "description": "DBSNMP Account password",

```

```
 "value": "welcome1",
 "displayName": "DBSNMP Account password",
 "required": false,
 "secret": true},
 { "name": "DB_ADMIN_PASSWORD_SAME",
 "type": "STRING",
 "description": "Use the same passwords for SYS, SYSTEM and DBSNMP account",
 "value": "true",
 "displayName": "Use the same passwords for SYS, SYSTEM and DBSNMP account",
 "required": false,
 "secret": false},
 { "name": "DEFAULT_DATABASE_SIZE",
 "type": "STRING",
 "value": "",
 "displayName": "DEFAULT_DATABASE_SIZE",
 "required": false,
 "secret": false},
 { "name": "DBAAS_SSA_CUSTOM_PRE_SCRIPTS_URN",
 "type": "STRING",
 "description": "Urn of the software library component which has the custom
post sql script",
 "value": "",
 "displayName": "URN of the pre sql custom script",
 "required": false,
 "secret": false},
 { "name": "RUN_AS_USER_PWD",
 "type": "STRING",
 "value": "",
 "displayName": "RUN_AS_USER_PWD",
 "required": false,
 "secret": false},
 { "name": "IS_RAC_ONE",
 "type": "STRING",
 "description": "Boolean value to show RAC One Target Type, (true/false)",
 "value": "N",
 "displayName": "RAC One Target Type",
 "required": false,
 "secret": false},
 { "name": "PROFILE_VERSION_URN",
 "type": "STRING",
 "description": "Profile Version Selected by user for creating database.",
 "value": "",
 "displayName": "Profile Version Selected",
 "required": false,
 "secret": false},
 { "name": "HOSTS_FOR_PLACEMENT",
 "type": "STRING",
 "description": "Comma separated value of the name of hosts which will be
used for the custom placement of the requested database instance. This list of
hosts should have their database homes present in the selected zone and pool of
the service template.",
 "value": "",
 "displayName": "Host(s) name to be selected in the DB pool for custom
placement",
 "required": false,
 "secret": false},
 { "name": "PROVISIONING_TYPE",
 "type": "STRING",
 "value": "",
 "displayName": "PROVISIONING_TYPE",
```

```

 "required": false,
 "secret": false},
 { "name": "STANDBY_REQUIRED_LOCK",
 "type": "STRING",
 "value": "",
 "displayName": "STANDBY_REQUIRED_LOCK",
 "required": false,
 "secret": false},
 { "name": "LOCK_DOMAIN_NAME",
 "type": "STRING",
 "description": "Accepts Database Domain Name from SSA user",
 "value": "false",
 "displayName": "Accepts the database Domain Name from SSA user ",
 "required": false,
 "secret": false},
 { "name": "ROLE_NAME",
 "type": "STRING",
 "description": "Name of the database role which will assigned to the master
account.",
 "value": "ROLE_Sep_22_2015_11_01_AM",
 "displayName": "Database Role Name",
 "required": false,
 "secret": false},
 { "name": "STANDBY_DATABASE_MASTER",
 "type": "STRING",
 "value": "",
 "displayName": "STANDBY_DATABASE_MASTER",
 "required": false,
 "secret": false},
 { "name": "ASM_DSKGRP_PREFIX",
 "type": "STRING",
 "description": "ASM Diskgroup prefix to be used for all the new diskgroups
to be created",
 "value": "",
 "displayName": "ASM Diskgroup Prefix for all new diskgroups",
 "required": false,
 "secret": false},
 { "name": "DB_USER_PASSWORDS",
 "type": "STRING",
 "description": "Passwords for Database users from source",
 "displayName": "Passwords for Database Users from source",
 "required": false,
 "secret": true},
 { "name": "ASM_OPTION",
 "type": "STRING",
 "description": "ASM Diskgroup Option to be used. values are ssauuser/prefix",
 "value": "",
 "displayName": "ASM Diskgroup Option",
 "required": false,
 "secret": false},
 { "name": "SELECT_ORACLE_HOME_OPTION",
 "type": "STRING",
 "description": "Option for selecting the DB Oracle Home that includes
runtime selection or user selection. Possible values are SELECT_ORACLE_HOME_AT_
RUNTIME or SELECT_ORACLE_HOME_FROM_REQUEST",
 "value": "SELECT_ORACLE_HOME_AT_RUNTIME",
 "displayName": "Option for selecting the DB Oracle home",
 "required": false,
 "secret": false},
 { "name": "LISTENER_PORT",

```

```
 "type": "STRING",
 "description": "Listener Port (required only for Single Instance Database)",
 "value": "1524",
 "displayName": "Listener Port",
 "required": false,
 "secret": false},
 { "name": "STANDBY_DB_MASTER_DETAILS",
 "type": "VECTOR",
 "displayName": "STANDBY_DB_MASTER_DETAILS",
 "required": false,
 "secret": false,
 "values": []},
 { "name": "COMMON_DOMAIN_NAME",
 "type": "STRING",
 "description": "Database Domain Name",
 "value": "us.example.com",
 "displayName": "Database Domain Name",
 "required": false,
 "secret": false},
 { "name": "WORKLOADS",
 "type": "VECTOR",
 "displayName": "WORKLOADS",
 "required": false,
 "secret": false},
 { "name": "STANDBY_COMMON_DB_SID",
 "type": "STRING",
 "value": "",
 "displayName": "STANDBY_COMMON_DB_SID",
 "required": false,
 "secret": false},
 { "name": "LIVE_CLONE_DATABASE_GUID",
 "type": "STRING",
 "description": "Database Guid to be cloned",
 "value": "",
 "displayName": "Database Guid to be cloned",
 "required": false,
 "secret": false},
 { "name": "COMMON_DB_SYSTEM_PASSWORD",
 "type": "STRING",
 "description": "SYSTEM Account password",
 "value": "welcome1",
 "displayName": "SYSTEM Account password",
 "required": false,
 "secret": true},
 { "name": "USER_INITIATED_BACKUP_LOCATION",
 "type": "STRING",
 "value": "",
 "displayName": "USER_INITIATED_BACKUP_LOCATION",
 "required": false,
 "secret": false},
 { "name": "ssaRequestId",
 "type": "STRING",
 "value": "",
 "displayName": "ssaRequestId",
 "required": false,
 "secret": false},
 { "name": "TARGET_PROP_LIST",
 "type": "VECTOR",
 "description": "The list of initialization values that are as
paramName=paramValue",
```

```

 "displayName": "TARGET_PROP_LIST",
 "required": false,
 "secret": false,
 "values": [
 "Site:null:false:false",
 "Contact:null:false:false",
 "Downtime Contact:null:false:false",
 "Location:null:false:false",
 "LifeCycle Status:null:false:false",
 "Department:null:false:false",
 "Comment:null:false:false",
 "Line of Business:null:false:false"
]
 },
 { "name": "LIVE_CLONE_TYPE",
 "type": "STRING",
 "description": "Live Clone Type USE_FULLCLONE/USE_SNAPCLONE",
 "value": "",
 "displayName": "Type of Live Clone",
 "required": false,
 "secret": false},
 { "name": "REF_HOST",
 "type": "STRING",
 "value": "xxy.example.com",
 "displayName": "REF_HOST",
 "required": false,
 "secret": false},
 { "name": "CUSTOM_TARGET_PROP_LIST",
 "type": "VECTOR",
 "description": "The list of initialization values that are as
paramName=paramValue",
 "displayName": "CUSTOM_TARGET_PROP_LIST",
 "required": false,
 "secret": false,
 "values": []},
 { "name": "STANDBY_LISTENER_PORT",
 "type": "STRING",
 "value": "",
 "displayName": "STANDBY_LISTENER_PORT",
 "required": false,
 "secret": false},
 { "name": "CLONE_OR_FULL_DB",
 "type": "STRING",
 "value": "",
 "displayName": "CLONE_OR_FULL_DB",
 "required": false,
 "secret": false},
 { "name": "DATABASE_TYPE",
 "type": "STRING",
 "description": "Database Type (oracle_database/rac_database)",
 "value": "rac_database",
 "displayName": "Database Type",
 "required": false,
 "secret": false},
 { "name": "PROFILE_COMPONENT_URN",
 "type": "STRING",
 "description": "URN of the Profile component in software library with which
the Database will be created",
 "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:204D498A85D42C6AE053C075B10A6B09:0.1",
 "displayName": "URN of the Profile Component to be used for Database

```

```
Creation",
 "required": false,
 "secret": false},
{ "name": "VALIDATION_SQL",
 "type": "STRING",
 "description": "Sql script for primary database validation",
 "value": "",
 "displayName": "Sql script for primary database validation",
 "required": false,
 "secret": false},
{ "name": "REFRESH_DATABASE",
 "type": "STRING",
 "value": "",
 "displayName": "REFRESH_DATABASE",
 "required": false,
 "secret": false},
{ "name": "REF_ZONE",
 "type": "STRING",
 "value": "Salt Lake City Zone",
 "displayName": "REF_ZONE",
 "required": false,
 "secret": false},
{ "name": "STANDBY_DELAY_DATABASE_MASTER",
 "type": "STRING",
 "value": "",
 "displayName": "STANDBY_DELAY_DATABASE_MASTER",
 "required": false,
 "secret": false},
{ "name": "zoneTargetName",
 "type": "STRING",
 "value": "",
 "displayName": "zoneTargetName",
 "required": false,
 "secret": false},
{ "name": "PRIMARY_PROTECTION_MODE",
 "type": "STRING",
 "value": "",
 "displayName": "PRIMARY_PROTECTION_MODE",
 "required": false,
 "secret": false},
{ "name": "INSTANCE_COUNT",
 "type": "STRING",
 "description": "Number of RAC Database instances required",
 "value": "2",
 "displayName": "Number of RAC instances",
 "required": false,
 "secret": false},
{ "name": "USER_PASSWORD",
 "type": "STRING",
 "description": "User Password to login to the given User Name database
account",
 "displayName": "User Password",
 "required": true,
 "secret": true},
{ "name": "MAX_BACKUPS_ALLOWED",
 "type": "STRING",
 "description": "The number of backups enabled for the Database",
 "value": "",
 "displayName": "Number of Backups allowed for the Database",
 "required": false,
```



```

 "secret": false},
 { "name": "ENTITY_TYPE",
 "type": "STRING",
 "description": "Entity Type USE_PROFILE/USE_DATABASE",
 "value": "USE_PROFILE",
 "displayName": "Entity Type",
 "required": false,
 "secret": false},
 { "name": "DBCREATE_POST_SQL_SCRIPT",
 "type": "STRING",
 "value": "",
 "displayName": "DBCREATE_POST_SQL_SCRIPT",
 "required": false,
 "secret": false},
 { "name": "DBAAS_SSA_CUSTOM_POST_SCRIPTS_URN",
 "type": "STRING",
 "description": "Urn of the software library component which has the custom
post sql script",
 "value": "",
 "displayName": "URN of the post sql custom script",
 "required": false,
 "secret": false},
 { "name": "USER_NAME",
 "type": "STRING",
 "description": "User Name (cannot be any of Oracle default accounts) used to
login to the requested database",
 "value": "",
 "displayName": "User Name (cannot be any of Oracle default accounts)",
 "required": true,
 "secret": false},
 { "name": "DATABASE_SIZES",
 "type": "VECTOR",
 "displayName": "DATABASE_SIZES",
 "required": false,
 "secret": false,
 "values": []},
 { "name": "ALLOW_BACKUPS",
 "type": "STRING",
 "description": "Should the backup be enabled for the Database",
 "value": "",
 "displayName": "Enable Backups for the Database",
 "required": false,
 "secret": false},
 { "name": "zoneTargetType",
 "type": "STRING",
 "value": "",
 "displayName": "zoneTargetType",
 "required": false,
 "secret": false},
 { "name": "STANDBY_REQUIRED",
 "type": "STRING",
 "value": "false",
 "displayName": "STANDBY_REQUIRED",
 "required": false,
 "secret": false},
 { "name": "STANDBY_DB_DETAILS",
 "type": "VECTOR",
 "displayName": "STANDBY_DB_DETAILS",
 "required": false,
 "secret": false,

```

```
 "values": [],
 { "name": "COMMON_DB_SYS_PASSWORD",
 "type": "STRING",
 "description": "SYS Account password",
 "value": "welcome1",
 "displayName": "SYS Account password",
 "required": false,
 "secret": true},
 { "name": "REF_POOL",
 "type": "STRING",
 "value": "RAC Databases Pool _11_2_0_4",
 "displayName": "REF_POOL",
 "required": false,
 "secret": false}
],
"canonicalLink": {"href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/61"},
"selfLink": {"href":
"https://xyz.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/
servicetemplates/61"},
"active": true
}
```

#### 48.3.5.3.3 Creating a Service Template for DBCA Based Database

A POST operation is issued on Service Templates collection resource to create a DBCA based Database Service Template.

The configuration for POST to Service Templates is as follows:

**Table 48–42 POST Request Configuration for Creating a Service Template for DBCA Based Database**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–42 (Cont.) POST Request Configuration for Creating a Service Template for DBCA Based Database**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "Create ST for SI Db using DBCA Template - ASM Subh_2",   "description": "Creates Single Instance DB",   "roles": [ "SSA_USER_ROLE" ],   "serviceType": "DB",   "serviceTemplateTypeId": "61",   "rscProvAssocOption": [ "byRscProvInst" ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ ZONE",             "values": [               "137F74D7A8359A60762ED550341A5F47" ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [ { "name": "PROFILE_COMPONENT_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:269BA6C90E6A5000E053C075B10A51A3:0.1" } ],     "configurations": [       { "name": "REF_ZONE", "value": "Salt Lake City Zone" },       { "name": "REF_POOL", "value": "SI Databases Pool_ Oracle_DB_11g" },       { "name": "REF_HOST", "value": "xyz.example.com" },       { "name": "REF_TGT", "value": "xyz.example.com" },       { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },       { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_ DB_FILES", "value": "Y" },       { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "4038" },       { "name": "DBCA_TEMPLATE:DATA_FILE_LOCATION", "value": "DATA" },       { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },       { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y" },       { "name": "DBCA_TEMPLATE:RECOVERY_FILE_LOCATION", "value": "RECO" },       { "name": "DATABASE_TYPE", "value": "oracle_ database" },       { "name": "COMMON_DOMAIN_NAME", "value": "us. us.example.com" },       { "name": "ORACLE.SYSMAN.SSA.PROVISIONING_TYPE", "value": [ "DBCA_TEMPLATE" ] }, </pre> |

**Table 48–42 (Cont.) POST Request Configuration for Creating a Service Template for DBCA Based Database**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

---

**Note:** In the REST API body mentioned above:

- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as SELECT\_ORACLE\_HOME\_AT\_RUNTIME, or to be selected by the SSA user by entering the value as SELECT\_ORACLE\_HOME\_FROM\_REQUEST.

These parameters are mandatory and are required to identify the reference target to create the database.

---

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"1C39F32393A709C3E053C075B10AEE15\"
created successfully."
}
```

#### 48.3.5.3.4 Creating a Service Template for RMAN Based Single Instance Database

A POST operation is issued on Service Templates collection resource to create a RMAN based Single Instance Database Service Template.

The configuration for POST to Service Templates is as follows:

**Table 48–43 POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/ser<br>vicetemplates        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–43 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "Database Service - RMAN Based with archiving",   "description": "This creates Database Archiving log mode.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ ZONE",             "values": [               "1898CF93BD39C19BF032672271BC4B44"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"       }     ],     "configurations": [       {         "name": "STAGE_LOCATION",         "value": "/scratch/emga/backups/rman/"       },       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"       },       {         "name": "SELECT_ORACLE_HOME_OPTION",         "value": "SELECT_ORACLE_HOME_FROM_REQUEST"       },       {         Database as a Service Administrator REST APIs 48-51         "name": "REF_TGT",         "value": "sxy.us.example.com"       }     ]   } </pre> |

**Table 48–43 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

---

**Note:** In the REST API body mentioned above:

- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as SELECT\_ORACLE\_HOME\_AT\_RUNTIME, or to be selected by the SSA user by entering the value as SELECT\_ORACLE\_HOME\_FROM\_REQUEST.

These parameters are mandatory and are required to identify the reference target to create the database.

---

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"1C39F32393A709C3E053C075B10AEE15\"
created successfully."
}
```

#### 48.3.5.3.5 Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby

A POST operation is issued on Service Templates collection resource to create a RMAN based Single Instance Database with Single Instance standby Service Template.

The configuration for POST to Service Templates is as follows:

**Table 48–44 POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/ser<br>vicetemplates        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–44 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "Database Service - RMAN Based with archiving with SI Standby",   "description": "This creates Database Archiving log mode.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ ZONE",             "values": [               "1898CF93BD39C19BF032672271BC4B44"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"       },       {         "name": "STAGE_LOCATION",         "value": "/scratch/emga/backups/rman/"       },       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"       },       {         "name": "SELECT_ORACLE_HOME_OPTION",         "value": "SELECT_ORACLE_HOME_FROM_REQUEST"       },       {         Database as a Service Administrator REST APIs 48-53         "name": "REF_TGT",         "value": "xyz.example.com"       }     ]   } </pre> |

**Table 48–44 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based Single Instance Database With Single Instance Standby**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

---

**Note:** In the REST API body mentioned above:

- REF\_ZONE indicates the reference zone among the zones to be associated with the template.
- REF\_POOL indicates the reference pool among the pools to be associated with the template.
- REF\_HOST indicates the host of the reference target from the pool targets.
- REF\_TGT indicates the reference target from the pool targets.
- SELECT\_ORACLE\_HOME\_OPTION allows the Oracle home to be automatically selected by entering the value as SELECT\_ORACLE\_HOME\_AT\_RUNTIME, or to be selected by the SSA user by entering the value as SELECT\_ORACLE\_HOME\_FROM\_REQUEST.

These parameters are mandatory and are required to identify the reference target to create the database.

---

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxx\" created successfully."
}
```

#### 48.3.5.3.6 Creating a Service Template for RMAN Based RAC One Node Database

A POST operation is issued on Service Templates collection resource to create a RMAN based RAC One Node Database Service Template.

The configuration for POST to Service Templates is as follows:

**Table 48–45 POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/ser<br>vicetemplates        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |



**Table 48–45 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "Create Databases on RAC One database",   "description": "Creates Databases on RAC.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ ZONE",             "values": [               "647E8750A1C3835557165B499B269FB3"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"       },       {         "name": "STAGE_LOCATION",         "value": "/scratch/emga/backups/rman/"       },       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1",         "name": "SELECT_ORACLE_HOME_OPTION",         "value": "SELECT_ORACLE_HOME_FROM_REQUEST",         "name": "REF_TGT",         "value": "abc.example.com",         "name": "REF_HOST",         "value": "adc.example.com",         "name": "REF_ZONE",         "value": "Salt Lake City Zone",         "name": "zoneTargetName",         "value": "Salt Lake City Zone",         "name": "REF_POOL",         "value": "RAC Databases Pool",         "name": "DATABASE_TYPE",         "value": "rac_database"       }     ]   } } </pre> |

**Table 48–45 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxx\" created successfully."
}
```

#### 48.3.5.3.7 Creating a Service Template for RMAN Based RAC One Node Database With Standby

A POST operation is issued on Service Templates collection resource to create a RMAN based RAC One Node Database with Standby Service Template.

In the example shown below there are two standbys created, one standby RAC one node database is a Near DR (disaster recovery) created on the same pool as the primary RAC one node database, and the other standby Far DR database is a single instance database created on a different pool. This setup is essential for a disaster recovery setup wherein two standby databases are created for data protection. The POST body shown below can be modified to have only one standby database (either SI or RAC one node) as well.

The configuration is as follows:

**Table 48–46 POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database With Standby**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–46 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database With Standby**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "RAC One Database Provisioning with RAC One Standby and SI Standby",   "description": "Creates RAC One Databases with RAC One Standby and SI Standby.",   "serviceType": "DB",   "serviceTemplateTypeId": "81",   "rscProvAssocOption": [     "byRscProvInst"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ ZONE",             "values": [               "647E8750A1C3835557165B499B269FB3"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"       },       {         "name": "STAGE_LOCATION",         "value": "/scratch/emga/backups/rman/"       },       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1",         "name": "SELECT_ORACLE_HOME_OPTION",         "value": "SELECT_ORACLE_HOME_FROM_REQUEST",         "name": "REF_TGT",         "value": "adc.example.com",         "name": "REF_HOST",         "value": "adc.example.com",         "name": "REF_ZONE",         "value": "Salt Lake City Zone",         "name": "zoneTargetName",         "value": "Salt Lake City Zone",         "name": "REF_POOL",         "value": "RAC Databases Pool",         "name": "DATABASE_TYPE",         "value": "rac_database"       }     ]   } } </pre> |

**Table 48–46 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC One Node Database With Standby**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxx\" created successfully."
}
```

#### 48.3.5.3.8 Creating a Service Template for RMAN Based RAC Database With Standby

A POST operation is issued on Service Templates collection resource to create a RMAN based RAC Database with Standby Service Template.

The configuration to create a RAC database with single instance standby database is similar to the configuration for a RAC database with a RAC one node standby. The only difference in the payloads to create different standbys is defined by the configuration parameter `STANDBY_DB_DETAILS`.

The sample value for the `STANDBY_DB_DETAILS` parameter for creating a RAC database with RAC one node standby is:

```
"pool=Near RAC DR Pool;databaseSIDPrefix=;databaseType=rac_
database;isRACOne=Y;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=
;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFR
ALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com"
```

Whereas, the sample value for the `STANDBY_DB_DETAILS` parameter for creating a RAC database with single instance standby is:

```
"pool=Near DR Pool;databaseSIDPrefix=;databaseType=oracle_
database;standbyConfigName=Near
DR;redoMode=ASYNC;realtimeQuery=false;databaseDelay=60;databaseUniqueName=
;standbyStorageType=FS;standbyStorageLocation=;standbyFRAType=FS;standbyFR
ALocation=;standbyFRASize=;standbyLsnrPort=;domainName=us.example.com"
```

The sample POST configuration shown below is for a RAC database with single instance standby Service Template. Apply the required value for the `STANDBY_DB_DETAILS` parameter in the sample shown below:

**Table 48–47 POST Request Configuration for Creating a Service Template for RMAN Based RAC Database With Single Instance Standby**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/ser<br>vicetemplates        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–47 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC Database With Single Instance Standby**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name" : "Create Databases on RAC with SI Standby",   "description" : "Creates Databases on RAC.",   "serviceType" : "DB",   "serviceTemplateTypeId" : "81",   "rscProvAssocOption" : [ "byRscProvInst" ],   "resourceProvider" : {     "lookupCharacteristics" : [ {       "characteristics" : [ {         "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",         "values" : [ "647E8750A1C3835557165B499B269FB3"       ],       "targetType" : {         "targetType" : "oracle_cloud_zone",         "targetTypeName" : "Database Pool",         "parentTargetType" : "self_service_zone",         "parentTargetTypeName" : "PaaS Infrastructure Zone"       }     } ],     "purposeId" : 1   } ],   },   "payloads" : [ {     "name" : "PROFILE_COMPONENT_URN",     "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"   } ],   "configurations" : [ {     "name" : "STAGE_LOCATION",     "value" : "/scratch/emga/backups/rman/"},     { "name" : "PROFILE_COMPONENT_URN",       "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1E4F60D72C912160E053C075B10A29F5:0.1"     },     { "name": "SELECT_ORACLE_HOME_OPTION",       "value": "SELECT_ORACLE_HOME_FROM_REQUEST" },     { "name" : "REF_TGT",       "value" : "adc.us.example.com"},     { "name" : "REF_HOST",       "value" : "adc.us.example.com"},     { "name" : "REF_ZONE",       "value" : "Salt Lake City Zone"},     { "name" : "zoneTargetName",       "value" : "Salt Lake City Zone"},     { "name" : "REF_POOL",       "value" : "RAC Databases Pool"},     { "name" : "DATABASE_TYPE",       "value" : "oracle_database"},     { "name" : "COMMON_DB_SYS_PASSWORD",       "value" : "welcome"},     { "name" : "LISTENER_PORT",       "value" : "1521"},     { "name" : "PROFILE_VERSION",       "value" : "latest"},     { "name" : "COMMON_DB_SID",       "value" : "db"},     { "name" : "TARGET_PROP_LIST",       "values" : [ "Contact:9980697299:false:false", </pre> |

**Table 48–47 (Cont.) POST Request Configuration for Creating a Service Template for RMAN Based RAC Database With Single Instance Standby**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxx\" created successfully."
}
```

#### 48.3.5.3.9 Creating a Service Template for RAC Database with Standby Using a DBCA Template

A POST operation is issued on ServiceTemplates Collection resource to create a ServiceTemplate for a RAC database with standby using a DBCA template.

The configuration for POST to ServiceTemplates is as follows:

**Table 48–48 POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–48 (Cont.) POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "Create RAC Db with Standby using DBCA Template - BofA -ASM",   "description": "Service Template for Non-CDB; 12cR1_ 2(12.1.0.2); RAC; ASM",   "serviceType": "DB",   "serviceTemplateTypeId": "61",   "rscProvAssocOption": [     "byRscProvInst"   ],   "roles": [     "SSAUSERROLE"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ ZONE",             "values": [               "4C5795E605D71F59BAF9F6AD702E25E1"             ],             "targetType": {               "targetType": "oracle_cloud_zone",               "targetTypeName": "Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "PROFILE_COMPONENT_URN",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:246E84D11ED13BD0E050F90AE5852BC8:0.1"       }     ],     "configurations": [       {         "name": "REF_ZONE",         "value": "Clusters Zone - Oracle DB 12c"       },       {         "name": "REF_HOST",         "value": "xyz.example.com"       },       {         "name": "REF_POOL",         "value": "RAC Databases Pool_Oracle_DB_12c"       },       {         Database as a Service Administrator REST APIs 48-61         "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE",         "value": "ASM"       }     ]   } </pre> |

**Table 48–48 (Cont.) POST Request Configuration for Creating a Service Template for RAC Database with Standby Using a DBCA Template**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxxx\" created successfully."
}
```

#### 48.3.5.3.10 Creating a Service Template for DNFS Based Database

A POST operation is issued on Service Templates collection resource to create a DNFS based database Service Template.

The sample POST configuration is shown below:

**Table 48–49 POST Request Configuration for Creating a Service Template for DNFS Based Database**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |



**Table 48–49 (Cont.) POST Request Configuration for Creating a Service Template for DNFS Based Database**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name" : "DB Clones",   "description" : "This clones a database based on NFS.",   "serviceType" : "DB",   "serviceTemplateTypeId" : "81",   "rscProvAssocOption" : [ "byRscProvInst" ],   "resourceProvider" : {     "lookupCharacteristics" : [ {       "characteristics" : [ {         "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",         "values" : [ "1898CF93BD39C19BF032672271BC4B44"       ],       "targetType" : {         "targetType" : "oracle_cloud_zone",         "targetTypeName" : "Database Pool",         "parentTargetType" : "self_service_zone",         "parentTargetTypeName" : "PaaS Infrastructure Zone"       }     } ],     "purposeId" : 1   } ],   },   "payloads" : [ {     "name" : "PROFILE_COMPONENT_URN",     "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"   } ],   "configurations" : [ {     "name" : "STAGE_LOCATION",     "value" : "/scratch/emga/backups/rman/"   }, {     "name" : "PROFILE_COMPONENT_URN",     "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:1C14BB2B2E127E23E053C075B10AE31F:0.1"   }, {     "name": "SELECT_ORACLE_HOME_OPTION",     "value": "SELECT_ORACLE_HOME_FROM_REQUEST"   }, {     "name" : "REF_TGT",     "value" : "abc.example.com"   }, {     "name" : "REF_HOST",     "value" : "abc.example.com"   }, {     "name" : "REF_ZONE",     "value" : "Salt Lake City Zone"   }, {     "name" : "zoneTargetName",     "value" : "Salt Lake City Zone"   }, {     "name" : "REF_POOL",     "value" : "Databases Pool"   }, {     "name" : "DATABASE_TYPE",     "value" : "oracle_database"   }, {     "name" : "COMMON_DB_SYS_PASSWORD",     "value" : "welcome"   }, {     "name" : "LISTENER_PORT",     "value" : "1521"   }, {     "name" : "PROFILE_VERSION",     "value" : "1.0.0"   }, {     "name" : "COMMON_DB_SID",     "value" : "db"   }, {     "name" : "TARGET_PROP_LIST", </pre> |

**Table 48–49 (Cont.) POST Request Configuration for Creating a Service Template for DNFS Based Database**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxx\" created successfully."
}
```

#### **48.3.5.3.11 Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

A POST operation is issued on Service Templates collection resource to create a Snap Clone single instance database (with archiving enabled) Service Template.

The sample POST configuration is shown below:

**Table 48–50 POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–50 (Cont.) POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name" : "Create Snap Database using Snapshots",   "description" : "Creates Databases on SI hosts.",   "serviceType" : "DB",   "serviceTemplateTypeId" : "81",   "rscProvAssocOption" : [ "byRscProvInst" ],   "resourceProvider" : {     "lookupCharacteristics" : [ {       "characteristics" : [ {         "name" : "ORACLE.SYSMAN.SSA.ORACLE_CLOUD_ZONE",         "values" : [ "503073C7912B1C65B66E240C433012A9"       ],       "targetType" : {         "targetType" : "oracle_cloud_zone",         "targetTypeName" : "Database Pool",         "parentTargetType" : "self_service_zone",         "parentTargetTypeName" : "PaaS Infrastructure Zone"       }     } ],     "purposeId" : 1   } ],   },   "payloads" : [ {     "name" : "PROFILE_COMPONENT_URN",     "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:247BF4B378FF253FE053C075B10A794A:0.1"   } ],   "configurations" : [ {     "name" : "STAGE_LOCATION",     "value" : "/scratch/emga/backups/rman/"   }, {     "name" : "PROFILE_COMPONENT_URN",     "value" : "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_ DbProfile:247BF4B378FF253FE053C075B10A794A:0.1"   }, {     "name" : "REF_TGT",     "value" : "xyz.example.com"   }, {     "name" : "REF_HOST",     "value" : "xyz.example.com"   }, {     "name" : "REF_ZONE",     "value" : "Single Instances Zone"   }, {     "name" : "zoneTargetName",     "value" : "Single Instances Zone"   }, {     "name" : "REF_POOL",     "value" : "SI Databases Pool - Version 11_2_0_4"   }, {     "name" : "DATABASE_TYPE",     "value" : "oracle_database"   }, {     "name" : "COMMON_DB_SYS_PASSWORD",     "value" : "welcome"   }, {     "name" : "LISTENER_PORT", </pre> |

**Table 48–50 (Cont.) POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxx\" created successfully."
}
```

#### 48.3.5.3.12 Creating a Service Template for Snap Clone Single Instance Database (without Archiving Enabled)

A POST operation is issued on Service Templates collection resource to create a Snap Clone single instance database (without archiving enabled) Service Template.

All the configuration values for the REST API for Snap Clone without archiving would remain the same as in the REST API for Snap Clone with archiving, except for the THIN\_PROVISIONING:USE\_ARCHIVING parameter. Ensure that the configuration value for "name" : "THIN\_PROVISIONING:USE\_ARCHIVING" in the body is set to "value" : "No" in the [Table 48–50, " POST Request Configuration for Creating a Service Template for Snap Clone Single Instance Database \(with Archiving Enabled\)"](#) for creating a Snap Clone single instance database (without Archiving enabled) Service template.

#### 48.3.5.3.13 Creating a Service Template for a Schema

A POST operation is issued on Service Templates Collection resource to create a Schema Service Template.

The configuration for POST to ServiceTemplates is as follows:

**Table 48–51 POST Request Configuration for Creating a Service Template for a Schema**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–51 (Cont.) POST Request Configuration for Creating a Service Template for a**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "TestSchaasTemplate3",   "serviceType": "SCHEMA",   "serviceFamily": "DBAAS",   "description": "This is a test schaaS service template 1",   "poolIds": [ "9D3187DE6B1115791D71D2827FB98558" ],   "roles": [     { "name": "SSA_USER_ROLE1" }   ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       { "name": "ROLE_NAME", "value": "SampleRole" },       { "name": "MAX_NUMBER_OF_SCHEMAS", "value": "2" },       { "name": "ENFORCE_STORAGE_CONSTRAINT", "value": "NO_ LIMIT" },       { "name": "AUTO_EXTEND_BLOCK_SIZE", "value": "1024" },       { "name": "REF_ZONE", "value": "ABC_ZONE" },       { "name": "REF_POOL", "value": "SCH_POOL" },       { "name": "REF_HOST", "value": "abc.mycompany.com" },       { "name": "REF_DB", "value": "simple.us.example.com" },       { "name": "CREATE_SCHEMA_OPTION", "value": "EMPTY_SCHEMAS"     },     { "name": "SCHAAS_CUSTOM_PRE_SCRIPTS_ URN", "value": "oracle:defaultService:em:provisioning:1:c mp:COMP_ Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},     { "name": "SCHAAS_CUSTOM_POST_SCRIPTS_ URN", "value": "oracle:defaultService:em:provisioning:1:c mp:COMP_ Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},     {       "name": "REMAP_TABLESPACE_LIST",       "value": "",       "values": [ "TBSP1", "TBSP2", "TBSP3" ]     },     {       "name": "REMAP_TABLESPACE_INIT_SIZE_LIST",       "value": "",       "values": [ "TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3" ]     },     {       "name": "REMAP_TABLESPACE_INCR_SIZE_LIST",       "value": "",       "values": [ "TBSP1:0.1", "TBSP2:0.2", "TBSP3:0.3" ]     },     {       "name": "REMAP_TABLESPACE_MAX_SIZE_LIST",       "value": "",       "values": [ "TBSP1:50.0", "TBSP2:30", "TBSP3:20" ]     },     { "name": "CREATE_SCHEMA_OPTION", "value": "EMPTY_SCHEMAS"   },   {     "name": "WORKLOADS",     "subconfigurations": [       {         "name": "WORKLOADS_1",         "subconfigurations": [           { "name": "name", "value": "large " },           { "name": "description", "value": "large workload" }, </pre> |

**Table 48–51 (Cont.) POST Request Configuration for Creating a Service Template for a**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

A sample of the response received is shown below.

```
{
 "name": "TestSchaasTemplate3",
 "serviceFamily": "DBAAS",
 "serviceType": "SCHEMA",
 "type": "Service Template",
 "description": "This is a test schaas service template 1",
 "id": "E87A364660A25B39E040F20A60510FDD",
 "pools": [
 {
 "name": "SCH_POOL",
 "id": "9D3187DE6B1115791D71D2827FB98558",
 "type": "schaas_pool",
 "zone": {
 "id": "2F1E72A95EC21F8F666451B5413FF99A",
 "name": "ABC_ZONE"
 }
 }
],
 "roles": [
 {
 "name": "SSA_USER_ROLE1",
 "description": null
 }
],
 "serviceExecutableMeta": {
 "type": "CDP",
 "configurations": [
 {
 "id": "targets",
 "name": "targets",
 "value": ""
 },
 {
 "id": "ssaRequestId",
 "name": "ssaRequestId",
 "value": ""
 },
 {
 "id": "ssaUser",
 "name": "ssaUser",
 "value": ""
 },
 {
 "id": "ssaTargetName",
 "name": "ssaTargetName",
 "value": ""
 },
 {
 "id": "ssaTargetType",
 "name": "ssaTargetType",
 "value": ""
 }
]
 }
}
```

```

 "id": "zoneTargetName",
 "name": "zoneTargetName",
 "value": ""
 },
 {
 "id": "zoneTargetType",
 "name": "zoneTargetType",
 "value": ""
 },
 {
 "id": "REQUEST_NAME",
 "name": "REQUEST_NAME",
 "value": ""
 },
 {
 "id": "SERV_TEMPLATE_GUID",
 "name": "SERV_TEMPLATE_GUID",
 "value": ""
 },
 {
 "id": "CREATE_SCHEMA_OPTION",
 "name": "Option for creating user schemas",
 "value": "EMPTY_SCHEMAS"
 },
 {
 "id": "MAX_NUMBER_OF_SCHEMAS",
 "name": "Maximum number of schemas permissible",
 "value": "2"
 },
 {
 "id": "DB_PROFILE_URN",
 "name": "Database Profile Component's URN",
 "value": ""
 },
 {
 "id": "REMAP_SCHEMA_LIST",
 "name": "Schema list",
 "value": "",
 "values": []
 },
 {
 "id": "MASTER_ACCOUNT",
 "name": "Master Account",
 "value": ""
 },
 {
 "id": "ROLE_NAME",
 "name": "Database Role Name",
 "value": "TestSchaasTemplate3_Oct_11_"
 },
 {
 "id": "SCHEMA_PRIVILEGES",
 "name": "Schema Privileges",
 "value": "",
 "values": [
 "CREATE TYPE",
 "CREATE SEQUENCE",
 "CREATE DIMENSION",
 "CREATE INDEXTYPE",
 "CREATE SESSION",

```

```
 "CREATE SYNONYM",
 "CREATE OPERATOR",
 "CREATE VIEW",
 "CREATE TABLE",
 "CREATE TRIGGER",
 "CREATE PROCEDURE"
]
},
{
 "id": "ENFORCE_STORAGE_CONSTRAINT",
 "name": "Enforces Storage Constraint",
 "value": "false"
},
{
 "id": "INITIAL_BLOCK_SIZE",
 "name": "Initial Storage Size",
 "value": ""
},
{
 "id": "AUTO_EXTEND_BLOCK_SIZE",
 "name": "Auto extend block size",
 "value": ""
},
{
 "id": "TABLESPACE_ENCRYPTION_ALGORITHM",
 "name": "Tablespace Encryption",
 "value": ""
},
{
 "id": "SHARED_STAGE_LOCATION",
 "name": "Staging Location",
 "value": ""
},
{
 "id": "WORKING_DIRECTORY",
 "name": "Working Directory",
 "value": ""
},
{
 "id": "SCHAAS_CUSTOM_PRE_SCRIPTS_URN",
 "name": "Pre-script",
 "value": ""
},
{
 "id": "SCHAAS_CUSTOM_POST_SCRIPTS_URN",
 "name": "Post-script",
 "value": ""
},
{
 "id": "SCHEMA_PASSWORD_LIST",
 "name": "Schema password list",
 "value": "",
 "values": []
},
{
 "id": "CUSTOM_USER_SELECTED_SCRIPT_URN",
 "name": "Custom Script URN",
 "value": "",
 "values": []
},
}
```



```

 {
 "id": "DBSERVICE_NAME",
 "name": "Database Service Name",
 "value": ""
 }
]
},
"createdOn": null,
"createdBy": null,
"modifiedOn": null,
"modifiedBy": null,
"owner": "SYSMAN",
"etag": null,
"lastModified": null,
"canonicalLink":
"https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/
v1/servicetemplates/E87A364660A25B39E040F20A60510FDD",
"selfLink":
"https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/
v1/servicetemplates/E87A364660A25B39E040F20A60510FDD"
}

```

#### 48.3.5.3.14 Creating a Service Template for a Pluggable Database

A POST operation is issued on ServiceTemplates Collection resource to create a Pluggable Database ServiceTemplate.

The configuration for POST to ServiceTemplates is as follows:

**Table 48–52 POST Request Configuration for Creating a Service Template for a Pluggable Database**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/<br>cloudservices/admin/cfw/v1/servicetemplates       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–52 (Cont.) POST Request Configuration for Creating a Service Template for a Pluggable Database**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "TestPDbTemplate1",   "serviceType": "PDB",   "serviceFamily": "DBAAS",   "description": "This is a test pluggable database service template 1",   "poolIds": [ "FF394120842D8C71CC92BE6A4D5A488E" ],   "roles": [     { "name": "SSA_USER_ROLE1" }   ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       {         "name": "TABLESPACE_ENCRYPTION_ALGORITHM",         "subconfigurations": [           { "name": "name", "value": "NONE" }         ]       },       { "name": "MAX_TABLESPACE_ALLOWED", "value": "2" },       { "name": "PDB_SID_PREFIX", "value": "mypdb" },       { "name": "ENFORCE_STORAGE_CONSTRAINT", "value": "NO_LIMIT" },       { "name": "AUTO_EXTEND_BLOCK_ SIZE", "value": "1024" },       { "name": "REF_DATA_ZONE", "value": "PDB_Zone" },       { "name": "REF_DATA_TARGET", "value": "database" },       { "name": "REF_DATA_TARGET_TYPE", "value": "oracle_ database" },       { "name": "REF_DATA_POOL", "value": "PDB_POOL" },       { "name": "REF_DATA_HOST", "value": "abc.mycompany.com" },       { "name": "SELECT_TARGET_OPTION", "value": "SELECT_ TARGET_FROM_REQUEST" },       { "name": "CREATE_PDB_OPTION", "value": "EMPTY_ PDB" },       { "name": "PDBAAS_CUSTOM_PRE_SCRIPTS_ URN", "value": "oracle:defaultService:em:provisioning:1:c mp:COMP_ Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},       { "name": "PDBAAS_CUSTOM_POST_SCRIPTS_ URN", "value": "oracle:defaultService:em:provisioning:1:c mp:COMP_ Directives:none:01AB6F25F31B7671E0537850B10A9B85:0.1"},       { "name": "PRIVILEGES", "value": "", "values": ["CREATE TYPE", "CREATE VIEW", "CREATE DIMENSION", "CREATE SESSION", "CREATE TRIGGER", "CREATE OPERATOR", "CREATE SYNONYM", "CREATE TABLE", "CREATE PROCEDURE", "CREATE INDEXTYPE", "CREATE SEQUENCE"] },       { "name": "ROLE_OPTION", "value": "CUSTOM_NEW_ROLE" },       {         "name": "INIT_PARAMS",         "subconfigurations": [           { "name": "INIT_PARAMS:1", "value": "cursor_sharing=EXACT" },           { "name": "INIT_PARAMS:2", "value": "*.open_cursors=200" }         ]       }     ]   } } </pre> |

**Table 48–52 (Cont.) POST Request Configuration for Creating a Service Template for a Pluggable Database**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

---

**Note:** In the table above, the `SELECT_TARGET_OPTION` parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

---

A sample of the response received is shown below.

```
{
 "name": "TestPDbTemplate1",
 "serviceFamily": "DBAAS",
 "serviceType": "PDB",
 "type": "Service Template",
 "description": "This is a test pluggable database service template 1",
 "id": "E8887DEEE424BEAEE040F20A605118CE",
 "pools": [
 {
 "name": "PDB_POOL",
 "id": "FF394120842D8C71CC92BE6A4D5A488E",
 "type": "pdbaas_pool",
 "zone": { "id": "B60C4DA1398F41BEBC862D5A10A0C713",
 "name": "PDB_Zone" }
 }
],
 "roles": [
 { "name": "SSA_USER_ROLE1", "description": null }
],
 "serviceExecutableMeta": {
 "type": "CDP",
 "configurations": [
 { "id": "CREATE_PDB_OPTION", "name": "Option for creating Pluggable Database", "value": "EMPTY_PDB" },
 { "id": "PROFILE_URN", "name": "Profile Component's URN", "value": "" },
 { "id": "MAX_TABLESPACE_ALLOWED", "name": "Maximum number of Tablespaces", "value": "2" },
 { "id": "ENFORCE_STORAGE_CONSTRAINT", "name": "Enforce Storage Constraint", "value": "false" },
 { "id": "TABLESPACE_ENCRYPTION_ALGORITHM", "name": "Tablespace Encryption", "value": "", "values": ["NONE"] },
 { "id": "TABLESPACE_SIZE", "name": "Tablespace Size", "value": "", "values": [] },
 { "id": "SHARED_STAGE_LOCATION", "name": "Staging Location", "value": "" },
 { "id": "WORKING_DIRECTORY", "name": "Working Directory", "value": "" },
 { "id": "PDBAAS_CUSTOM_PRE_SCRIPTS_URN", "name": "URN of the pre sql custom script", "value": "" },
 { "id": "PDBAAS_CUSTOM_POST_SCRIPTS_URN", "name": "URN of the post sql custom script", "value": "" },
 { "id": "PDB_SID_PREFIX", "name": "Pluggable Database SID Prefix", "value": "mypdb" },
 { "id": "PDB_ADMIN_USER_NAME", "name": "Pluggable Database Administrator", "value": "" },
 { "id": "PDB_ADMIN_PASSWORD", "name": "Pluggable Administrator Password", "value": "" },
 { "id": "PDB_SERVICE_NAME_PREFIX", "name": "Pluggable Database Service Name"
]
 }
}
```

```

Prefix", "value": ""},
{"id": "PDBSERVICE_NAME", "name": "Pluggable Database Service Name", "value": ""},
{"id": "ROLE_OPTION", "name": "Role Option Custom New Role/ Existing Roles", "value": "CUSTOM_NEW_ROLE"},
{"id": "INIT_PARAMS", "name": "Initialization parameter values passed as list", "value": "", "values": [{"*.open_cursors=200", "*.cursor_sharing=EXACT"}]},
{"id": "CUSTOM_ROLE_NAME", "name": "Database Role Name", "value": "PDBAAS_OCT_12_2013_02_13_AM"},
{"id": "CUSTOM_ROLE_DESC", "name": "Database Role Description", "value": "New db role to be assigned to pluggable database administrator."},
{"id": "PRIVILEGES", "name": "Custom Role Privileges", "value": "", "values": ["CREATE ANY SYNONYM", "CREATE ANY OPERATOR", "CREATE SESSION", "CREATE JOB", "CREATE ANY TYPE", "CREATE INDEXTYPE", "SELECT ANY DICTIONARY", "CREATE ANY SEQUENCE", "CREATE DIMENSION", "CREATE ANY DIRECTORY", "CREATE ANY INDEX", "CREATE ANY TABLE", "CREATE ANY PROCEDURE", "ALTER SESSION", "CREATE ANY MATERIALIZED VIEW", "CREATE ANY TRIGGER", "CREATE ANY VIEW"]},
{"id": "ROLES", "name": "List of roles selected from reference database", "value": "", "values": []}
]
},
"createdOn": null,
"createdBy": null,
"modifiedOn": null,
"modifiedBy": null,
"owner": "SYSMAN",
"etag": null,
"lastModified": null,
"canonicalLink": "https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E8887DEEE424BEAEE040F20A605118CE",
"selfLink": "https://abc.mycompany.com:11180/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E8887DEEE424BEAEE040F20A605118CE"
}

```

#### 48.3.5.3.15 Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database

A POST operation is issued on ServiceTemplates Collection resource to create a ServiceTemplate for a RAC Pluggable database using an empty Pluggable database.

The configuration for POST to ServiceTemplates is as follows:

**Table 48–53 POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–53 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "Create RAC PDBs using empty PDB option",   "description": "Creates PDBs on cluster.",   "serviceType": "PDB",   "serviceTemplateTypeId": "94",   "rscProvAssocOption": [     "byRscProvInst"   ],   "roles": [     "SSA_USER_ROLE"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",             "values": [               "DFB8F2A53429AF99EF2020C56E11FEE9"             ],             "targetType": {               "targetType": "pdbaas_pool",               "targetTypeName": "Pluggable Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "DBDELETE_PRESCRIPT",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Directives:none:246A484D511C1CFFE053C075B10AEF2D:0.1"       },       {         "name": "DBDELETE_POSTSCRIPT",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Directives:none:246A484D51201CFFE053C075B10AEF2D:0.1"       }     ],     "characteristics": [       {         "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",         "displayName": "Department",         "value": "Development",         "required": true,         "editable": false,         "visible": true       },       {         "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",         "displayName": "Location",         "values": "Bangalore",         "required": false, </pre> |

**Table 48–53 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using an Empty Pluggable Database**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

---

**Note:** In the table above, the `SELECT_TARGET_OPTION` parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

---

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxxx\" created successfully."
}
```

#### 48.3.5.3.16 Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database

A POST operation is issued on ServiceTemplates Collection resource to create a ServiceTemplate for a RAC Pluggable database using a profile Pluggable database.

The configuration for POST to ServiceTemplates is as follows:

**Table 48–54 POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/ser<br>vicetemplates        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 48–54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "Create RAC PDBs using Profile PDB option",   "description": "Creates PDBs on cluster.",   "serviceType": "PDB",   "serviceTemplateTypeId": "94",   "rscProvAssocOption": [     "byRscProvInst"   ],   "roles": [     "SSA_USER_ROLE"   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SSA.PDBAAS_POOL",             "values": [               "DFB8F2A53429AF99EF2020C56E11FEE9"             ],             "targetType": {               "targetType": "pdbaas_pool",               "targetTypeName": "Pluggable Database Pool",               "parentTargetType": "self_service_zone",               "parentTargetTypeName": "PaaS Infrastructure Zone"             }           }         ],         "purposeId": 1       }     ],     "payloads": [       {         "name": "DBDELETE_PRESCRIPT",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Directives:none:246A484D511C1CFFE053C075B10AEF2D:0.1"       },       {         "name": "DBDELETE_POSTSCRIPT",         "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Directives:none:246A484D51201CFFE053C075B10AEF2D:0.1"       }     ],     "characteristics": [       {         "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",         "displayName": "Contact",         "values": [],         "required": false,         "editable": true,         "visible": true       },       {         "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",         "displayName": "Cost Center",         "values": [],         "required": false, </pre> |

**Table 48–54 (Cont.) POST Request Configuration for Creating a Service Template for RAC Pluggable Database Using a Profile Pluggable Database**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

**Note:** In the table above, the `SELECT_TARGET_OPTION` parameter defines if the SSA User has the option to select the Container Database (CDB) while requesting for a PDB. If the value for the parameter is set as `SELECT_TARGET_FROM_REQUEST`, then the SSA User has the option to choose the CDB. If no value is defined, or if the value is set to `SELECT_TARGET_AT_RUNTIME`, then the placement algorithm selects the CDB.

A sample of the response received is shown below.

```
{
 "message": "Service template with ID \"xxxxx\" created successfully."
}
```

#### 48.3.5.3.17 Deleting a Database / Schema / Pluggable Database Service Template

The DELETE request on the URI of the Service Template can be issued to delete a ServiceTemplate Instance.

The configuration for deleting in ServiceTemplate is as follows:

**Table 48–55 DELETE Request Configuration for Deleting a Database/Schema/Pluggable Database Service Template**

| Feature         | Description                                                                                                                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E87A364660A25B39E040F20A60510FDD<br><br><b>Note:</b> For Database Service Templates the URI is <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/61</code> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                             |
| Body            | None                                                                                                                                                                                                                                                      |
| Request method  | DELETE                                                                                                                                                                                                                                                    |

A sample of the response received is shown below.

```
{
 "message": "Service Template \"E87A364660A25B39E040F20A60510FDD\" deleted successfully."
}
```



## Database as a Service SSA User REST APIs

This chapter describes the resource models of Database as a Service (DBaaS) REST APIs for SSA user, and their responses.

The REST APIs for the SSA user are classified based on the database type. The first section in this chapter provides a summary of all the REST APIs in this chapter whereas the following sections cover the REST APIs based on the database type. The sections in this chapter are as follows:

- [Summary of Database as a Service SSA User REST APIs](#)
- [Database as a Service](#)
  - [DB Zone](#)
  - [DB Platform Template](#)
  - [DB Platform Instance](#)
- [Schema as a Service](#)
  - [Schema Platform Template](#)
  - [Schema Platform Instance](#)
- [Pluggable Database as a Service](#)
  - [Pluggable DB Platform Template](#)
  - [Pluggable DB Platform Instance](#)

### 49.1 Summary of Database as a Service SSA User REST APIs

The table below shows a summary of all the DBaaS SSA user REST APIs covered in this chapter.

**Table 49–1 Summary of DBaaS SSA User REST APIs**

| Resource              | Data Model     | GET                                                                                                                              | POST          | PUT           | DELETE        |
|-----------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|
| Cloud                 | Not applicable | <ul style="list-style-type: none"> <li>■ <a href="#">Section 49.2.3.1</a></li> <li>■ <a href="#">Section 49.2.3.2</a></li> </ul> | Not supported | Not supported | Not supported |
| Service family type   | Not applicable | <a href="#">Section 49.2.3.3</a>                                                                                                 | Not supported | Not supported | Not supported |
| Service instance type | Not applicable | <a href="#">Section 49.2.3.4</a>                                                                                                 | Not supported | Not supported | Not supported |
| Service request       | Not applicable | <a href="#">Section 49.2.3.5</a>                                                                                                 | Not supported | Not supported | Not supported |

**Table 49–1 (Cont.) Summary of DBaaS SSA User REST APIs**

| Resource                             | Data Model                  | GET                              | POST                                                                                                                                                                               | PUT           | DELETE                            |
|--------------------------------------|-----------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------|
| Database zone                        | <a href="#">Table 49–2</a>  | <a href="#">Section 49.2.3.6</a> | <ul style="list-style-type: none"> <li>■ <a href="#">Section 49.2.3.8.1</a></li> <li>■ <a href="#">Section 49.3.3.2.1</a></li> <li>■ <a href="#">Section 49.4.3.2.1</a></li> </ul> | Not supported | Not supported                     |
| Database platform template           | <a href="#">Table 49–3</a>  | <a href="#">Section 49.2.3.7</a> | <a href="#">Section 49.2.3.8.2</a>                                                                                                                                                 | Not supported | Not supported                     |
| Database platform instance           | <a href="#">Table 49–4</a>  | <a href="#">Section 49.2.3.9</a> | <ul style="list-style-type: none"> <li>■ <a href="#">Section 49.2.3.10</a></li> <li>■ <a href="#">Section 49.2.3.12</a></li> <li>■ <a href="#">Section 49.2.3.13</a></li> </ul>    | Not supported | <a href="#">Section 49.2.3.11</a> |
| Schema platform template             | <a href="#">Table 49–30</a> | <a href="#">Section 49.3.3.1</a> | <a href="#">Section 49.3.3.2.2</a>                                                                                                                                                 | Not supported | Not supported                     |
| Schema platform instance             | <a href="#">Table 49–31</a> | <a href="#">Section 49.3.3.3</a> | <a href="#">Section 49.3.3.5</a>                                                                                                                                                   | Not supported | <a href="#">Section 49.3.3.4</a>  |
| Pluggable database platform template | <a href="#">Table 49–43</a> | <a href="#">Section 49.4.3.1</a> | <a href="#">Section 49.4.3.2.2</a>                                                                                                                                                 | Not supported | Not supported                     |
| Pluggable database platform instance | <a href="#">Table 49–44</a> | <a href="#">Section 49.4.3.3</a> | <a href="#">Section 49.4.3.5</a>                                                                                                                                                   | Not supported | <a href="#">Section 49.4.3.4</a>  |

---

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

---

## 49.2 Database as a Service

This section describes the resource model for Database as a Service (DBaaS) REST APIs, and the REST request or response interactions.

This section contains the following topics:

- [Database as a Service Resource Model](#)
- [Supported Operations for Database as a Service Resources](#)
- [Database as a Service REST API Examples](#)

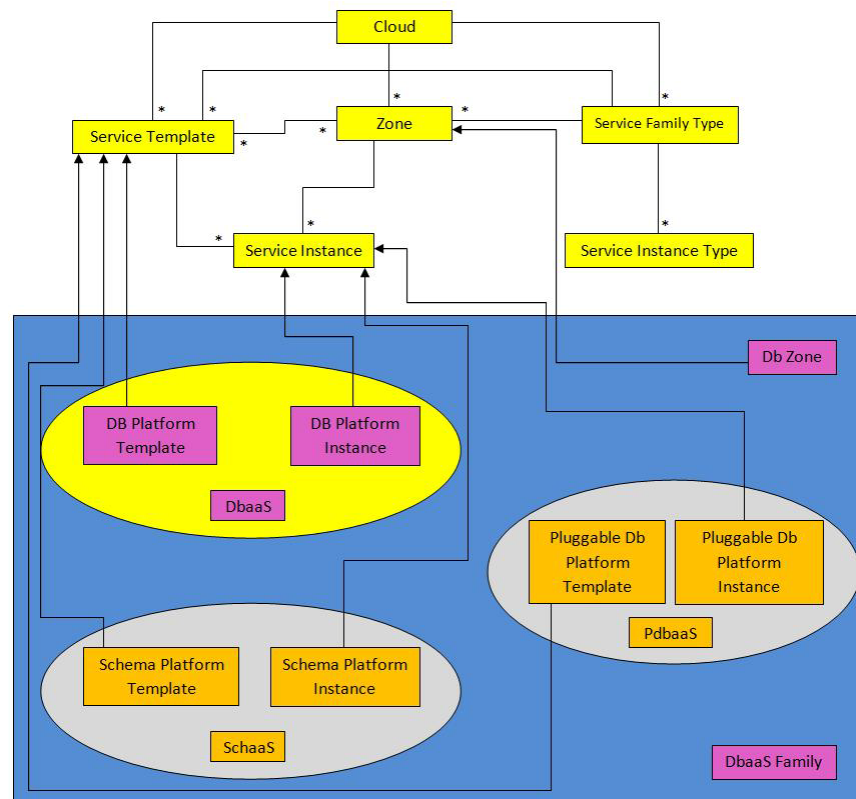
---

**Note:** DBaaS REST APIs are only supported by the Oracle Cloud Application plug-in versions:

- 12.1.0.4.0 with patch # 16085618
  - 12.1.0.5.0 and higher
- 

### 49.2.1 Database as a Service Resource Model

Cloud resources are organized by common service entities and specific services (for example, Database as a Service) provide resources by extending these common service entities. [Figure 49–1](#) shows the DBaaS resource model:

**Figure 49–1 Database as a Service Resource Model**

The following sections describe the resources that are supported by the Database as a Service family type and provide examples of supported operations.

The resource models are:

- [DB Zone](#)
- [DB Platform Template](#)
- [DB Platform Instance](#)

#### 49.2.1.1 DB Zone

DB Zone extends `application/oracle.com.cloud.common.Zone`. This resource represents the view of a PaaS Infrastructure Zone that supports DBaaS resources. DB Zone has the media type `application/oracle.com.cloud.common.DbZone+json`, and the URI format is `/em/cloud/dbaas/zone/<zone id>`.

The following table describes the DB Zone data model.

**Table 49–2 DB Zone Data Model**

| Field | Type   | Description                                                                                     | Occurs |
|-------|--------|-------------------------------------------------------------------------------------------------|--------|
| uri   | URI    | A GET against this URI refreshes the client representation of the Zone definition to this user. | 1      |
| name  | String | Name of the Zone. SHALL be a UNICODE string to support different languages.                     | 1      |

**Table 49–2 (Cont.) DB Zone Data Model**

| Field                | Type                            | Description                                                                                                                                     | Occurs |
|----------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| description          | String                          | Human readable description of the Zone. SHALL be a UNICODE string to support different languages.                                               | 0..1   |
| resource_state       | ResourceState                   | The resource state of the resource.                                                                                                             | 1      |
| service_family_type  | String                          | The name of the service family type that this zone is associated with.<br>It is "dbaas" for this.                                               | 1      |
| templates            | Collection<br><ServiceTemplate> | Collection of the service templates that this zone supports and can be deployed into. Currently, DBPlatformTemplate is the only supported type. | 1      |
| service_instances    | Collection<br><ServiceInstance> | Collection of the service instances that are created in this zone.                                                                              | 1      |
| media_type           | String                          | The media type of the resource.                                                                                                                 | 1      |
| type                 | String                          | The type of the zone which is "self_service_zone" by default.                                                                                   | 1      |
| context_id           | String                          | Zone GUID                                                                                                                                       | 1      |
| canonicalLink        | URI                             | Can be used to perform cloud interactions like GET and POST.                                                                                    | 1      |
| default_db_size_name | String                          | Selected default database size.                                                                                                                 | 1      |
| db_sizes             | List<Object>                    | List of available database sizes.                                                                                                               | 1      |

#### 49.2.1.2 DB Platform Template

The DB Platform Template extends the Service Template resource. This resource represents service templates created for creating databases. The databases may be created using profiles which are created using database templates, rman backups, and SnapClone. It is permissible to accept the Service Template media type on an instance of DB Platform Template. It is a preconfigured deployable service that realizes a DB Platform Instance resource. DB Platform Template has the media type `application/oracle.com.cloud.common.DbPlatformTemplate+json`, and the URI format is `/em/cloud/dbaas/dbplatformtemplate/<template id>`.

The following table describes the DB Platform Template data model.

**Table 49–3 DB Platform Template Data Model**

| Field       | Type      | Description                                                                                          | Occurs |
|-------------|-----------|------------------------------------------------------------------------------------------------------|--------|
| uri         | URI       | A GET against this URI refreshes the client representation of the resources accessible to this user. | 1      |
| name        | String    | A human readable name given to the template.                                                         | 1      |
| description | String    | A brief description given to the template                                                            | 0..1   |
| created     | Timestamp | Date and time, in ISO 8601 format, when the template was created /last modified.                     | 1      |

**Table 49–3 (Cont.) DB Platform Template Data Model**

| Field                        | Type                               | Description                                                                                                                                                                                                                                                                      | Occurs |
|------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| zones                        | Collection<br><DbZone>             | List of all zones on which this service template is published                                                                                                                                                                                                                    | 1      |
| resource_state               | ResourceState                      | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.                                                                                                              | 1      |
| service_family_type          | String                             | Denotes the type of Service Template. For example, "dbaas".                                                                                                                                                                                                                      | 1      |
| service_instances            | Collection<br><DBPlatformInstance> | All service instances created based on this DBPlatformTemplate.                                                                                                                                                                                                                  | 1      |
| media_type                   | String                             | The media type of the service template that this type represents.                                                                                                                                                                                                                | 1      |
| db_type                      | String                             | Type of the Database when provisioned. It can have one of the two values: "oracle_database" and "rac_database".                                                                                                                                                                  | 1      |
| instance_configurable_params | String[]                           | List of parameters required to provision a DbPlatformInstance from this template. Username, Password, SID and Service name in this case.                                                                                                                                         | 1      |
| deployment_params            | List<Object>                       | Description of the parameters which are required while creating a service instance.                                                                                                                                                                                              | 1      |
| type                         | String                             | The type of the service template which is "dbaas" by default.                                                                                                                                                                                                                    | 1      |
| subtype                      | String                             | The sub type of the instance created based on this template.<br>It has a value "db" in this case.                                                                                                                                                                                | 1      |
| node_count                   |                                    | Number of Nodes. Implicit 1 for SI DB and explicit count for the RAC Db types.                                                                                                                                                                                                   | 0..1   |
| db_version                   | String                             | Version of the database which can be created using this template.                                                                                                                                                                                                                | 0..1   |
| context_id                   | URI                                | The unique id of the template.                                                                                                                                                                                                                                                   | 1      |
| canonicalLink                | URI                                | Can be used to perform cloud interactions like GET and POST.                                                                                                                                                                                                                     | 1      |
| sid_option                   | String                             | Option for the ssa user to specify database SID while requesting DB. This field can have either of the following values:<br><ul style="list-style-type: none"> <li>■ 'ssauser' - SSA user needs to specify SID</li> <li>■ 'prefix' - SSA user need not to specify SID</li> </ul> | 1      |
| standby_enabled              | String                             | Indicates whether standby is enabled in the template.                                                                                                                                                                                                                            | 1      |
| standbydbs                   | List<Object>                       | List of standby database configurations.                                                                                                                                                                                                                                         | 1      |
| standby_protection_mode      | String                             | Indicates the protection mode of the standby database.                                                                                                                                                                                                                           | 1      |
| db_sizes                     | List<Object>                       | List of available database sizes.                                                                                                                                                                                                                                                | 1      |

**Table 49–3 (Cont.) DB Platform Template Data Model**

| Field                | Type   | Description                     | Occurs |
|----------------------|--------|---------------------------------|--------|
| default_db_size_name | String | Selected default database size. | 1      |

### 49.2.1.3 DB Platform Instance

The DB Platform Instance extends the Service Instance resource. It is linked to an Oracle Database Instance or Cluster Database target in Enterprise Manager Cloud Control. DB Platform Instance has the media type

application/oracle.com.cloud.common.DbPlatformInstance+json, and the URI format is /em/cloud/dbaas/dbplatforminstance/byrequest/<request id>.

The following table describes the DB Platform Instance Data Model.

**Table 49–4 DB Platform Instance Data Model**

| Field            | Type               | Description                                                                                                                                                         | Occurs |
|------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri              | URI                | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name             | String             | A human readable name given to the instance.<br>[POST]                                                                                                              | 1      |
| destination_zone | Zone               | The Zone to which the instance is deployed.<br>[POST]                                                                                                               | 1      |
| media_type       | String             | Indicates the additional media type that clients can use to perform a GET.                                                                                          | 1      |
| available_space  | Float              | Available space for this database instance.                                                                                                                         | 0..1   |
| resource_state   | ResourceState      | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| based_on         | DbPlatformTemplate | The db platform template on which this instance is published.                                                                                                       | 1      |
| connect_string   | String             | Connect String required to establish a connection to this database instance.                                                                                        | 0..1   |
| created          | String             | Time of creation.                                                                                                                                                   | 1      |
| target_type      | String             | Indicates the type of the database: "oracle_database" for Single Instance database and "rac_database" for RAC database.                                             | 1      |
| status           | String             | Status of the Database instance.                                                                                                                                    | 1      |
| db_version       | String             | Version of the Database.                                                                                                                                            | 0..1   |
| last_backup      | Timestamp          | Time at which the last backup of this database was taken.                                                                                                           | 0..1   |
| load             | Float              | Current average active sessions of this instance.                                                                                                                   | 0..1   |
| master_username  | String             | Name of the master user of this database.                                                                                                                           | 1      |
| total_sessions   | Integer            | Total number of sessions for this database                                                                                                                          | 0..1   |
| total_sga^       | Float              | Total SGA for this database.                                                                                                                                        | 0..1   |

**Table 49–4 (Cont.) DB Platform Instance Data Model**

| Field                       | Type         | Description                                                                                             | Occurs |
|-----------------------------|--------------|---------------------------------------------------------------------------------------------------------|--------|
| up_time^                    | Integer      | Total number of hours since when this database is up.                                                   | 1      |
| context_id                  | String       | The request id of this instance.                                                                        | 1      |
| canonicalLink               | URI          | Can be used to perform cloud interactions like GET and DELETE for this instance.                        | 1      |
| instances                   | List<Object> | List all the node level details of the database instance (exists only when the type is "rac_database"). | 0..1   |
| measurable_attributes       | List<Object> | List of all the attributes with their units which can be measured.                                      | 1      |
| total_memory*^              | String       | Total memory used by the instance (node).                                                               | 0..1   |
| active_sessions*            | Float        | Current average active sessions for this instance (node).                                               | 0..1   |
| cpu_utilization*^           | Percentage   | CPU utilization of this instance (node).                                                                | 0..1   |
| db_time*^                   | Float        | Database time of this instance (node).                                                                  | 0..1   |
| cpu_count*^                 | Integer      | Number of CPU cores on the host on which the instance (node) is deployed.                               | 0..1   |
| allocated_sessions*         | Integer      | Number of sessions currently allocated.                                                                 | 0..1   |
| name*                       | String       | Name of the node (exists as a field in the list of "instances" field).                                  | 0..1   |
| standby_databases           | List<Object> | List of standby databases configured for this instance.                                                 | 1      |
| standby_database_configured | String       | Indicates if standby database is configured for this service instance.                                  | 1      |

**Note:**

\* In case of database instance type "oracle\_database", the above fields exist as it is in the DBPlatformInstance Data model. In case of type "rac\_database", these fields exist as part of "instances" field and occur for each node of the cluster database.

^ - These attributes can be measured in units and so are represented as Json Objects (like a map) having "name" (as the name of the attribute), "value" (as the value of the attribute) and "units" (as the unit of the attribute). Each such field is a list element of "measurable\_attributes" field (which exists at instance level for oracle\_database and at RAC node level in case of rac\_database).

## 49.2.2 Supported Operations for Database as a Service Resources

The following table lists all the operations that are supported on the various Database as a Service resources.

**Table 49–5 Supported Operations for DBaaS Resources**

| Resource                                | GET | POST | PUT | DELETE |
|-----------------------------------------|-----|------|-----|--------|
| Cloud                                   | Yes | No   | No  | No     |
| Service Family Type                     | Yes | No   | No  | No     |
| DB Zone                                 | Yes | Yes  | No  | No     |
| DB Platform Template [Service Template] | Yes | Yes  | No  | No     |
| DB Platform Instance [Service Instance] | Yes | Yes  | No  | Yes    |

### 49.2.3 Database as a Service REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control with Cloud Application plug-in 12.1.0.4 and higher. The following examples are covered:

- [Viewing Details of All the Cloud Resources](#)
- [Filtering Output for Specific Resource Attributes](#)
- [Viewing Details of the Service Family Type Resource](#)
- [Viewing Details of the Service Instance Type Resource](#)
- [Viewing Details of the DB Zone](#)
- [Viewing Details of the DB Platform Template Resource](#)
- [Creating a Database Instance](#)
  - [Creating a Database by Passing a Request on the DB Zone](#)
  - [Creating a Database by Passing a Request on the DB Platform Template](#)
- [Viewing the Database Creation Details](#)
- [Updating a Database](#)
- [Deleting a Database Instance](#)
- [Lifecycle operations on a Database Instance](#)
  - [Shutting down a Database](#)
  - [Starting up a Database](#)
  - [Scheduling a Backup of the Database](#)
  - [Restoring a Database from a Backup](#)
  - [Adding a Standby Database](#)
  - [Removing a Standby Database](#)
  - [Refreshing a Database](#)
- [Lifecycle operations on a Snap clone Database Instance](#)
  - [Creating a Snapshot](#)
  - [Restoring from a Snapshot List](#)
  - [Deleting a Snapshot](#)



### 49.2.3.1 Viewing Details of All the Cloud Resources

Use the top level `/em/cloud` to introspect the Cloud resource. The operation explained herein lists all the resources accessible to the user.

**Table 49–6 GET Request Configuration for Viewing Details of All the Cloud Resources**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | <code>/em/cloud</code>                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>X-specification-Version: 10001 |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the Cloud resource is shown below.

```
{
 "uri": "/em/cloud",
 "name": "Oracle Cloud by Enterprise Manager",
 "description": "This represents the Cloud resource of the Oracle Enterprise
Manager Cloud Management solution",
 "resource_state": {
 "state": "READY"
 },
 "media_type": "application/oracle.com.cloud.common.Cloud+json",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud",
 "zones": {
 "media_type": "application/oracle.com.cloud.common.Zone+json",
 "total": "4",
 "elements": [
 {
 "uri": "/em/cloud/jaas/zone/9708491651C090AB4B847C2F3CD177DE",
 "name": "SLC00ECXY_ZONE",
 "media_type": "application/oracle.com.cloud.jaas.Zone+json",
 "service_family_type": "jaas",
 "type": "jaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/zone/9708491
651C090AB4B847C2F3CD177DE"
 },
 {
 "uri": "/em/cloud/jaas/zone/B329742A13BE0D63703BF0C0E4F98FB9",
 "name": "SLC01NBV_ZONE",
 "media_type": "application/oracle.com.cloud.jaas.Zone+json",
 "service_family_type": "jaas",
 "type": "jaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/zone/B329742
A13BE0D63703BF0C0E4F98FB9"
 },
 {
 "uri": "/em/cloud/dbaas/zone/9708491651C090AB4B847C2F3CD177DE",
 "name": "SLC00ECXY_ZONE",
 "description": "",
 "media_type": "application/oracle.com.cloud.common.DbZone+json",
 "service_family_type": "dbaas",

```

```
 "type": "self_service_zone",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/9708491651C090AB4B847C2F3CD177DE"
 },
 {
 "uri": "/em/cloud/dbaas/zone/B329742A13BE0D63703BF0C0E4F98FB9",
 "name": "SLC01NBV_ZONE",
 "description": "SLC01NBV_ZONE",
 "media_type": "application/oracle.com.cloud.common.DbZone+json",
 "service_family_type": "dbaas",
 "type": "self_service_zone",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/B329742A13BE0D63703BF0C0E4F98FB9"
 }
]
},
"service_templates": {
 "media_type": "application/oracle.com.cloud.common.ServiceTemplate+json",
 "total": "2",
 "elements": [
 {
 "uri":
"/em/cloud/dbaas/dbplatformtemplate/DEC94FE6D49DAA21E040F20A60511D14",
 "name": "SLC01NBV_SNAPCLONE_ST",
 "description": "",
 "media_type":
"application/oracle.com.cloud.common.DbPlatformTemplate+json",
 "service_family_type": "dbaas",
 "type": "dbaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformtemplate/DEC94FE6D49DAA21E040F20A60511D14"
 },
 {
 "uri":
"/em/cloud/dbaas/dbplatformtemplate/DECCA0E18357F28DE040F20A60514D49",
 "name": "SLC00ECXY_DBCA_ST",
 "description": "",
 "media_type":
"application/oracle.com.cloud.common.DbPlatformTemplate+json",
 "service_family_type": "dbaas",
 "type": "dbaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformtemplate/DECCA0E18357F28DE040F20A60514D49"
 }
]
},
"service_family_types": {
 "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
 "total": "4",
 "elements": [
 {
 "uri": "/em/cloud/service_family_type/jaas",
 "name": "jaas",
 "media_type":
"application/oracle.com.cloud.common.ServiceFamilyType+json",
 "type": "jaas",
```

```

 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/jaas"
 },
 {
 "uri": "/em/cloud/service_family_type/dbaas",
 "name": "dbaas",
 "media_type":
"application/oracle.com.cloud.common.ServiceFamilyType+json",
 "type": "dbaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/dbaas"
 },
 {
 "uri": "/em/cloud/service_family_type/opc",
 "name": "opc",
 "media_type":
"application/oracle.com.cloud.common.ServiceFamilyType+json",
 "type": "opc",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/opc"
 },
 {
 "uri": "/em/cloud/service_family_type/iaas",
 "name": "iaas",
 "media_type":
"application/oracle.com.cloud.iaas.IaasServiceFamilyType+json",
 "type": "iaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/iaas"
 }
]
},
"service_requests": {
 "media_type": "application/oracle.com.cloud.common.Request+json",
 "total": "1",
 "elements": [
 {
 "uri": "/em/cloud/request/DEC87CE5B1DA175DE040F20A605150F8",
 "name": "SLC01NBV_DBCA_ST - Mon Jun 10 00:20:08 PDT 2013_CREATE_20_25",
 "media_type": "application/oracle.com.cloud.common.Request+json",
 "status": "SUCCESS",
 "lifecycle_type": "CREATE",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/request/DEC87CE5B
1DA175DE040F20A605150F8"
 }
]
}
}

```

---

**Note:** Even though the Accept type was not specified, the Web service still unambiguously returns the cloud resource as the "/em/cloud" address uniquely identifies the cloud as the default resource to be returned.

---

### 49.2.3.2 Filtering Output for Specific Resource Attributes

The following description indicates the interaction with the cloud resource for identifying specific attributes (service family type in this case):

**Table 49–7 GET Request Configuration for Filtering Specific Resource Attributes**

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| URI             | em/cloud?service_family_types,name            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= |
| Body            | None                                          |
| Request method  | GET                                           |

A sample of the response received is shown below.

```
{
 "name": "Oracle Cloud by Enterprise Manager",
 "service_family_types": {
 "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
 "total": "4",
 "elements": [
 {
 "uri": "/em/cloud/service_family_type/jaas",
 "name": "jaas",
 "media_type":
"application/oracle.com.cloud.common.ServiceFamilyType+json",
 "type": "jaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/jaas"
 },
 {
 "uri": "/em/cloud/service_family_type/dbaas",
 "name": "dbaas",
 "media_type":
"application/oracle.com.cloud.common.ServiceFamilyType+json",
 "type": "dbaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/dbaas"
 },
 {
 "uri": "/em/cloud/service_family_type/opc",
 "name": "opc",
 "media_type":
"application/oracle.com.cloud.common.ServiceFamilyType+json",
 "type": "opc",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/opc"
 },
 {
 "uri": "/em/cloud/service_family_type/iaas",
 "name": "iaas",
 "media_type":
"application/oracle.com.cloud.iaas.IaasServiceFamilyType+json",
 "type": "iaas",
```

```

 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/iaas"
 }
]
}
}

```

This feature, where only selective attributes are gathered and returned to the client, is supported on all the common resources.

### 49.2.3.3 Viewing Details of the Service Family Type Resource

The GET operation on the Service Family Type resource lists all the DBaaS resources accessible to a user. The configuration for the Service Family Type resource is as follows:

**Table 49–8** GET Request Configuration for Viewing Details of the Service Family Type Resource

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| URI             | em/cloud/service_family_types/dbaas           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= |
| Body            | None                                          |
| Request method  | GET                                           |

A sample of the response received is shown below.

```

X-specification-version: 10001
Content-Type: application/oracle.com.cloud.common.ServiceFamilyType+json;
charset=ISO-8859-1
{
 "uri": "/em/cloud/service_family_type/dbaas",
 "name": "dbaas",
 "resource_state": {
 "state": "READY"
 },
 "media_type": "application/oracle.com.cloud.common.ServiceFamilyType+json",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/dbaas",
 "type": "dbaas",
 "service_templates": {
 "media_type": "application/oracle.com.cloud.common.ServiceTemplate+json",
 "total": "2",
 "elements": [
 {
 "uri":
"/em/cloud/dbaas/dbplatformtemplate/DEC94FE6D49DAA21E040F20A60511D14",
 "name": "SLC01NBV_SNAPCLONE_ST",
 "description": "",
 "media_type":
"application/oracle.com.cloud.common.DbPlatformTemplate+json",
 "service_family_type": "dbaas",
 "type": "dbaas",
 "canonicalLink":

```

```

"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformt
emplate/DEC94FE6D49DAA21E040F20A60511D14"
 },
 {
 "uri":
"/em/cloud/dbaas/dbplatformtemplate/DECCA0E18357F28DE040F20A60514D49",
 "name": "SLC00ECXY_DBCA_ST",
 "description": "",
 "media_type":
"application/oracle.com.cloud.common.DbPlatformTemplate+json",
 "service_family_type": "dbaas",
 "type": "dbaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformt
emplate/DECCA0E18357F28DE040F20A60514D49"
 }
]
},
"zones": {
 "media_type": "application/oracle.com.cloud.common.Zone+json",
 "total": "2",
 "elements": [
 {
 "uri": "/em/cloud/dbaas/zone/9708491651C090AB4B847C2F3CD177DE",
 "name": "SLC00ECXY_ZONE",
 "description": "",
 "media_type": "application/oracle.com.cloud.common.DbZone+json",
 "service_family_type": "dbaas",
 "type": "self_service_zone",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/970849
1651C090AB4B847C2F3CD177DE"
 },
 {
 "uri": "/em/cloud/dbaas/zone/B329742A13BE0D63703BF0C0E4F98FB9",
 "name": "SLC01NBV_ZONE",
 "description": "SLC01NBV_ZONE",
 "media_type": "application/oracle.com.cloud.common.DbZone+json",
 "service_family_type": "dbaas",
 "type": "self_service_zone",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/B32974
2A13BE0D63703BF0C0E4F98FB9"
 }
]
},
"instance_types": {
 "media_type": "application/oracle.com.cloud.common.InstanceType+json",
 "total": "1",
 "elements": [
 {
 "uri": "/em/cloud/instance_type/dbPlatformInstance%40dbaas",
 "name": "dbPlatformInstance",
 "description": "Db Instance",
 "media_type": "application/oracle.com.cloud.common.InstanceType+json",
 "instance_media_type":
"application/oracle.com.cloud.common.DbPlatformInstance+json",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/instance_
type/dbPlatformInstance%40dbaas"
 }
]
}

```

```

 }
]
},
"service_requests": {
 "media_type": "application/oracle.com.cloud.common.Request+json",
 "total": "1",
 "elements": [
 {
 "uri": "/em/cloud/request/DEC87CE5B1DA175DE040F20A605150F8",
 "name": "SLC01NBV_DBCA_ST - Mon Jun 10 00:20:08 PDT 2013_CREATE_20_25",
 "media_type": "application/oracle.com.cloud.common.Request+json",
 "status": "SUCCESS",
 "lifecycle_type": "CREATE",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/request/DEC87CE5B1DA175DE040F20A605150F8"
 }
]
}
}
}

```

The media type `application/oracle.com.cloud.common.ServiceFamilyType+json` is returned automatically as the most detailed resource.

#### 49.2.3.4 Viewing Details of the Service Instance Type Resource

A GET request on a Service Instance Type resource list all the supported services that are provided by a particular service family type.

**Table 49–9** GET Request Configuration for Viewing Details of the Service Instance Type Resource

| Feature         | Description                                                    |
|-----------------|----------------------------------------------------------------|
| URI             | <code>em/cloud/instance_type/dbPlatformInstance%40dbaas</code> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                  |
| Body            | None                                                           |
| Request method  | GET                                                            |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/instance_type/dbPlatformInstance%40dbaas" ,
 "name" : "dbPlatformInstance" ,
 "description" : "Db Instance" ,
 "media_type" : "application/oracle.com.cloud.common.InstanceType+json" ,
 "instance_media_type" :
"application/oracle.com.cloud.common.DbPlatformInstance+json" , ,
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/instance_
type/dbPlatformInstance%40dbaas"
}

```

#### 49.2.3.5 Viewing Details of a Service Requests Resource

A GET request on a Service Requests resource lists the details of a service request.

**Table 49–10 GET Request Configuration for Viewing Details of a Service Request Resource**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service requests/<request_id> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                   |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "id": "21",
 "name": "Request a RAC One Database_CREATE_43_47#21",
 "status": "SUCCESS",
 "serviceType": "DB",
 "serviceFamily": "DBAAS",
 "actionName": "Create Database",
 "startDate": "2015-07-21T17:13:47Z",
 "createdOn": "2015-07-21T17:13:47Z",
 "createdBy": "SYSMAN",
 "owner": "SYSMAN",
 "canonicalLink":
 {
 "href":
 "https://blr.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/se
 rvicerequests/21"
 },
 "description": "Create Database for \"Request a RAC One Database\".",
 "executionLogs":
 "https://blr.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/se
 rvicerequests/21/logs"
}
```

#### 49.2.3.6 Viewing Details of the DB Zone

A GET request on a zone lists all the resources available in the zone. The DB zone resource configuration is as follows:

**Table 49–11 GET Request Configuration for Viewing Details of the DB Zone**

| Feature         | Description                                          |
|-----------------|------------------------------------------------------|
| URI             | em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=        |
| Body            | None                                                 |
| Request method  | GET                                                  |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/zone/B49F86387B81DAED9A3D672D722CF29D" ,
 "name" : "RAC SSAZONE" ,
 "description" : "SSA Zone with RAC Nodes" ,
 "resource_state" : {
 "state" : "READY"
```



```

 } ,
 "context_id" : "B49F86387B81DAED9A3D672D722CF29D" ,
 "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/B49F86
387B81DAED9A3D672D722CF29D" ,
 "type" : "self_service_zone" ,
 "service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json"
 } ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/1" ,
 "name" : "db000000.mycompany.com" ,
 "media_type" :
"application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/1" ,
 "type" : "rac_database"
 }
]
} ,
"templates" : {
 "media_type" : "application/oracle.com.cloud.common.DbPlatformTemplate+json"
} ,
"total" : "1" ,
"elements" :
[
 {
 "uri" :
"/em/cloud/dbaas/dbplatformtemplate/DE039DAC33FFEA6FE040E80A687848A6" ,
 "name" : "12101_RACFileSystem_ServiceTemplate" ,
 "description" : "12101 RAC FileSystem Service Template" ,
 "media_type" :
"application/oracle.com.cloud.common.DbPlatformTemplate+json" ,
 "service_family_type" : "dbaas" ,
 "type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformt
emplate/DE039DAC33FFEA6FE040E80A687848A6"
 }
]
}
}

```

#### 49.2.3.7 Viewing Details of the DB Platform Template Resource

A GET request on the DB Platform Template resource provides details of a DB Service Template.

As shown in previous examples, the elements in the collection shown all have `media_type` as an attribute to clearly indicate what its resource type is.

**Table 49–12 GET Request Configuration for Viewing Details of the DB Platform Template Resource**

| Feature         | Description                                                        |
|-----------------|--------------------------------------------------------------------|
| URI             | em/cloud/dbaas/dbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                      |
| Body            | None                                                               |
| Request method  | GET                                                                |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatformtemplate/F985CAE9AB916591E043A4BBF00A235D" ,
 "name" : "Platinum - Star Hotel Application on 2-node RAC Database with Multiple
Standbys" ,
 "description" : "Provisions Star Hotel Application on 2-node 11.2.0.4 RAC
Database with RAC & SI Standbys" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformTemplate+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformt
emplate/F985CAE9AB916591E043A4BBF00A235D" ,
 "type" : "dbaas" ,
 "created" : "2014-05-16T13:57:22+0000" ,
 "zones" : {
 "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/dbaas/zone/F985A268D9175B9FE043A4BBF00A3573" ,
 "name" : "Salt Lake City DC" ,
 "description" : "" ,
 "context_id" : "F985A268D9175B9FE043A4BBF00A3573" ,
 "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
 "service_family_type" : "dbaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/F985A2
68D9175B9FE043A4BBF00A3573" ,
 "type" : "self_service_zone"
 "clusters_for_placement" :
 [
 {
 "clusterName" : "cluster1" ,
 "hostsInCluster" :
 [
 "abc.mycompany.com" ,
 "def.mycompany.com" ,
 "ghi.mycompany.com"
]
 } ,
 {
 "clusterName" : "cluster2" ,
 "hostsInCluster" :
```

```

 [
 "xyz.mycompany.com" ,
 "pqr.mycompany.com"
]
 }
}
]
} ,
"service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json"
,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/1" ,
 "name" : "xxyy.example.com" ,
 "media_type" :
"application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/1" ,
 "target_type" : "rac_database"
 }
]
} ,
"deployment_params" :
[
 {
 "name" : "username" ,
 "description" : "Master account Username" ,
 "type" : "STRING" ,
 "require" : "true" ,
 "sensitive" : "false"
 } ,
 {
 "name" : "password" ,
 "description" : "Password for the Master account" ,
 "type" : "STRING" ,
 "require" : "true" ,
 "sensitive" : "true"
 } ,
 {
 "name" : "database_sid" ,
 "description" : "Database SID. Required only if sid_option is ssauser." ,
 "type" : "STRING" ,
 "require" : "true" ,
 "sensitive" : "false"
 } ,
 {
 "name" : "service_name" ,
 "description" : "Database Service Name" ,
 "type" : "STRING" ,
 "require" : "true" ,
 "sensitive" : "false"
 } ,
 {
 "name" : "database_host_name" ,
 "description" : "Name of the host(s) to be chosen for creating the

```

```
database instance. For RAC database instance, multiple host names can be provided
as comma separated values." ,
 "type" : "STRING" ,
 "require" : "false" ,
 "sensitive" : "false"
} ,
{
 "name" : "standbydbs" ,
 "description" : "List of the standby databases. Required only if standby
database is enabled and required" ,
 "type" : "LIST" ,
 "defaultValue" :
 [
 {
 "name" : "standbydb_name" ,
 "description" : "Name of the standby database, specified in the
standbydbs list" ,
 "type" : "STRING" ,
 "require" : "true" ,
 "sensitive" : "false"
 } ,
 {
 "name" : "standbydb_sid" ,
 "description" : "SID of the standby database" ,
 "type" : "STRING" ,
 "require" : "true" ,
 "sensitive" : "false"
 }
] ,
 "require" : "false" ,
 "sensitive" : "false"
}
{
 "name" : "db_size_name" ,
 "description" : "DB Size name to be associated with the request" ,
 "type" : "STRING" ,
 "require" : "false" ,
 "sensitive" : "false"
} ,
] ,
"subtype" : "db" ,
"db_type" : "rac_database" ,
"node_count" : "2" ,
"sid_option" : "ssauser" ,
"standbydbs" :
[
 {
 "standbydb_name" : "Near DR" ,
 "standbydb_type" : "rac_database"
 } ,
 {
 "standbydb_name" : "Far DR" ,
 "standbydb_type" : "oracle_database"
 }
] ,
"standby_enabled" : "true" ,
"placement_option" : "SELECT_ORACLE_HOME_FROM_REQUEST" ,
"standby_protection_mode" : "MAXIMIZE AVAILABILITY" ,
"instance_configurable_params" : {
 "username" : "" ,
```

```

 "password" : "" ,
 "database_sid" : "" ,
 "service_name" : ""
 }
}
"db_sizes" :
[
 {
 "name" : "Large" ,
 "description" : "Large size database" ,
 "attributes" :
 [
 {
 "name" : "CPU" ,
 "value" : "0" ,
 "units" : "cores"
 } ,
 {
 "name" : "Memory" ,
 "value" : "8" ,
 "units" : "GB"
 } ,
 {
 "name" : "Storage" ,
 "value" : "500" ,
 "units" : "GB"
 }
]
 } ,
 {
 "name" : "Medium" ,
 "description" : "Medium size database" ,
 "attributes" :
 [
 {
 "name" : "CPU" ,
 "value" : "4" ,
 "units" : "cores"
 } ,
 {
 "name" : "Memory" ,
 "value" : "6" ,
 "units" : "GB"
 } ,
 {
 "name" : "Storage" ,
 "value" : "100" ,
 "units" : "GB"
 }
]
 } ,
 {
 "name" : "Small" ,
 "description" : "Small size database" ,
 "attributes" :
 [
 {
 "name" : "CPU" ,
 "value" : "2" ,
 "units" : "cores"
 }
]
 }
]

```

```
 } ,
 {
 "name" : "Memory" ,
 "value" : "4" ,
 "units" : "GB"
 } ,
 {
 "name" : "Storage" ,
 "value" : "50" ,
 "units" : "GB"
 }
]
}
] ,
"default_db_size_name" : "Small" ,
}
```

---

**Note:** In the sample output shown above, the GET on the service template configured for a single instance database shows `hosts_for_placement` parameter instead of `clusters_for_placement`.

---

### 49.2.3.8 Creating a Database Instance

This section describes how to create a service instance using Cloud resources. As DB is a service instance in the service family type `dbaas`, you need to identify the zone of the same family type to create the database. There are two approaches to creating a database:

1. By issuing a POST request on the DB Zone on which the database is to reside.
2. By issuing a POST request on the DB Platform Template of which the database is to be based on.

Note the attributes in the submitted body for the POST. The pattern is the same for other service instance creations. Since the intention is clear, the `zone` attribute is not required while performing POST on the DB Zone. Similarly, the `based_on` attribute is not needed when performing POST on the DB Platform Template.

The two approaches to create a database are described in the following sections:

- [Creating a Database by Passing a Request on the DB Zone](#)
- [Creating a Database by Passing a Request on the DB Platform Template](#)

#### 49.2.3.8.1 Creating a Database by Passing a Request on the DB Zone

The configuration for performing POST to the Db Zone is as follows:

**Table 49–13** *POST Request Configuration for Creating a Database by Passing a Request on the DB Zone*

| Feature | Description                                           |
|---------|-------------------------------------------------------|
| URI     | /em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19 |

**Table 49–13 (Cont.) POST Request Configuration for Creating a Database by Passing a Request on the DB Zone**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Body            | <pre>{   "based_on":     "/em/cloud/dbaas/dbplatformtemplate/CC3BBB665A6BC6FFE04     0F00AEF252456",   "name": "&lt;Request name&gt;",   "description": "&lt;Request Description&gt;",   "start_date":     "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "standby_required" : "true",   "params":     {       "username": "Master Account username for       the DB",       "password": "Password for the Master       Account on the DB" ,       "database_sid" : "Database SID" ,       "service_name" : "Name of the additional       service to be created",       "db_size_name": "Medium",       "standbydbs":         [           {             "standbydb_name": "STBY2",             "standbydb_sid": "stio62"           }         ]       "database_profile_version": "RMAN_06_27_2014_14_18_PM"     } }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

---

**Note:** In the body above start\_date indicates the time, time zone and date when the request is scheduled to create the database and end\_date indicates when the database should be deleted. These parameters are optional.

---

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/21" ,
 "name" : "Test_create_instance" ,
 "resource_state" : {
 "state" : "INITIATED"
```

```

 "messages" :
 [
 {
 "date" : "2014-11-25T09:52:49+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
 "text" : "Delete Request ID is : 22"
 }
]
 } ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/22" ,
 "status" : "SCHEDULED"
}
```

**49.2.3.8.2 Creating a Database by Passing a Request on the DB Platform Template**

The configuration for performing POST to the DbPlatformTemplate is as follows:

**Table 49–14 POST Request Configuration for Creating a Database by Passing a Request on the DB Platform Template**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456                                                                                                                                             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |



**Table 49–14 (Cont.) POST Request Configuration for Creating a Database by Passing a Request on the DB Platform Template**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "zone":     "/em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19"   ,   "name": "&lt;Request name&gt;",   "description": "&lt;Request Description&gt;",   "standby_required" : "true",   "params":     {       "username": "Master Account username for the DB",       "password": "Password for the Master Account on the DB",       "database_sid" : "Database SID" ,       "service_name" : "Name of the additional service to be created",       "database_host_name": "abc.mycompany.com,def.mycompany.com"       " db_size_name": "Medium",       "standbydbs":         [           {             "standbydb_name": "STBY2",             "standbydb_sid": "stio62"           }         ]       "database_profile_version": "RMAN_06_27_2014_14_18_PM"     } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

**Note:**

- database\_host\_name parameter is mandatory if the service template is configured for custom placement.
- The value for the database\_host\_name parameter should be a host present in the same zone.
- For a SI database provide only one host name. For a RAC database the number of hosts provided should be equal to the number of nodes in the node\_count, within the same zone that is specified, and in a single cluster.

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
 "name" : "Test_create_intance" ,
 "resource_state" : {
 "state" : "INITIATED"
 } ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
}
```

```

 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/23" ,
 "status" : "SCHEDULED"
}

```

The response shown above is the same as the previous version. If the zone is not specified, then it is not possible for the web service to determine where the DB should be deployed.

#### 49.2.3.9 Viewing the Database Creation Details

After the POST is performed for the database creation, you can perform the GET operation on the resource identified by the return URI to keep track of the status.

**Table 49–15** *GET Request Configuration for Viewing the Database Creation Details*

| Feature         | Description                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | None                                                                                                                    |
| Request method  | GET                                                                                                                     |

A sample of the response received is shown below.

```

{
 "uri": "/em/cloud/dbaas/dbplatforminstance/byrequest/22",
 "name": "Test_create_intance_CREATE_55_42",
 "description": "Create Database for test.",
 "resource_state":
 {
 "state": "CREATING"
 },
 "context_id": "22",
 "media_type": "application/oracle.com.cloud.common.DbPlatformInstance+json",
 "status": "IN_PROGRESS",
 "created": "2013-06-07 23:09:04" ,
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/22"
}

```

Note that the `resource_state` attribute shows `CREATING` state to indicate that the database is being created. If the GET operation is performed after the database is created, the response displays the database resource in `READY` state, as shown below:

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
 "name" : "db000000.mycompany.com" ,
 "resource_state" : {
 "state" : "READY"
 "messages" :
 [

```

```

 {
 "date" : "2014-11-25T09:52:49+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
 "text" : "Delete Request ID is : 22"
 }
]
} ,
"context_id" : "22" ,
"media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/22" ,
"status" : "RUNNING" ,
"created" : "2013-08-03 02:23:04" ,
"based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E300FBE134EAB347E040F10A58535F16" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=cluster_name) (PORT=1521))) (CONNECT_
DATA=(SERVICE_NAME=db000000.mycompany.com)))" ,
"target_type" : "rac_database" ,
"destination_zone" : "/em/cloud/dbaas/zone/B49F86387B81DAED9A3D672D722CF29D" ,
"total_sessions" : "165" ,
"last_backup" : "null" ,
"master_username" : "InstanceUser1" ,
"db_version" : "12.1.0.1.0" ,
"measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "4778.555" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "699.813" ,
 "units" : "MB"
 }
] ,
"instances" :
[
 {
 "name" : "db000000.mycompany.com_db00000001" ,
 "average_active_sessions" : ".031" ,
 "allocated_sessions" : "70" ,
 "measurable_attributes" :
 [
 {
 "name" : "cpu_utilization" ,
 "value" : "0.199" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "2723.867" ,
 "units" : "MB"
 }
]
 }
]

```

```
 } ,
 {
 "name" : "db_time" ,
 "value" : "3.103" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "6" ,
 "units" : "Cores"
 }
]
} ,
{
 "name" : "db000000. mycompany.com_db00000002" ,
 "average_active_sessions" : ".007" ,
 "allocated_sessions" : "69" ,
 "measurable_attributes" :
 [
 {
 "name" : "cpu_utilization" ,
 "value" : "0.049" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "2705.378" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : ".663" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "6" ,
 "units" : "Cores"
 }
]
} ,
"standby_databases" :
[
 {
 "Target Name" : "xyxy.example.com" ,
 "Target Type" : "oracle_database" ,
 "Open Mode" : "MOUNTED"
 } ,
 {
 "Target Name" : "xxxy.example.com" ,
 "Target Type" : "rac_database" ,
 "Open Mode" : "READ ONLY"
 }
] ,
"standby_database_configured" : "true"
]
```

The output in case of a single instance database (type:oracle\_database) is as below:

```
{
```

```

"uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/81" ,
"name" : "sidb0001.host1.mycompany.com" ,
"resource_state" : {
 "state" : "READY"
} ,
"context_id" : "81" ,
"media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/81" ,
"status" : "RUNNING" ,
"created" : "2013-08-05 18:06:52" ,
"based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E33736E8238CE06BE040F20A54666216" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=
host1.mycompany.com) (PORT=1521))) (CONNECT_DATA=(SID=sidb0001)))" ,
"target_type" : "oracle_database" ,
"destination_zone" : "/em/cloud/dbaas/zone/E33720BF45C45E24E040F20A54666214" ,
"total_sessions" : "43" ,
"last_backup" : "null" ,
"master_username" : "InstanceUser1" ,
"db_version" : "11.2.0.1.0" ,
"average_active_sessions" : ".118" ,
"allocated_sessions" : "42" ,
"measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "982.063" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "11.206" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "533.485" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "11.822" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "1" ,
 "units" : "Cores"
 }
]

```

```
 }
],
 "standby_databases" :
 [
 {
 "Target Name" : "xyxy.example.com" ,
 "Target Type" : "oracle_database" ,
 "Open Mode" : "MOUNTED"
 }
] ,
 "standby_database_configured" : "true"
}
```

### 49.2.3.10 Updating a Database

A database can be updated immediately or scheduled at a later date. To schedule an update at a later date, provide the time at which backups need to be scheduled. The time and date should be in the YYYY-MM-DDTHH:MM:SSZFullTimeZonename format.

For example, to schedule in PST time enter:

```
"2013-08-27T12:34:45ZAmerica/Los_Angeles"
```

However, providing the time zone is optional. If you do not want to specify the time zone provide the time and date as shown in the following example:

```
"2013-08-27T12:34:45Z"
```

To update a database immediately, the `update_schedule` field should be left blank in the payload of the REST API. See, [Table 49–17, "POST Request Configuration for Updating a Database Immediately"](#).

**Table 49–16 POST Request Configuration for Scheduling a Database Update**

| Feature         | Description                                                                                                                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/21                                                                                                                                                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "UPDATE_DATABASE",<br>"update_schedule" : "2013-08-27T12:34:45ZAsia/Calcutta"<br>}                                                                                                   |
| Request method  | POST                                                                                                                                                                                                    |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/1" ,
 "name" : "xyxy.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
```

```

 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/21" ,
 "date" : "2014-11-25T09:52:49+0000" ,
 "text" : "Successfully submitted UPDATE_DATABASE operation on service
instance. Request id - 21."
 }
}
]
} ,
 "context_id" : "1" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/1" ,
 "status" : "RUNNING" ,
 "created" : "2014-11-25 13:41:04.0" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/08AAF405CD4B42E7E0535978B10ADF9F" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=xxxy.example) (PORT=1521))) (CONNECT_
DATA=(SERVICE_NAME=dbca1s.us.example.com)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/715C91005BF1195AA6BFBC70654415E7" ,
 "total_sessions" : "52" ,
 "last_backup" : "null" ,
 "master_username" : "ssouser1" ,
 "db_version" : "11.2.0.3.0" ,
 "average_active_sessions" : ".003" ,
 "allocated_sessions" : "42" ,
 "measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "2" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "509.703" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "118.25" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "0.171" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "668.698" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : ".278" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {

```

```

 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
] ,
"standby_databases" :
[] ,
"standby_database_configured" : "false"
}

```

To update a database immediately, issue the REST API configuration shown in the table below.

**Table 49–17 POST Request Configuration for Updating a Database Immediately**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/21                                                                                                                                                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "UPDATE_DATABASE",<br>"update_schedule" : ""<br>}                                                                                                                                            |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/1" ,
 "name" : "db000000.us.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
 "date" : "2014-11-25T09:56:50+0000" ,
 "text" : "Successfully submitted UPDATE_DATABASE operation on service
instance. Request id - 22."
 }
]
 } ,
 "context_id" : "1" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/1" ,
 "status" : "RUNNING" ,
 "created" : "2014-11-25 13:41:04.0" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/08AAF405CD4B42E7E0535978B10ADF9F" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=slc00dpu.us.example.com) (PORT=1521))) (CONNECT_

```



```

DATA=(SERVICE_NAME=dbca1s.us.example.com)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/715C91005BF1195AA6BFBC70654415E7" ,
 "total_sessions" : "56" ,
 "last_backup" : "null" ,
 "master_username" : "ssouser1" ,
 "db_version" : "11.2.0.3.0" ,
 "average_active_sessions" : ".001" ,
 "allocated_sessions" : "44" ,
 "measurable_attributes" :
 [
 {
 "name" : "up_time" ,
 "value" : "2" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "509.703" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "118.25" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "0.092" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "674.077" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : ".105" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
] ,
 "standby_databases" :
 [] ,
 "standby_database_configured" : "false"
}

```

#### 49.2.3.11 Deleting a Database Instance

The DELETE operation on the URI of the resource can be run to delete a DB Service Instance. The configuration values for the DELETE operation are:

**Table 49–18 DELETE Request Configuration for Deleting a Database Instance**

| Feature         | Description                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | None                                                                                                                    |
| Request method  | DELETE                                                                                                                  |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/22" ,
 "name" : "db000000.mycompany.com" ,
 "resource_state" : {
 "state" : "DESTROYING" ,
 "messages" :
 [
 {
 "text" : "Submit 'DELETE' operation on
'application/oracle.com.cloud.common.DbPlatformInstance+json'
'db000000.mycompany.com'. The process has job id '41' " ,
 "date" : "2013-06-07T23:16:20+0000"
 }
]
 } ,
 "context_id" : "22" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/22" ,
 "type" : "rac_database"
}
```

After a few minutes, the GET operation on the database URI will result in the following interaction:

**Table 49–19 GET Request Configuration for Viewing the Database Creation Details**

| Feature         | Description                                    |
|-----------------|------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=  |
| Body            | None                                           |
| Request method  | GET                                            |

The web service responds with the following details:

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/23" ,
 "name" : "sidb0001.host1.mycompany.com" ,
 "resource_state" : {
 "state" : "DESTROYING"
 } ,
 "context_id" : "23" ,
}
```

```

 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/23" ,
 "status" : "RUNNING" ,
 "created" : "2013-06-09 07:56:57" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/DEB2BDE2F773E356E040E50AD2E56BE9" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1.mycompany.com) (PORT=1521))) (CONNECT_
DATA=(SID=sidb0001)))" ,
 "type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/DEB2E2920C20D2E1E040E50AD2E56BEF" ,
 "up_time" : "0" ,
 "load" : "0.156456056384199" ,
 "total_sessions" : "46" ,
 "total_sga" : "398.203125" ,
 "available_space" : "0.19097900390625" ,
 "last_backup" : "null" ,
 "master_username" : "InstanceUser1" ,
 "db_version" : "11.2.0.1.0" ,
 "active_sessions" : ".156" ,
 "cpu_utilization" : "5.35" ,
 "db_time" : "15.646" ,
 "cpu_count" : "1" ,
 "allocated_sessions" : "39" ,
 "total_memory" : "524.384 MB"
}

```

The database status indicates `DELETED` after the database is deleted.

### 49.2.3.12 Lifecycle operations on a Database Instance

The POST request on the URI of the resource can be issued to perform an operation on a database.

You can perform the following operations using a POST request:

- [Shutting down a Database](#)
- [Starting up a Database](#)
- [Scheduling a Backup of the Database](#)
- [Restoring a Database from a Backup](#)
- [Adding a Standby Database](#)
- [Removing a Standby Database](#)
- [Refreshing a Database](#)

#### 49.2.3.12.1 Shutting down a Database

The configurations for the POST on a `DbPlatformInstance` is as follows:

**Table 49–20 POST Request Configuration for Shutting Down a Database**

| Feature | Description                                    |
|---------|------------------------------------------------|
| URI     | /em/cloud/dbaas/dbplatforminstance/byrequest/7 |

**Table 49–20 (Cont.) POST Request Configuration for Shutting Down a Database**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "SHUTDOWN"<br>}                                                                                                                                                                              |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:12:30+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/127" ,
 "text" : "Successfully submitted SHUTDOWN operation on service
instance. Request id - 127."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "62" ,
 "last_backup" : "null" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : ".01" ,
 "allocated_sessions" : "50" ,
 "measurable_attributes" :
 [
 {
 "name" : "up_time" ,
 "value" : "19" ,
 "units" : "Hours"
```

```

 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "0.506" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "604.652" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "1.041" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
]
}

```

#### 49.2.3.12.2 Starting up a Database

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–21 POST Request Configuration for Starting a Database**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "STARTUP"<br>}                                                                                                                                                                               |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,

```

```
"name" : "dbc00000.xyxy.example.com" ,
"resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:16:52+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/128" ,
 "text" : "Successfully submitted STARTUP operation on service
instance. Request id - 128."
 }
]
} ,
"context_id" : "101" ,
"media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
"status" : "STOPPED" ,
"created" : "2013-08-26 05:09:13" ,
"based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
"target_type" : "oracle_database" ,
"destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
"total_sessions" : "null" ,
"last_backup" : "null" ,
"master_username" : "test" ,
"db_version" : "null" ,
"average_active_sessions" : "null" ,
"allocated_sessions" : "null" ,
"measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "null" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "null" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "null" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "null" ,
 "units" : "MB"
 }
]
```

```

 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "null" ,
 "units" : "Cores"
 }
]
}

```

#### 49.2.3.12.3 Scheduling a Backup of the Database

For scheduling a backup of the database the user has to provide the time at which backups needs to scheduled. This should be in the YYYY-MM-DDTHH:MM:SSZFullTimeZonename format.

For example, to schedule in PST time you should enter 2013-08-27T12:34:45ZAmerica/Los\_Angeles. The time zone portion is optional. If you do not want to provide the time zone, then enter 2013-08-27T12:34:45Z.

If a POST request to schedule a backup has already been issued, the subsequent POST request to schedule the backup will reschedule the backup time as per the latest POST request.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49-22 POST Request Configuration for Scheduling a Backup of the Database**

| Feature         | Description                                                                                                                                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                                                                                                    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json<br>Accept: application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "BACKUP",<br>"backup_schedule" :<br>"2013-08-27T12:34:45ZAsia/Calcutta"<br>}                                                                                                   |
| Request method  | POST                                                                                                                                                                                              |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,

```

```

 "text" : "Successfully submitted BACKUP operation on service instance.
Request id - 129."
 }
}
},
"context_id" : "101" ,
"media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
"status" : "RUNNING" ,
"created" : "2013-08-26 05:09:13" ,
"based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=xyxy.example.com) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
"target_type" : "oracle_database" ,
"destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
"total_sessions" : "0" ,
"last_backup" : "null" ,
"master_username" : "test" ,
"db_version" : "11.2.0.2.0" ,
"average_active_sessions" : "null" ,
"allocated_sessions" : "46" ,
"measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,

```



```

 "units" : "Cores"
 }
}

```

After the backup is completed, the GET operation yields the response shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=slc01lxj.us.example.com) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "64" ,
 "last_backup" : "2013-08-27 07:24:04.0" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : ".027" ,
 "allocated_sessions" : "50" ,
 "measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "0.496" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "578.12" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,

```

```

 "value" : "2.736" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
] ,
"RMAN_backup_list" :
[
 {
 "Key" : "1" ,
 "Tag" : "ORA$OEM_LEVEL_0" ,
 "Completed Time" : "Aug 27, 2013 12:24:02 AM" ,
 "Contents" : "SPFILE,CONTROLFILE" ,
 "Status" : "AVAILABLE"
 }
]
}

```

#### 49.2.3.12.4 Restoring a Database from a Backup

To restore a database from a backup, the user has to provide the point-in-time when the database is to be restored. The time mentioned should be in the YYYY-MM-DDTHH:MM:SSZFullTimeZonename format.

For example, to schedule in PST time you should enter 2013-08-27T12:34:45ZAmerica/Los\_Angeles. Time zone is optional. If you do not want to provide the time zone, enter 2013-08-27T12:34:45Z.

The restore time is based on the backups available. Refer to RMAN\_backup\_list section in the output of the GET request.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–23 POST Request Configuration for Restoring Database from a Backup**

| Feature         | Description                                                                                                                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                                                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "RESTORE",<br>"restore_date" : "2013-08-27T12:34:45Z"<br>}                                                                                                                           |
| Request method  | POST                                                                                                                                                                                                    |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {

```

```

 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
 "text" : "Successfully submitted RESTORE operation on service
instance. Request id - 130."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "0" ,
 "last_backup" : "null" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : "null" ,
 "allocated_sessions" : "46" ,
 "measurable_attributes" :
 [
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,

```

```

 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
]
}

```

#### 49.2.3.12.5 Adding a Standby Database

To add standby databases, input the standby databases which are configured in the service template. If the SID option in the service template is set as “Specified by user at request time”, then provide the SID value.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–24 POST Request Configuration for Adding a Standby Database**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "ADD_STANDBY",<br>"standbydbs":<br>[<br>{<br>"standbydb_name":"STBY1",<br>"standbydb_sid":"stiq41"<br>}<br>]<br>}                                                                            |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.abc.mycompany.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
 "text" : "Successfully submitted ADD_STANDBY operation on service
instance. Request id - 130."
 }
]
 }
}

```

```

 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "0" ,
 "last_backup" : "null" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : "null" ,
 "allocated_sessions" : "46" ,
 "measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
]
}

```

#### 49.2.3.12.6 Removing a Standby Database

To delete standby databases, input the standby databases which are created.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–25 POST Request Configuration for Adding a Standby Database**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "DELETE_STANDBY",<br>"standbydbs":<br>[<br>{<br>"standbydb_name": "xyxy.example.com",<br>"standbydb_type": "oracle_database"<br>}<br>]<br>}                                                  |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.abc.mycompany.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
 "text" : "Successfully submitted DELETE_STANDBY operation on service
instance. Request id - 130."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
```

```

"target_type" : "oracle_database" ,
"destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
"total_sessions" : "0" ,
"last_backup" : "null" ,
"master_username" : "test" ,
"db_version" : "11.2.0.2.0" ,
"average_active_sessions" : "null" ,
"allocated_sessions" : "46" ,
"measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
]
}

```

#### 49.2.3.12.7 Refreshing a Database

The database can be refreshed to a new version of the profile by providing the name of the profile version.

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–26 POST Request Configuration for Adding a Standby Database**

| Feature | Description                                    |
|---------|------------------------------------------------|
| URI     | /em/cloud/dbaas/dbplatforminstance/byrequest/7 |

**Table 49–26 (Cont.) POST Request Configuration for Adding a Standby Database**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "REFRESH_DATABASE",<br>"database_profile_version": "RMAN_06_27_2014_13_18_PM"<br>}                                                                                                           |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.abc.mycompany.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
 "text" : "Successfully submitted REFRESH_DATABASE operation on service
instance. Request id - 130."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "0" ,
 "last_backup" : "null" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : "null" ,
 "allocated_sessions" : "46" ,
 "measurable_attributes" :
 [
 {
 "name" : "up_time" ,
 "value" : "0" ,

```



```

 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
]
}

```

### 49.2.3.13 Lifecycle operations on a Snap clone Database Instance

The POST request on the URI of the resource can be run to perform an operation on a database. The following operations can be performed by using POST.

- [Creating a Snapshott](#)
- [Restoring from a Snapshot List](#)
- [Deleting a Snapshot](#)

#### 49.2.3.13.1 Creating a Snapshot

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–27 POST Request Configuration for Creating a Snapshot**

| Feature | Description                                    |
|---------|------------------------------------------------|
| URI     | /em/cloud/dbaas/dbplatforminstance/byrequest/7 |

**Table 49–27 (Cont.) POST Request Configuration for Creating a Snapshot**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "CREATE_PROFILE",<br>"snapshot_name" : "test_API_export",<br>"snapshot_desc" : "testing export option from APIs"<br>}                                                                        |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/129" ,
 "text" : "Successfully submitted CREATE_PROFILE operation on service
instance. Request id - 130."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "0" ,
 "last_backup" : "null" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : "null" ,
 "allocated_sessions" : "46" ,
 "measurable_attributes" :
 [
 {
 "name" : "up_time" ,
```

```

 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
}
]
}

```

After the snapshot is created, the response of a GET operations yields the result shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/143" ,
 "text" : "Successfully submitted CREATE_PROFILE operation on service
instance. Request id - 143."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :

```

```
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "0" ,
 "last_backup" : "null" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : "null" ,
 "allocated_sessions" : "46" ,
 "measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
]
"snapclone_profile_list" :
[
 {
 "Name" : "test_API_export" ,
 "Description" : "testing export option from APIs" ,
 "URN" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:E4E9E7EE230BF965E040F20A60517256:0.1" ,
 "Submission Guid" : "DD269BBA774E0159E040F20A60513010" ,
 "Creation Date" : "Mon Aug 20 05:54:03 PDT 2013" ,
 "Status" : "Ready"
```

```

 }
]
}

```

#### 49.2.3.13.2 Restoring from a Snapshot List

The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–28 POST Request Configuration for Restoring from a Snapshot List**

| Feature         | Description                                                                                                                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/dbplatforminstance/byrequest/7                                                                                                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : "RESTORE_PROFILE",<br>"snapshot_urn" :<br>"oracle:defaultService:em:provisioning:1:cmp:COMP_<br>Component:SUB_<br>DbProfile:DECAD7B3145E6808E040F20A605130A2:0.1"<br>}               |
| Request method  | POST                                                                                                                                                                                                    |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/144" ,
 "text" : "Successfully submitted RESTORE_PROFILE operation on service
instance. Request id - 144."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,

```

```

"destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
"total_sessions" : "0" ,
"last_backup" : "null" ,
"master_username" : "test" ,
"db_version" : "11.2.0.2.0" ,
"average_active_sessions" : "null" ,
"allocated_sessions" : "46" ,
"measurable_attributes" :
[
 {
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
 } ,
 {
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
 } ,
 {
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
 } ,
 {
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
 } ,
 {
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
 } ,
 {
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
 } ,
 {
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
 }
]
}

```

**49.2.3.13.3 Deleting a Snapshot** The configurations for the POST on a DbPlatformInstance is as follows:

**Table 49–29 POST Request Configuration for Restoring from a Snapshot List**

| Feature | Description                                    |
|---------|------------------------------------------------|
| URI     | /em/cloud/dbaas/dbplatforminstance/byrequest/7 |

**Table 49–29 (Cont.) POST Request Configuration for Restoring from a Snapshot List**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.DbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.DbPlatformInstance+json |
| Body            | {<br>"operation" : " DELETE_PROFILE",<br>"snapshot_urn" :<br>"oracle:defaultService:em:provisioning:1:cmp:COMP_<br>Component:SUB_<br>DbProfile:DECAD7B3145E6808E040F20A605130A2:0.1"<br>}                       |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/101" ,
 "name" : "dbc00000.xyxy.example.com" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:17:56+0000" ,
 "uri" : "/em/cloud/dbaas/dbplatforminstance/byrequest/148" ,
 "text" : "Successfully submitted DELETE_PROFILE operation on service
instance. Request id - 148."
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/dbplatformi
nstance/byrequest/101" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 05:09:13" ,
 "based_on" :
"/em/cloud/dbaas/dbplatformtemplate/E4D9626BC260F517E040F20A605152CD" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_
DATA=(SID=dbc00000)))" ,
 "target_type" : "oracle_database" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "total_sessions" : "0" ,
 "last_backup" : "null" ,
 "master_username" : "test" ,
 "db_version" : "11.2.0.2.0" ,
 "average_active_sessions" : "null" ,
 "allocated_sessions" : "46" ,
 "measurable_attributes" :
[
```

```
{
 "name" : "up_time" ,
 "value" : "0" ,
 "units" : "Hours"
} ,
{
 "name" : "total_sga" ,
 "value" : "398.203" ,
 "units" : "MB"
} ,
{
 "name" : "available_space" ,
 "value" : "537.172" ,
 "units" : "MB"
} ,
{
 "name" : "cpu_utilization" ,
 "value" : "null" ,
 "units" : "%"
} ,
{
 "name" : "total_memory" ,
 "value" : "575.043" ,
 "units" : "MB"
} ,
{
 "name" : "db_time" ,
 "value" : "null" ,
 "units" : "CentiSeconds Per Second"
} ,
{
 "name" : "cpu_count" ,
 "value" : "2" ,
 "units" : "Cores"
}
]
}
```

## 49.3 Schema as a Service

This section describes the resource model for Schema as a Service (SchaaS) REST API and the REST request/response interactions.

---

---

**Note:** SchaaS REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.6.0 and higher

---

---

This section contains the following topics:

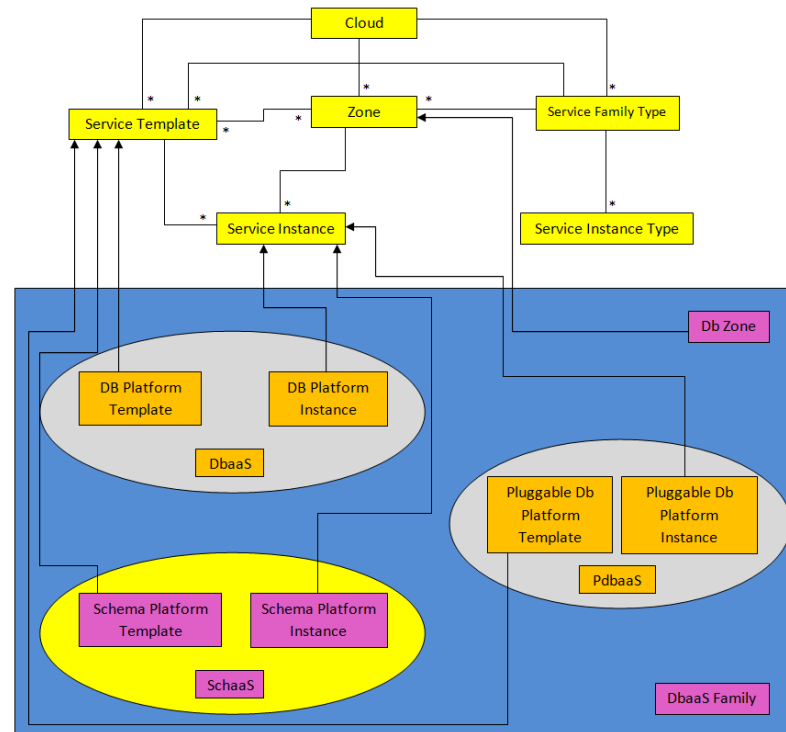
- [Schema as a Service Resource Model](#)
- [Supported Operations for Schema as a Service Resources](#)
- [Schema as a Service REST API Examples](#)



### 49.3.1 Schema as a Service Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Schema as a Service) provide resources by extending these common service entities. The figure below shows the SchaaS resource model.

**Figure 49–2 Schema as a Service Resource Model**



The following sections describe the resources that are supported by the Schema as a Service REST APIs and provide examples of supported operations. Schema as a Service uses the same Cloud, Service Family, and DB Zone resources as described in [Section 49.2.1, "Database as a Service Resource Model"](#).

The following resource models are described:

- [Schema Platform Template](#)
- [Schema Platform Instance](#)

#### 49.3.1.1 Schema Platform Template

The Schema Platform Template extends the Service Template resource. It represents the service template created for Schema Service creation. It can be a template for creating a schema service using profile based schemas (schema with data) or for creating a schemas service containing empty schemas.

It is permissible to accept the Service Template media type on an instance of Schema Platform Template. It is a preconfigured deployable service that realizes a Schema Platform Instance resource. Schema Platform Template has the media type `application/oracle.com.cloud.common.SchemaPlatformTemplate` and URI format `/em/cloud/dbaas/schemaplatformtemplate/<template id>`.

The following table describes the Schema Platform Template Data Model.

**Table 49–30 Schema Platform Template Data Model**

| Field                 | Type                                   | Description                                                                                                                                                         | Occurs |
|-----------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                   | URI                                    | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                  | String                                 | A human readable name given to the template.                                                                                                                        | 1      |
| description           | String                                 | A brief description given to the template.                                                                                                                          | 0..1   |
| created               | Timestamp                              | Date and time, in ISO 8601 format, when the template was created/last modified.                                                                                     | 1      |
| resource_state        | ResourceState                          | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| zones                 | Collection<br><DbZone>                 | List of all zones configured for this template.                                                                                                                     | 0..1   |
| service_instances     | Collection<br><SchemaPlatformInstance> | All service instances created based on this SchemaPlatformTemplate.                                                                                                 | 0..1   |
| media_type            | String                                 | The media type of the service template that this type represents.                                                                                                   | 1      |
| params                | Object                                 | List of parameters required to provision a Schema Platform Instance from this template.                                                                             | 1      |
| deployment_params     | List<Object>                           | Description of the parameters which are required while creating a service instance.                                                                                 | 1      |
| type                  | String                                 | The type of the service template which is "dbaas" by default.                                                                                                       | 1      |
| subtype               | String                                 | The sub type of the instance created based on this template.<br>It has a value "schema" in this case.                                                               | 1      |
| template_type         | String                                 | Type of this template based on how the template got created. It can have any of two values : "EMPTY_SCHEMAS" or "SCHEMAS_FROM_PROFILE".                             | 1      |
| max_number_of_schemas | Integer                                | Maximum number of schemas that can be created in a single instance request. This field exists only if template_type is "EMPTY_SCHEMAS".                             | 0..1   |
| workloads             | List<Object>                           | List all the workloads defined for this template and list the attributes for each one of them.                                                                      | 0..1   |
| canonicalLink         | URI                                    | Can be used to perform cloud interactions like GET and POST.                                                                                                        | 1      |
| tablespace_list       | List<Object>                           | List of tablespaces in schema.                                                                                                                                      | 1      |

### 49.3.1.2 Schema Platform Instance

The Schema Platform Instance extends the Service Instance resource. It is linked to Oracle Database Service target in Enterprise Manager Cloud Control. Schema Platform Instance has the media type

application/oracle.com.cloud.common.SchemaPlatformInstance and URI  
/em/cloud/dbaas/schemaplatforminstance/byrequest/<request id>.

The following table describes the Schema Platform Instance data model:

**Table 49–31 Schema Platform Instance Data Model**

| Field            | Type                   | Description                                                                                                                                                         | Occurs |
|------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri              | URI                    | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name             | String                 | A human readable name given to the database service<br>[POST]                                                                                                       | 1      |
| destination_zone | Zone                   | The Zone to which the database service is deployed<br>[POST]                                                                                                        | 1      |
| created          | Timestamp              | Date and time, in ISO 8601 format, when the template was created/last modified.                                                                                     | 1      |
| resource_state   | ResourceState          | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| based_on         | SchemaPlatformTemplate | The schema platform template on which this database service is published.                                                                                           | 1      |
| media_type       | String                 | Indicates the additional media type that clients can use to perform a GET.                                                                                          | 1      |
| canonicalLink    | URI                    | Can be used to perform cloud interactions like GET and POST.                                                                                                        | 1      |
| type             | String                 | Type of the database service. It has the default value "oracle_dbsvc".                                                                                              | 1      |
| connect_string   | String                 | Connect String required to establish a connection to this database service.                                                                                         | 0..1   |
| status           | String                 | Status of the database service.                                                                                                                                     | 1      |
| db_version       | String                 | Version of the database on which this service is running.                                                                                                           | 0..1   |
| context_id       | String                 | The request id of this database service.                                                                                                                            | 1      |

### 49.3.2 Supported Operations for Schema as a Service Resources

The following table lists all the operations that are supported on the various Schema as a Service resources.

**Table 49–32 Supported Operations**

| Resource            | Operations (GET, POST, PUT, and DELETE) | POST | PUT | DELETE |
|---------------------|-----------------------------------------|------|-----|--------|
| Cloud               | Yes                                     | No   | No  | No     |
| Service Family Type | Yes                                     | No   | No  | No     |
| DB Zone             | Yes                                     | Yes  | No  | No     |

**Table 49–32 (Cont.) Supported Operations**

| Resource                                       | Operations<br>(GET, POST,<br>PUT, and<br>DELETE) | POST | PUT | DELETE |
|------------------------------------------------|--------------------------------------------------|------|-----|--------|
| Schema Platform Template<br>[Service Template] | Yes                                              | Yes  | No  | No     |
| Schema Platform Instance<br>[Service Instance] | Yes                                              | Yes  | No  | Yes    |

### 49.3.3 Schema as a Service REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control with Cloud Application plug-in 12.1.0.6 and higher. The examples for GET on cloud, GET on dbaas family type and GET on Db Zone are covered in the DbaaS REST APIs section. The following examples are covered:

- [Viewing Details of the Schema Platform Template Resource](#)
- [Creating a Schema Service](#)
  - [Creating a Schema by Passing a Request on the DB Zone](#)
  - [Creating a Schema by Passing a Request on the Schema Platform Template](#)
- [Viewing Details of the Schema Service Creation](#)
- [Deleting a Schema Service](#)
- [Life Cycle Operations of a Schema Service](#)
  - [Exporting a Schema](#)
  - [Restoring a Schema from Exported Schema Dumps](#)
  - [Deleting the Exported Schema Dumps](#)
  - [Changing Schema Passwords](#)

#### 49.3.3.1 Viewing Details of the Schema Platform Template Resource

A GET request on the Schema Platform Template resource provides the details of the resource.

**Table 49–33 GET Request Configuration for Viewing Details of the Schema Platform Template Resource**

| Feature         | Description                                                             |
|-----------------|-------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatformtemplate/DE3F8D882F132F45E040F00AAA2330C5 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                           |
| Body            | None                                                                    |
| Request method  | GET                                                                     |

A sample of the response received is shown below.

```
{
 "max_number_of_schemas" : " " ,
 "media_type" : "application/oracle.com.cloud.common.SchemaPlatformTemplate+json"
```

```

 "resource_state" : {
 "state" : "READY"
 } ,
 "tablespace_list" :
 [
 "DUMPTBSP1" ,
 "DUMPTBSP2"
] ,
 "params" : {
 "schema" :
 [
 {
 "username" : "" ,
 "password" : "" ,
 "original_name" : "SCHEMA_USER_1"
 } ,
 {
 "username" : "" ,
 "password" : "" ,
 "original_name" : "SCHEMA_USER_2"
 }
] ,
 "service_name_prefix" : "" ,
 "workload_name" : "" ,
 "tablespaces" :
 [
 {
 "old_tablespace_name" : "DUMPTBSP1" ,
 "new_tablespace_name" : ""
 } ,
 {
 "old_tablespace_name" : "DUMPTBSP2" ,
 "new_tablespace_name" : ""
 }
]
 } ,
 "canonicalLink" :
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
ormtemplate/FADFFB8A434244F1E043797EF00A63AE" ,
 "template_type" : "SCHEMAS_FROM_PROFILE" ,
 "type" : "dbaas" ,
 "zones" : {
 "total" : "1" ,
 "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
 "elements" :
 [
 {
 "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
 "context_id" : "2348838861AFF7BC02912C402605D49F" ,
 "description" : "SSA Zone with SI Nodes" ,
 "service_family_type" : "dbaas" ,
 "name" : "SI SSAZONE" ,
 "canonicalLink" :
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/234883
8861AFF7BC02912C402605D49F" ,
 "type" : "self_service_zone" ,
 "uri" : "/em/cloud/dbaas/zone/2348838861AFF7BC02912C402605D49F"
 }
]
 }
]

```

```
 } ,
 "uri" :
"/em/cloud/dbaas/schemaplatformtemplate/FADFFB8A434244F1E043797EF00A63AE" ,
 "service_instances" : {
 "total" : "1" ,
 "media_type" :
"application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
 "elements" :
 [
 {
 "media_type" :
"application/oracle.com.cloud.common.SchemaPlatformInstance+json" ,
 "name" : "SIFSDifftbspc" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/1" ,
 "target_type" : "oracle_dbsvc" ,
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/1"
 }
]
 } ,
 "created" : "2014-06-02T19:38:04+0000" ,
 "description" : "11204 SIDB FileSystem Schema Service Template - Import Schema -
Different TableSpace for Each Schema" ,
 "name" : "11204_SIFS_SCHEMATEMPLATE_IMPORTSCHEMA_DIFFTBSPC" ,
 "subtype" : "schema" ,
 "workloads" :
 [
 {
 "description" : "LARGE" ,
 "name" : "LARGE" ,
 "attributes" :
 [
 {
 "name" : "CPU" ,
 "value" : "1" ,
 "units" : "cores"
 } ,
 {
 "name" : "Memory" ,
 "value" : "1" ,
 "units" : "GB"
 } ,
 {
 "name" : "Storage" ,
 "value" : "10" ,
 "units" : "GB"
 }
]
 }
] ,
 {
 "description" : "MEDIUM" ,
 "name" : "MEDIUM" ,
 "attributes" :
 [
 {
 "name" : "CPU" ,
 "value" : "0.5" ,
 "units" : "cores"
 }
]
 }
}
```

```

 {
 "name" : "Memory" ,
 "value" : "0.5" ,
 "units" : "GB"
 } ,
 {
 "name" : "Storage" ,
 "value" : "5" ,
 "units" : "GB"
 }
]
} ,
{
 "description" : "SMALL" ,
 "name" : "SMALL" ,
 "attributes" :
 [
 {
 "name" : "CPU" ,
 "value" : "0.3" ,
 "units" : "cores"
 } ,
 {
 "name" : "Memory" ,
 "value" : "0.3" ,
 "units" : "GB"
 } ,
 {
 "name" : "Storage" ,
 "value" : "3" ,
 "units" : "GB"
 }
]
}
] ,
"schema_list" :
[
 "SCHEMA_USER_1" ,
 "SCHEMA_USER_2"
] ,
"deployment_params" :
[
 {
 "description" : "Master account schema. Not Required for the SCHEMAS_FROM_
PROFILE Schema templates" ,
 "name" : "masterAccount" ,
 "require" : "false" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 } ,
 {
 "description" : "Prefix for the service name instances" ,
 "name" : "service_name_prefix" ,
 "require" : "true" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 } ,
 {
 "description" : "WorkLoad name to be associated with the request" ,
 "name" : "workload_name" ,

```

```
 "require" : "true" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 } ,
 {
 "description" : "Common password for all schema users." ,
 "name" : "common_password" ,
 "require" : "false" ,
 "type" : "STRING" ,
 "sensitive" : "true"
 } ,
 {
 "description" : "List of schema to be created" ,
 "name" : "schema" ,
 "require" : "true" ,
 "defaultValue" :
 [
 {
 "description" : "New schema name" ,
 "name" : "username" ,
 "require" : "true" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 } ,
 {
 "description" : "Original schema name. Required only for the
SCHEMAS_FROM_PROFILE Schema templates" ,
 "name" : "original_name" ,
 "require" : "false" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 } ,
 {
 "description" : "Password for the schema. Required only if common_
password is not specified." ,
 "name" : "password" ,
 "require" : "false" ,
 "type" : "STRING" ,
 "sensitive" : "true"
 }
] ,
 "type" : "LIST" ,
 "sensitive" : "false"
 } ,
 {
 "description" : "List of tablespaces remap. Required only for the SCHEMAS_
FROM_PROFILE Schema templates." ,
 "name" : "tablespaces" ,
 "require" : "false" ,
 "defaultValue" :
 [
 {
 "description" : "New tablespace name." ,
 "name" : "new_tablespace_name" ,
 "require" : "true" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 } ,
 {
 "description" : "Original tablespace name." ,
```



```

 "name" : "old_tablespace_name" ,
 "require" : "true" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 }
] ,
"type" : "LIST" ,
"sensitive" : "false"
}
]
}

```

### 49.3.3.2 Creating a Schema Service

This section describes how to create a database service using the Cloud resources. As Database service is also a service instance in the service family type `dbaas`, you need to identify the zone of the same family type in which to create the database service. There are two approaches to creating a database service:

- By passing a POST request on the DB Zone on which DB service is to be created
- By passing a POST request on the Schema Platform Template resource of which the database service is to be based on

Note the attributes in the submitted body for the POST. The pattern is the same for other service instance creations. Since the intention is clear, the `zone` attribute is not required while performing the POST operation to the DB Zone. Similarly, the `based_on` attribute is not needed when performing the POST operation to the SchemaPlatformTemplate.

The following operations are described in this section:

- [Creating a Schema by Passing a Request on the DB Zone](#)
- [Creating a Schema by Passing a Request on the Schema Platform Template](#)

#### 49.3.3.2.1 Creating a Schema by Passing a Request on the DB Zone

The configuration for performing POST to DB Zone is as follows:

**Table 49–34 POST Request Configuration for Creating a Schema by Passing a Request on the DB Zone**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19                                                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json<br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json |

**Table 49–34 (Cont.) POST Request Configuration for Creating a Schema by Passing a Request on the DB Zone**

| Feature                                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body for a profile based schema template for multiple schemas | <pre> {   "name" : "TestService0" ,   "start_date": "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "params" : {     "schema" :     [       {         "username" : "Schema_User11_01" ,         "password" : "Schema_User1" ,         "tablespace_name" : "tbsp01"       } ,       {         "username" : "Schema_User11_02" ,         "password" : "Schema_User1" ,         "tablespace_name" : "tbsp02"       } ,       {         "username" : "Schema_User11_03" ,         "password" : "Schema_User1" ,         "tablespace_name" : "tbsp03"       } ,       {         "username" : "Schema_User11_04" ,         "password" : "Schema_User1" ,         "tablespace_name" : "tbsp04"       }     ] ,     "workload_name" : "default_workload" ,     "service_name" : "TestService0" ,     "masterAccount" : "Schema_User11_01"   } ,   "based_on" :   "/em/cloud/dbaas/schemaplatformtemplate/DE3F8D882F132F4   5E040F00AAA2330C5" } </pre> |

**Table 49–34 (Cont.) POST Request Configuration for Creating a Schema by Passing a Request on the DB Zone**

| Feature                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body for a profile based schema template for a single schema | <pre>{   "name" : "TestService0" ,   "start_date": "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "params" : {     "schema" :     [       {         "username" : "Schema_User11_01" ,         "password" : "Schema_User1" ,         "tablespace_name" : "tbsp01"       } ,       "workload_name" : "default_workload" ,       "service_name" : "TestService0" ,       "masterAccount" : "Schema_User11_01"     ] ,     "based_on" :     "/em/cloud/dbaas/schemaplatformtemplate/DE3F8D882F132F4     5E040F00AAA2330C5"   } }</pre> |
| Request method                                               | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22" ,
 "name" : "TestRequest" ,
 "resource_state" : {
 "state" : "INITIATED"
 },
 "messages" :
 [
 {
 "date" : "2014-11-25T09:52:49+0000" ,
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22" ,
 "text" : "Delete Request ID is : 22"
 }
]
},
"media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json"
,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/22" ,
"status" : "SCHEDULED"
}
```

#### 49.3.3.2.2 Creating a Schema by Passing a Request on the Schema Platform Template

The configurations for performing POST to the Schema Platform Template is as follows:

**Table 49–35 POST Request Configuration for Creating a Schema by Passing a Request on the Schema Platform Template**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Body            | <pre>{   "based_on" :   "/em/cloud/dbaas/schemaplatformtemplate/FADFFB8A434244F1E043797EF00A63AE" ,   "name" : "Test Service" ,   "params" : {     "schema" :     [       {         "username" : "Schaas_API_User_1" ,         "original_name" : "SCHEMA_USER_1" ,         "password" : "sunset1"       } ,       {         "username" : "Schaas_API_User_2" ,         "original_name" : "SCHEMA_USER_2" ,         "password" : "sunset1"       }     ] ,     "workload_name" : "SMALL" ,     "service_name" : "TestService" ,     "masterAccount" : "Schema_User11_01",     "tablespaces" :     [       {         "old_tablespace_name" : "DUMPTBSP2" ,         "new_tablespace_name" : "tablespace2"       } ,       {         "old_tablespace_name" : "DUMPTBSP1" ,         "new_tablespace_name" : "tablespace1"       }     ]   }   "zone": "/em/cloud/dbaas/zone/9A71CBEABCA367D0D425697DC39B3AF9" }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/23" ,
 "name" : "TestRequest" ,
 "resource_state" : {
```

```

 "state" : "INITIATED"
 } ,
 "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json"
,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/23" ,
 "status" : "SCHEDULED"
}

```

The response shown above is the same as the previous version. If the zone is not specified, then it is not possible for the web service to determine where the database service should be deployed.

### 49.3.3.3 Viewing Details of the Schema Service Creation

After the database service creation has been performed by performing the POST operation, you can perform the GET operation to get the resource identified by the return URI to keep track of the status.

**Table 49–36** *GET Request Configuration for Viewing Details of the Schema Service Creation*

| Feature         | Description                                                                                                                 |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatforminstance/byrequest/22                                                                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json |
| Body            | None                                                                                                                        |
| Request method  | GET                                                                                                                         |

A sample of the response received is shown below.

```

{
 "uri": "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
 "name": "TestRequest_CREATE_55_42",
 "description": "Create Service for test.",
 "resource_state":
 {
 "state": "CREATING"
 },
 "context_id": "22",
 "media_type":
"application/oracle.com.cloud.common.SchemaPlatformInstance+json",
 "status": "IN_PROGRESS",
 "created": "2013-06-07 23:09:04" ,
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/22"
}

```

Note that the `resource_state` attribute shows `CREATING` to indicate that the database service is being created. After the database service is created, the GET operation returns the database service resource with `READY` state, as shown below:

```

{
 "uri": "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
 "name": "Service_1_35E576F22E97E",
 "resource_state": {
 "state": "READY"
 "messages" :
 [
 {
 "date" : "2014-11-25T09:52:49+0000" ,
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22" ,
 "text" : "Delete Request ID is : 22"
 }
]
 },
 "context_id": "22",
 "media_type": "application/oracle.com.cloud.common.SchemaPlatformInstance+json",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/22",
 "status": "RUNNING",
 "created": "2013-06-10 02:45:32",
 "based_on":
"/em/cloud/dbaas/schemaplatforminstance/DECA1100F797EF10E040F00AFBB123E7",
 "target_type": "oracle_dbsvc",
 "connect_string": "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=abc.mycompany.com) (PORT=1521))) (CONNECT_
DATA=(SERVICE_NAME=Service_1_35E576F22E97E.mycompany.com)))",
 "destination_zone": "/em/cloud/dbaas/zone/34C1FC23A7503E1CC9C490C9670635F9",
 "db_version": "11.2.0.3.0"
}

```

#### 49.3.3.4 Deleting a Schema Service

The DELETE request can be issued on the URI of the resource to delete a database service. The configuration for the DELETE request is as follows:

**Table 49–37 DELETE Request Configuration for Deleting a Schema Service**

| Feature         | Description                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatforminstance/byrequest/22                                                                             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json |
| Body            | None                                                                                                                            |
| Request method  | DELETE                                                                                                                          |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/22" ,
 "name" : "Service_1_35E576F22E97E" ,
 "resource_state" : {
 "state" : "DESTROYING" ,
 "messages" :
 [

```

```

 {
 "text" : "Submit 'DELETE' operation on
'application/oracle.com.cloud.common.SchemaPlatformInstance+json' 'Service_1_
35E576F22E97E'. The process has job id '41' " ,
 "date" : "2013-06-07T23:16:20+0000"
 }
]
} ,
"context_id" : "22" ,
"media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance
+json" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/22" ,
"type" : "oracle_dbsvc"
}

```

After some time, a GET request on the database service URI results in the following interaction:

**Table 49-38 GET Request Configuration for Viewing the Status of the Schema Service**

| Feature         | Description                                         |
|-----------------|-----------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatforminstance/byrequest/22 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=       |
| Body            | None                                                |
| Request method  | GET                                                 |

A sample of the response received is shown below.

```

{
 "uri": "/em/cloud/dbaas/schemaplatforminstance/byrequest/22",
 "name": "Service_1_35E576F22E97E",
 "resource_state": {
 "state": "DESTROYING"
 },
 "context_id": "2",
 "media_type": "application/oracle.com.cloud.common.SchemaPlatformInstance+json",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/2",
 "status": "RUNNING",
 "created": "2013-06-10 02:45:32",
 "based_on":
"/em/cloud/dbaas/schemaplatformtemplate/DECA1100F797EF10E040F00AFBB123E7",
 "type": "oracle_dbsvc",
 "connect_string": "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1.mycompany.com) (PORT=1521))) (CONNECT_
DATA=(SERVICE_NAME=Service_1_35E576F22E97E.mycompany.com))) ",
 "destination_zone": "/em/cloud/dbaas/zone/34C1FC23A7503E1CC9C490C9670635F9",
 "db_version": "11.2.0.3.0"
}

```

The status of the database service shows DELETED after the schema service is deleted.

### 49.3.3.5 Life Cycle Operations of a Schema Service

The POST request can be issued on the URI of the resource to perform an operation on a schema service.

The following life cycle operations can be performed using the POST request:

- [Exporting a Schema](#)
- [Restoring a Schema from Exported Schema Dumps](#)
- [Deleting the Exported Schema Dumps](#)
- [Changing Schema Passwords](#)

#### 49.3.3.5.1 Exporting a Schema

For exporting schema, the user can optionally provide the date at which the export should be taken. The date and time should be in the YYYY-MM-DDTHH:MM:SSZFullTimeZonename format.

For example to schedule in PST time user should enter  
2013-08-27T12:34:45ZAmerica/Los\_Angeles.

However, the time zone is optional. If you do not want to provide the time zone, then enter: 2013-08-27T12:34:45Z.

The configurations for the POST on a SchemaPlatformInstance is described below:

**Table 49-39 POST Request Configuration for Exporting a Schema**

| Feature         | Description                                                                                                                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatforminstance/byrequest/7                                                                                                                                                                      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json |
| Body            | {<br>"operation" : "EXPORT",<br>"profile_name" : "test_API_export",<br>"profile_desc" : "testing export option from APIs",<br>"export_schedule" : "2013-07-31T02:10:45ZAsia/Calcutta"<br>}                              |
| Request method  | POST                                                                                                                                                                                                                    |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
 "name" : "Service_8E958EC718B11" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:34:43+0000" ,
 "text" : "Successfully submitted EXPORT operation on schema instance.
Request id - 130." ,
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/130"
```



```

 }
],
 "context_id" : "123" ,
 "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json"
,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/123" ,
 "target_type" : "oracle_dbsvc"
}

```

After the export operation is completed, a GET operation on schema service yields below output

```

{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
 "name" : "Service_8E958EC718B11" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "123" ,
 "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json"
,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/123" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 23:49:30" ,
 "based_on" :
"/em/cloud/dbaas/schemaplatformtemplate/E4D9626BC252F517E040F20A605152CD" ,
 "target_type" : "oracle_dbsvc" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_DATA=(SERVICE_
NAME=Service_8E958EC718B11.us.example.com)))" ,
 "destination_zone" : "/em/cloud/dbaas/zone/675B859C36772FB7856771B1D57F79F8" ,
 "schema_list" :
[
 {
 "service_name_prefix" : "" ,
 "workload_name" : "" ,
 "schema" :
[
 {
 "username" : "" ,
 "original_name" : "schema200" ,
 "password" : ""
 }
]
}
] ,
 "db_version" : "11.2.0.2.0" ,
 "export_dump_list" :
[
 {
 "name" : "test_API_export" ,
 "description" : "testing export option from APIs" ,
 "URN" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
DbProfile:E4E9E7EE230BF965E040F20A60517256:0.1" ,
 "status" : "Ready"
 }
]
}

```

```
}
```

#### 49.3.3.5.2 Restoring a Schema from Exported Schema Dumps

The restore schema from dump activity is based on the available export dumps. Refer to `export_dump_list` section in the output of the GET request to view the URN of the dump.

The configurations for the POST on a SchemaPlatformInstance are described below:

**Table 49–40 POST Request Configuration for Restoring a Schema from the Exported Schema Dumps**

| Feature         | Description                                                                                                                                                                                                     |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatforminstance/byrequest/7                                                                                                                                                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json<br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json |
| Body            | {<br>"operation" : "IMPORT",<br>"profile_urn" :<br>"oracle:defaultService:em:provisioning:1:cmp:COMP_<br>Component:SUB_<br>DbProfile:DECB2AAA09CCD711E040F20A60514F92:0.1"<br>}                                 |
| Request method  | POST                                                                                                                                                                                                            |

A sample of the response from the above interaction is shown below.

```
{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
 "name" : "Service_8E958EC718B11" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:34:43+0000" ,
 "text" : "Successfully submitted IMPORT operation on schema instance.
Request id - 132." ,
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/132"
 }
]
 } ,
 "context_id" : "123" ,
 "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json"
,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/123" ,
 "target_type" : "oracle_dbsvc"
}
```

#### 49.3.3.5.3 Deleting the Exported Schema Dumps

Deleting the export dump depends on the available export dumps. Refer to `export_dump_list` section in the output of the GET request to view the URN of the dump.

The configuration for the POST on a SchemaPlatformInstance is as follows:

**Table 49–41 POST Request Configuration for Deleting the Exported Schema Dumps**

| Feature         | Description                                                                                                                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatforminstance/byrequest/7                                                                                                                                                                      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json |
| Body            | {<br>"operation" : "DELETE_EXPORT",<br>"profile_urn" :<br>"oracle:defaultService:em:provisioning:1:cmp:COMP_<br>Component:SUB_<br>DbProfile:DECB2AAA09CCD711E040F20A60514F92:0.1"<br>}                                  |
| Request method  | POST                                                                                                                                                                                                                    |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
 "name" : "Service_8E958EC718B11" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:34:43+0000" ,
 "text" : "Successfully submitted DELETE_EXPORT operation on schema
instance. Request id - 135." ,
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/135"
 }
]
 } ,
 "context_id" : "123" ,
 "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json"
,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/123" ,
 "target_type" : "oracle_dbsvc"
}
```

#### 49.3.3.5.4 Changing Schema Passwords

The configuration for the POST on a SchemaPlatformInstance is as follows:

**Table 49–42 POST Request Configuration for Changing the Schema Passwords**

| Feature         | Description                                                                                                                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/schemaplatforminstance/byrequest/7                                                                                                                                                                      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.SchemaPlatformInstance+json |
| Body            | {<br>"operation" : "CHANGE_PWD",<br>"schema_name" : "schema1",<br>"new_password" : "welcome"<br>}                                                                                                                       |
| Request method  | POST                                                                                                                                                                                                                    |

A sample of the response from the above interaction is shown below.

```
{
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/123" ,
 "name" : "Service_8E958EC718B11" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:34:43+0000" ,
 "text" : "Successfully submitted CHANGE_PWD operation on schema
instance. Request id - 136." ,
 "uri" : "/em/cloud/dbaas/schemaplatforminstance/byrequest/136"
 }
]
 } ,
 "context_id" : "123" ,
 "media_type" : "application/oracle.com.cloud.common.SchemaPlatformInstance+json"
,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/schemaplatf
orminstance/byrequest/123" ,
 "target_type" : "oracle_dbsvc"
}
```

## 49.4 Pluggable Database as a Service

This section describes the resource model for Pluggable Database as a Service (PdbaaS) REST API and the REST request/response interactions.

---

**Note:** PdbaaS REST APIs are only supported by the Oracle Cloud Application plug-in version 12.1.0.7.0 and above.

---

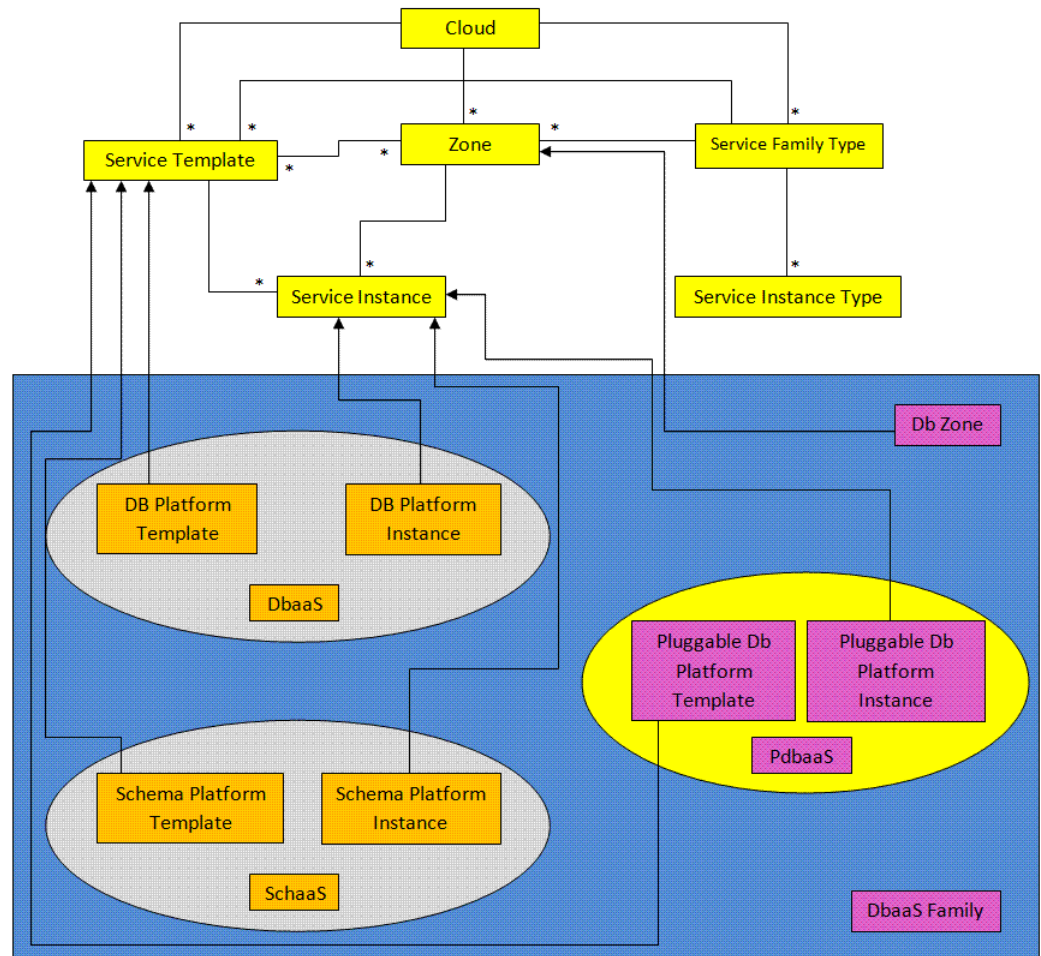
- [Pluggable Database as a Service Resource Model](#)
- [Supported Operations for Pluggable Database Resources](#)

- [Pluggable Database as a Service REST API Examples](#)

#### 49.4.1 Pluggable Database as a Service Resource Model

Cloud resources are organized by common service entities, and specific services (for example, Pluggable Database as a Service) provide resources by extending these common service entities. The figure below shows the PdbaaS resource model.

**Figure 49–3 Pluggable Database as a Service Resource Model**



The following sections describe the resources that are supported by the Pluggable Database as a Service REST APIs and provide examples of supported operations. Pluggable Database as a Service uses the same Cloud, Service Family, and DB Zone resources as described in [Section 49.2.1, "Database as a Service Resource Model"](#).

The following resource models are described in this section:

- [Pluggable DB Platform Template](#)
- [Pluggable DB Platform Instance](#)

##### 49.4.1.1 Pluggable DB Platform Template

The Pluggable Db Platform Template extends the Service Template resource. It represents the service template created for Pluggable Database creation. It can be a

template for creating a pluggable database using profile based pluggable database (pdb with data) or for creating an empty pluggable database. It is permissible to accept the ServiceTemplate media type on an instance of Pluggable Db Platform Template. It is a preconfigured deployable service that realizes a Pluggable Db Platform Instance resource. Pluggable Db Platform Template has the media type `application/oracle.com.cloud.common.PluggableDbPlatformTemplate+json` and URI format `/em/cloud/dbaas/pluggabledbplatformtemplate/<template id>`.

The following table describes the Schema Platform Template Data Model.

**Table 49–43 Pluggable DB Platform Template Data Model**

| Field                | Type                                   | Description                                                                                                                                                         | Occurs |
|----------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                  | URI                                    | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                 | String                                 | A human readable name given to the template.                                                                                                                        | 1      |
| description          | String                                 | A brief description given to the template.                                                                                                                          | 0..1   |
| created              | Timestamp                              | Date and time, in ISO 8601 format, when the template was created/last modified.                                                                                     | 1      |
| zones                | Collection<br><DbZone>                 | List of all zones configured for this template.                                                                                                                     | 0..1   |
| resource_state       | ResourceState                          | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| service_instances    | Collection<br><SchemaPlatformInstance> | All service instances created based on this SchemaPlatformTemplate.                                                                                                 | 0..1   |
| media_type           | String                                 | The media type of the service template that this type represents.                                                                                                   | 1      |
| params               | Object                                 | List of parameters required to provision a Schema Platform Instance from this template.                                                                             | 1      |
| deployment_params    | List<Object>                           | Description of the parameters which are required while creating a service instance.                                                                                 | 1      |
| type                 | String                                 | The type of the service template which is "dbaas" by default.                                                                                                       | 1      |
| subtype              | String                                 | The sub type of the instance created based on this template.<br>It has a value "schema" in this case.                                                               | 1      |
| template_type        | String                                 | Type of this template based on how the template got created. It can have any of two values : "EMPTY_SCHEMAS" or "SCHEMAS_FROM_PROFILE".                             | 1      |
| workloads            | List<Object>                           | List all the workloads defined for this template and list the attributes for each one of them.                                                                      | 0..1   |
| canonicalLink        | URI                                    | Can be used to perform cloud interactions like GET and POST.                                                                                                        | 1      |
| number_of_tablespace | String                                 | Number of tablespaces.                                                                                                                                              | 1      |

### 49.4.1.2 Pluggable DB Platform Instance

The Pluggable Db Platform Instance extends the Service Instance resource. It is linked to Pluggable Database target in Enterprise Manager Cloud Control. Pluggable Db Platform Instance has the media type

`application/oracle.com.cloud.common.PluggableDbPlatformInstance+json` and URI format `/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/<request id>`.

The following table describes the Schema Platform Instance Data Model:

**Table 49–44 Pluggable DB Platform Instance Data Model**

| Field            | Type                        | Description                                                                                                                                                         | Occurs |
|------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri              | URI                         | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name             | String                      | A human readable name given given to the pluggable database                                                                                                         | 1      |
| destination_zone | Zone                        | The Zone to which the pluggable database is deployed                                                                                                                | 1      |
| media_type       | String                      | Indicates the additional media type that clients can use to perform a GET.                                                                                          | 1      |
| resource_state   | ResourceState               | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| based_on         | PluggableDbPlatformTemplate | The pluggable db platform template on which this database service is published.                                                                                     | 1      |
| connect_string   | String                      | Connect String required to establish a connection to this database service.                                                                                         | 0..1   |
| created          | Timestamp                   | Date and time, in ISO 8601 format, when the template was created/last modified.                                                                                     | 1      |
| target_type      | String                      | Target type of this service instance. It has the default value <code>oracle_pdb</code>                                                                              | 1      |
| status           | String                      | Status of the pluggable database.                                                                                                                                   | 1      |
| db_version       | String                      | Version of the database on which pluggable db is running.                                                                                                           | 0..1   |
| context_id       | String                      | The request id of this pluggable database.                                                                                                                          | 1      |
| canonicalLink    | URI                         | Can be used to perform cloud interactions like GET and DELETE.                                                                                                      | 1      |

## 49.4.2 Supported Operations for Pluggable Database Resources

The following table lists all the operations that are supported on the various Pluggable Database as Service resources.

**Table 49–45 Supported Operations**

| Resource            | GET | POST | PUT | DELETE |
|---------------------|-----|------|-----|--------|
| Cloud               | Yes | No   | No  | No     |
| Service Family Type | Yes | No   | No  | No     |

**Table 49–45 (Cont.) Supported Operations**

| Resource                                         | GET | POST | PUT | DELETE |
|--------------------------------------------------|-----|------|-----|--------|
| DB Zone                                          | Yes | Yes  | No  | No     |
| PluggableDb Platform Template [Service Template] | Yes | Yes  | No  | No     |
| PluggableDb Platform Instance [Service Instance] | Yes | Yes  | No  | Yes    |

### 49.4.3 Pluggable Database as a Service REST API Examples

The following sections provide examples of interaction with Enterprise Manager Cloud Control with Cloud Application plug-in 12.1.0.7 and higher. The examples for GET on cloud, GET on dbaas family type and GET on Db Zone are covered in the DbaaS REST APIs section. The following examples are covered:

- [Viewing Details of the Pluggable Db Platform Template Resource](#)
- [Creating a Pluggable Database](#)
  - [Creating a Pluggable Database by Passing a Request on the DB Zone](#)
  - [Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template](#)
- [Viewing Details of the Pluggable Database Creation](#)
- [Deleting a Pluggable Database Instance](#)
- [Lifecycle operations on a Pluggable Database Instance](#)
  - [Shutting Down a Pluggable Database](#)
  - [Starting up a Pluggable Database](#)
  - [Scheduling a Backup for a Pluggable Database](#)
  - [Restoring a Pluggable Database from a Backup](#)

#### 49.4.3.1 Viewing Details of the Pluggable Db Platform Template Resource

A GET request on a Pluggable Db Platform Template provides the details about a Pluggable DB service template.

**Table 49–46 GET Request Configuration for Viewing Details of the Pluggable DB Platform Template Resource**

| Feature         | Description                                                                  |
|-----------------|------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatformtemplate/E32F474628FCCE5AE040E50ACA84603A |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                |
| Body            | None                                                                         |
| Request method  | GET                                                                          |

A sample of the response received is shown below.

```
{
 "uri":
 "/em/cloud/dbaas/pluggabledbplatformtemplate/E32F474628FCCE5AE040E50ACA84603A",
 "name": "Sample PDB template",
```



```

 "description": "Sample PDB template",
 "resource_state": {
 "state": "READY"
 },
 "media_type":
"application/oracle.com.cloud.common.PluggableDbPlatformTemplate+json",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platformtemplate/E32F474628FCCE5AE040E50ACA84603A",
 "type": "dbaas",
 "created": "2013-08-05T07:34:10+0000",
 "zones": {
 "media_type": "application/oracle.com.cloud.common.DbZone+json",
 "total": "1",
 "elements": [
 {
 "uri": "/em/cloud/dbaas/zone/76663B316DCB26E683682224C7881E3",
 "name": "Ssa_zone1",
 "description": "Ssa_zone1",
 "context_id": "76663B316DCB26E683682224C7881E3",
 "media_type": "application/oracle.com.cloud.common.DbZone+json",
 "service_family_type": "dbaas",
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/76663B
316DCB26E683682224C7881E3",
 "type": "self_service_zone"
 "target_nodes_for_placement":
 [
 "xyz.mycompany.com"
]
 }
]
 },
 "service_instances": {
 "media_type":
"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json",
 "total": "1",
 "elements": [
 {
 "media_type" :
"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "name" : "database_MYPDB_000" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/7" ,
 "target_type" : "oracle_pdb" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7"
 }
]
 },
 "number_of_tablespace" : "1" ,
 "deployment_params": [
 {
 "description" : "Name of the additional service created as part of the pdb
service request" ,
 "name" : "service_name" ,
 "require" : "true" ,
 "type" : "STRING" ,
 "sensitive" : "false"
 }
]

```

```
{
 "name": "workload_name",
 "description": "WorkLoad name to be associated with the request",
 "type": "STRING",
 "require": "true",
 "sensitive": "false"
},
{
 "name": "username",
 "description": "Pluggable database admin username",
 "type": "STRING",
 "require": "true",
 "sensitive": "false"
},
{
 "name": "password",
 "description": "Pluggable database admin user password",
 "type": "STRING",
 "require": "true",
 "sensitive": "true"
},
{
 "name" : "target_nodes_for_placement" ,
 "description" : "List of available Container Database(s) to be chosen for
creating the Pluggable database instance." ,
 "type" : "STRING" ,
 "require" : "false" ,
 "sensitive" : "false"
} ,
{
 "description" : "Name of Pluggable database" ,
 "name" : "pdb_name" ,
 "require" : "true" ,
 "type" : "STRING" ,
 "sensitive" : "false"
} ,
{
 "description" : "List of tablespace names. Required only for EMPTY_PDB
templates" ,
 "name" : "tablespaces" ,
 "require" : "false" ,
 "type" : "LIST" ,
 "sensitive" : "false"
} ,
{
 "name": "target_name",
 "description": "Target cdb name to be chosen for installing the pdb",
 "type": "STRING",
 "require": "false",
 "sensitive": "true"
},
],
"subtype": "pdb",
"template_type": "PDB_FROM_PROFILE",
"workloads": [
 {
 "name": "w11",
 "description": "null",
 "attributes": [
 {
```

```

 "name": "CPU",
 "value": "1",
 "units": "cores"
 },
 {
 "name": "Memory",
 "value": "1",
 "units": "GB"
 },
 {
 "name": "Storage",
 "value": "1",
 "units": "GB"
 }
]
},
"params": {
 "workload_name": "",
 "placement_option": "SELECT_TARGET_FROM_REQUEST",
 "username": "",
 "password": "",
 "pdb_name": "",
 "service_name": "",
 "tablespaces": [
]
}
}

```

#### 49.4.3.2 Creating a Pluggable Database

This section describes how to create a pluggable database using the Cloud resources.

As Pluggable Database is also a service instance in the service family type "dbaas", you need to identify the zone of the same family type in which to create the pluggable database. There are two approaches to create a pluggable database:

- [Creating a Pluggable Database by Passing a Request on the DB Zone](#)
- [Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template](#)

Note the attributes in the submitted body for the POST. The pattern is the same for other service instance creations. Because the intention is clear, the "zone" attribute is not required while POSTing to the Db Zone. Similarly, the "based\_on" attribute is not needed when POSTing to the PluggableDbPlatformTemplate.

##### 49.4.3.2.1 Creating a Pluggable Database by Passing a Request on the DB Zone

The following shows the configuration for POSTing to Db Zone:

**Table 49–47 POST Request Configuration for Creating a Pluggable Database by Passing a Request on the DB Zone**

| Feature | Description                                           |
|---------|-------------------------------------------------------|
| URI     | /em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19 |

**Table 49–47 (Cont.) POST Request Configuration for Creating a Pluggable Database by Passing a Request on the DB Zone**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json                                                                                                                                                                                                                                                                                                   |
| Body            | <pre>{   "based_on" :   "/em/cloud/dbaas/pluggabledbplatformtemplate/FADF7229EB   960330E043E176F00ADE61" ,   "name" : "Test Service" ,   "start_date": "2013-08-02T14:20:00ZAsia/Calcutta",   "end_date": "2013-08-02T17:20:00ZAsia/Calcutta",   "params" : {     "username" : "Pdbaas_API_User" ,     "pdb_name" : "pdb_lrgemg880" ,     "workload_name" : "Small" ,     "service_name" : "TestService" ,     "password" : "welcome1" ,     "tablespaces" :     [       "tbsp1"     ]     "target_name " : "test_cdb"   } }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

A sample of the response received is shown below.

```
{
 "uri": "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31",
 "name": "Test Service",
 "resource_state": {
 "state": "INITIATED"
 "messages" :
 [
 {
 "date" : "2014-11-25T09:52:49+0000" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/22",
 "text" : "Delete Request ID is : 22"
 }
]
 },
 "media_type":
 "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json",
 "canonicalLink":
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
 platforminstance/byrequest/31",
 "status": "SCHEDULED"
}
```

#### 49.4.3.2.2 Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template

The following describes the configurations for POSTing to the PluggableDbPlatformTemplate:

**Table 49–48 POST Request Configuration for Creating a Pluggable Database by Passing a Request on the Pluggable DB Platform Template**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json                                                                                                                                                                                                                                                                                                                                   |
| Body            | <pre>{   "zone":     "/em/cloud/dbaas/zone/E125CDA8B810BB2F8ECE9867AFC25903"   ,   "name" : "Request for an Empty PDB BA",   "end_date": "2015-11-20T17:20:00ZAsia/Calcutta",   "params" : {     "username" : "TestUser",     "password" : "welcome1",     "workload_name": "SmallPdb",     "pdb_name" : "BoAPDB",     "service_name" : "BoAPDB_Service" ,     "tablespaces" : [ "pdb_tbs1", "pdb_tbs2" ] },   "instance_target_properties": [     { "name": "Department", "value": "Development" },     { "name": "Comment", "value": "BofA testing" }   ] }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

**Note:** The target\_name property is a mandatory property if the custom placement option (SELECT\_TARGET\_OPTION) is set to "SELECT\_TARGET\_FROM\_REQUEST" in the PDB service template. Also, the CDB name provided should be available in the chosen zone.

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/122" ,
 "name" : "Request for an Empty PDB BofA" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/123" ,
 "text" : "Delete Request ID is : 123" ,
```

```

 "date" : "2015-11-19T10:41:38+0000"
 }
]
 } ,
 "media_type" :
 "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "canonicalLink" :
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/122" ,
 "status" : "SCHEDULED"
}

```

### 49.4.3.3 Viewing Details of the Pluggable Database Creation

A GET request on a Pluggable DB Platform Instance provides the status and other information about the resource.

**Table 49–49** *GET Request Configuration for Viewing Details of the Pluggable Database Creation*

| Feature         | Description                                                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31                                                                             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json |
| Body            | None                                                                                                                                 |
| Request method  | GET                                                                                                                                  |

A sample of the response received is shown below.

```

{
 "uri": "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31",
 "name": "Test Service_CREATE_11_53",
 "description": "Create Database for \"Test Service\".",
 "resource_state":
 {
 "state": "CREATING"
 },
 "context_id": "31",
 "media_type":
 "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json",
 "status": "IN_PROGRESS",
 "created": "2013-06-07 23:09:04" ,
 "canonicalLink":
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/31"
}

```

Note that the `resource_state` attribute shows `CREATING` state which indicates that the pluggable database is being created. After the pluggable database is created, the GET operation returns the pluggable database resource with `READY` state, as shown below:

```

{
 "destination_zone" : "/em/cloud/dbaas/zone/9A71CBEABCA367D0D425697DC39B3AF9" ,
 "media_type" :
 "application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,

```

```

"db_version" : "12.1.0.1.0" ,
"resource_state" : {
 "state" : "READY"
 "messages" :
 [
 {
 "date" : "2014-11-25T09:52:49+0000" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/22",
 "text" : "Delete Request ID is : 22"
 }
]
} ,
"status" : "RUNNING" ,
"based_on" :
"/em/cloud/dbaas/pluggabledbplatformtemplate/E33799E249513428E040F50A994210F5" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31" ,
"connect_string" : "(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=MYPDB_000) (INSTANCE_NAME=t105kfv) (UR=A) (SERVER=DEDICATED)))" ,
"uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/31" ,
"context_id" : "31" ,
"created" : "2013-08-05 17:30:30" ,
"name" : "database_MYPDB_000" ,
"target_type" : "oracle_pdb"
}

```

#### 49.4.3.4 Deleting a Pluggable Database Instance

The DELETE request on the URI of the resource can be issued to delete a pluggable database. For example, the following DELETE request is issued:

**Table 49–50 DELETE Request Configuration for Deleting a Pluggable Database Instance**

| Feature         | Description                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json |
| Body            | None                                                                                                                             |
| Request method  | DELETE                                                                                                                           |

A sample of the response received is shown below.

```

{
 "media_type" :
"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "context_id" : "7" ,
 "resource_state" : {
 "state" : "DESTROYING" ,
 "messages" :
 [
 {
 "text" : "Submit 'DELETE' operation on

```

```
'application/oracle.com.cloud.common.PluggableDbPlatformInstance+json' 'database_
MYPDB_000'. The process has job id '24' ,
 "date" : "2013-08-05T17:35:56+0000"
 }
}
} ,
"name" : "database_MYPDB_000" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/7" ,
"target_type" : "oracle_pdb" ,
"uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7"
}
```

After some time, the GET request on the database service URI will result in the following interaction:

**Table 49-51 GET Request Configuration for Viewing Status of the DELETE Request**

| Feature         | Description                                              |
|-----------------|----------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatforminstance/byrequest/22 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=            |
| Body            | None                                                     |
| Request method  | GET                                                      |

A sample of the response received is shown below.

```
{
 "destination_zone" : "/em/cloud/dbaas/zone/9A71CBEABCA367D0D425697DC39B3AF9" ,
 "media_type" :
"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "db_version" : "12.1.0.1.0" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "status" : "DESTROYING" ,
 "based_on" :
"/em/cloud/dbaas/pluggabledbplatformtemplate/E33799E249513428E040F50A994210F5" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/7" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_DATA=(SERVICE_
NAME=MYPDB_000) (INSTANCE_NAME=t105kfv) (UR=A) (SERVER=DEDICATED)))" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7" ,
 "context_id" : "7" ,
 "created" : "2013-08-05 17:30:30" ,
 "name" : "database_MYPDB_000" ,
 "target_type" : "oracle_pdb"
}
```

Note that the status of the pluggable database will be "DELETED" once the pluggable database instance is deleted.

#### 49.4.3.5 Lifecycle operations on a Pluggable Database Instance

The POST request on the URI of the resource can be issued to perform an operation on a pluggable database.



You can perform the following tasks using POST request:

- [Shutting Down a Pluggable Database](#)
- [Starting up a Pluggable Database](#)
- [Scheduling a Backup for a Pluggable Database](#)
- [Restoring a Pluggable Database from a Backup](#)

#### 49.4.3.5.1 Shutting Down a Pluggable Database

The following describes the configurations for the POST on a PluggableDbPlatformInstance:

**Table 49–52 POST Request Configuration for Shutting Down a Pluggable Database**

| Feature         | Description                                                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7                                                                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json |
| Body            | {<br>"operation" : "SHUTDOWN"<br>}                                                                                                                                                                                                |
| Request method  | POST                                                                                                                                                                                                                              |

A sample of the response received is from the above interaction is shown below.

```
{
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,
 "name" : "database_PDBSERVICE_000" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T06:56:25+0000" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/124" ,
 "text" : "Successfully submitted SHUTDOWN operation on service
instance. Request id - 124."
 }
]
 } ,
 "context_id" : "81" ,
 "media_type" :
"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/81" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 04:19:14" ,
 "based_on" :
"/em/cloud/dbaas/pluggabledbplatformtemplate/E49AA1BAC2DBA0ECE040F20A60517942" ,
```

```

 "target_type" : "oracle_pdb" ,
 "connect_string" : " (DESCRIPTION= (ADDRESS_LIST= (ADDRESS= (PROTOCOL=TCP) (HOST=
host1) (PORT=1521))) (CONNECT_DATA= (SERVICE_NAME=PDB_000) (INSTANCE_
NAME=tbugt) (UR=A) (SERVER=DEDICATED))) " ,
 "destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
 "db_version" : "12.1.0.1.0"
}

```

#### 49.4.3.5.2 Starting up a Pluggable Database

**Table 49–53 POST Request Configuration for Shutting Down a Pluggable Database**

| Feature         | Description                                                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7                                                                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.PluggableDbPlatformIns<br>tance+json<br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformIns<br>tance+json |
| Body            | <pre>{   "operation" : "STARTUP" }</pre>                                                                                                                                                                                          |
| Request method  | POST                                                                                                                                                                                                                              |

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,
 "name" : "database_PDBSERVICE_000" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T06:58:58+0000" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/125" ,
 "text" : "Successfully submitted STARTUP operation on service
instance. Request id - 125."
 }
]
 } ,
 "context_id" : "81" ,
 "media_type" :
"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/81" ,
 "status" : "STOPPED" ,
 "created" : "2013-08-26 04:19:14" ,
 "based_on" :
"/em/cloud/dbaas/pluggabledbplatformtemplate/E49AA1BAC2DBA0ECE040F20A60517942" ,
 "target_type" : "oracle_pdb" ,
 "connect_string" : " (DESCRIPTION= (ADDRESS_LIST= (ADDRESS= (PROTOCOL=TCP) (HOST=
host1) (PORT=1521))) (CONNECT_DATA= (SERVICE_NAME=PDB_000) (INSTANCE_

```

```
NAME=tbugt)(UR=A)(SERVER=DEDICATED)))" ,
 "destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
 "db_version" : "12.1.0.1.0"
}
```

#### 49.4.3.5.3 Scheduling a Backup for a Pluggable Database

The following describes the configurations for the POST on a PluggableDbPlatformInstance:

For scheduling backup user has to provide the time at which backups needs to scheduled. This should in format of YYYY-MM-DDTHH:MM:SSZFullTimeZonename.

For example to schedule in PST time user should give  
2013-08-27T12:34:45ZAmerica/Los\_Angeles

However timezone part is optional. If you do not want to provide it, you can do as follows: 2013-08-27T12:34:45Z

**Table 49–54 POST Request Configuration for Scheduling a Backup for a Pluggable Database**

| Feature         | Description                                                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7                                                                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br><br>Content-Type:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json<br><br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformInstance+json |
| Body            | {<br>"operation" : "BACKUP",<br>"backup_schedule" :<br>"2013-08-27T12:34:45ZAsia/Calcutta"<br>}                                                                                                                                   |
| Request method  | POST                                                                                                                                                                                                                              |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,
 "name" : "database_PDBSERVICE_000" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:01:15+0000" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/126" ,
 "text" : "Successfully submitted BACKUP operation on service instance.
Request id - 126."
 }
]
 } ,
 "context_id" : "81" ,
 "media_type" :
```

```

"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/81" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 04:19:14" ,
 "based_on" :
"/em/cloud/dbaas/pluggabledbplatformtemplate/E49AA1BAC2DBA0ECE040F20A60517942" ,
 "target_type" : "oracle_pdb" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_DATA=(SERVICE_
NAME=PDB_000) (INSTANCE_NAME=tbugt) (UR=A) (SERVER=DEDICATED)))" ,
 "destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
 "db_version" : "12.1.0.1.0"
"RMAN_backup_list" :
[
 {
 "Key" : "1" ,
 "Tag" : "ORA$OEM_LEVEL_0" ,
 "Completed Time" : "Aug 27, 2013 12:24:02 AM" ,
 "Contents" : "SPFILE,CONTROLFILE" ,
 "Status" : "AVAILABLE"
 }
]
}

```

#### 49.4.3.5.4 Restoring a Pluggable Database from a Backup

The following describes the configurations for the POST on a PluggableDbPlatformInstance:

For restoring from backup ,the user has to provide the point-in-time to which database is to be restored. This should in format of YYYY-MM-DDTHH:MM:SSZFullTimeZonename.

For example to schedule in PST time user should give  
2013-08-27T12:34:45ZAmerica/Los\_Angeles

However timezone part is optional. If you do not want to provide it, you can do as follows: 2013-08-27T12:34:45Z

The restore time is based on backups available, please refer to RMAN\_backup\_list section in the output of GET request

**Table 49–55 POST Request Configuration for Restoring a Pluggable Database from a Backup**

| Feature         | Description                                                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/pluggabledbplatforminstance/byrequest/7                                                                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type:<br>application/oracle.com.cloud.common.PluggableDbPlatformIns<br>tance+json<br>Accept:<br>application/oracle.com.cloud.common.PluggableDbPlatformIns<br>tance+json |

**Table 49–55 (Cont.) POST Request Configuration for Restoring a Pluggable Database from a Backup**

| Feature        | Description                                                                   |
|----------------|-------------------------------------------------------------------------------|
| Body           | {<br>"operation" : "RESTORE",<br>"restore_date" : "2013-08-27T12:34:45Z"<br>} |
| Request method | POST                                                                          |

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/81" ,
 "name" : "database_PDBSERVICE_000" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2013-08-27T07:01:15+0000" ,
 "uri" : "/em/cloud/dbaas/pluggabledbplatforminstance/byrequest/146" ,
 "text" : "Successfully submitted RESTORE operation on service
instance. Request id - 146."
 }
]
 } ,
 "context_id" : "81" ,
 "media_type" :
"application/oracle.com.cloud.common.PluggableDbPlatformInstance+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/pluggabledb
platforminstance/byrequest/81" ,
 "status" : "RUNNING" ,
 "created" : "2013-08-26 04:20:14" ,
 "based_on" :
"/em/cloud/dbaas/pluggabledbplatformtemplate/E49AA1BAC2DBA0ECE040F20A60517942" ,
 "target_type" : "oracle_pdb" ,
 "connect_string" : "(DESCRIPTION=(ADDRESS_
LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=host1) (PORT=1521))) (CONNECT_DATA=(SERVICE_
NAME=PDB_000) (INSTANCE_NAME=tbugt) (UR=A) (SERVER=DEDICATED)))" ,
 "destination_zone" : "/em/cloud/dbaas/zone/0129A72DB32D4199B59ABFA64085EAB3" ,
 "db_version" : "12.1.0.1.0"
}
```



---

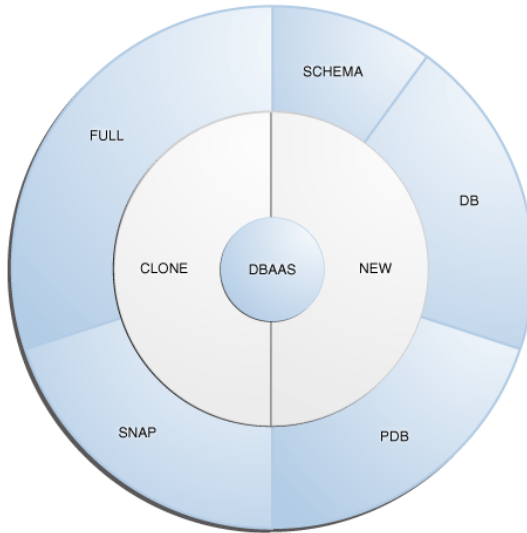
## DBaaS REST APIs and EM CLI Verbs Based Use Cases

This chapter describes the procedure for different DBaaS use cases supported in this release. It contains the following sections:

- [Getting Started with DBaaS With REST APIs and EM CLI Verbs](#)
- [Creating Databases Using Database Template With REST APIs and EM CLI Verbs](#)
- [Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs](#)
- [Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs](#)
- [Migrating/Transferring Data from One Database to Another](#)
- [Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs](#)
- [Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs](#)
- [Configuring Custom Database Placement Option Using REST APIs](#)
- [Service Catalog of Database as a Service](#)

### 50.1 Getting Started with DBaaS With REST APIs and EM CLI Verbs

The following figure provides an overview of the different flavors of Enterprise Manager DBaaS.

**Figure 50–1 DBaaS Use Cases**

This table lists the DBaaS use cases that are supported in this release and lists the different methods (EMCLI, and REST API) that can be used to run these use cases.

**Table 50–1 DBaaS Use Cases**

| Service Type | Service Offering                                                                                                                                                                                                                                                              | See                                                                                                                 |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| New          | Creating databases using a database template.                                                                                                                                                                                                                                 | <a href="#">Section 50.2, "Creating Databases Using Database Template With REST APIs and EM CLI Verbs"</a>          |
| New          | Schema: <ul style="list-style-type: none"> <li>Creating an empty schema</li> <li>Creating a schema based on profile</li> </ul>                                                                                                                                                | <a href="#">Section 50.3, "Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs"</a> |
| New          | Pluggable Database: <ul style="list-style-type: none"> <li>Creating an empty pluggable database</li> <li>Creating a pluggable database based on profile</li> </ul>                                                                                                            | <a href="#">Section 50.4, "Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs"</a>       |
|              | Migrating or transferring data from one database to another.                                                                                                                                                                                                                  | <a href="#">Section 50.5, "Migrating/Transferring Data from One Database to Another"</a>                            |
| Snap Clone   | <ul style="list-style-type: none"> <li>Software Solution: <ul style="list-style-type: none"> <li>Sun ZFS</li> <li>Clone DB</li> </ul> </li> <li>Hardware Solution: <ul style="list-style-type: none"> <li>ZFS file system</li> <li>NetApp</li> <li>EMC</li> </ul> </li> </ul> | <a href="#">Section 50.6, "Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs"</a>                 |



**Table 50–1 (Cont.) DBaaS Use Cases**

| Service Type    | Service Offering                                                                                                                                  | See                                                                                                      |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Clone           | Full Clone: <ul style="list-style-type: none"> <li>Cloning databases using RMAN backup</li> <li>Cloning databases using RMAN duplicate</li> </ul> | <a href="#">Section 50.7, "Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs"</a> |
| New DBaaS setup | Multi-Datcenter DBaaS setup                                                                                                                       | <a href="#">Section 50.9.1, "Multi-Datcenter DBaaS Setup"</a>                                            |

## 50.2 Creating Databases Using Database Template With REST APIs and EM CLI Verbs

The DBCA template supports both structure plus data and structure only types. This database provisioning profile is created from the production or source database registered with Enterprise Manager. It supports both structure plus data and structure only types. This option is recommended if the database size being created is less than 10 GB.

The table below shows the list of tasks that are involved in creating a database using the database template based profile.

You can create single instance and cluster databases using database template based profiles.

---

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

---

**Table 50–2 Creating Databases Using Database Template with REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                                                                   | REST APIs                                                                                                                                                                                 | EM CLI Verbs                                                                                                                                                                      |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable DBaaS.                                                                                                       | See <a href="#">Section 12.1, "Getting Started"</a>                                                                                                                                       | See <a href="#">Section 12.1, "Getting Started"</a>                                                                                                                               |
| 2    | Create resource providers. <ul style="list-style-type: none"> <li>Create one or more PaaS Infrastructure Zones.</li> <li>Create one or more database pools.</li> </ul> | See: <ul style="list-style-type: none"> <li><a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a></li> <li><a href="#">Section 48.3.2.3.4, "Creating a Database Pool"</a></li> </ul> | See: <ul style="list-style-type: none"> <li><a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a></li> <li><a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a></li> </ul> |
| 6    | Create a DBCA template based database provisioning profile.                                                                                                            | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>                                                                                                         | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>                                                                                                 |
| 4    | Create the request settings.                                                                                                                                           | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>                                                                                                              | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>                                                                                                        |
| 5    | Define quotas for each self service user.                                                                                                                              | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>                                                                                                                 | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                                                                                                                   |

**Table 50–2 (Cont.) Creating Databases Using Database Template with REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                            | REST APIs                                                                                        | EM CLI Verbs                                                                       |
|------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 7    | Create a service template based on the profile you have created.                                                                | See <a href="#">Section 48.3.5.3, "Service Templates and Service Template REST API Examples"</a> | See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a>                  |
| 8    | Configure the Chargeback Service.                                                                                               | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>               | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> |
| 9    | While deploying a database, select the service template (associated with the database template based profile) you have created. | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>                             | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>               |

### 50.2.1 Creating Standby Databases With REST APIs and EM CLI Verbs

A data guard configuration consists of one primary database and one or more standby databases. The databases in a Data Guard configuration are connected by Oracle Net and may be dispersed geographically. There are no restrictions on where the databases are located, provided they can communicate with each other.

Oracle Data Guard ensures high availability, data protection, and disaster recovery for enterprise data. It provides a comprehensive set of services that create, maintain, manage, and monitor one or more standby databases to enable production Oracle databases to survive disasters and data corruptions. Oracle Data Guard maintains these standby databases as copies of the production database. If the production database becomes unavailable due to a planned or an unplanned outage, the Oracle Data Guard can switch any standby database to the production role, minimizing the downtime associated with the outage.

The production database, also referred to as the primary database can be either a single-instance Oracle database or an Oracle Real Application Clusters (RAC) database. A standby database is a transaction-wise consistent copy of the primary database. Using a backup copy of the primary database, you can create one or more standby databases and incorporate them in a Data Guard configuration. Using Enterprise Manager Database as a Service, users with the `EM_SSA_ADMINISTRATOR` role can setup the DBaaS Cloud with single instance of RAC standby databases.

---

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

---

**Table 50–3 Creating Standby Databases with REST APIs and EM CLI Verbs**

| Step | Task                                                             | REST APIs                                                          | EM CLI Verbs                                                   |
|------|------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable DBaaS. | See <a href="#">Section 12.1, "Getting Started"</a>                | See <a href="#">Section 12.1, "Getting Started"</a>            |
| 2    | Set up one or more PaaS Infrastructure Zones.                    | See <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a>     | See <a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a>     |
| 3    | Define a database pool for provisioning standby databases.       | See <a href="#">Section 48.3.2.3.4, "Creating a Database Pool"</a> | See <a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a> |

**Table 50–3 (Cont.) Creating Standby Databases with REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                                                                                                                           | REST APIs                                                                                        | EM CLI Verbs                                                                       |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 4    | Configure the request settings.                                                                                                                                                                                                | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>                     | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>         |
| 5    | Define quotas for each self service user.                                                                                                                                                                                      | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>                        | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                    |
| 6    | Create either of the following types of profiles: <ul style="list-style-type: none"> <li>■ DBCA template based database provisioning profile.</li> <li>■ RMAN Backup based database provisioning profile.</li> </ul>           | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>                | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>  |
| 7    | Create a service template based on the profile you have created.                                                                                                                                                               | See <a href="#">Section 48.3.5.3, "Service Templates and Service Template REST API Examples"</a> | See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a>                  |
| 8    | Configure the Chargeback Service.                                                                                                                                                                                              | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>               | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> |
| 9    | While deploying a database, select the service template (associated with the DBCA template based profile) you have created. Additionally, you can also specify the standby database information while requesting the database. | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>                             | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>               |

## 50.3 Creating Empty Schemas and Schemas Based on Profile With REST APIs and EM CLI Verbs

The data content of a database provisioning profile is compiled from an export dump. You can choose to export Schema objects (structure only) or the Schema with data (structure and data).

The table below shows the list of tasks that are involved in creating an empty schema or a schema based on profile.

---

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

---

**Table 50–4 Creating Schemas with REST APIs and EM CLI Verbs**

| Step | Task                                                             | REST APIs                                                      | EM CLI Verbs                                               |
|------|------------------------------------------------------------------|----------------------------------------------------------------|------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable DBaaS. | See <a href="#">Section 12.1, "Getting Started"</a>            | See <a href="#">Section 12.1, "Getting Started"</a>        |
| 2    | Set up one or more PaaS Infrastructure Zones.                    | See <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a> | See <a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a> |

**Table 50–4 (Cont.) Creating Schemas with REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                                                                                                                                                                                                                                                                                | REST APIs                                                                           | EM CLI Verbs                                                                       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 3    | Define a database pool for schema as a service.                                                                                                                                                                                                                                                                                                                                     | See <a href="#">Section 48.3.2.3.6, "Creating a Schema Pool"</a>                    | See <a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a>                     |
| 4    | Configure the request settings.                                                                                                                                                                                                                                                                                                                                                     | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>        | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>         |
| 5    | Define quotas for each self service user.                                                                                                                                                                                                                                                                                                                                           | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>           | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                    |
| 6    | Create a database provisioning profile. This step is optional and is required if you are importing schemas from a profile.                                                                                                                                                                                                                                                          | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>   | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>  |
| 7    | Create a service template based on: <ul style="list-style-type: none"> <li>■ User Defined Schema: In this case, the service template is created with an empty schema.</li> <li>■ Schema from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications.</li> </ul> | See <a href="#">Section 48.3.5.3.13, "Creating a Service Template for a Schema"</a> | See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a>                  |
| 8    | Configure the Chargeback Service.                                                                                                                                                                                                                                                                                                                                                   | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>  | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> |
| 9    | Create the schema based on the service template.                                                                                                                                                                                                                                                                                                                                    | See <a href="#">Section 49.3.3.2, "Creating a Schema Service"</a>                   | See <a href="#">Section 49.3.3.2, "Creating a Schema Service"</a>                  |

## 50.4 Creating Empty PDBs and PDBs Based on Profile With REST APIs and EM CLI Verbs

An Oracle Database can contain a portable collection of schemas, schema objects, and non-schema objects, that appear to an Oracle Net client as a separate database. This self-contained collection is called a pluggable database (PDB). A multi-tenant container database (CDB) is a database that includes one or more PDBs. Oracle Database 12c Release 1 (12.1) and later versions allow you to create many PDBs within a single CDB.

---

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

---

**Table 50–5 Creating Pluggable Databases with REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                                                                                                                                                                                                                                                                                                                    | REST APIs                                                                                       | EM CLI Verbs                                                                       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable DBaaS.                                                                                                                                                                                                                                                                                                                                                        | See <a href="#">Section 12.1, "Getting Started"</a>                                             | See <a href="#">Section 12.1, "Getting Started"</a>                                |
| 2    | Set up one or more PaaS Infrastructure Zones.                                                                                                                                                                                                                                                                                                                                                                           | See <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a>                                  | See <a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a>                         |
| 3    | Create a database pool for PDB as a service.                                                                                                                                                                                                                                                                                                                                                                            | See <a href="#">Section 48.3.2.3.8, "Creating a Pluggable Database Pool"</a>                    | See <a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a>                     |
| 4    | Configure the request settings.                                                                                                                                                                                                                                                                                                                                                                                         | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>                    | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>         |
| 5    | Define quotas for each self service user.                                                                                                                                                                                                                                                                                                                                                                               | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>                       | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                    |
| 6    | Create a database provisioning profile. This step is optional and is not required if you are creating an empty pluggable database.                                                                                                                                                                                                                                                                                      | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>               | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>  |
| 7    | Create a service template. A service template can contain: <ul style="list-style-type: none"> <li>Empty Pluggable Database: In this case, the service template is created with an empty schema.</li> <li>Pluggable Database from a Profile: In this case, you can import schemas from a database provisioning profile. You can select this option for applications with data such as eBusiness applications.</li> </ul> | See <a href="#">Section 48.3.5.3.14, "Creating a Service Template for a Pluggable Database"</a> | See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a>                  |
| 8    | Configure the Chargeback Service.                                                                                                                                                                                                                                                                                                                                                                                       | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>              | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> |
| 9    | While deploying a database, select the service template that you have created.                                                                                                                                                                                                                                                                                                                                          | See <a href="#">Section 49.4.3.2, "Creating a Pluggable Database"</a>                           | See <a href="#">Section 49.4.3.2, "Creating a Pluggable Database"</a>              |

## 50.5 Migrating/Transferring Data from One Database to Another

To migrate data from one database to another using EM CLI verbs, follow the steps below:

1. Enter the EM CLI verb `emcli describe_dbprofile_input -data_mode=EXPORT`. The output provides all profile creation input variables.

---

**Note:** Export is supported only for database whereas import is supported for both database and PDBs. This indicates that the source should always be a database and the destination can be either a database or a PDB.

---

2. Use the input variables to create a properties file with values for all the variables.

3. Export data from the source database by creating a database profile. To do so, enter the verb `emcli create_dbprofile - input_file=data:<properties file name along with path>`.

---

**Note:** Use the properties file created in the previous step for this verb.

---

For the verb details see [Section 47.6.2, "Creating Provisioning Profiles using EM CLI"](#).

4. Enter the verb to transfer data: `emcli data_transfer -input_file=data:/u01/files/data_trans.props`.

For the verb and properties file details see [Section 47.16, "Transferring Data Between Databases"](#).

5. Enter the verb to import data in to the destination database: `emcli dbimport -input_file=data:/u01/files/dbimport.props`.

For the verb and properties file details see [Section 47.18, "Importing Data from Export Dumps to a Database"](#).

## 50.6 Creating Databases Using Snap Clone With REST APIs and EM CLI Verbs

Snap Clone is a Self-Service-Application (SSA) way of creating fast and space-saver clones of huge databases. Clones of the production database are often required for test and development purposes, and it is difficult and time consuming to create these clones, especially if the databases are huge.

Enterprise Manager offers Snap Clone as a way to address this issue, so that thin clones can be created from production databases by using the copy on write technology available in some storage systems. This means that these clones take up little space initially (about 2 GB of writable space required for a thin clone of a multi-terabyte database), and will grow as inserts, updates and deletes are performed. Enterprise Manager offers two solutions with snap clone:

- **Hardware Solution:** Vendor specific hardware solution which supports NetApps, Oracle Sun ZFS storage appliance, EMC VMAX, and VNX.
- **Software Solution:** Storage agnostic software solution that supports all NAS and SAN storage devices. This is supported through use of the ZFS file system, and the CloneDB feature.

The main features of snap clone are:

- **Self Service Driven Approach:** Empowers the self service user to clone databases as required on an ad-hoc basis.
- **Rapid Cloning:** Databases can be cloned in minutes and not in days or weeks.
- **Space Efficient:** This features allows users to significantly reduce the storage footprint.

### 50.6.1 Creating a Snap Clone Using a Profile With REST APIs and EM CLI Verbs

This table below lists the steps involved in creating a snap clone using a snapshot or an RMAN Image profile.

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 50–6 Creating a Snap Clone Database Using a Profile with REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                                                                                                                                                                                                         | REST APIs                                                                                                                                                                                                                                                                                                                 | EM CLI Verbs                                                                                                                                                                                                                                                                                                              |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable Snap Clone.                                                                                                                                                                                                                                        | See <a href="#">Section 12.1, "Getting Started"</a>                                                                                                                                                                                                                                                                       | See <a href="#">Section 12.1, "Getting Started"</a>                                                                                                                                                                                                                                                                       |
| 2    | Register storage servers. <ul style="list-style-type: none"> <li>NetApp and Sun ZFS Storage Server</li> <li>Solaris File System (ZFS)</li> <li>EMC Storage Server</li> </ul>                                                                                                                                 | <ul style="list-style-type: none"> <li><a href="#">Section 12.7.4.1, "Registering a NetApp or a Sun ZFS Storage Server"</a></li> <li><a href="#">Section 12.7.4.2, "Registering a Solaris File System (ZFS) Storage Server"</a></li> <li><a href="#">Section 12.7.4.3, "Registering an EMC Storage Server"</a></li> </ul> | <ul style="list-style-type: none"> <li><a href="#">Section 12.7.4.1, "Registering a NetApp or a Sun ZFS Storage Server"</a></li> <li><a href="#">Section 12.7.4.2, "Registering a Solaris File System (ZFS) Storage Server"</a></li> <li><a href="#">Section 12.7.4.3, "Registering an EMC Storage Server"</a></li> </ul> |
| 3    | Set up one or more PaaS Infrastructure Zones.                                                                                                                                                                                                                                                                | See <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a>                                                                                                                                                                                                                                                            | See <a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a>                                                                                                                                                                                                                                                                |
| 4    | Create a database pool.                                                                                                                                                                                                                                                                                      | See <a href="#">Section 48.3.2.3.4, "Creating a Database Pool"</a>                                                                                                                                                                                                                                                        | See <a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a>                                                                                                                                                                                                                                                            |
| 5    | Configure the request settings.                                                                                                                                                                                                                                                                              | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>                                                                                                                                                                                                                                              | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>                                                                                                                                                                                                                                                |
| 6    | Define quotas for each self service user.                                                                                                                                                                                                                                                                    | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>                                                                                                                                                                                                                                                 | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                                                                                                                                                                                                                                                           |
| 7    | Set up the Test Master Database and enable snap clone.                                                                                                                                                                                                                                                       | See <a href="#">Section 20.4.7, "Enabling the Test Master for Snap Clone"</a>                                                                                                                                                                                                                                             | See <a href="#">Section 20.4.7, "Enabling the Test Master for Snap Clone"</a>                                                                                                                                                                                                                                             |
| 8    | Depending on the snap clone solution you are using, do either of the following: <ul style="list-style-type: none"> <li>Hardware Solution: Create a snap clone based profile.</li> <li>Software Solution: Create an RMAN Image profile.</li> </ul> Create a database provisioning profile using a snap clone. | <ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"</a></li> <li>Software Solution: See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a></li> </ul>                                         | <ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"</a></li> <li>Software Solution: See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a></li> </ul>                                         |
| 9    | Create a service template based on the profile you have created.                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Section 20.4.9, "Creating Service Template Using Snap Clone Profile"</a></li> <li>Software Solution: See <a href="#">Section 48.3.5.3, "Service Templates and Service Template REST API Examples"</a></li> </ul>                                | <ul style="list-style-type: none"> <li>Hardware Solution: See <a href="#">Section 20.4.9, "Creating Service Template Using Snap Clone Profile"</a></li> <li>Software Solution: See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a></li> </ul>                                                               |



**Table 50–6 (Cont.) Creating a Snap Clone Database Using a Profile with REST APIs and EM CLI Verbs**

| Step | Task                                                                      | REST APIs                                                                          | EM CLI Verbs                                                                       |
|------|---------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 10   | Configure the Chargeback Service. (this step is optional)                 | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> |
| 11   | While deploying a database, select the service template you have created. | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>               | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>               |

## 50.6.2 Creating a Snap Clone Using Live Database With REST APIs and EM CLI Verbs

This table below lists the steps involved in creating a snap clone using a live standby database.

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

**Table 50–7 Creating Snap Clone Using Live Database With REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                                                                         | REST APIs                                                                                                                                                                                                                                                                                                                      | EM CLI Verbs                                                                                                                                                                                                                                                                                                                   |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable Snap Clone.                                                                                                        | See <a href="#">Section 12.1, "Getting Started"</a> .                                                                                                                                                                                                                                                                          | See <a href="#">Section 12.1, "Getting Started"</a> .                                                                                                                                                                                                                                                                          |
| 2    | Register storage servers. <ul style="list-style-type: none"> <li>NetApp and Sun ZFS Storage Server</li> <li>Solaris File System (ZFS)</li> <li>EMC Storage Server</li> </ul> | See: <ul style="list-style-type: none"> <li><a href="#">Section 12.7.4.1, "Registering a NetApp or a Sun ZFS Storage Server"</a></li> <li><a href="#">Section 12.7.4.2, "Registering a Solaris File System (ZFS) Storage Server"</a></li> <li><a href="#">Section 12.7.4.3, "Registering an EMC Storage Server"</a></li> </ul> | See: <ul style="list-style-type: none"> <li><a href="#">Section 12.7.4.1, "Registering a NetApp or a Sun ZFS Storage Server"</a></li> <li><a href="#">Section 12.7.4.2, "Registering a Solaris File System (ZFS) Storage Server"</a></li> <li><a href="#">Section 12.7.4.3, "Registering an EMC Storage Server"</a></li> </ul> |
| 3    | Set up one or more PaaS Infrastructure Zones.                                                                                                                                | See <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a>                                                                                                                                                                                                                                                                 | See <a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a>                                                                                                                                                                                                                                                                     |
| 4    | Create a database pool.                                                                                                                                                      | See <a href="#">Section 48.3.2.3.4, "Creating a Database Pool"</a>                                                                                                                                                                                                                                                             | See <a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a>                                                                                                                                                                                                                                                                 |
| 5    | Configure the request settings.                                                                                                                                              | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>                                                                                                                                                                                                                                                   | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>                                                                                                                                                                                                                                                     |
| 6    | Define quotas for each self service user.                                                                                                                                    | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>                                                                                                                                                                                                                                                      | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                                                                                                                                                                                                                                                                |
| 7    | Set up the Test Master Database using a live standby database.                                                                                                               | See <a href="#">Section 20.4.6, "Using a Physical Standby Database as a Test Master"</a>                                                                                                                                                                                                                                       | See <a href="#">Section 20.4.6, "Using a Physical Standby Database as a Test Master"</a>                                                                                                                                                                                                                                       |



**Table 50–7 (Cont.) Creating Snap Clone Using Live Database With REST APIs and EM CLI Verbs**

| Step | Task                                                                      | REST APIs                                                                                        | EM CLI Verbs                                                                       |
|------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 9    | Create a service template.                                                | See <a href="#">Section 48.3.5.3, "Service Templates and Service Template REST API Examples"</a> | See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a>                  |
| 10   | Configure the Chargeback Service. (this step is optional)                 | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>               | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> |
| 11   | While deploying a database, select the service template you have created. | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>                             | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>               |

### 50.6.3 Continuous Sync

A continuous sync setup has a production database and a standby database which is on a filer (NAS storage). The standby database gets continuous/live data from the primary.

To set up a continuous sync database setup, follow the steps below:

**Table 50–8 Creating a Continuous Sync Setup Using EM CLI Verbs**

| Step | Task                                                                                                      | EM CLI Verb                                                                      |
|------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| 1    | Add an existing standby database.<br>Currently, this task can be accomplished only via the UI screen.     | Not available                                                                    |
| 2    | Create a new Test master from a standby database.                                                         | <a href="#">Section 47.6.5, "Creating a Database Profile Using EM CLI Verbs"</a> |
| 3    | Create a clone.                                                                                           | <a href="#">Section 47.9, "Creating a Database Clone Using EM CLI Verbs"</a>     |
| 4    | Promote the clone as the Test master.<br>Currently, this task can be accomplished only via the UI screen. | Not available                                                                    |

## 50.7 Creating Full Database Clones Using RMAN With REST APIs and EM CLI Verbs

There are two ways of cloning full databases using RMAN. They are:

- [Creating a Full Database Clone Using RMAN Backup](#)
- [Creating a Full Database Clone Using RMAN Duplication \(Live Cloning\)](#)
- [Discrete Sync](#)

### 50.7.1 Creating a Full Database Clone Using RMAN Backup

Database backups created by RMAN (Recovery Manager) are stored as image copies or backup sets. You can create profiles using these backups and use these profiles to create full database clones.

---

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

---

**Table 50–9 Cloning Databases Using RMAN Backup Profile with REST APIs and EM CLI Verbs**

| Step | Task                                                                                                                                                        | REST APIs                                                                                                                               | EM CLI Verbs                                                                       |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable DBaaS.                                                                                            | See <a href="#">Section 12.1, "Getting Started"</a>                                                                                     | See <a href="#">Section 12.1, "Getting Started"</a>                                |
| 2    | Set up one or more PaaS Infrastructure Zones.                                                                                                               | See <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a>                                                                          | See <a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a>                         |
| 3    | Create a database pool.                                                                                                                                     | See <a href="#">Section 48.3.2.3.4, "Creating a Database Pool"</a>                                                                      | See <a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a>                     |
| 4    | Configure the request settings.                                                                                                                             | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>                                                            | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>         |
| 5    | Define quotas for each self service user.                                                                                                                   | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>                                                               | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                    |
| 6    | Create one of the following database provisioning profiles: <ul style="list-style-type: none"> <li>■ RMAN Backup</li> <li>■ Existing RMAN Backup</li> </ul> | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>                                                       | See <a href="#">Section 47.6.2, "Creating Provisioning Profiles using EM CLI"</a>  |
| 7    | Set up the Test Master database.                                                                                                                            | See <a href="#">Section 20.4.7, "Enabling the Test Master for Snap Clone"</a>                                                           | See <a href="#">Section 20.4.7, "Enabling the Test Master for Snap Clone"</a>      |
| 8    | Create a service template based on the profile you have created.                                                                                            | See <a href="#">Section 48.3.5.3.11, "Creating a Service Template for Snap Clone Single Instance Database (with Archiving Enabled)"</a> | See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a>                  |
| 9    | Configure the Chargeback Service.                                                                                                                           | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>                                                      | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a> |
| 10   | While deploying a database, select the service template you have created.                                                                                   | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>                                                                    | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>               |

## 50.7.2 Creating a Full Database Clone Using RMAN Duplication (Live Cloning)

Database backups created by RMAN (Recovery Manager) are stored as image copies or backup sets. You can create profiles using these backups and use these profiles to create full database clones.

---

**Note:** In the table below, wherever REST APIs are not available for any steps EM CLI verbs are provided, and vice-versa.

---

**Table 50–10 Creating a Full Database Clone Using RMAN Backup With REST APIs and EM CLI Verbs**

| Step | Task                                                                      | REST APIs                                                                                                                 | EM CLI Verbs                                                                             |
|------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| 1    | Follow the steps in the Getting Started section to enable DBaaS.          | See <a href="#">Section 12.1, "Getting Started"</a>                                                                       | See <a href="#">Section 12.1, "Getting Started"</a>                                      |
| 2    | Set up one or more PaaS Infrastructure Zones.                             | See <a href="#">Section 48.3.1.3.3, "Creating a PaaS Zone"</a>                                                            | See <a href="#">Section 47.1, "PaaS Zone EM CLI Verbs"</a>                               |
| 3    | Create a database pool.                                                   | See <a href="#">Section 48.3.2.3.4, "Creating a Database Pool"</a>                                                        | See <a href="#">Section 47.2, "Software Pool EM CLI Verbs"</a>                           |
| 4    | Create the test master by using a live standby database.                  | See <a href="#">Section 20.4.6, "Using a Physical Standby Database as a Test Master"</a>                                  | See <a href="#">Section 20.4.6, "Using a Physical Standby Database as a Test Master"</a> |
| 5    | Configure the request settings.                                           | See <a href="#">Section 48.3.3.4.2, "Creating Database Request Settings"</a>                                              | See <a href="#">Section 47.4, "Database Request Settings EM CLI Verbs"</a>               |
| 6    | Define quotas for each self service user.                                 | See <a href="#">Section 48.3.4.4.2, "Creating DBaaS Quota for a Role"</a>                                                 | See <a href="#">Section 47.3, "Database Quota EM CLI Verbs"</a>                          |
| 7    | Create a service template based on the test master.                       | See <a href="#">Section 48.3.5.3.9, "Creating a Service Template for RAC Database with Standby Using a DBCA Template"</a> | See <a href="#">Section 47.7, "Service Template EM CLI Verbs"</a>                        |
| 8    | Configure the Chargeback Service.                                         | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>                                        | See <a href="#">Section 56.1, "Performing UI Equivalent Chargeback Operations"</a>       |
| 9    | While deploying a database, select the service template you have created. | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>                                                      | See <a href="#">Section 49.2.3.8, "Creating a Database Instance"</a>                     |

### 50.7.3 Discrete Sync

A discrete sync setup has a production database which is not available for direct cloning operations and thereby with no standby database. The administrator schedules periodic backups on the production database and uses the backups to create the Test master database.

To set up a discrete sync database setup, follow the steps below:

**Table 50–11 Creating a Discrete Sync Setup Using EM CLI Verbs**

| Step | Task                           | EM CLI Verb                                                                      |
|------|--------------------------------|----------------------------------------------------------------------------------|
| 1    | Create a Test master database. | <a href="#">Section 47.9, "Creating a Database Clone Using EM CLI Verbs"</a>     |
| 2    | Create a full backup.          | <a href="#">Section 47.6.5, "Creating a Database Profile Using EM CLI Verbs"</a> |
| 3    | Create a thin backup.          | <a href="#">Section 47.6.5, "Creating a Database Profile Using EM CLI Verbs"</a> |

**Table 50–11 (Cont.) Creating a Discrete Sync Setup Using EM CLI Verbs**

| Step | Task                           | EM CLI Verb                                                                  |
|------|--------------------------------|------------------------------------------------------------------------------|
| 4    | Create a clone.                | <a href="#">Section 47.9, "Creating a Database Clone Using EM CLI Verbs"</a> |
| 5    | Refresh Test master or clones. | <a href="#">Section 47.10, "Refreshing a Database Using EM CLI Verbs"</a>    |

## 50.8 Configuring Custom Database Placement Option Using REST APIs

This section describes the custom database placement feature using REST APIs. See the following sections for further details:

- [Custom Database Placement Option for Databases Using REST APIs](#)
- [Custom Database Placement Option for Pluggable Databases Using REST APIs](#)

### 50.8.1 Custom Database Placement Option for Databases Using REST APIs

With the custom database placement option, an SSA user has the option of choosing the host on which the database instance is created. This option has to be enabled in the service template by the SSA Administrator while creating the service template. The `SELECT_ORACLE_HOME_OPTION` parameter in the JSON body of the service template defines if the SSA User has the option to select the host while requesting for a database instance. If `SELECT_ORACLE_HOME_OPTION` is set with the value `"SELECT_ORACLE_HOME_FROM_REQUEST"` the SSA User has the option to choose the database host while requesting the database. If the parameter is not defined, or if the value for the parameter is not set, or if the value is set to `"SELECT_ORACLE_HOME_AT_RUNTIME"`, then the SSA User will not have the option of choosing the database host and the database instance will be created on the host selected by the placement algorithm during the execution of the request.

After the option is set in the service template, the SSA User can perform a GET operation on the service template URI to view the available hosts. The `"hosts_for_placement"` parameter (in the case of a SI database), and `"clusters_for_placement"` and `"hostsInCluster"` parameters (in case of a RAC database) provide the details of the available hosts to the SSA User. The SSA User is then required to define the host name for placing the database in the `"database_host_name"` parameter in the POST operation for requesting a database instance.

The `"database_host_name"` parameter is a mandatory parameter if the custom placement option is set in the service template. Note that multiple values for `database_host_name` request parameter can be provided as comma separated values. For a RAC database request, the number of hosts specified in this parameter should match with the number of nodes configured in the service template, and all of the hosts provided should belong to the same cluster and should be present in the selected zone.

### 50.8.2 Custom Database Placement Option for Pluggable Databases Using REST APIs

With the custom database placement option, an SSA user has the option of choosing the Container Database (CDB) on which the Pluggable Database (PDB) instance is created. This option has to be enabled in the service template by the SSA Administrator while creating the service template.

The `SELECT_TARGET_OPTION` parameter in the JSON body of the PDB service template defines if the SSA User has the option to select the host while requesting for a database

instance. If `SELECT_ORACLE_HOME_OPTION` is set with the value `"SELECT_TARGET_FROM_REQUEST"` the SSA User has the option to choose the CDB while requesting the database. If the parameter is not defined, or if the value for the parameter is not set, or if the value is set to `"SELECT_TARGET_AT_RUNTIME"`, then the SSA User will not have the option of choosing the CDB and the PDB instance will be created on the CDB selected by the placement algorithm during the execution of the request.

After the option is set in the PDB service template, the SSA User can perform a GET operation on the service template URI to view the available CDBs. The `"target_nodes_for_placement"` parameter provides the details of the available CDBs to the SSA User. The SSA User is then required to define the CDB target name for placing the PDB in the `"target_name"` parameter in the POST operation for requesting a PDB instance.

The `"target_name"` parameter is a mandatory parameter if the custom placement option is set in the service template. The CDB target name specified in this parameter should be present in the selected zone.

## 50.9 Service Catalog of Database as a Service

Service catalog is a collection of pre-approved database configurations available to selected consumers for on demand, self service provisioning. It enforces consistency and automation, and helps reduce the database management overhead.

Service catalog offers:

- Self-service provisioning which provides IT agility
- Enterprise-wide service catalog which provides standardization and compliance
- Database cloning using snap clone which saves time and storage space
- Metering, chargeback and quota which ensures service governance
- Performance and lifecycle management which guarantees service levels
- Patching, upgrading and configuration automation which lowers operational costs

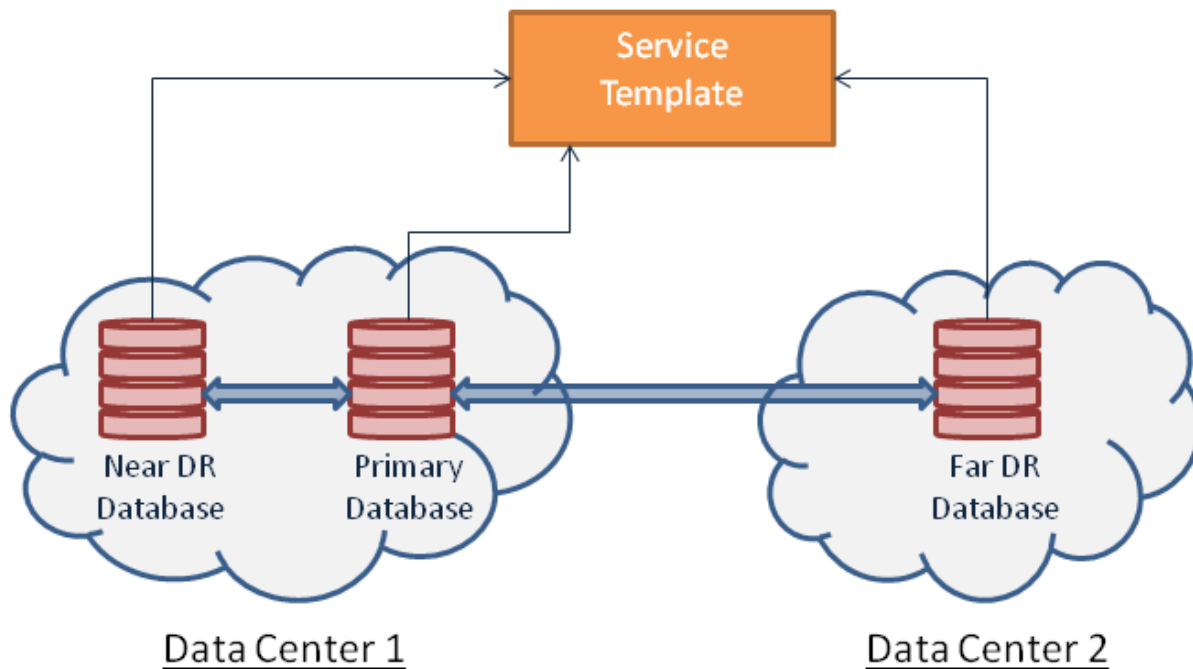
For more information on service catalog watch the video at -

[https://apex.oracle.com/pls/apex/f?p=44785:24:0::::P24\\_CONTENT\\_ID,P24\\_PREV\\_PAGE:9590,1](https://apex.oracle.com/pls/apex/f?p=44785:24:0::::P24_CONTENT_ID,P24_PREV_PAGE:9590,1).

The following section explains the REST APIs required for setting up a sample multi-datacenter DBaaS.

### 50.9.1 Multi-Datacenter DBaaS Setup

Multi-datacenter DBaaS setup is the best possible structure of DBaaS configuration in an enterprise with multiple data centers where all aspects related to data safety, recovery and backup are considered at the highest levels.

**Figure 50–2 Multi-Datacenter DBaaS Setup**

Multi-datacenter DBaaS setup requires creating a Primary RAC software pool and two Standby software pools. Of the two standby software pools, the near disaster recovery (DR) pool is a RAC software pool and the other, which is the far DR is a single instance software pool. After the software pools are created, the service template is created to establish the relation between the software pools. This setup is offered as a Multi-datacenter DBaaS setup to the SSA user.

The topics covered under this section are:

- [Administrator Steps for Creating the Multi-Datacenter DBaaS Setup](#)
- [SSA User REST API Request for Using the Multi-Datacenter DBaaS Setup](#)

#### 50.9.1.1 Administrator Steps for Creating the Multi-Datacenter DBaaS Setup

This section explains the steps to setup the Multi-datacenter DBaaS using REST APIs. For the EM CLI verb equivalent of the REST APIs run the `emcli invoke_ws` command for each of the REST APIs in the steps below. For details on `emcli invoke_ws` command, refer to [Chapter 47, "EM CLI Verbs for Database as a Service Administrator"](#).

Follow the steps below to setup the Multi-datacenter DBaaS:

1. Create a PaaS zone for the data center with the single instance software pool (Far DR).

To create a PaaS zone, issue the REST API request given below.

**Table 50–12 Request Configuration to Create a PaaS Zone**

| Feature | Description                                                                  |
|---------|------------------------------------------------------------------------------|
| URI     | <code>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</code> |

**Table 50–12 (Cont.) Request Configuration to Create a PaaS Zone**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                          |
| Body            | <pre>{   "name": "DATACENTER_2",   "description": "This is a TestZone",   "credential": "NCAIME",   "memberType": "host",   "members": [     "www.example.com"   ],   "constraint": [     {       "name": "MAX_CPU_UTILIZATION",       "value": "85"     },     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "95"     }   ],   "roles": [     "SSACOREROLE1",     "SSACOREROLE2"   ], }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                     |

**2. Create a standby single instance software pool in DATACENTER\_2.**

To create a standby single instance software pool, issue the REST API request given below.

**Table 50–13 Configuration to Create a Standby Single Instance Software Pool**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 50–13 (Cont.) Configuration to Create a Standby Single Instance Software Pool**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "DB_POOL2",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "DATACENTER_2",   "members": ["OraDb11g_home1_2_example.com"],   "serviceFamily": "DBAAS",   "serviceType": "DBAAS",   "constraints": {"items": [{"name": "MAX_INSTANCES",     "value": "10"}]},   "filters": {     "items": [       {"name": "CONFIGURATION", "value": "oracle_database"},       {"name": "VERSION", "value": "11.2.0.4.0"},       {"name": "PLATFORM", "value": "226"}     ]   },   "properties": {     "items": [       {"name": "host_credential_guid", "value":         "FF7A82CE961672E6E0437850B10ABF4E"}     ]   } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

3. Create a PaaS zone for the data center with the primary database and the standby RAC database (Near DR).

To create a PaaS zone, issue the REST API request given below.

**Table 50–14 Request Configuration to Create a PaaS Zone**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |



**Table 50–14 (Cont.) Request Configuration to Create a PaaS Zone**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "DATACENTER_1",   "description": "This is a TestZone",   "credential": "NCAIME",   "memberType": "host",   "members": [     "www.example.com"   ],   "constraint": [     {       "name": "MAX_CPU_UTILIZATION",       "value": "85"     },     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "95"     }   ],   "roles": [     "SSACOREROLE1",     "SSACOREROLE2"   ], }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                     |

**4. Create a standby RAC software pool in DATACENTER\_1.**

To create a standby RAC software pool, issue the REST API request shown below.

**Table 50–15 Configuration to Create a Standby RAC Software Pool**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 50–15 (Cont.) Configuration to Create a Standby RAC Software Pool**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "DB_POOL3",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "DATACENTER_1",   "members": ["OraDb11g_home2_11_www.example.com", "OraDb11g_home2_11_www.example.com"],   "serviceFamily": "DBAAS",   "serviceType": "DBAAS",   "constraints": {"items": [{"name": "MAX_INSTANCES",     "value": "10"}]},   "filters": {     "items": [       {"name": "CONFIGURATION", "value": "rac_database"},       {"name": "VERSION", "value": "11.2.0.4.0"},       {"name": "PLATFORM", "value": "226"}     ]   },   "properties": {     "items": [       {"name": "host_credential_guid", "value": "FF7A82CE961672E6E0437850B10ABF4E"}     ]   } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**5. Create a primary RAC software pool in DATACENTER\_1.**

To create a primary RAC software pool, issue the REST API request shown below.

**Table 50–16 Configuration to Create a Primary RAC Software Pool**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 50–16 (Cont.) Configuration to Create a Primary RAC Software Pool**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "DB_POOL1",   "poolTargetType": "oracle_cloud_zone",   "description": "Database Pool of Oracle Homes",   "paasZone": "DATACENTER_1",   "members": ["OraDb11g_home1_2_www.example.com", "OraDb11g_home1_2_www.example.com"],   "serviceFamily": "DBAAS",   "serviceType": "DBAAS",   "constraints": {"items": [{"name": "MAX_INSTANCES",     "value": "10"}]},   "filters": {     "items": [       {"name": "CONFIGURATION", "value": "rac_database"},       {"name": "VERSION", "value": "11.2.0.4.0"},       {"name": "PLATFORM", "value": "226"}     ]   },   "properties": {     "items": [       {"name": "host_credential_guid", "value": "FF7A82CE961672E6E0437850B10ABF4E"},       {"name": "standby_pools", "value": "DB_POOL2 DB_POOL3"}     ]   } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

**6. Create DBaaS Request Settings for a user role.**

To create DBaaS request settings, issue the REST API request shown below.

**Table 50–17 Configuration to Create DBaaS Request Settings**

| Feature         | Description                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/requestsettings                                                                                                                             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json<br>Accept:<br>application/oracle.com.cloud.common.DbaasRequestSettings+json |
| Body            | <pre>{   "future_reservation_length" : "2 Months",   "maximum_archive_duration" : "10 Weeks",   "default_retirement_period" : "No Reservation" }</pre>      |
| Request method  | POST                                                                                                                                                        |

**7. Create Quota for a user role.**

To create quota, issue the REST API request shown below.

**Table 50–18 Configuration to Create a Quota**

| Feature         | Description                                                                                                                                                        |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/quota                                                                                                                                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json<br>Accept:<br>application/oracle.com.cloud.common.DbaasRequestSettings+json        |
| Body            | {<br>"role_name" : "DBAAS_ROLE",<br>"databases" : "10",<br>"schema_services" : "21",<br>"pluggable_databases" : "22",<br>"storage" : "99",<br>"memory" : "99"<br>} |
| Request method  | POST                                                                                                                                                               |

8. Create a Profile to capture the source database information for provisioning. Refer to [Chapter 47, "EM CLI Verbs for Database as a Service Administrator"](#).
9. Create a database service template.

To create a database service template, issue the REST API request shown below.

**Table 50–19 Configuration to Create a Database Service Template**

| Feature         | Description                                                                     |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 50–19 (Cont.) Configuration to Create a Database Service Template**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "TestDbTemplate1",   "serviceType": "DB",   "serviceFamily": "DBAAS",   "description": "This is a test database standby service template 1",   "poolIds": [ "00829096124B0CC3E0537850B10A9E88" ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       { "name": "PROFILE_COMPONENT_URN", "value": "oracle:defaultService:em:provisioning:1:cmp:CO MP_Component:SUB_ DbProfile:0008FDF6A8BD706BE0537850B10A5E7A:0.1" },       { "name": "DATABASE_TYPE", "value": "rac_database" },       { "name": "COMMON_DB_SYSTEM_PASSWORD", "value": "welcome" },       { "name": "COMMON_DB_DBSNMP_PASSWORD", "value": "welcome" },       { "name": "COMMON_DB_SYS_PASSWORD", "value": "welcome" },       { "name": "DB_ADMIN_PASSWORD_SAME", "value": "true" },       { "name": "INSTANCE_COUNT", "value": "2" },       { "name": "SID_OPTION", "value": "ssauser" },       { "name": "COMMON_DB_SID", "value": "mydb1" },       { "name": "COMMON_DOMAIN_NAME", "value": "www.example.com" },       { "name": "LISTENER_PORT", "value": "1521" },       { "name": "STAGE_LOCATION", "value": "/scratch" },       { "name": "REF_ZONE", "value": "DATACENTER_1" },       { "name": "REF_POOL", "value": "DB_POOL1" },       { "name": "REF_HOST", "value": "www.example.com" },       { "name": "REF_TGT", "value": "www.example.com" },       { "name": "DBCA_TEMPLATE:DB_STORAGE_TYPE", "value": "ASM" },       { "name": "DBCA_TEMPLATE:DATA_FILE_ LOCATION", "value": "DATA" },       { "name": "DBCA_TEMPLATE:REC_STORAGE_TYPE_SAME_AS_DB_ FILES", "value": "Y" },       { "name": "DBCA_TEMPLATE:ARCHIVE_LOG_MODE", "value": "Y"     },       { "name": "DBCA_TEMPLATE:FLASH_RECOVERY_AREA_SIZE", "value": "5000" },       { "name": "DBCA_TEMPLATE:RECOVERY_FILE_ LOCATION", "value": "RECO" },       { "name": "DBCA_TEMPLATE:REDO_FILE_LOCATION", "value": "RECO" },       {         "name": "INIT_PARAMS",         "subconfigurations": [           { "name": "INIT_PARAMS:1", "value": "sga_ target=1073741824" },           { "name": "INIT_PARAMS:2", "value": "pga_aggregate_ target=1073741824" }         ]       },       { "name": "STANDBY_REQUIRED", "value": "true" },       { "name": "STANDBY_REQUIRED_LOCK", "value": "false" },       { "name": "STANDBY_WORK_DIR", "value": "/tmp" },       { "name": "PRIMARY_PROTECTION_MODE", "value": "MAXIMIZE AVAILABILITY" },       { "name": "DBAAS_SSA_STANDBY_CUSTOM_PRE_SCRIPTS_ URN", "value": "" },       { "name": "DBAAS_SSA_STANDBY_CUSTOM_POST_SCRIPTS_ </pre> |

**Table 50–19 (Cont.) Configuration to Create a Database Service Template**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

The platinum DBaaS setup is ready to be administered.

### 50.9.1.2 SSA User REST API Request for Using the Multi-Datacenter DBaaS Setup

To request a multi-datacenter DBaaS setup with a near DR and a far DR, issue the REST API request shown below.

**Table 50–20 Configuration to Create a Database with Two Standby Databases**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/dbaas/zone/82CF1C28FA20A183C99D138FF8065F19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/oracle.com.cloud.common.DbPlatformInstance+json<br>Accept: application/oracle.com.cloud.common.DbPlatformInstance+json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Body            | <pre>{   "based_on":     "/em/cloud/dbaas/dbplatformtemplate/CC3BBB665A6BC6FFE040F00AEF252456",   "name": "Platinum1",   "description": "Create Database with 1 Standby RAC database &amp; 1 Standby SI database",   "start_date": "2014-08-13T14:20:00ZAsia/Calcutta",   "end_date": "2014-08-13T17:20:00ZAsia/Calcutta",   "params":     {       "username": "Master Account username for the DB",       "password": "Master Account Password for the DB",       "database_sid": "platinum1",       "service_name": "Name of the additional service to be created",       "standbydbs":         [           {             "standbydb_name": "Near DR",             "standbydb_sid": "NR1"           },           {             "standbydb_name": "Far DR",             "standbydb_sid": "FR1"           }         ]     } }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

---

## SSA Administration REST APIs

---

This chapter provides details of the Cloud REST APIs and Service Template REST APIs for SSA Administration functions. REST APIs for PaaS Zone management, and SoftwarePool management, along with other REST APIs used to fetch the REST API catalog, REST API output, and metadata and expansion of a resource are described in this chapter.

This chapter also provides details on the Enterprise Manager Command Line Interface (EMCLI) verbs for PaaS Infrastructure Zone, Software Pool, and Service Template operations for Enterprise Manager Self Service Applications Admin users. The EMCLI enables you to access Enterprise Manager Cloud Control functionality from text-based consoles (shells and command windows) for a variety of operating systems.

---

**Note:** For the SSA Plug-in release 12.1.0.9, a new framework is introduced for the REST APIs which is referred to as the v2 framework. The new framework consists of a different approach and signatures, as a result of which the REST APIs also differ when compared to the earlier framework. The earlier framework (v1) is deprecated and users are suggested to move to the v2 REST APIs and EM CLI verbs.

Unique EM CLI verbs for v2 are restricted to those actions which do not have an REST API equivalent. For every REST API in the v2 framework, an equivalent EM CLI verb in the form of `emcli invoke_ws` exists. For details see [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#).

---

In v2, REST APIs for the Self Service Portal application are generally used by the SSA users. These REST APIs are generally in the `.../ssa/...` format. For example, `/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/`. REST APIs for administrative functions (i.e., `.../admin/...` format) are REST APIs that configure the SSA Portal setup, such as creating zones, templates, etc., which are generally performed by Cloud or SSA Administrators. The Admin REST APIs are covered in this chapter.

This chapter covers the following sections:

- [Summary of SSA Administration REST APIs for V2](#)
- [Summary of SSA Administration REST APIs for V1](#)
- [Catalog APIs for V1 and V2](#)
- [Resource Provider for V2](#)

- Resource Providers - Collection Resource for V2
  - Resource Provider - Singular Resource for V2
- Service Templates - Collection Resource for V2
- Service Types for V2
- Service Requests for V2
- Service Instances for V2
- Request Settings for V2
- VM Adapters for V2
- SSA Admin Resources for V1
- PaasZones for V1
- PaasZone for V1
- SoftwarePools for V1
- SoftwarePool for V1
- Composite Resource Attributes for V1
  - ValueDescriptor for V1
  - ValueEntity for V1
  - EntityValueHolder for V1
  - PoolEntityCapacity for V1
  - ResourceTypeCapacity for V1
- Service Template Management for V1
  - Service Templates for V1
  - Service Template for V1
  - ServiceTemplateUpdate for V1
  - ServiceExecutableMetaEntity for V1
  - Template Configuration Parameters for V1
  - PayloadDescriptor for V1
  - ServiceTemplate Metadata for V1
  - PayloadMetaData for V1
  - ServiceTemplate MetaData for V1
- EM CLI Verbs for Self Service Applications
  - EM CLI Verbs for SSA Operations for V2
  - EM CLI Verbs for SSA Operations for V1

## 51.1 Summary of SSA Administration REST APIs for V2

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v2 framework.



**Table 51–1 Summary of SSA Administration REST APIs for V2**

| Resource          | Data Model                   | GET                                                                                                                                                                                                                                                                                     | POST                                                                                                                                                                                                                             | PUT                                                                                                                                                                                                     | DELETE                                                                                                                   |
|-------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| Catalog API       | <a href="#">Table 51–3</a>   | <ul style="list-style-type: none"> <li>Section 51.3.1.1</li> <li>Section 51.3.1.3</li> <li>Section 51.3.1.5</li> <li>Section 51.3.1.6</li> </ul>                                                                                                                                        | Not supported                                                                                                                                                                                                                    | Not supported                                                                                                                                                                                           | Not supported                                                                                                            |
| Resource Provider | <a href="#">Table 51–10</a>  | <ul style="list-style-type: none"> <li>Section 51.4.4.1</li> <li>Section 51.4.4.2</li> <li>Section 51.4.4.8</li> <li>Section 51.4.4.9</li> <li>Section 51.4.4.10</li> <li>Section 51.4.4.11</li> <li>Section 51.4.4.14</li> <li>Section 51.4.4.15</li> </ul>                            | <ul style="list-style-type: none"> <li>Section 51.4.4.3</li> <li>Section 51.4.4.4</li> <li>Section 51.4.4.5</li> <li>Section 51.4.4.6</li> <li>Section 51.4.4.7</li> <li>Section 51.4.4.16</li> <li>Section 51.4.4.18</li> </ul> | Section 51.4.4.12                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>Section 51.4.4.13</li> <li>Section 51.4.4.17</li> </ul>                           |
| Service Templates | <a href="#">Table 51–36</a>  | <ul style="list-style-type: none"> <li>Section 51.5.2.1</li> <li>Section 51.5.2.2</li> <li>Section 51.5.2.3</li> <li>Section 51.5.2.4</li> <li>Section 51.5.2.5</li> <li>Section 51.5.2.8</li> <li>Section 51.5.2.9</li> </ul>                                                          | Section 51.5.2.6                                                                                                                                                                                                                 | Section 51.5.2.7                                                                                                                                                                                        | Section 51.5.2.10                                                                                                        |
| Service Types     | <a href="#">Table 51–57</a>  | Section 51.6.1.1                                                                                                                                                                                                                                                                        | Not available                                                                                                                                                                                                                    | Not available                                                                                                                                                                                           | Not available                                                                                                            |
| Service Requests  | <a href="#">Table 51–59</a>  | <ul style="list-style-type: none"> <li>Section 51.7.2.1</li> <li>Section 51.7.2.2</li> </ul>                                                                                                                                                                                            | Not supported                                                                                                                                                                                                                    | Section 51.7.2.3                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Section 51.7.2.5</li> <li>Section 51.7.2.6</li> </ul>                             |
| Service Instances | <a href="#">Table 51–67</a>  | <ul style="list-style-type: none"> <li>Section 51.8.2.1</li> <li>Section 51.8.2.2</li> </ul>                                                                                                                                                                                            | Not supported                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Section 51.8.2.3</li> <li>Section 51.8.2.4</li> <li>Section 51.8.2.5</li> <li>Section 51.8.2.6</li> <li>Section 51.8.2.7</li> <li>Section 51.8.2.8</li> </ul>    | Not supported                                                                                                            |
| Request Settings  | <a href="#">Table 51–77</a>  | <ul style="list-style-type: none"> <li>Section 51.9.3.1</li> <li>Section 51.9.3.3</li> <li>Section 51.9.3.5</li> <li>Section 51.9.3.8</li> <li>Section 51.9.3.10</li> <li>Section 51.9.3.12</li> <li>Section 51.9.3.15</li> <li>Section 51.9.3.17</li> <li>Section 51.9.3.19</li> </ul> | <ul style="list-style-type: none"> <li>Section 51.9.3.4</li> <li>Section 51.9.3.11</li> <li>Section 51.9.3.18</li> </ul>                                                                                                         | <ul style="list-style-type: none"> <li>Section 51.9.3.2</li> <li>Section 51.9.3.6</li> <li>Section 51.9.3.9</li> <li>Section 51.9.3.13</li> <li>Section 51.9.3.16</li> <li>Section 51.9.3.20</li> </ul> | <ul style="list-style-type: none"> <li>Section 51.9.3.7</li> <li>Section 51.9.3.14</li> <li>Section 51.9.3.21</li> </ul> |
| VM Adapters       | <a href="#">Table 51–100</a> | <ul style="list-style-type: none"> <li>Section 51.10.3.1</li> <li>Section 51.10.3.2</li> <li>Section 51.10.3.3</li> </ul>                                                                                                                                                               | Section 51.10.3.4                                                                                                                                                                                                                | Not supported                                                                                                                                                                                           | Not supported                                                                                                            |

---

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

---

## 51.2 Summary of SSA Administration REST APIs for V1

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v2 framework.

**Table 51–2 Summary of SSA Administration REST APIs for V1**

| Resource                       | Data Model     | GET                                                                                            | POST               | PUT                | DELETE             |
|--------------------------------|----------------|------------------------------------------------------------------------------------------------|--------------------|--------------------|--------------------|
| Catalog API                    | Table 51–3     | <ul style="list-style-type: none"> <li>Section 51.3.1.2</li> <li>Section 51.3.1.4</li> </ul>   | Not supported      | Not supported      | Not supported      |
| API Entry Point Resource       | Table 51–106   | Section 51.11.1                                                                                | Not supported      | Not supported      | Not supported      |
| PaaS Zones                     | Table 51–108   | <ul style="list-style-type: none"> <li>Section 51.12.1.1</li> <li>Section 51.12.1.2</li> </ul> | Not supported      | Not supported      | Not supported      |
| PaaS Zone                      | Table 51–112   | <ul style="list-style-type: none"> <li>Section 51.13.1.4</li> <li>Section 51.13.1.5</li> </ul> | Section 51.13.1.1  | Section 51.13.1.2  | Section 51.13.1.3  |
| Software Pools                 | Table 51–119   | <ul style="list-style-type: none"> <li>Section 51.14.1.1</li> <li>Section 51.14.1.2</li> </ul> | Not supported      | Not supported      | Not supported      |
| Software Pool                  | Table 51–123   | <ul style="list-style-type: none"> <li>Section 51.15.1.4</li> <li>Section 51.15.1.5</li> </ul> | Section 51.15.1.1  | Section 51.15.1.2  | Section 51.15.1.3  |
| Software Pool Metadata         | Table 51–129   | Section 51.15.2.1                                                                              | Not supported      | Not supported      | Not supported      |
| Software Pool Filtered Targets | Table 51–131   | Section 51.15.3.1                                                                              | Not supported      | Not supported      | Not supported      |
| Software Pool Capacity         | Table 51–133   | Section 51.15.4.1                                                                              | Not supported      | Not supported      | Not supported      |
| Composite Resource Attributes  | Section 51.16  | Not supported                                                                                  | Not supported      | Not supported      | Not supported      |
| Service Templates              | Section 51–140 | Section 51.17.10.5                                                                             | Section 51.17.10.6 | Not supported      | Not supported      |
| Service Template               | Section 51–143 | Section 51.17.10.4                                                                             | Section 51.17.10.1 | Section 51.17.10.2 | Section 51.17.10.3 |

---

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

---

## 51.3 Catalog APIs for V1 and V2

Catalog APIs provide an overview of all the REST APIs existing in the cfw plugin. All of these are GET REST APIs which contain description and information about each REST API.

The REST APIs have been broadly categorized into v1 and v2 REST APIs. The v1 REST APIs refer to the existing v1 catalog REST API. The v2 REST API provides a summarized overview on both SSA user and Administrator REST APIs.

**Table 51–3 Cfw API Catalog Collection Data Model**

| Field         | Type                                  | Description                                                                                               | Occurs |
|---------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------|--------|
| name          | String                                | Display name of this collection resource.                                                                 | 1      |
| type          | String                                | Type of collection resource.                                                                              | 1      |
| hasMore       | Boolean                               | Indicates whether there are more elements in the collection.                                              | 1      |
| count         | Integer                               | Number of elements returned.                                                                              | 1      |
| items         | Collection<br><CfwRestAPI<br>Catalog> | List of Cfw API catalog resources. In case no instance exist, the <code>items</code> field will be empty. | 1      |
| totalResults  | Integer                               | Total number of Cfw API catalog resources.                                                                | 1      |
| canonicalLink | URI                                   | A GET request against this URI refreshes the client representation of this resource.                      | 1      |

### 51.3.1 CFW API Catalog REST API Examples

This section describes the REST APIs for the Cfw API catalog resource. The following operations are described in this section:

- [Viewing the High Level Catalog APIs for V1 and V2](#)
- [Viewing the V1 Catalog APIs](#)
- [Viewing the V2 Catalog APIs](#)
- [Viewing the V1 Catalog APIs for SSA Portal](#)
- [Viewing the V2 Catalog User APIs](#)
- [Viewing the V2 Catalog Admin APIs](#)

#### 51.3.1.1 Viewing the High Level Catalog APIs for V1 and V2

The GET request configuration to view the high level catalog APIs is shown below.

**Table 51–4 GET Request Configuration for Viewing High Level Catalog APIs**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/cfw/API                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
Status 200 OK
{
 "items": [
 {
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API/v1
```

```

",
"description":"API Summary for version V1"
},
{
"href":"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API/v2
",
"description":"API Summary for version V2"
}
],
"totalResults":2
}

```

### 51.3.1.2 Viewing the V1 Catalog APIs

The GET request configuration to view the v1 catalog APIs is shown below.

**Table 51–5 GET Request Configuration for Viewing V1 Catalog APIs**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/cfw/API/v1                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

Status 200 OK
{
"items":[
{
"href":"cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/API",
"description":"APIs for Self Service Application for version V1",
"type":"SSA"
},
{
"href":"cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/API",
"description":"APIs for Administrative functions for version V1",
"type":"Admin"
}
],
"goBack":"cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API",
"totalResults":2
}

```

### 51.3.1.3 Viewing the V2 Catalog APIs

The GET request configuration to view the v2 catalog APIs is shown below.

**Table 51–6 GET Request Configuration for Viewing V2 Catalog APIs**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/API/v2                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |

**Table 51–6 (Cont.) GET Request Configuration for Viewing V2 Catalog APIs**

| Feature        | Specification |
|----------------|---------------|
| Request method | GET           |

A sample of the response received is shown below.

```
Status 200 OK
{
 "items": [{
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API",
 "description": "APIs for Self Service Application for version V2",
 "type": "SSA"
 },
 {
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/API",
 "description": "APIs for administrative functions for version V2",
 "type": "Admin"
 }],
 "goBack": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/cfw/API",
 "totalResults": 2
}
```

#### 51.3.1.4 Viewing the V1 Catalog APIs for SSA Portal

The GET request configuration to view the v1 catalog APIs for SSA portal is shown below.

**Table 51–7 GET Request Configuration for Viewing V1 Catalog APIs for SSA Portal**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/API/                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
Status 200 OK
{
 "v1": {
 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1",
 "serviceRequests": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests",
 "userPreferences": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences"
 }
}
```

### 51.3.1.5 Viewing the V2 Catalog User APIs

The v2 endpoint provides further refined overview of v2 side user REST APIs grouped according to entities. For example, all the Service instance related REST APIs are listed together for `entity=serviceinstances`.

REST APIs with variable inputs, are marked with attribute “templated” and curly brackets.

The GET request configuration to view the v2 catalog user APIs is shown below.

**Table 51–8 GET Request Configuration for Viewing V2 Catalog User APIs**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/user/ssa/v2/API                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "items": [
 {
 "totalResults": 5,
 "resource": "services",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services",
 "method": "GET",
 "description": "Get all the service offerings"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services",
 "method": "POST",
 "description": "Create a service"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services/{
 id}",
 "method": "GET",
 "templated": true,
 "description": "Get details of a service"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services/{
 id}/metadata",
 "method": "GET",
 "templated": true,
 "description": "Get the metadata for a service"
 }
]
 }
]
}
```

```

 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /services/{
 id}/metrics",
 "method": "PUT",
 "templated": true,
 "description": "Get the metrics for a service"
 }
],
 },
 {
 "totalResults": 11,
 "resource": "userpreferences",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences",
 "method": "GET"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/general",
 "method": "GET",
 "description": "Get the general user preferences"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/general/metadata",
 "method": "GET",
 "description": "Get the metadata for general user preferences"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services",
 "method": "GET",
 "description": "Get the service user preferences"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}",
 "method": "GET",
 "templated": true,
 "description": "Get the user preferences for a service family"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer

```

```
ences/services/{service-family}/metadata",
"method": "GET",
"templated": true,
"description": "Get the metadata for user preference at family level"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}/{service-type}",
 "method": "GET",
 "templated": true,
 "description": "Get the user preferences for a service type"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}/{service-type}/metadata",
 "method": "GET",
 "templated": true,
 "description": "Get the metadata for user preference at service type level"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/general",
 "method": "PUT",
 "description": "Update general user preference"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userpreferences/services/{service-family}",
 "method": "PUT",
 "templated": true,
 "description": "Update family level user preferences"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}/{service-type}",
 "method": "PUT",
 "templated": true,
 "description": "Update service type level user preferences"
}
]
},
{
 "totalResults": 4,
 "resource": "servicerequests",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /servicereq
 uests",
 "method": "GET",
```



```

"description": "Get service requests"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /servicereq
 uests/{id}",
 "method": "PUT",
 "templated": true,
 "description": "Reschedule the request"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /servicereq
 uests/{id}",
 "method": "GET",
 "templated": true,
 "description": "Get the details of request"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /servicereq
 uests/{id}",
 "method": "DELETE",
 "templated": true,
 "description": "Delete the request"
}
],
{
 "totalResults": 5,
 "resource": "serviceinstances",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances",
 "method": "GET",
 "description": "Get the service instances"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances/{id}",
 "method": "GET",
 "templated": true,
 "description": "Get details of a service instance"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances/{id}/actions",
 "method": "GET",
 "templated": true,
 "description": "Get actions for a service instance"
 }
]
}

```

```

},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceinstances/{id}/actions/{action-id}",
 "method": "GET",
 "templated": true,
 "description": "Get metadata details of action"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceinstances/{id}/actions/{action-id}",
 "method": "PUT",
 "templated": true,
 "description": "Perform the action on the service instance"
}
]
},
"goBack":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/API",
"totalResults": 4
}

```

### 51.3.1.6 Viewing the V2 Catalog Admin APIs

The v2 endpoint provides further refined overview of v2 side admin REST APIs grouped according to entities. For example, all the Service instance related REST APIs are listed together for `entity=serviceinstances`.

REST APIs with variable inputs, are marked with attribute “templated” and curly brackets.

The GET request configuration to view the v2 catalog admin APIs is shown below.

**Table 51–9 GET Request Configuration for Viewing V2 Catalog Admin APIs**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/API                        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

{
 "items": [
 {
 "totalResults": 6,
 "resource": "resourceproviders",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/

```

```

v2/resource
providers",
"method": "GET",
"description": "Get all the resource providers"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/resource
providers",
"method": "POST",
"description": "Create/Add a resource provider"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/resource
providers/{id}",
"method": "GET",
"templated": true,
"description": "Get details of a resource provider"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/resource
providers/{id}",
"method": "DELETE",
"templated": true,
"description": "Delete/Remove a resource provider"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/resource
providers/{id}",
"method": "PUT",
"templated": true,
"description": "Edit a resource provider"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/resource
providers/{id}/metrics",
"method": "GET",
"templated": true,
"description": "Get metrics for a resource provider"
}
],
{
 "totalResults": 3,
 "resource": "servicetemplates",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicet
emplates",

```

```
"method": "GET",
"description": "Get all service templates"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicet
emplates",
 "method": "POST",
 "description": "Create a service template"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicet
emplates/{id}",
 "method": "PUT",
 "templated": true,
 "description": "Edit a service template"
}
],
},
{
 "totalResults": 4,
 "resource": "settings",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/settings
/general",
 "method": "GET",
 "description": "Get all general settings"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/settings
/general",
 "method": "PUT",
 "description": "Update general settings"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/settings
/service/{service-type}",
 "method": "GET",
 "templated": true,
 "description": "Get all settings for a service type"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/settings
/service/{service-type}",
 "method": "PUT",
 "templated": true,
 "description": "Update settings for a service type"
 }
]
}
```

```

]
},
{
 "totalResults": 5,
 "resource": "instancesizes",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
 v2/instance
 sizes",
 "method": "GET",
 "description": "Get all instance sizes"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
 v2/instance
 sizes/service/{service-type}",
 "method": "GET",
 "templated": true,
 "description": "Get all instance sizes for a service type"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
 v2/instance
 sizes/service/{service-type}/metadata",
 "method": "GET",
 "templated": true,
 "description": "Get metada for instance sizes for a service type"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
 v2/instance
 sizes/service/{service-type}/{instance-name}",
 "method": "GET",
 "templated": true,
 "description": "Get details of an instance size"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
 v2/instance
 sizes/service/{service-type}/{instance-name}",
 "method": "PUT",
 "templated": true
 }
]
},
{
 "totalResults": 5,
 "resource": "servicerequests",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
 v2/servicer
 equests",

```

```
"method": "GET",
"description": "Get all requests"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/service
requests/{id}",
 "method": "PUT",
 "templated": true,
 "description": "Reschedule a request"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/service
requests/{id}",
 "method": "GET",
 "templated": true,
 "description": "Get details of a request"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/service
requests/{id}",
 "method": "DELETE",
 "templated": true,
 "description": "Delete a request"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/service
requests",
 "method": "DELETE",
 "description": "Delete bulk requests"
}
],
{
 "totalResults": 12,
 "resource": "serviceinstances",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances",
 "method": "GET",
 "description": "Get all service instances"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/{id}",
 "method": "GET",
 "templated": true,
 "description": "Get details of a service instance"
 }
]
}
```

```

},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/{id}/actions",
 "method": "GET",
 "templated": true,
 "description": "Get all the actions on a service instance"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/{id}/actions/{action-id}",
 "method": "GET",
 "templated": true,
 "description": "Get the details of action"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/{id}/actions/{action-id}",
 "method": "PUT",
 "templated": true,
 "description": "Perform the action on the service instance"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/{id}/start",
 "method": "PUT",
 "templated": true,
 "description": "Start the service instance"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/{id}/stop",
 "method": "PUT",
 "templated": true,
 "description": "Stop the service instance"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/{id}/delete",
 "method": "PUT",
 "templated": true,
 "description": "Delete the service instance"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances",

```

```
"method": "DELETE",
"description": "Delete service instances"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/start",
 "method": "PUT",
 "description": "Start multiple service instances"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/stop",
 "method": "PUT",
 "description": "Stop multiple service instances"
},
{
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/
v2/servicei
nstances/delete",
 "method": "PUT",
 "description": "Delete multiple service instances"
}
]
},
"goBack":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/API",
"totalResults": 6
}
```

## 51.4 Resource Provider for V2

A Resource Provider provides the grouping of resources for easier administration and management.

A resource provider is a composite target that represents the type of resources required to provision a service instance of a service type. For example, a Database service type needs oracle\_home targets in its resource provider and a schema service type needs oracle\_database, and oracle\_rac targets in its resource provider.

### 51.4.1 Resource Providers - Collection Resource for V2

Resource Providers is a collection resource representing a Cloud Administrator's view of all the accessible Resource Provider resources. The following table describes the Resource Providers data model.

**Table 51–10    Resource Providers Data Model**

| Field   | Type    | Description                                                  | Occurs |
|---------|---------|--------------------------------------------------------------|--------|
| name    | String  | Display name of this collection resource.                    | 1      |
| type    | String  | Type of collection resource.                                 | 1      |
| hasMore | Boolean | Indicates whether there are more elements in the collection. | 1      |



**Table 51–10 (Cont.) Resource Providers Data Model**

| Field         | Type                             | Description                                                                                                 | Occurs |
|---------------|----------------------------------|-------------------------------------------------------------------------------------------------------------|--------|
| count         | Integer                          | Number of elements returned.                                                                                | 1      |
| items         | Collection<br><ResourceProvider> | List of Resource Provider resources. In case no instance exist, the <code>items</code> field will be empty. | 1      |
| totalCount    | Integer                          | Total number of Resource Provider resources.                                                                | 1      |
| canonicalLink | URI                              | A GET request against this URI refreshes the client representation of this resource.                        | 1      |
| selfLink      | URI                              | Refers to the resource equivalent to the containing elements.                                               | 1      |

### 51.4.2 Resource Provider - Singular Resource for V2

A Resource Provider cloud resource represents an instance of a Resource provider. The following table describes the Resource Provider data model.

**Table 51–11 Resource Provider Data Model**

| Field                | Type                                   | Description                                                                                                                           | Occurs |
|----------------------|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------|
| name                 | String                                 | A human readable name given to the Resource Provider. This field is non-editable.                                                     | 1      |
| displayName          | String                                 | Display name for the Resource Provider.                                                                                               | 0..1   |
| guid                 | String                                 | Unique GUID of the Resource Provider that identifies the resource.                                                                    | 1      |
| description          | String                                 | A brief description of the resource.                                                                                                  | 0..1   |
| targetType           | String                                 | Target type of the Resource Provider to be created. Example: “cfw_samplexaas_rsrc_provider” for sample xaas Resource Provider.        | 1      |
| Members              |                                        | Members of Resource Provider. These must be added as EM targets in advance.                                                           | 1      |
| credentials          | Collection<ResourceProviderCredential> | Credentials associated with the Resource Provider.                                                                                    | 1      |
| placementConstraints | Collection<EntityValueHolder>          | Placement constraints for a Resource Provider that allows the cloud administrator to set a maximum ceilings for resource utilization. | 0..1   |
| characteristics      | Collection<EntityValueHolder>          | Characteristics associated with the Resource Provider.                                                                                | 1      |
| canonicalLink        | URI                                    | A GET against this URI refreshes the client representation of this resource.                                                          | 1      |

### 51.4.3 Supported Methods for Resource Provider Resource

The table below lists the supported methods for the Resource Provider singular resource.

**Table 51–12 Supported Methods for Resource Provider**

| <b>Request Method</b> | <b>Canonical Link</b>                                                                                        | <b>Description</b>                                                                                                                                                                       |
|-----------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GET                   | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders                                       | Returns list of Resource Providers.                                                                                                                                                      |
| GET                   | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types                                 | Returns Resource Provider types.                                                                                                                                                         |
| POST                  | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders                                        | Creates an instance of Resource Provider.                                                                                                                                                |
| POST                  | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets                        | Returns filtered targets.<br>See, <a href="#">Table 51–13, "Filtered Targets Request Data Model"</a> and <a href="#">Table 51–14, "Filtered Targets Response Data Model"</a> .           |
| GET                   | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types/{resourceprovidertype}           | Returns the Resource Provider type metadata.<br>See, <a href="#">Table 51–15, "Resource Provider Metadata Data Model"</a>                                                                |
| GET                   | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}                   | Returns details of the specified Resource Provider.<br>See, <a href="#">Table 51–16, "Credential Data Model"</a> and <a href="#">Table 51–17, "CFW Simple Value Entity Data Model"</a> . |
| PUT                   | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}                   | Updates the specified Resource Provider.                                                                                                                                                 |
| DELETE                | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}                   | Deletes the specified Resource Provider.                                                                                                                                                 |
| GET                   | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/configuration    | Returns the Resource Provider's saved configuration.                                                                                                                                     |
| GET                   | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/metrics           | Returns the metric of the specified Resource Provider.                                                                                                                                   |
| POST                  | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members           | Provisions resources.                                                                                                                                                                    |
| DELETE                | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members           | De-provisions resources.                                                                                                                                                                 |
| POST                  | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members/metadata | Returns the provisioning metadata required to provision resources.                                                                                                                       |

The table below shows the filtered targets request data model supported for the POST request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets in the v2 framework.

**Table 51–13 Filtered Targets Request Data Model**

| Field                    | Type   | Description                       | Occur |
|--------------------------|--------|-----------------------------------|-------|
| type                     | String | Type of resource provider.        | 1     |
| membertargetType         | String | Target type of the member.        | 0..1  |
| parentResourceProviderId | String | Type of parent resource provider. | 0..1  |

The table below shows the filtered targets response data model supported for the POST request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets in the v2 framework.

**Table 51–14 Filtered Targets Response Data Model**

| Field            | Type   | Description                |
|------------------|--------|----------------------------|
| membertargetType | String | Target type of the member. |
| List<String>     | String | List of targets.           |

The table below shows the resource provider metadata data model supported for the GET request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types/{resourceprovidertype} in the v2 framework.

**Table 51–15 Resource Provider Metadata Data Model**

| Field                      | Type                       | Description                          |
|----------------------------|----------------------------|--------------------------------------|
| type                       | String                     | Type of Resource provider.           |
| memberTargetTypes          | List<String>               | List of member target types.         |
| parentResourceProviderType | String                     | Parent resource provider type.       |
| isInfrastructureProvider   | Boolean                    | If infrastructure provider exists.   |
| placementPolicyName        | String                     | Indicates the placement policy.      |
| credentials                | List<Credential>           | Indicates the credentials.           |
| placementConstraints       | List<CfwSimpleValueEntity> | Indicates the placement constraints. |
| characteristics            | List<CfwSimpleValueEntity> | Indicates the characteristics.       |

The table below shows the credentials data model supported for the GET request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid} in the v2 framework.

**Table 51–16 Credential Data Model**

| Field | Type   | Description         |
|-------|--------|---------------------|
| name  | String | Name of credential. |
| value | String | Type of credential. |

The table below shows the CFW simple value entity data model supported for the GET request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid} in the v2 framework.

**Table 51–17 CFW Simple Value Entity Data Model**

| Field | Type         | Description      |
|-------|--------------|------------------|
| name  | String       | Name.            |
| value | List<String> | List of strings. |

## 51.4.4 Resource Provider REST API Examples

This section describes the operations on the Resource Provider. The following operations are covered in this section:

- [Viewing all the Resource Providers](#)
- [Viewing all the Types of Resource Providers](#)
- [Creating a Resource Provider](#)
- [Creating a PaaS Infrastructure Zone Resource Provider](#)
- [Creating a Database Schema Pool](#)
- [Creating an Adapter Instance](#)
- [Filtering Resource Provider Targets](#)
- [Viewing the Resource Provider Type Metadata](#)
- [Viewing the Metadata for Creating a PaaS Infrastructure Zone](#)
- [Viewing the Metadata for Creating a Schema Pool](#)
- [Viewing Details of the Resource Provider](#)
- [Updating a Resource Provider](#)
- [Deleting a Resource Provider](#)
- [Viewing Configuration of a Resource Provider](#)
- [Viewing Metric of a Resource Provider](#)
- [Provisioning a Resource via a Sample Adapter](#)
- [De-provisioning a Resource](#)
- [Viewing the Metadata Required to Provision a Resource Provider](#)

### 51.4.4.1 Viewing all the Resource Providers

A GET operation is issued to view all the Resource Providers.

**Table 51–18** GET Request Configuration for Viewing all the Resource Providers

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name": "Resource Providers",
 "type": "Resource Provider",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/"
 },
 "cfwItems": [
 {
 "id": "1",
 "name": "MyPaasZone",
 "type": "self_service_zone",
 "guid": "AC3D1D12E0A0AB1B28C377ED691E9E98",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/1"
 }
 },
 {
 "id": "2",
 "name": "MyXaaSProvider",
 "type": "cfw_samplexaaS_rsrc_provider",
 "guid": "20CC7F446482F477BED8336489852A4B",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/2"
 }
 },
 {
 "id": "3",
 "name": "MyXaaSPool",
 "type": "cfw_samplexaaS_rsrc_pool",
 "guid": "FEF39B5F2A0C518283F7A5E781EE8C8B",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/3"
 }
 },
 {
 "id": "4",
 "name": "MyWebLogicProvider",
 "type": "mwaas_zone",

```

```

"guid": "425AA08582AD7AE95D52C24662867315",
"canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/4"
},
{
 "id": "21",
 "name": "MySchemaPool",
 "type": "schaas_pool",
 "guid": "446AD900E64F525149A3B1D79E0037AC",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/21"
 }
},
],
"totalResults": 5
}

```

#### 51.4.4.2 Viewing all the Types of Resource Providers

A GET operation is issued to view all the Types of Resource Providers.

**Table 51–19** GET Request Configuration for Viewing all the Types of Resource Providers

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

{
 "name" : "Resource Provider Types",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types"
 },
 "cfwItems" : [{
 "type" : "cfw_samplexaas_rsrc_pool",
 "displayName" : "CFW XaaS Test Rsrc Pool",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/type
s/cfw_samplexaas_rsrc_pool"
 }
 }, {
 "type" : "cfw_samplexaas_rsrc_provider",

```

```

"displayName" : "CFW XaaS Test Rsrc Provider",
"canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resources/providers/type
 s/cfw_samplexaas_rsrc_provider"
}, {
 "type" : "cfw_samplexaas_rsrcprov_no_member",
 "displayName" : "CFW XaaS Test Rsrc With No Member",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resources/providers/type
 s/cfw_samplexaas_rsrcprov_no_member"
 }
}, {
 "type" : "mwaas_zone",
 "displayName" : "Middleware Pool",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resources/providers/type
 s/mwaas_zone"
 }
}, {
 "type" : "oracle_cloud_zone",
 "displayName" : "Database Pool",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resources/providers/type
 s/oracle_cloud_zone"
 }
}, {
 "type" : "oracle_nimbula_site",
 "displayName" : "Oracle Nimbula Site",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resources/providers/type
 s/oracle_nimbula_site"
 }
}, {
 "type" : "pdbaas_pool",
 "displayName" : "Pluggable Database Pool",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resources/providers/type
 s/pdbaas_pool"
 }
}, {
 "type" : "schaas_pool",
 "displayName" : "Schema Pool",
 "canonicalLink" : {
 "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resources/providers/type

```

```
s/schaas_pool"
}
}, {
"type" : "self_service_zone",
"displayName" : "PaaS Infrastructure Zone",
"canonicalLink" : {
"href" :
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/reso
urceproviders/type
s/self_service_zone"
}
}],
"totalResults" : 0
}
```

**51.4.4.3 Creating a Resource Provider**

The table below shows the POST configuration to create a Resource Provider.

**Table 51–20 POST Request Configuration for Creating a Resource Provider**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/re<br>sourceproviders      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |



**Table 51–20 (Cont.) POST Request Configuration for Creating a Resource Provider**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "My Xaas Provider_200",   "characteristics": [     {       "name": "example.sysman.cfw.samplexaas.storageType",       "value": [         "file",         "db"       ]     }   ],   "memberTargetType": "cfw_samplexaas_rsrc",   "members": [     "Sample7"   ],   "placementConstraints": [     {       "name": "NUMBER_OF_SERVICE_INSTANCES",       "value": "20"     }   ],   "type": "cfw_samplexaas_rsrc_provider",   "useExistingTarget": false,   "memberConstraints": [     {       "name": "ORACLE.SYSMAN.CFW.LOCATION",       "values": [         "us-east"       ]     },     {       "name": "ORACLE.SYSMAN.SAMPLEXAAS.STORAGETYPE",       "values": [         "file"       ]     }   ] }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

A sample of the response received is shown below.

```
{
 "message": "Resource Provider with name \"My Xaas Provider_200\" and type \"cfw_samplexaas_rsrc_provider\" created successfully.",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/24"
 }
}
```

#### 51.4.4.4 Creating a PaaS Infrastructure Zone Resource Provider

The table below shows the POST configuration to create a PaaS Infrastructure zone Resource Provider.

**Table 51–21 POST Request Configuration for Creating a PaaS Infrastructure Zone Resource Provider**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders                                                                                                                                                                                                                                                                                                                                                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                        |
| Body            | { "useExistingTarget" :false,<br>"name" : "MyPaasZone02",<br>"type" : "self_service_zone",<br>"memberTargetType" : "host",<br>"members": [ "myhost1.idc.oracle.com" ],<br>"credentials": [ { "name": "normal_credential_guid",<br>"value": "VGSINGH" } ],<br>"placementConstraints": [ { "name": "MAX_CPU_UTILIZATION",<br>"value": [ "80" ] }, { "name": "MAX_MEMORY_ALLOCATION",<br>"value": [ "80" ] } ], "memberConstraints": [] } |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                   |

A sample of the response received is shown below.

```
{ "message" : "ResourceProvider with name \"MyPaasZone02\" and type \"self_service_zone\" created successfully.",
 "canonicalLink" : { "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/41" }}
```

#### 51.4.4.5 Creating a Database Schema Pool

The table below shows the POST configuration to create a Database Schema Pool.

**Table 51–22 POST Request Configuration for Creating a Database Schema Pool**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 51–22 (Cont.) POST Request Configuration for Creating a Database Schema Pool**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{ "name" : "MyDBSchemaPool",   "useExistingTarget" : false,   "type" : "schaas_pool",   "description" : "MyDatabaseSchemaPool",   "memberTargetType" : "oracle_database",   "members" : [ "Oemrep_Database" ],   "parentResourceProviderId" : "1",   "credentials" : [ { "name" : "host_credential_guid",     "value" : "VGSINGH" } ],   "placementConstraints" :   [ { "name" : "MAX_SERVICES", "value" : [ "100" ] }, {     "name" : "MAX_CPU_USAGE", "value" : [ "0" ] }, {     "name" : "MAX_MEMORY_USAGE", "value" : [ "0" ] }, {     "name" : "USE_WORKLOAD", "value" : [ "false" ] }, {     "name" : "ENFORCE_CPU", "value" : [ "false" ] } ],   "memberConstraints" : [ { "name" :     "ORACLE.SYSMAN.SSA.CONFIGURATION", "value" : [ "oracle_     database" ] },     { "name" : "ORACLE.SYSMAN.CFW.PLATFORM", "value" : [     "226" ] },     { "name" : "ORACLE.SYSMAN.CFW.VERSION", "value" : [     "11.2.0.3.0" ] } ],   "characteristics" : [ { "name" :     "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT", "value" : [     "admin@cloudcompany.com" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",     "value" : [ "GTB" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",     "value" : [ "ST" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_     STATUS", "value" : [ "Development" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",     "value" : [ "LOB" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",     "value" : [ "EAST" ] },     { "name" : "ORACLE.SYSMAN.CFW.ORCL_GTP_SITE", "value" :     [ "LOCAL" ] } ] }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

A sample of the response received is shown below.

```
{ "message" : "ResourceProvider with name \"MyDBSchemaPool\" and type \"schaas_
pool\" created successfully.",
 "canonicalLink" : { "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/reso
urceproviders/61" }}
```

#### 51.4.4.6 Creating an Adapter Instance

The table below shows the POST configuration to create a sample Adapter Instance.

**Table 51–23 POST Request Configuration for Creating an Adapter Instance**

| Feature | Specification                                                              |
|---------|----------------------------------------------------------------------------|
| URI     | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/re<br>sourceproviders |

**Table 51–23 (Cont.) POST Request Configuration for Creating an Adapter Instance**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Body            | { "name" : "MySmplVMAdapter_0409123048",<br>"type" : "iaas_adapter",<br>"placementConstraints" : [ { "name" : "MAX_VM_INSTANCES", "value" : "10" } ],<br>"vmadapter" : { "name" : "SAMPLEADAPTER", "paaszone" : "MyPaasZone", "connection" : { "endpoints" : [ { "purpose" : "login_url", "url" : "/login_url/example", "username" : "ssa_user", "password" : "ssa_passwd", "domain" : "domain", "custom" : [ { "name" : "CloudType", "value" : "CloudTypeVal" }, { "name" : "custom_param1", "value" : "custom_param1Val" } ] } ] },<br>"virtualizationContainers" : [ { "name" : "Zone" } ] },<br>"useproxies" : [ "testnm" ], "stagingsservers" : { "location" : "script/location", "credentialGuid" : "25D30ADD427484310DBC8CF6211A383B" } }} |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

A sample of the response received is shown below.

```
{ "message" : "ResourceProvider with name \"MySmplVMAdapter_0409123047\" and type \"iaas_adapter\" created successfully.",
 "canonicalLink" : { "href" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/63" }}
```

#### 51.4.4.7 Filtering Resource Provider Targets

A POST operation is issued on Resource Providers collection resource to filter Resource Provider targets in the system.

**Table 51–24 POST Request Configuration for Filtering Resource Provider Targets**

| Feature         | Specification                                                                          |
|-----------------|----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json        |
| Body            | {<br>"type": "self_service_zone",<br>"memberTargetType": "cfw_samplexaas_rsrc"<br>}    |
| Request method  | POST                                                                                   |

A sample of the response received is shown below.

```
{
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/filteredtargets"
```

```

},
"targets": [
 "Sample10",
 "Sample1",
 "Sample3",
 "Sample2",
 "Sample5",
 "Sample4",
 "Sample7",
 "Sample6",
 "Sample9",
 "Sample8"
],
"memberTargetType": "cfw_samplexaas_rsrc"
}

```

#### 51.4.4.8 Viewing the Resource Provider Type Metadata

A GET operation is issued to view the Resource Provider type metadata.

**Table 51–25** GET Request Configuration for Viewing the Resource Provider Type Metadata

| Feature         | Specification                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/types/{resourceprovidertype} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                     |
| Body            | None                                                                                                |
| Request method  | GET                                                                                                 |

A sample of the response received is shown below.

```

{
 "type" : "mwaas_zone",
 "memberTargetTypes" : ["host"],
 "parentResourceProviderType" : "self_service_zone",
 "placementPolicyName" : "First_Pick",
 "placementConstraints" : [{
 "name" : "MAX_INSTANCES",
 "displayName" : "Maximum Number of WebLogic Servers (per host)",
 "description" : "Maximum Number of WebLogic Servers (per host)",
 "valueType" : "INTEGER",
 "operator" : "eq"
 }],
 "characteristics" : [{
 "name" : "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.BASEINSTALLDIR",
 "displayName" : "Middleware Home Base Directory",
 "description" : "All Oracle Homes would be created from this Base Install Directory.",
 "isComposite" : false,
 "possibleValues" : [],
 "isMandatory" : false,
 "isUnique" : false
 }, {
 "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
 "displayName" : "Contact",
 "description" : null,

```

```
"isComposite" : false,
"possibleValues" : [],
"isMandatory" : false,
"isUnique" : true
}, {
 "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
 "displayName" : "Cost Center",
 "description" : null,
 "isComposite" : false,
 "possibleValues" : [],
 "isMandatory" : false,
 "isUnique" : true
}, {
 "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
 "displayName" : "Department",
 "description" : null,
 "isComposite" : false,
 "possibleValues" : [],
 "isMandatory" : false,
 "isUnique" : true
}, {
 "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
 "displayName" : "Lifecycle Status",
 "description" : null,
 "isComposite" : false,
 "possibleValues" : ["Development", "MissionCritical", "Production", "Stage",
 "Test"],
 "isMandatory" : false,
 "isUnique" : true
}, {
 "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
 "displayName" : "Line of Business",
 "description" : null,
 "isComposite" : false,
 "possibleValues" : [],
 "isMandatory" : false,
 "isUnique" : true
}, {
 "name" : "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
 "displayName" : "Location",
 "description" : null,
 "isComposite" : false,
 "possibleValues" : [],
 "isMandatory" : false,
 "isUnique" : true
}, {
 "name" : "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ASHAREDHOME",
 "displayName" : "Shared Oracle Home",
 "description" : "When set to Yes, all Hosts in this MW Pool would use this Shared
 Home even if
 other Oracle Homes present on these Hosts. Otherwise, Oracle Home on each Host
 will be used.",
 "isComposite" : false,
 "possibleValues" : ["0", "1"],
 "isMandatory" : false,
 "isUnique" : false
}, {
 "name" : "EXAMPLE.SYSMAN.EMAS.MWAAS_ZONE",
 "displayName" : "oracle.sysman.emas.mwaas_zone",
```

```

"description" : null,
"isComposite" : false,
"possibleValues" : [],
"isMandatory" : true,
"isUnique" : true
}],
"memberConstraints" : [{
"name" : "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.PLATFORM",
"displayName" : "Operating System and Platform",
"description" : null,
"isComposite" : false,
"possibleValues" : ["197", "59", "212", "209", "46", "226", "912", "208", "233",
"23", "267"]
}]
}

```

#### 51.4.4.9 Viewing the Metadata for Creating a PaaS Infrastructure Zone

A GET operation is issued to view the metadata for creating a PaaS Infrastructure Zone.

**Table 51–26 GET Request Configuration for Viewing the Metadata for Creating a PaaS Infrastructure Zone**

| Feature         | Specification                                                                                |
|-----------------|----------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/re<br>sourceproviders/self_service_zone |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json              |
| Body            | None                                                                                         |
| Request method  | GET                                                                                          |

A sample of the response received is shown below.

```

{ "type": "self_service_zone",
 "memberTargetTypes": ["host"],
 "placementConstraints": [
 { "name": "MAX_MEMORY_ALLOCATION",
 "displayName": "MaximumMemoryAllocation(%)",
 "description": "MaximumMemoryAllocation constraint per host in a paas
infrastructure zone",
 "valueType": "INTEGER",
 "operator": "eq" },
 { "name": "MAX_CPU_UTILIZATION",
 "displayName": "MaximumCPUUtilization(%)",
 "description": "MaximumCPU utilization(%) constraint for a physical resource
provider",
 "valueType": "INTEGER",
 "operator": "eq" }],
 "characteristics": [{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
 "displayName": "Contact",
 "description": null,
 "isComposite": false,
 "possibleValues": [],
 "isUnique": true,
 "isMandatory": false },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
 "displayName": "CostCenter",

```

```
"description": null,
"isComposite": false,
"possibleValues": [],
"isUnique": true,
"isMandatory": false },
{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
 "displayName": "Department",
 "description": null,
 "isComposite": false,
 "possibleValues": [],
 "isUnique": true,
 "isMandatory": false },
{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
 "displayName": "LifecycleStatus",
 "description": null,
 "isComposite": false,
 "possibleValues": ["Development", "MissionCritical",
 "Production", "Stage", "Test"],
 "isUnique": true,
 "isMandatory": false },
{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
 "displayName": "Line ofBusiness",
 "description": null,
 "isComposite": false,
 "possibleValues": [],
 "isUnique": true,
 "isMandatory": false },
{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
 "displayName": "Location",
 "description": null,
 "isComposite": false,
 "possibleValues": [],
 "isUnique": true,
 "isMandatory": false },
{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_SITE",
 "displayName": "Site",
 "description": null,
 "isComposite": false,
 "possibleValues": [],
 "isUnique": true,
 "isMandatory": false },
{ "name": "ORACLE.SYSMAN.CFW.SELF_SERVICE_ZONE",
 "displayName": "oracle.sysman.cfw.self_service_zone",
 "description": null,
 "isComposite": false,
 "possibleValues": [],
 "isUnique": true,
 "isMandatory": true }],
"credentials": [{ "name": "normal_credential_guid",
 "displayName": "Host credentials",
 "description": "HostCredentials to be used for provisioning in
thisPaaSInfrastructureZone.The credentials provided should be of global credential
type (valid across the members in the zone) and owned by the current user",
 "authenticatingTargetType":
 "host", "isMandatory": true }],
"memberConstraints": []}
```

#### 51.4.4.10 Viewing the Metadata for Creating a Schema Pool

A GET operation is issued to view the metadata for creating a Schema Pool.



**Table 51–27 GET Request Configuration for Viewing the Metadata for Creating a Schema Pool**

| Feature         | Specification                                                                          |
|-----------------|----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/re<br>sourceproviders/schaas_pool |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json        |
| Body            | None                                                                                   |
| Request method  | GET                                                                                    |

A sample of the response received is shown below.

```
{ "type": "schaas_pool",
 "memberTargetTypes": ["oracle_database", "rac_database"],
 "parentResourceProviderType": "self_service_zone",
 "placementPolicyName": "First_Pick",
 "placementConstraints": [{ "name": "ENFORCE_CPU", "displayName":
 "EnableResourceManager forCPU", "description": "Whether to enable resource manager
 which can be used to createConsumerGroups.", "valueType": "BOOLEAN", "operator":
 "eq" },
 { "name": "MAX_CPU_USAGE", "displayName": "MaximumCPU allocation (%)",
 "description": "Defines the maximum limit of theCPU permissible for each database,
 beyond which a service request can not be placed.", "valueType": "INTEGER",
 "operator": "eq" },
 { "name": "USE_WORKLOAD", "displayName": "Associate workload with the request",
 "description": "Whether to associate workload with the request which represents
 the expectedCPU, memory and storage requirements for each service.", "valueType":
 "BOOLEAN", "operator": "eq" },
 { "name": "MAX_SERVICES", "displayName": "MaximumNumber of database services",
 "description": "Maximum number of services per database.", "valueType": "INTEGER",
 "operator": "eq" },
 { "name": "MAX_MEMORY_USAGE", "displayName": "Maximum memory allocation (%)",
 "description": "Memory represents the summation ofSystemGlobalArea (SGA) allocated
 for each database.", "valueType": "INTEGER", "operator": "eq" }],
 "characteristics": [{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
 "displayName": "Contact", "description": null, "isComposite": false,
 "possibleValues": [], "isUnique": true, "isMandatory": false },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER", "displayName": "CostCenter",
 "description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
 "isMandatory": false },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT", "displayName": "Department",
 "description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
 "isMandatory": false },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS", "displayName":
 "LifecycleStatus", "description": null, "isComposite": false, "possibleValues": [
 "Development", "MissionCritical", "Production", "Stage", "Test"], "isUnique":
 true, "isMandatory": false },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS", "displayName": "Line
 ofBusiness", "description": null, "isComposite": false, "possibleValues": [],
 "isUnique": true, "isMandatory": false },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "displayName": "Location",
 "description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
 "isMandatory": false },
 { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_SITE", "displayName": "Site",
 "description": null, "isComposite": false, "possibleValues": [], "isUnique": true,
 "isMandatory": false },
 { "name": "ORACLE.SYSMAN.SSA.SCHAAS_POOL", "displayName":
```

```

"oracle.sysman.ssa.schaas_pool", "description": null, "isComposite": false,
"possibleValues": [], "isUnique": true, "isMandatory": true }],
 "credentials": [{ "name": "gi_credential_guid", "displayName":
"GridInfrastructureCredentials", "description": "GridInfrastructure credentials
are optional.", "authenticatingTargetType": "host", "isMandatory": false },
 { "name": "database_credential_guid", "displayName": "DatabaseCredentials",
"description": "The database credentials that will be used for performing database
operations like schema creation.The database credentials requireSYSDBA
privileges.", "authenticatingTargetType": "oracle_database", "isMandatory": false
},
 { "name": "host_credential_guid", "displayName": "HostCredentials",
"description": "Host credentials to be specified that will be used to perform
instance creation operations.", "authenticatingTargetType": "host", "isMandatory":
true }],
 "memberConstraints": [{ "name": "ORACLE.SYSMAN.SSA.CONFIGURATION",
"displayDisplayName": "DatabaseConfiguration", "description": "DatabaseConfiguration of
the resource provider member.", "isComposite": false, "possibleValues": ["rac_
database", "oracle_database"] },
 { "name": "ORACLE.SYSMAN.CFW.PLATFORM", "displayName": "Platform", "description":
"Platform", "isComposite": false, "possibleValues": ["197", "59", "212", "209",
"46", "226", "912", "208", "233", "23", "267"] },
 { "name": "ORACLE.SYSMAN.CFW.VERSION", "displayName": "Version", "description":
"Version", "isComposite": false, "possibleValues": ["10.2.0.1.0", "10.2.0.2.0",
"10.2.0.3.0", "10.2.0.4.0", "10.2.0.5.0", "11.1.0.6.0", "11.1.0.7.0",
"11.2.0.1.0", "11.2.0.2.0", "11.2.0.3.0", "11.2.0.4.0", "12.1.0.1.0", "12.1.0.2.0"
] }] }] }

```

#### 51.4.4.11 Viewing Details of the Resource Provider

A GET operation is issued to view details of the Resource Provider.

**Table 51–28** GET Request Configuration for Viewing Details of the Resource Provider

| Feature         | Specification                                                                               |
|-----------------|---------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json             |
| Body            | None                                                                                        |
| Request method  | GET                                                                                         |

A sample of the response received is shown below.

```

{
 "name": "My Xaas Provider_001",
 "type": "cfw_samplexaas_rsrc_provider",
 "memberTargetType": "cfw_samplexaas_rsrc",
 "members": [
 "Sample2"
],
 "credentials": [],
 "placementConstraints": [
 {
 "name": "NUMBER_OF_SERVICE_INSTANCES",
 "value": [
 "20"
]
 }
],
}

```

```

{
 "name": "TEST_CONSTRAINT_WITH_STRING_VALUE",
 "value": [
 "\"string_value\""
]
},
{
 "memberConstraints": [],
 "characteristics": [
 {
 "name": "ORACLE.SYSMAN.SXAAS.CFW_SAMPLEXAAS_RSRC_PROVIDER",
 "value": [
 "C277DA7F0CB329507172B4C44E0A6DF9"
]
 }
],
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/22"
 }
}

```

#### 51.4.4.12 Updating a Resource Provider

A PUT operation is issued on a Resource Provider resource to update an existing instance of Resource Provider in the system.

**Table 51–29 PUT Request Configuration for Updating a Resource Provider**

| Feature         | Specification                                                                                    |
|-----------------|--------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                  |
| Body            | {<br>"placementConstraints": [{"name": " NUMBER_OF_SERVICE_INSTANCES ", "value":<br>"70"}],<br>} |
| Request method  | PUT                                                                                              |

A sample of the response received is shown below.

```

Status 200 OK
{
 message: "Resource Provider with ID "121" updated successfully."
}

```

#### 51.4.4.13 Deleting a Resource Provider

The DELETE request configuration is shown in the table below.

**Table 51–30 DELETE Request Configuration for Deleting a Resource Provider**

| Feature | Specification                                                                               |
|---------|---------------------------------------------------------------------------------------------|
| URI     | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid} |

**Table 51–30 (Cont.) DELETE Request Configuration for Deleting a Resource Provider**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | DELETE                                                                          |

A sample of the response received is shown below.

```
Status 200 OK
{
 "message": "Resource Provider with ID \"21\" deleted successfully."
}
```

#### 51.4.4.14 Viewing Configuration of a Resource Provider

The GET request configuration to view the configuration of a resource provider is shown below.

**Table 51–31 GET Request Configuration for Viewing Configuration of a Resource Provider**

| Feature         | Specification                                                                           |
|-----------------|-----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/4/configurations |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json         |
| Body            | None                                                                                    |
| Request method  | GET                                                                                     |

A sample of the response received is shown below.

```
{
 "hosts" : {
 "configurations" : [{
 "name" : "vm_networks",
 "type" : "VECTOR",
 "description" : "Network.",
 "displayName" : "vm_networks",
 "values" : [],
 "required" : false,
 "secret" : false
 }, {
 "name" : "platform",
 "type" : "STRING",
 "value" : "",
 "displayName" : "platform",
 "required" : false,
 "secret" : false
 }, {
 "name" : "hostPrefix",
 "type" : "STRING",
 "description" : "Host Name Prefix.",
 "value" : "rest_",
 "displayName" : "Host Name Prefix",
```

```

 "required" : false,
 "secret" : false
 }, {
 "name" : "postInstallScript",
 "type" : "STRING",
 "value" : "",
 "displayName" : "postInstallScript",
 "required" : false,
 "secret" : false
 }, {
 "name" : "cluster_storages",
 "type" : "VECTOR",
 "description" : "Cluster Storage.",
 "displayName" : "cluster_storages",
 "values" : [],
 "required" : false,
 "secret" : false
 }, {
 "name" : "agent_base",
 "type" : "STRING",
 "description" : "Agent Install Base Directory Location",
 "value" : "bsl",
 "displayName" : "Installation Base Directory",
 "required" : false,
 "secret" : false
 }, {
 "name" : "cluster_networks",
 "type" : "VECTOR",
 "description" : "Cluster Network",
 "displayName" : "cluster_networks",
 "values" : [],
 "required" : false,
 "secret" : false
 }, {
 "name" : "resourceProviderId",
 "type" : "STRING",
 "value" : "1",
 "displayName" : "resourceProviderId",
 "required" : false,
 "secret" : false
 }, {
 "name" : "postInstallScriptOnOMS",
 "type" : "STRING",
 "value" : "",
 "displayName" : "postInstallScriptOnOMS",
 "required" : false,
 "secret" : false
 }, {
 "name" : "agent_install_creds",
 "type" : "STRING",
 "description" : "Agent Port",
 "value" : "15513B9C0C6E4EB9E053CE74B10A171B",
 "displayName" : "Named Credential",
 "required" : false,
 "secret" : false
 }, {
 "name" : "priv_delegation_setting",
 "type" : "STRING",
 "value" : "/usr/bin/sudo -u %RUNAS% %COMMAND%",
 "displayName" : "priv_delegation_setting",

```

```
 "required" : false,
 "secret" : false
 }, {
 "name" : "vm_instance_sizes",
 "type" : "VECTOR",
 "description" : "Instance Size.",
 "displayName" : "vm_instance_sizes",
 "values" : ["EXTRA_LARGE"],
 "required" : false,
 "secret" : false
 }, {
 "name" : "agent_port",
 "type" : "STRING",
 "description" : "Agent Port",
 "value" : "3872",
 "displayName" : "Port",
 "required" : false,
 "secret" : false
 }, {
 "name" : "preInstallScript",
 "type" : "STRING",
 "value" : "",
 "displayName" : "preInstallScript",
 "required" : false,
 "secret" : false
 }, {
 "name" : "custom_params",
 "type" : "VECTOR",
 "description" : "Custom parameters for VM configuration.",
 "displayName" : "custom_params",
 "values" : [],
 "required" : false,
 "secret" : false
 }, {
 "name" : "vm_server_templates",
 "type" : "VECTOR",
 "description" : "Server Template.",
 "displayName" : "vm_server_templates",
 "values" : ["paas-tmpl"],
 "required" : false,
 "secret" : false
 }, {
 "name" : "preInstallScriptOnOMS",
 "type" : "STRING",
 "value" : "",
 "displayName" : "preInstallScriptOnOMS",
 "required" : false,
 "secret" : false
 }, {
 "name" : "numberOfHost",
 "type" : "STRING",
 "description" : "Number Of Host",
 "value" : "3",
 "displayName" : "Number Of Host",
 "required" : false,
 "secret" : false
 }, {
 "name" : "vm_storages",
 "type" : "VECTOR",
 "description" : "Storage.",
```

```

 "displayName" : "vm_storages",
 "values" : [],
 "required" : false,
 "secret" : false
 }, {
 "name" : "runPreInstallScriptAsRoot",
 "type" : "STRING",
 "value" : "",
 "displayName" : "runPreInstallScriptAsRoot",
 "required" : false,
 "secret" : false
 }, {
 "name" : "runPostInstallScriptAsRoot",
 "type" : "STRING",
 "value" : "",
 "displayName" : "runPostInstallScriptAsRoot",
 "required" : false,
 "secret" : false
 }]
 },
 "swprovisioning" : {
 "configurations" : [{
 "name" : "resourceProviderId",
 "type" : "STRING",
 "value" : "1",
 "displayName" : "resourceProviderId",
 "required" : false,
 "secret" : false
 }]
 }
}

```

#### 51.4.4.15 Viewing Metric of a Resource Provider

The GET request configuration to view the metric of a resource provider is shown below.

**Table 51–32 GET Request Configuration for Viewing Metric of a Resource Provider**

| Feature         | Specification                                                                     |
|-----------------|-----------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/21/metrics |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json   |
| Body            | None                                                                              |
| Request method  | GET                                                                               |

A sample of the response received is shown below.

```

Status 200 OK
{
 count: "0"
 hasMore: "false"
 limit: "0"
 offset: "0"
 totalResults: "0"
 metricColumns: [6]
 0: {

```

```
name: "services"
}-
1: {
name: "sample"
}-
2: {
name: "memory"
}-
3: {
name: "storageStatus"
}-
4: {
name: "cpu"
}-
5: {
name: "storage"
}-
}
```

#### 51.4.4.16 Provisioning a Resource via a Sample Adapter

The table below shows the POST configuration to provision a resource.

**Table 51–33** *POST Request Configuration for Provisioning a Resource via a Sample Adapter*

| Feature         | Specification                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid}/members |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                     |



**Table 51–33 (Cont.) POST Request Configuration for Provisioning a Resource via a Sample Adapter**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{ "saveOnly" : false,   "setDefault" : true,   "hosts" : { "templateGuid" :     "13462942A66F0B2DE053CE74B10AFCC2",     "configurations" : [ { "name" : "hostPrefix", "value"       : "rest_" },       { "name" : "numberOfHost", "value" : "5" },       { "name" : "agent_install_creds", "value" :         "131EFD3114423E7AE053CE74B10A5A76" },       { "name" : "agent_base", "value" : "bsl" },       { "name" : "priv_delegation_setting", "value" :         "/usr/bin/sudo -u %RUNAS% %COMMAND%" },       { "name" : "agent_port", "value" : "3872" },       { "name" : "priv_delegation_setting_template_name",         "value" : "" },       { "name" : "network_purpose_vm", "subvalues" : [ {         "name" : "Public", "value" : "192.168.1.0/24" } ] },       { "name" : "storage_purpose_cluster", "subvalues" : [         { "name" : "Shared", "value" : "smisko_0" } ] },       { "name" : "storage_purpose_vm", "subvalues" : [ {         "name" : "Dedicated", "value" : "smisko_0" } ] },       { "name" : "network_purpose_cluster", "subvalues" : [         { "name" : "ClusterPrivate", "value" : "192.168.1.0/24"         },         { "name" : "ClusterPublic", "value" : "192.168.1.0/24"         } ] },       { "name" : "vm_instance_sizes", "values" : [ "EXTRA_         LARGE" ] },       { "name" : "vm_server_templates", "values" : [         "paas-tmpl" ] } ] },   "swprovisioning" : { "configurations" : [ { "name" :     "param01", "value" : "param_01_val" }, { "name" :     "param01", "value" : "param_02_val" } ] } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

A sample of the response received is shown below.

```
{ "status" : "SCHEDULED", "details" : "134821EBDA7472BFE053CE74B10A11B8" }
```

#### 51.4.4.17 De-provisioning a Resource

The DELETE request configuration for de-provisioning a resource is shown in the table below.

**Table 51–34 DELETE Request Configuration for De-provisioning a Resource**

| Feature         | Specification                                                                               |
|-----------------|---------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/{resourceproviderid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json             |

**Table 51–34 (Cont.) DELETE Request Configuration for De-provisioning a Resource**

| Feature        | Specification                                                                                                        |
|----------------|----------------------------------------------------------------------------------------------------------------------|
| Body           | <code>{"members":["rest_-bf51c965-fff0-400c-a982-2c71b2afb150","rest_-13ce4c70-e1b4-4bd9-8b43-6952d619e674"]}</code> |
| Request method | DELETE                                                                                                               |

A sample of the response received is shown below.

```
{ "details": "133C8EC6EAC86122E053CE74B10A4DEF", "status": "SCHEDULED" }
```

#### 51.4.4.18 Viewing the Metadata Required to Provision a Resource Provider

The POST request configuration to view the metadata required to provision a resource provider is shown below.

**Table 51–35 POST Request Configuration for Viewing the Metadata Required to Provision a Resource Provider**

| Feature         | Specification                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------|
| URI             | <code>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/4/members/metadata</code> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                        |
| Body            | <code>{"hosts":{"templateGuid":"1552104D74F47F29E053CE74B10A08D9"}}</code>                             |
| Request method  | POST                                                                                                   |

A sample of the response received is shown below.

```
{
 "hosts" : {
 "templateGuid" : "1552104D74F47F29E053CE74B10A08D9",
 "configurations" : [{
 "name" : "platform",
 "type" : "STRING",
 "value" : "",
 "displayName" : "platform",
 "required" : false,
 "secret" : false
 }, {
 "name" : "hostPrefix",
 "type" : "STRING",
 "description" : "Host Name Prefix.",
 "value" : "MySmplAdptr0505013358",
 "displayName" : "Host Name Prefix",
 "required" : false,
 "secret" : false
 }, {
 "name" : "network_purpose_vm",
 "type" : "VECTOR",
 "description" : "Purpose Network Instance",
 "displayName" : "network_purpose_vm",
 "required" : false,
 "secret" : false,
 "possibleValues" : [{
```

```

 "value" : "192.168.1.0/25",
 "displayName" : "192.168.1.0/25"
 }, {
 "value" : "192.168.1.0/24",
 "displayName" : "192.168.1.0/24"
 }, {
 "value" : "192.168.1.0/26",
 "displayName" : "192.168.1.0/26"
 }, {
 "value" : "192.168.1.0/27",
 "displayName" : "192.168.1.0/27"
 }],
 "subvalues" : [{
 "name" : "Public",
 "type" : "STRING",
 "displayName" : "Public",
 "required" : true,
 "secret" : false
 }]
}, {
 "name" : "postInstallScript",
 "type" : "STRING",
 "value" : "",
 "displayName" : "postInstallScript",
 "required" : false,
 "secret" : false
}, {
 "name" : "storage_purpose_cluster",
 "type" : "VECTOR",
 "description" : "Purpose Storage Cluster",
 "displayName" : "storage_purpose_cluster",
 "required" : false,
 "secret" : false,
 "possibleValues" : [{
 "value" : "smisko_3",
 "displayName" : "smisko_3"
 }, {
 "value" : "smisko_2",
 "displayName" : "smisko_2"
 }, {
 "value" : "smisko_1",
 "displayName" : "smisko_1"
 }, {
 "value" : "smisko_0",
 "displayName" : "smisko_0"
 }],
 "subvalues" : []
}, {
 "name" : "network_purpose_cluster",
 "type" : "VECTOR",
 "description" : "Purpose Network Cluster",
 "displayName" : "network_purpose_cluster",
 "required" : false,
 "secret" : false,
 "possibleValues" : [{
 "value" : "192.168.1.0/25",
 "displayName" : "192.168.1.0/25"
 }, {
 "value" : "192.168.1.0/24",
 "displayName" : "192.168.1.0/24"
 }]
}]

```

```
 }, {
 "value" : "192.168.1.0/26",
 "displayName" : "192.168.1.0/26"
 }, {
 "value" : "192.168.1.0/27",
 "displayName" : "192.168.1.0/27"
 }],
 "subvalues" : []
 }, {
 "name" : "agent_base",
 "type" : "STRING",
 "description" : "Agent Install Base Directory Location",
 "value" : "/scratch/oracle/",
 "displayName" : "Installation Base Directory",
 "required" : false,
 "secret" : false
 }, {
 "name" : "resourceProviderId",
 "type" : "STRING",
 "value" : "1",
 "displayName" : "resourceProviderId",
 "required" : false,
 "secret" : false
 }, {
 "name" : "postInstallScriptOnOMS",
 "type" : "STRING",
 "value" : "",
 "displayName" : "postInstallScriptOnOMS",
 "required" : false,
 "secret" : false
 }, {
 "name" : "agent_install_creds",
 "type" : "STRING",
 "description" : "Agent Port",
 "value" : "15513B9C0C6E4EB9E053CE74B10A171B",
 "displayName" : "Named Credential",
 "required" : false,
 "secret" : false
 }, {
 "name" : "storage_purpose_vm",
 "type" : "VECTOR",
 "description" : "Purpose Storage Instance",
 "displayName" : "storage_purpose_vm",
 "required" : false,
 "secret" : false,
 "possibleValues" : [{
 "value" : "smisko_3",
 "displayName" : "smisko_3"
 }, {
 "value" : "smisko_2",
 "displayName" : "smisko_2"
 }, {
 "value" : "smisko_1",
 "displayName" : "smisko_1"
 }, {
 "value" : "smisko_0",
 "displayName" : "smisko_0"
 }],
 "subvalues" : [{
 "name" : "Dedicated",
```

```

 "type" : "STRING",
 "displayName" : "Dedicated",
 "required" : true,
 "secret" : false
 }]
}, {
 "name" : "priv_delegation_setting",
 "type" : "STRING",
 "value" : "/usr/bin/sudo -u %RUNAS% %COMMAND%",
 "displayName" : "priv_delegation_setting",
 "required" : false,
 "secret" : false
}, {
 "name" : "vm_instance_sizes",
 "type" : "VECTOR",
 "description" : "Instance Size.",
 "displayName" : "vm_instance_sizes",
 "values" : ["EXTRA_LARGE", "TINY", "SMALL"],
 "required" : false,
 "secret" : false,
 "possibleValues" : [{
 "value" : "TINY",
 "displayName" : "TINY"
 }, {
 "value" : "EXTRA_LARGE",
 "displayName" : "EXTRA_LARGE"
 }, {
 "value" : "SMALL",
 "displayName" : "SMALL"
 }]
}, {
 "name" : "agent_port",
 "type" : "STRING",
 "description" : "Agent Port",
 "value" : "3872",
 "displayName" : "Port",
 "required" : false,
 "secret" : false
}, {
 "name" : "preInstallScript",
 "type" : "STRING",
 "value" : "",
 "displayName" : "preInstallScript",
 "required" : false,
 "secret" : false
}, {
 "name" : "vm_server_templates",
 "type" : "VECTOR",
 "description" : "Server Template.",
 "displayName" : "vm_server_templates",
 "values" : ["paas-tmpl", "paas-tmpl2"],
 "required" : false,
 "secret" : false,
 "possibleValues" : [{
 "value" : "paas-tmpl",
 "displayName" : "paas-tmpl"
 }, {
 "value" : "paas-tmpl2",
 "displayName" : "paas-tmpl2"
 }]
}]

```

```

 }, {
 "name" : "preInstallScriptOnOMS",
 "type" : "STRING",
 "value" : "",
 "displayName" : "preInstallScriptOnOMS",
 "required" : false,
 "secret" : false
 }, {
 "name" : "numberOfHost",
 "type" : "STRING",
 "description" : "Number Of Host",
 "value" : "",
 "displayName" : "Number Of Host",
 "required" : false,
 "secret" : false
 }, {
 "name" : "runPreInstallScriptAsRoot",
 "type" : "STRING",
 "value" : "",
 "displayName" : "runPreInstallScriptAsRoot",
 "required" : false,
 "secret" : false
 }, {
 "name" : "runPostInstallScriptAsRoot",
 "type" : "STRING",
 "value" : "",
 "displayName" : "runPostInstallScriptAsRoot",
 "required" : false,
 "secret" : false
 }]
 },
 "swprovisioning" : {
 "configurations" : []
 }
}

```

## 51.5 Service Templates - Collection Resource for V2

Service Templates is a collection resource representing an SSA administrator's view of all the accessible Service Template resources. The following table describes the Service Template data model.

**Table 51–36 Service Templates Collection Resource Data Model**

| Field      | Type                            | Description                                                                                       | Occurs |
|------------|---------------------------------|---------------------------------------------------------------------------------------------------|--------|
| name       | String                          | Display name of the collection resource.                                                          | 1      |
| type       | String                          | Indicates the type of the collection resource.                                                    | 0..1   |
| hasMore    | Boolean                         | Indicates whether there are more elements in the collection.                                      | 1      |
| count      | Integer                         | Number of elements returned.                                                                      | 1      |
| items      | Collection<br><ServiceTemplate> | List of Service Template resources In case no instances exist, <code>items</code> field is empty. | 1      |
| totalCount | Integer                         | Total number of Service Template resources.                                                       | 1      |

**Table 51–36 (Cont.) Service Templates Collection Resource Data Model**

| Field         | Type | Description                                                                  | Occurs |
|---------------|------|------------------------------------------------------------------------------|--------|
| canonicalLink | URI  | A GET against this URI refreshes the client representation of this resource. | 1      |
| selfLink      | URI  | Refers to the resource equivalent of the containing elements.                | 1      |

### 51.5.1 Supported Operations

The table below shows the supported operations for Service Templates.

**Table 51–37 Supported Methods for Service Templates**

| Request Method | Canonical Link                                                                           | Description                                                                                                                                                                                                                                                                                                                                                                                        |
|----------------|------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GET            | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates                     | Returns list of Service Templates.                                                                                                                                                                                                                                                                                                                                                                 |
| GET            | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes       | Returns Service Template types.<br>See <a href="#">Table 51–38, "SRVC Template Type Data Model"</a> .                                                                                                                                                                                                                                                                                              |
| POST           | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata            | Returns metadata required for creation of a Service Template.<br>See:<br><ul style="list-style-type: none"> <li>Table 51–39, "SRVC Template Metadata Request Data Model"</li> <li>Table 51–40, "SRVC Template Metadata Response Data Model"</li> <li>Table 51–41, "Payload Data Model"</li> <li>Table 51–42, "Characteristic Data Model"</li> <li>Table 51–43, "Target Type Data Model"</li> </ul> |
| POST           | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders   | Returns Resource Provider characteristics required for creation of a Service Template.<br>See <a href="#">Table 51–44, "SrvcTemplateRscPrvdrRequest Data Model"</a> and <a href="#">Table 51–45, "SrvcTemplateRscPrvdr Response Data Model"</a> .                                                                                                                                                  |
| POST           | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations      | Returns configurations required for creation of a Service Template.<br>See <a href="#">Table 51–46, "SrvcTemplateConfigRequest Data Model"</a> .                                                                                                                                                                                                                                                   |
| POST           | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates                     | Creates a Service Template.                                                                                                                                                                                                                                                                                                                                                                        |
| PUT            | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid} | Updates the Service Template.                                                                                                                                                                                                                                                                                                                                                                      |

**Table 51–37 (Cont.) Supported Methods for Service Templates**

| Request Method | Canonical Link                                                                                          | Description                                                      |
|----------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| GET            | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}                | Returns details of specified Service Template.                   |
| GET            | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}/configurations | Returns configuration details of the specified Service Template. |
| DELETE         | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid}                | Deletes the specified Service Template.                          |

The table below shows the SRVC template type data model supported for the GET request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes in the v2 framework.

**Table 51–38 SRVC Template Type Data Model**

| Field                 | Type   | Description                           |
|-----------------------|--------|---------------------------------------|
| serviceTemplateTypeId | String | Id of service template type.          |
| serviceType           | String | Name of service type.                 |
| name                  | String | Name of service template type.        |
| displayName           | String | Display name of service template type |

The table below shows the SRVC template metadata request data model supported for the POST request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 51–39 SRVC Template Metadata Request Data Model**

| Field                 | Type   | Description                  | Occurs |
|-----------------------|--------|------------------------------|--------|
| serviceTemplateTypeId | String | Id of service template type. | 1      |
| serviceType           | String | Name of service type.        | 1      |

The table below shows the SRVC template metadata response data model supported for the POST request on the URI -  
 /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 51–40 SRVC Template Metadata Response Data Model**

| Field                 | Type          | Description                    |
|-----------------------|---------------|--------------------------------|
| serviceTemplateTypeId | String        | Id of service template type.   |
| rscProvAssocOption    | List<String>  | Resource provider association. |
| payloads              | List<Payload> | Payloads of service template.  |



**Table 51–40 (Cont.) SRVC Template Metadata Response Data Model**

| Field                  | Type                 | Description                                  |
|------------------------|----------------------|----------------------------------------------|
| selectedExecutableName | CfwValueDescriptor   | Service template type details.               |
| characteristics        | List<Characteristic> | List of characteristics of service template. |

The table below shows the payload data model supported for the POST request on the URI -

/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 51–41 Payload Data Model**

| Field    | Type         | Description         |
|----------|--------------|---------------------|
| name     | String       | Name of payload.    |
| value    | List<String> | List of values.     |
| required | Boolean      | Is required or not. |

The table below shows the characteristic data model supported for the POST request on the URI -

/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 51–42 Characteristic Data Model**

| Field       | Type         | Description                                                                          |
|-------------|--------------|--------------------------------------------------------------------------------------|
| name        | String       | Name of characteristic.                                                              |
| displayName | String       | Display name of characteristic.                                                      |
| values      | List<String> | List of values.                                                                      |
| required    | Boolean      | Is required or not.                                                                  |
| editable    | Boolean      | Is editable or not.                                                                  |
| visible     | Boolean      | Is visible or not.                                                                   |
| targetType  | TargetType   | If characteristic is Target Characteristic, this field contains target type details. |

The table below shows the target type data model supported for the POST request on the URI -

/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata in the v2 framework.

**Table 51–43 Target Type Data Model**

| Field                | Type   | Description                 |
|----------------------|--------|-----------------------------|
| targetType           | String | Target Type.                |
| targetTypeName       | String | Name of target type.        |
| parentTargetType     | String | Parent target type.         |
| parentTargetTypeName | String | Name of parent target type. |

The table below shows the `SrvcTemplateRscPrvdrRequest` data model supported for the POST request on the URI -  
`/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders` in the v2 framework.

**Table 51–44 *SrvcTemplateRscPrvdrRequest Data Model***

| Field                 | Type                  | Description                          | Occurs |
|-----------------------|-----------------------|--------------------------------------|--------|
| serviceTemplateTypeId | String                | Id of Service template type.         | 1      |
| serviceType           | String                | Name of service type.                | 1      |
| rscProvAssocOption    | List<String>          | Resource provider association.       | 1      |
| payloads              | List<Payload>>        | Payloads of service template.        | 0..1   |
| characteristics       | List<Characteristic>> | Characteristics of service template. | 0..1   |

The table below shows the `SrvcTemplateRscPrvdr` response data model supported for the POST request on the URI -  
`/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders` in the v2 framework.

**Table 51–45 *SrvcTemplateRscPrvdr Response Data Model***

| Field                 | Type                      | Description                      |
|-----------------------|---------------------------|----------------------------------|
| lookupCharacteristics | List<SrvcTemplatePurpose> | List of purpose characteristics. |

The table below shows the `SrvcTemplateConfigRequest` data model supported for the POST request on the URI -  
`/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations` in the v2 framework.

**Table 51–46 *SrvcTemplateConfigRequest Data Model***

| Field                 | Type                  | Description                          | Occurs |
|-----------------------|-----------------------|--------------------------------------|--------|
| serviceTemplateTypeId | String                | Id of Service template type.         | 1      |
| serviceType           | String                | Name of service type.                | 1      |
| rscProvAssocOption    | List<String>          | Resource provider association.       | 1      |
| payloads              | List<Payload>>        | Payloads of service template.        | 0..1   |
| characteristics       | List<Characteristic>> | Characteristics of service template. | 0..1   |
| resourceProvider      | SrvcTemplateRscprvdr  | Resource provider.                   | 1      |

## 51.5.2 Service Templates REST API Examples for V2

This section describes the REST API operations supported on the Service Templates resource. The following operations are explained:

- [Viewing all the Service Templates](#)
- [Viewing all the Service Template Types](#)
- [Viewing the Metadata Required for Creating a Service Template](#)

- [Viewing the Resource Provider Characteristics Required for Creating a Service Template](#)
- [Viewing Configurations Required for Creating a Service Template](#)
- [Creating a Service Template](#)
- [Updating a Service Template](#)
- [Viewing Details of a Specific Service Template](#)
- [Viewing Configuration Details of a Specific Service Template](#)
- [Deleting a Service Template](#)

### 51.5.2.1 Viewing all the Service Templates

A GET operation is issued to view all the Service Templates.

**Table 51–47** *GET Request Configuration for Viewing all the Service Templates*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name": "Service Templates",
 "type": "Service Template",
 "totalResults": 3,
 "cfwItems": [
 {
 "id": "1",
 "name": "Orchestration",
 "guid": "06F28ABA2E0178CBE053CE74B10AAC2D",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/1"
 },
 "description": "Create a set of Oracle VM instances with customized configuration for multitier applications"
 },
 {
 "id": "2",
 "name": "Simple Orchestration",
 "guid": "06F28ABA2E0478CBE053CE74B10AAC2D",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/2"
 },
 "description": "Create one or more Oracle VM instances with default configuration and minimum
```

```
inputs"
},
{
 "id": "3",
 "name": "VM Instance",
 "guid": "06F28ABA2E0778CBE053CE74B10AAC2D",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serv
 icetemplates/3"
 },
 "description": "Create an Oracle VM Instance"
}
],
"canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serv
 icetemplates/"
},
"selfLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serv
 icetemplates/"
}
}
```

51.5.2.2 Viewing all the Service Template Types

A GET operation is issued to view all the Service Template types.

Table 51–48 GET Request Configuration for Viewing all the Service Template Types

| Feature         | Specification                                                                           |
|-----------------|-----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/se<br>rvicetemplates/templatetypes |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json         |
| Body            | None                                                                                    |
| Request method  | GET                                                                                     |

A sample of the response received is shown below.

```
[
{
 "name": "SCHEMA",
 "displayName": "SchaaS Create Executable",
 "serviceType": "SCHEMA",
 "serviceTemplateTypeId": "61"
},
{
 "name": "MW_SOAAAS_CREATE_INSTANCE",
 "displayName": "SOAaaS Orchestration",
 "serviceType": "SOA_SERVICE",
 "serviceTemplateTypeId": "24"
},
{
 "name": "MW_WLAAS_EXECUTABLE_CREATE",
 "displayName": "WebLogic Service - Physical",
```

```

"serviceType": "WLAAS",
"serviceTemplateTypeId": "28"
},
{
 "name": "MW_OSBAAS_CREATE_INSTANCE",
 "displayName": "OSBaaS Orchestration",
 "serviceType": "OSB_SERVICE",
 "serviceTemplateTypeId": "21"
},
{
 "name": "DB",
 "displayName": "DbaaS Create Executable",
 "serviceType": "DB",
 "serviceTemplateTypeId": "41"
},
{
 "name": "PDB",
 "displayName": "PdbaaS Create Executable",
 "serviceType": "PDB",
 "serviceTemplateTypeId": "54"
},
{
 "name": "ORACLE_NIMBULA_CREATE_SIMPLE_ORCHESTRATION_EXECUTABLE",
 "displayName": "Simple Orchestration Custom Service Template",
 "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
 "serviceTemplateTypeId": "3"
},
{
 "name": "ORACLE_NIMBULA_CREATE_ORCHESTRATION_EXECUTABLE",
 "displayName": "Orchestration Custom Service Template",
 "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
 "serviceTemplateTypeId": "1"
},
{
 "name": "ORACLE_NIMBULA_CREATE_VIRTUAL_MACHINE_EXECUTABLE",
 "displayName": "ORACLE_NIMBULA_CREATE_VIRTUAL_MACHINE_EXECUTABLE",
 "serviceType": "ORACLE_NIMBULA_VIRTUAL_MACHINE_SERVICE",
 "serviceTemplateTypeId": "11"
}
}
]

```

### 51.5.2.3 Viewing the Metadata Required for Creating a Service Template

A POST operation is issued to view the metadata required for creating a Service Template.

**Table 51–49 POST Request Configuration for Viewing the Metadata Required for Creating a Service Template**

| Feature         | Specification                                                                      |
|-----------------|------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/se<br>rvicetemplates/metadata |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json    |
| Body            | {<br>"serviceType": "WLAAS",<br>"serviceTemplateTypeId": "28"<br>}                 |

**Table 51–49 (Cont.) POST Request Configuration for Viewing the Metadata Required for Creating a Service Template**

| Feature        | Specification |
|----------------|---------------|
| Request method | POST          |

A sample of the response received is shown below.

```
{
 "serviceType": "WLAAS",
 "serviceTemplateTypeId": "28",
 "rscProvAssocOption": [
 "byRscLookupChars"
],
 "selectedExecutableName": {
 "name": "MW_WLAAS_EXECUTABLE_CREATE",
 "type": "STRING",
 "value": "MwaaS_Setup_Domain_Deploy_App",
 "defaultValue": "MwaaS_Setup_Domain_Deploy_App",
 "required": true,
 "secret": false
 },
 "payloads": [
 {
 "name": "DEFAULT_PAYLOAD",
 "value": "<user_input>",
 "required": true
 }
],
 "characteristics": [
 {
 "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLEHA",
 "displayName": "Distribute WebLogic Servers on Available Hosts?",
 "values": [
 "No",
 "Yes"
],
 "required": false,
 "visible": true,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLELBR",
 "displayName": "Enable Load Balancer?",
 "values": [
 "No",
 "Yes"
],
 "required": false,
 "visible": true,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.EXPOSEADMINURLS",
 "displayName": "Expose WebLogic Admin Console and Fusion Middleware Control to SSA User?",
 "values": [
 "No",
 "Yes"
],
 }
]
}
```

```

"required": false,
"visible": true,
"editable": true
}
]
}

```

#### 51.5.2.4 Viewing the Resource Provider Characteristics Required for Creating a Service Template

A POST operation is issued to view the Resource Provider characteristics required for creating a Service Template.

**Table 51–50 POST Request Configuration for Viewing the Resource Provider Characteristics Required for Creating a Service Template**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/service templates/resourceproviders                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Body            | <pre> {   "serviceType": "WLAAS",   "serviceTemplateTypeId": "28",   "rscProvAssocOption": [     "byRscLookupChars"   ],   "payloads": [     {       "name": "DEFAULT_PAYLOAD",       "value": "test"     }   ],   "characteristics": [     {       "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLEHA",       "value": "Yes"     },     {       "name": "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.ENABLELBR",       "value": "Yes"     },     {       "name":         "EXAMPLE.SYSMAN.EMAS.MWC.WLAAS.EXPOSEADMINURLS",       "value": "Yes"     }   ] } </pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

A sample of the response received is shown below.

```

{
 "lookupCharacteristics": [
 {
 "characteristics": [
 {

```

```
"name": "EXAMPLE.SYSMAN.EMAS.MWAAS_ZONE",
"displayName": "example.sysman.emas.mwaas_zone",
"targetType": {
 "targetType": "mwaas_zone",
 "parentTargetType": "self_service_zone",
 "targetTypeName": "Middleware Pool",
 "parentTargetTypeName": "PaaS Infrastructure Zone"
}
},
"purposeId": 1
}
```

51.5.2.5 Viewing Configurations Required for Creating a Service Template

A POST operation is issued to view the configurations required for creating a Service Template.

**Table 51–51** POST Request Configuration for Viewing Configurations Required for Creating a Service Template

| Feature         | Specification                                                                        |
|-----------------|--------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json      |



**Table 51–51 (Cont.) POST Request Configuration for Viewing Configurations Required for Creating a Service Template**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "serviceType": "WLAAS",   "serviceTemplateTypeId": "28",   "rscProvAssocOption": [     "byRscLookupChars"   ],   "payloads": [     {       "name": "DEFAULT_PAYLOAD",       "value": "test"     }   ],   "characteristics": [     {       "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.ENABLEHA",       "value": "Yes"     },     {       "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.ENABLELBR",       "value": "Yes"     },     {       "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.EXPOSEADMINURLS",       "value": "Yes"     }   ],   "resourceprovider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.EMAS.MWAAS_ZONE",             "value": "425AA08582AD7AE95D52C24662867315"           }         ]       }     ],     "purposeId": 1   } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

A sample of the response received is shown below.

```
[
 {
 "name": "agentInstallUserPwd",
 "type": "STRING",
 "description": "Agent Install User Password to override",
 "required": false,
 "secret": true
 },
 {
 "name": "hostForResourceProvisioningScript",
 "type": "STRING",
```

```
"description": "Resource management script will be executed on this host.",
"required": false,
"secret": false
},
{
 "name": "portRangeStart",
 "type": "STRING",
 "description": "Lower Bound for choosing Free Ports",
 "required": false,
 "secret": false
},
{
 "name": "wlsUserPassword",
 "type": "STRING",
 "description": "Password for the WebLogic Server",
 "required": false,
 "secret": true
},
{
 "name": "rootPwd",
 "type": "STRING",
 "description": "Root Password to override",
 "required": false,
 "secret": true
},
{
 "name": "wlsUserName",
 "type": "STRING",
 "description": "Username for the WebLogic Server",
 "required": false,
 "secret": false
},
{
 "name": "wlsUserPassword2",
 "type": "STRING",
 "description": "Re-enter Password for the WebLogic Server",
 "required": false,
 "secret": true
},
{
 "name": "namedHostCredForVirtualFlow",
 "type": "STRING",
 "description": "Enter name of the host credential to use for provisioning
operations",
 "required": false,
 "secret": false
},
{
 "name": "startupArguments",
 "type": "STRING",
 "description": "Enter memory and java arguments to start the server. Example:
-Xms1280m -
Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m -
Dweblogic.security.SSL.ignoreHostnameVerification=true",
 "required": false,
 "secret": false
},
{
 "name": "namedCredforHostList",
 "type": "STRING",
```

```

"description": "This will be used for the above hosts",
"required": false,
"secret": false
},
{
"name": "serviceName",
"type": "STRING",
"description": "Service Instance Name",
"required": true,
"secret": true
},
{
"name": "cpuUsagePerInstance",
"type": "STRING",
"description": "CPU required by each additional instance in percentage",
"required": false,
"secret": false
},
{
"name": "portRangeEnd",
"type": "STRING",
"description": "Upper Bound for choosing Free Ports",
"required": false,
"secret": false
},
{
"name": "memoryUsagePerInstance",
"type": "STRING",
"description": "Memory required by each additional instance in GB",
"required": false,
"secret": false
},
{
"name": "hostListForScripts",
"type": "STRING",
"description": "Use ',' to separate multiple target hosts",
"required": false,
"secret": false
},
{
"name": "topology",
"type": "STRING",
"description": "For physical provisioning it is auto populated based on the
profile
selected. For virtual provisioning it is defaulted to 'Single Cluster'. Please
change based on the
actual topology of the assembly. ",
"required": false,
"secret": false
},
{
"name": "namedCredforRsrcProvHost",
"type": "STRING",
"description": "Enter the EM Named Credentials to be used for the above host in
the \"Host
for Executing Resource Management Script\" field.",
"required": false,
"secret": false
},
{

```

```
"name": "isScriptExecuteOnAdminServer",
"type": "STRING",
"description": "Choose 'Yes' to execute scripts on Admin Server host besides the
hosts
entered above",
"required": false,
"secret": false
}
]
```

### 51.5.2.6 Creating a Service Template

A POST operation is issued to create a Service template.

**Table 51–52** *POST Request Configuration for Creating a Service Template*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/se<br>rvicetemplates       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 51–52 (Cont.) POST Request Configuration for Creating a Service Template**

| Feature | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "SampleXaaS Template",   "description": "XaaS template",   "serviceType": "CFW_SAMPLEXAAS_SERVICE",   "serviceTemplateTypeId": "82",   "rscProvAssocOption": [     "byRscLookupChars"   ],   "roles": [     "SSA01",     "SSA02",     "SSA03",     "SSA04",     "SSA05"   ],   "characteristics": [     {       "name": "ORACLE.SYSMAN.SAMPLEXAAS.SAMPLEINSTANCETYPE",       "values": [         "Cfw_XaaS_DB_Service"       ]     },     {       "name": "ORACLE.SYSMAN.SAMPLEXAAS.STORAGE_OP_BW",       "values": [         "10"       ]     }   ],   "resourceproviders": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.SAMPLEXAAS.STORAGETYPE",             "displayName": "storage_type",             "value": "db"           }         ]       }     ],     "purposeId": 1   },   "configurations": [     {       "name": "service_instance_name",       "value": "xaas_inst_name"     },     {       "name": "service_type",       "value": "CFW_SAMPLEXAAS_SERVICE"     },     {       "name": "service_param2",       "value": "p2"     },     {       "name": "service_param1",       "value": "p1"     },     {       "name": "storage_type", </pre> |

**Table 51–52 (Cont.) POST Request Configuration for Creating a Service Template**

| Feature        | Specification |
|----------------|---------------|
| Request method | POST          |

A sample of the response received is shown below.

```
Status 200 OK
{
 "message": "Service template with id \"0780653DF4C64F83E053CE74B10ABD91\" created
successfully."
}
```

#### 51.5.2.7 Updating a Service Template

A PUT operation is issued to update a Service template.

**Table 51–53 PUT Request Configuration for Updating a Service Template**

| Feature         | Specification                                                                             |
|-----------------|-------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json           |

**Table 51–53 (Cont.) PUT Request Configuration for Updating a Service Template**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "displayName": "updatedDisplayName",   "description": "updated via API",   "rolesToAdd": [     "SSA04",     "SSA05",     "SSA06",   ],   "rolesToRemove": [     "SSA01",     "SSA02",     "SSA03",   ],   "configurations": [     {       "name": "service_instance_name",       "value": "inst_name_\${tstmp}"     },     {       "name": "service_type",       "value": "CFW_SAMPLEXAAS_SERVICE"     },     {       "name": "service_param2",       "value": "sp2_up"     },     {       "name": "service_param1",       "value": "sp1_up"     },     {       "name": "storage_type",       "value": "file_up"     }   ] }</pre> |
| Request method | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

A sample of the response received is shown below.

```
Status 200 OK
{
 "message": " Service template with id "1" updated successfully."
}
```

### 51.5.2.8 Viewing Details of a Specific Service Template

A GET operation is issued to view details of a specific Service Template.

**Table 51–54 GET Request Configuration for Viewing Details of a Specific Service Template**

| Feature | Specification                                                                              |
|---------|--------------------------------------------------------------------------------------------|
| URI     | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/service templates/{servicetemplateid} |

**Table 51–54 (Cont.) GET Request Configuration for Viewing Details of a Specific Service Template**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "id": "63",
 "guid": "0780653DF4C94F83E053CE74B10ABD91",
 "name": "SampleXaas Template",
 "displayName": "SampleXaas Template",
 "description": "Xaas template",
 "serviceType": "CFW_SAMPLEXAAS_SERVICE",
 "serviceTemplateTypeId": "82",
 "createdOn": "2014-11-10T16:52:18Z",
 "createdBy": "SYSMAN",
 "modifiedOn": "2014-11-10T16:52:18Z",
 "owner": "SYSMAN",
 "lastModified": "2014-11-10T16:52:18Z",
 "characteristics": [
 {
 "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_CONTACT",
 "displayName": "Contact",
 "values": [],
 "required": false,
 "visible": false,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER",
 "displayName": "Cost Center",
 "values": [],
 "required": false,
 "visible": false,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT",
 "displayName": "Department",
 "values": [],
 "required": false,
 "visible": false,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.SAMPLEXAAS.SAMPLEINSTANCETYPE",
 "displayName": "Instance Type",
 "values": [
 "Cfw_Xaas_DB_Service"
],
 "required": true,
 "visible": true,
 "editable": false
 }
]
}
```



```

 },
 {
 "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS",
 "displayName": "Lifecycle Status",
 "values": [
 "Development",
 "MissionCritical",
 "Production",
 "Stage",
 "Test"
],
 "required": false,
 "visible": false,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS",
 "displayName": "Line of Business",
 "values": [],
 "required": false,
 "visible": false,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.CFW.ORCL_GTP_LOCATION",
 "displayName": "Location",
 "values": [],
 "required": false,
 "visible": false,
 "editable": true
 },
 {
 "name": "EXAMPLE.SYSMAN.SAMPLEXAAS.STORAGE_OP_BW",
 "displayName": "Operation Bandwidth",
 "values": [
 "10"
],
 "required": false,
 "visible": true,
 "editable": true
 }
],
 "resourceProvider": {
 "lookupCharacteristics": [
 {
 "characteristics": [
 {
 "name": "EXAMPLE.SYSMAN.SAMPLEXAAS.STORAGETYPE",
 "displayName": "storage_type",
 "values": [
 "db"
]
 }
]
 }
],
 "purposeId": 1
 }
},
"configurations": [
 {

```

```
"name": "service_instance_name",
"type": "STRING",
"description": "Specify Instance Name",
"value": "xaas_inst_name",
"required": true,
"secret": false
},
{
 "name": "service_type",
 "type": "STRING",
 "description": "Specify Service type",
 "value": "CFW_SAMPLEXAAS_SERVICE",
 "required": true,
 "secret": false
},
{
 "name": "service_param2",
 "type": "STRING",
 "description": "Service param 2",
 "value": "p2",
 "required": false,
 "secret": false
},
{
 "name": "service_param1",
 "type": "STRING",
 "description": "Service param 1",
 "value": "p1",
 "required": false,
 "secret": false
},
{
 "name": "storage_type",
 "type": "STRING",
 "description": "Specify Storage type",
 "value": "file",
 "required": true,
 "secret": false
}
],
"canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serv
 icetemplates/63"
},
"selfLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serv
 icetemplates/63"
}
}
```

#### 51.5.2.9 Viewing Configuration Details of a Specific Service Template

A GET operation is issued to view the configuration details of a specific Service Template.

**Table 51–55 GET Request Configuration for Viewing Configuration Details of a Specific Service Template**

| Feature         | Specification                                                                                                |
|-----------------|--------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/se<br>rvicetemplates/{servicetemplateid}/configurations |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                              |
| Body            | None                                                                                                         |
| Request method  | GET                                                                                                          |

A sample of the response received is shown below.

```
[
{
 "name": "service_instance_name",
 "type": "STRING",
 "description": "Specify Instance Name",
 "value": "xaas_inst_name",
 "required": true,
 "secret": false
},
{
 "name": "service_type",
 "type": "STRING",
 "description": "Specify Service type",
 "value": "CFW_SAMPLEXAAS_SERVICE",
 "required": true,
 "secret": false
},
{
 "name": "service_param2",
 "type": "STRING",
 "description": "Service param 2",
 "value": "p2",
 "required": false,
 "secret": false
},
{
 "name": "service_param1",
 "type": "STRING",
 "description": "Service param 1",
 "value": "p1",
 "required": false,
 "secret": false
},
{
 "name": "WorkLoads",
 "type": "VECTOR",
 "description": "WorkLoad Values",
 "required": false,
 "secret": false,
 "subvalues": [
 {
 "name": "Small",
 "type": "VECTOR",
 "description": "Configuration Values for Small WorkLoad",
 "required": false,
```

```
"secret": false,
"subvalues": [
 {
 "name": "DEPL_SIZE_IS_DEFAULT_KEY",
 "type": "STRING",
 "value": "Y",
 "required": false,
 "secret": false
 },
 {
 "name": "CPU",
 "type": "STRING",
 "value": "60",
 "required": false,
 "secret": false
 },
 {
 "name": "MEMORY",
 "type": "STRING",
 "value": "4048",
 "required": false,
 "secret": false
 },
 {
 "name": "STORAGE",
 "type": "STRING",
 "value": "500",
 "required": false,
 "secret": false
 },
 {
 "name": "XAAS_TEST",
 "type": "STRING",
 "value": "NONE",
 "required": false,
 "secret": false
 }
],
{
 "name": "Medium",
 "type": "VECTOR",
 "description": "Configuration Values for Medium WorkLoad",
 "required": false,
 "secret": false,
 "subvalues": [
 {
 "name": "DEPL_SIZE_IS_DEFAULT_KEY",
 "type": "STRING",
 "value": "N",
 "required": false,
 "secret": false
 },
 {
 "name": "CPU",
 "type": "STRING",
 "value": "80",
 "required": false,
 "secret": false
 },

```

```

{
 "name": "MEMORY",
 "type": "STRING",
 "value": "8088",
 "required": false,
 "secret": false
},
{
 "name": "STORAGE",
 "type": "STRING",
 "value": "750",
 "required": false,
 "secret": false
}
],
{
 "name": "Large",
 "type": "VECTOR",
 "description": "Configuration Values for Large WorkLoad",
 "required": false,
 "secret": false,
 "subvalues": [
 {
 "name": "DEPL_SIZE_IS_DEFAULT_KEY",
 "type": "STRING",
 "value": "Y",
 "required": false,
 "secret": false
 },
 {
 "name": "CPU",
 "type": "STRING",
 "value": "60",
 "required": false,
 "secret": false
 },
 {
 "name": "MEMORY",
 "type": "STRING",
 "value": "40448",
 "required": false,
 "secret": false
 },
 {
 "name": "STORAGE",
 "type": "STRING",
 "value": "500",
 "required": false,
 "secret": false
 }
]
},
{
 "name": "storage_type",
 "type": "STRING",
 "description": "Specify Storage type",
 "value": "file",

```

```
"required": true,
"secret": false
}
]
```

### 51.5.2.10 Deleting a Service Template

The DELETE request configuration is shown in the table below.

**Table 51–56 DELETE Request Configuration for Deleting a Service Template**

| Feature         | Specification                                                                             |
|-----------------|-------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/{servicetemplateid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json           |
| Body            | None                                                                                      |
| Request method  | DELETE                                                                                    |

A sample of the response received is shown below.

```
{
"message": "Service template with id \"62\" deleted successfully."
}
```

## 51.5.3 Creating a Service Template in V2

This section provides the procedure to create a Service Template using REST APIs.

Follow the steps below to create a Service Template:

1. Identify the Service Template type.

Perform a GET operation on the URI -

/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes/. See, [Section 51.5.2.2, "Viewing all the Service Template Types"](#).

The GET operation returns the list of Service Template types available to the Administrator. Note down the `serviceType` and `serviceTemplateTypeId` fields of the required Service Template.

2. Obtain the metadata for the selected Service Template type.

Perform a POST operation on the URI -

/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata, using the `serviceType` and `serviceTemplateTypeId` fields from the previous step. See, [Section 51.5.2.3, "Viewing the Metadata Required for Creating a Service Template"](#).

The POST operation returns a response containing information regarding service template characteristics and payloads. Note these fields as they are required to be set with values in the next step.

3. Obtain the resource provider characteristics for the selected Service Template type.

Perform a POST operation on the URI -

/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceproviders, by providing values for the metadata fields. See, [Section 51.5.2.4, "Viewing the Resource Provider Characteristics Required for](#)

### Creating a Service Template".

The POST operation returns a response with `resourceProvider` look up characteristics. Note the details.

4. Obtain configuration details for the selected Service Template type.

Perform a POST operation on the URI -

`/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations`, by providing a payload with values for all the fields collected so far. See, [Section 51.5.2.5, "Viewing Configurations Required for Creating a Service Template"](#).

The POST operation returns a response with a list of configurations for the Service Template. Note the details.

5. Create the Service Template.

Perform a POST operation on the URI -

`/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates`, by providing a payload with values for all the fields collected so far. See, [Section 51.5.2.6, "Creating a Service Template"](#).

The POST operation creates a Service Template with the configured values.

## 51.6 Service Types for V2

This section describes the Service Types for the v2 framework.

**Table 51–57 Service Types Resource Data Model**

| Field         | Type              | Description                                                                  | Occurs |
|---------------|-------------------|------------------------------------------------------------------------------|--------|
| name          | String            | Display name of the collection resource.                                     | 1      |
| type          | String            | Type of the collection resource.                                             | 1      |
| totalResults  | Integer           | Total count of items.                                                        | 1      |
| cfwItems      | List<ServiceType> | List of Service type.                                                        |        |
| canonicalLink | URI               | A GET against this URI refreshes the client representation of this resource. | 1      |
| selfLink      | URI               | Refers to the resource equivalent of the containing elements.                | 1      |

### 51.6.1 Service Types REST API Examples for V2

This sections describes the REST APIs for the Service Types resource.

#### 51.6.1.1 Viewing Details of the Service Types

The GET request configuration to view details of the Service Types resource.

**Table 51–58 GET Request Configuration for Viewing Details of the Service Types**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | <code>/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetypes</code>  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 51–58 (Cont.) GET Request Configuration for Viewing Details of the Service Types**

| Feature        | Specification |
|----------------|---------------|
| Body           | None          |
| Request method | GET           |

A sample of the response received is shown below.

```
{
 "name": "Service Types",
 "type": "Service Types Collection",
 "totalResults": 3,
 "cfwItems": [
 {
 "name": "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
 "displayName": "Cfw Sample RemoteServer XaaS",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "targetTypes": [
 "Cfw_Xaas_DB_Service"
]
 },
 {
 "name": "CFW_SAMPLEXAAS_SERVICE",
 "displayName": "Cfw Sample XaaS",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "targetTypes": [
 "Cfw_Xaas_DB_Service",
 "cfw_xaas_storage_service"
]
 },
 {
 "name": "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
 "displayName": "Cfw Sample XaaS - Other Service",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "targetTypes": [
 "Cfw_Xaas_DB_Service_for_nomem"
]
 }
],
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetypes"
 },
 "selfLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetypes"
 }
}
```

## 51.7 Service Requests for V2

This section describes the Service requests for the v2 framework.



**Table 51–59 Requests Collection Resource Data Model**

| Field         | Type                    | Description                                                                  | Occurs |
|---------------|-------------------------|------------------------------------------------------------------------------|--------|
| name          | String                  | Display name of the collection resource.                                     | 1      |
| type          | String                  | Type of the collection resource.                                             | 1      |
| hasMore       | Boolean                 | Indicates whether there are more elements in the collection.                 | 1      |
| count         | Integer                 | Number of elements returned.                                                 | 1      |
| cfwItems      | Collection<br><Request> | List of Request resources. In case no requests exist, then items are empty.  | 1      |
| totalResults  | Integer                 | Total number of Requests.                                                    | 1      |
| canonicalLink | URI                     | A GET against this URI refreshes the client representation of this resource. | 1      |
| selfLink      | URI                     | Refers to the resource equivalent of the containing elements.                | 1      |

### 51.7.1 Supported Operations

The table below provides the operations supported on the Service request resource.

**Table 51–60 Supported Methods for Service Request**

| Request Method | Canonical Link                                                                          | Description                                     |
|----------------|-----------------------------------------------------------------------------------------|-------------------------------------------------|
| GET            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests                    | Returns list of all Service Requests.           |
| GET            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/{servicerequests}  | Returns details of a specified Service Request. |
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/{servicerequestid} | Reschedules the specified Service Request.      |
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests                    | Cleans a collection of requests.                |
| DELETE         | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/{servicerequestid} | Cancels the specified Service Request.          |
| DELETE         | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests                    | Deletes a list of Service Requests.             |

### 51.7.2 Service Requests REST API Examples for V2

This sections describes the REST APIs for the Service requests resource. The following operations are explained:

- [Viewing Details of all the Service Requests](#)
- [Viewing Details of a Service Request](#)

- [Rescheduling a Service Request](#)
- [Clearing a Collection of Service Requests](#)
- [Cancelling a Service Request](#)
- [Deleting a List of Service Requests](#)

### 51.7.2.1 Viewing Details of all the Service Requests

A GET operation is issued to view details of all the Service requests.

**Table 51–61** *GET Request Configuration for Viewing Details of All the Service Requests*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
Status 200 OK
{
 name: "Service Requests"
 type: "Service Request"
 hasMore: false
 count: 1
 cfwItems: [
 {
 name: "Request1_21-Dec-13 17:37:34"
 id: 27
 startDate: "2013-12-22T01:37:34'Z'PDT"
 status: "SCHEDULED"
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicereques
 ts/27"
 }]
 totalCount: 1
 canonicalLink: {
 href:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicereques
 ts"
 }
 selfLink: {
 ref:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicereques
 ts"
 }}
}
```

### 51.7.2.2 Viewing Details of a Service Request

A GET operation is issued to view details of a Service request.

**Table 51–62 GET Request Configuration for Viewing Details of a Service Request**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/27         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
Status 200 OK
{
 id: "27"
 name: "Request1_21-Dec-13 17:37:34"
 startDate: "2013-12-22T01:37:34'Z'PDT"
 status: "SUCCESS"
 serviceFamily: "CFW_SAMPLEXAAS_SERVICEFAMILY"
 canonicalLink:
 {
 href:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/27"
 }
}
```

### 51.7.2.3 Rescheduling a Service Request

A PUT operation is issued to reschedule a Service request.

**Table 51–63 PUT Request Configuration for Rescheduling a Service Request**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicerequests/27         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | {<br>"startDate": "2014-01-19T08:06:39ZPDT"<br>}                                |
| Request method  | PUT                                                                             |

A sample of the response received is shown below.

```
Status 200 OK
{
 "message": "Request 27 rescheduled successfully"
}
```

### 51.7.2.4 Clearing a Collection of Service Requests

A PUT operation is issued to clear a collection of Service requests.

**Table 51–64 PUT Request Configuration for Clearing a Collection of Service Requests**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/se<br>rvicerequests/       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | {<br>"action": "cleanup",<br>"ids": [<br>"22,23"<br>]<br>}                      |
| Request method  | PUT                                                                             |

### 51.7.2.5 Cancelling a Service Request

A DELETE operation is issued to cancel a Service request.

**Table 51–65 DELETE Request Configuration for Cancelling a Service Request**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/se<br>rvicerequests/27     |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | DELETE                                                                          |

A sample of the response received is shown below.

```
Status 200 OK
{
 "message": "Request 27 cancelled successfully"
}
```

### 51.7.2.6 Deleting a List of Service Requests

A DELETE operation is issued to clear a list of Service requests.

**Table 51–66 DELETE Request Configuration for Clearing Service Requests**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/se<br>rvicerequests        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | {<br>"ids": [<br>"2",<br>"4"<br>]<br>}                                          |

**Table 51–66 (Cont.) DELETE Request Configuration for Clearing Service Requests**

| Feature        | Specification |
|----------------|---------------|
| Request method | DELETE        |

A sample of the response received is shown below.

```
{
 "message": "[\"Request 32 deleted successfully\", \"Request 31 deleted
successfully\", \"Request
30 deleted successfully\"]"
}
```

## 51.8 Service Instances for V2

Service instance is a collection resource representing a user's view of all the accessible service instances.

The table below depicts the Service instance data model.

**Table 51–67 Service Instances Data Model**

| Field         | Type                             | Description                                                                                        | Occurs |
|---------------|----------------------------------|----------------------------------------------------------------------------------------------------|--------|
| name          | String                           | Display name of the collection resource.                                                           | 1      |
| type          | String                           | Type of the collection resource.                                                                   | 1      |
| hasMore       | Boolean                          | Indicates whether there are more elements in the collection.                                       | 1      |
| count         | Integer                          | Number of elements returned.                                                                       | 1      |
| cfwItems      | Collection<br><ServiceInstances> | List of Service instance resources. In case no Service instances exists, then the items are empty. | 1      |
| totalResults  | Integer                          | Total number of Service instances.                                                                 | 1      |
| canonicalLink | URI                              | A GET against this URI refreshes the client representation of this resource.                       | 1      |
| selfLink      | URI                              | Refers to the resource equivalent of the containing elements.                                      | 1      |

### 51.8.1 Supported Operations

The table below provides the operations supported on the Service Instance resource.

**Table 51–68 Supported Methods for Service Instance**

| Request Method | Canonical Link                                                                            | Description                                        |
|----------------|-------------------------------------------------------------------------------------------|----------------------------------------------------|
| GET            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances                     | Returns all the Service Instances.                 |
| GET            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{serviceinstanceid} | Returns details of the specified Service Instance. |

**Table 51–68 (Cont.) Supported Methods for Service Instance**

| Request Method | Canonical Link                                                                              | Description                             |
|----------------|---------------------------------------------------------------------------------------------|-----------------------------------------|
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/start  | Starts the specified Service Instance.  |
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/stop   | Stops the specified Service Instance.   |
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/delete | Deletes the specified Service Instance. |
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/start                 | Starts the list of Service Instances.   |
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/stop                  | Stops the list of Service Instances.    |
| PUT            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/delete                | Deletes the list of Service Instances.  |

## 51.8.2 Service Instance REST API Examples for V2

This section describes the REST APIs for the Service instance resource. The following operations are explained:

- [Viewing Details of all the Service Instances](#)
- [Viewing Details of a Service Instance](#)
- [Starting a Service Instance](#)
- [Stopping a Service Instance](#)
- [Deleting a Service Instance](#)
- [Starting a list of Service Instances](#)
- [Stopping a list of Service Instances](#)
- [Deleting a list of Service Instances](#)

### 51.8.2.1 Viewing Details of all the Service Instances

A GET operation is issued to view details of all the Service instances.

**Table 51–69 GET Request Configuration for Viewing Details of All the Service Instances**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |

**Table 51–69 (Cont.) GET Request Configuration for Viewing Details of All the Service**

| Feature        | Specification |
|----------------|---------------|
| Request method | GET           |

A sample of the response received is shown below.

```
{
 selfLink:
 {
 href: "em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances"
 }
 CfwItems: [1]
 0: {
 guid: "92EB43C3F773F3DF3973C1005C54DC43"
 status: "SUCCESS"
 serviceType: "CFW_SAMPLEXAAS_SERVICE"
 serviceFamily: "CFW_SAMPLEXAAS_SERVICEFAMILY"
 name: "dfgdfddd"
 canonicalLink: {
 href:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/92EB43C3F773F3DF3973C1005C54DC43"
 rel: "Canonical"
 templated: false
 }
 hasMore: false
 totalResults: 9
 }
}
```

### 51.8.2.2 Viewing Details of a Service Instance

A GET operation is issued to view details of a Service instance.

**Table 51–70 GET Request Configuration for Viewing Details of a Service Instance**

| Feature         | Specification                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/92EB43C3F773F3DF3973C1005C54DC43 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                        |
| Body            | None                                                                                                   |
| Request method  | GET                                                                                                    |

A sample of the response received is shown below.

```
Status 200 OK
{
 guid: "92EB43C3F773F3DF3973C1005C54DC43"
 serviceType: "CFW_SAMPLEXAAS_SERVICE"
 serviceFamily: "CFW_SAMPLEXAAS_SERVICEFAMILY"
 name: "dfgdfddd"
 canonicalLink: {
 href:
 "em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/92EB43C3F773F3DF3973C1005C54DC43"
 }
}
```

```
}
```

### 51.8.2.3 Starting a Service Instance

A PUT operation is issued to start a Service instance.

**Table 51–71 PUT Request Configuration for Starting a Service Instance**

| Feature         | Specification                                                                              |
|-----------------|--------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/start |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json            |
| Body            | None                                                                                       |
| Request method  | PUT                                                                                        |

A sample of the response received is shown below.

```
[
 "Request submitted with Request ID : 43"
]
```

### 51.8.2.4 Stopping a Service Instance

A PUT operation is issued to stop a Service instance.

**Table 51–72 PUT Request Configuration for Stopping a Service Instance**

| Feature         | Specification                                                                             |
|-----------------|-------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/stop |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json           |
| Body            | None                                                                                      |
| Request method  | PUT                                                                                       |

A sample of the response received is shown below.

```
[
 "Request submitted with Request ID : 44"
]
```

### 51.8.2.5 Deleting a Service Instance

A PUT operation is issued to delete a Service instance.

**Table 51–73 PUT Request Configuration for Deleting a Service Instance**

| Feature         | Specification                                                                               |
|-----------------|---------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/{instanceguid}/delete |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json             |
| Body            | None                                                                                        |



**Table 51–73 (Cont.) PUT Request Configuration for Deleting a Service Instance**

| Feature        | Specification |
|----------------|---------------|
| Request method | PUT           |

A sample of the response received is shown below.

```
[
 "Request submitted with Request ID : 45"
]
```

### 51.8.2.6 Starting a list of Service Instances

A PUT operation is issued to start a list of Service instances.

**Table 51–74 PUT Request Configuration for Starting a list of Service Instances**

| Feature         | Specification                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/start                                                                                      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                  |
| Body            | {       "ids": [         "20E46B615DC70027F76A86FEDAC06D17",         "8EAF6A882337F154A1B6D890AF00999B",         "637B0CE930E36BE5EFF306BE3E57EFA"       ]     } |
| Request method  | PUT                                                                                                                                                              |

A sample of the response received is shown below.

```
[
 "Request submitted with Request ID : 34",
 "Request submitted with Request ID : 35",
 "Request submitted with Request ID : 36"
]
```

### 51.8.2.7 Stopping a list of Service Instances

A PUT operation is issued to stop a list of Service instances.

**Table 51–75 PUT Request Configuration for Stopping a list of Service Instances**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/stop      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 51–75 (Cont.) PUT Request Configuration for Stopping a list of Service Instances**

| Feature        | Specification                                                                                                                                        |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "ids": [     "20E46B615DC70027F76A86FEDAC06D17",     "8EAF6A882337F154A1B6D890AF00999B",     "637B0CE930E36BE5EFFF306BE3E57EFA"   ] }</pre> |
| Request method | PUT                                                                                                                                                  |

A sample of the response received is shown below.

```
[
 "Request submitted with Request ID : 37",
 "Request submitted with Request ID : 38",
 "Request submitted with Request ID : 39"
]
```

### 51.8.2.8 Deleting a list of Service Instances

A PUT operation is issued to delete a list of Service instances.

**Table 51–76 PUT Request Configuration for Deleting a Service Instance**

| Feature         | Specification                                                                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/serviceinstances/delete                                                                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                      |
| Body            | <pre>{   "ids": [     "20E46B615DC70027F76A86FEDAC06D17",     "8EAF6A882337F154A1B6D890AF00999B",     "637B0CE930E36BE5EFFF306BE3E57EFA"   ] }</pre> |
| Request method  | PUT                                                                                                                                                  |

A sample of the response received is shown below.

```
[
 "Request submitted with Request ID : 40",
 "Request submitted with Request ID : 41",
 "Request submitted with Request ID : 42"
]
```

## 51.9 Request Settings for V2

Settings are to be applied by an SSA administrator, and can be used for request processing. Settings are categorized as follows:

- Global settings - These are the general settings that are applicable across all service types.
- Service family settings - These settings are specific to a service family.

- Service type settings - These settings are specific to a service type.

### 51.9.1 Request Settings Data Model

The table below shows the Request Settings data model.

**Table 51–77 Request Settings Data Model**

| Field                | Type            | Description                                                                  | Occurs |
|----------------------|-----------------|------------------------------------------------------------------------------|--------|
| requestSettings      | RequestSettings | Request settings applicable across all service types.                        | 1      |
| swLibDefaultLocation | String          | Default location for the software library.                                   | 1      |
| canonicalLink        | URI             | A GET against this URI refreshes the client representation of this resource. | 1      |
| selfLink             | URI             | Refers to the resource equivalent of the containing elements.                | 1      |

### 51.9.2 Request Settings Composite Attribute Data Model

The table below shows the Request settings composite attribute data model.

**Table 51–78 Request Settings Composite Attribute Data Model**

| Field                   | Type          | Description                                                                                                                  | Occurs |
|-------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------|--------|
| futureReservationPolicy | RequestPolicy | The number of days, when a Self Service user can schedule a request in advance.                                              | 1      |
| requestDurationPolicy   | RequestPolicy | The maximum duration of time (in days) during which a Self Service user can retain a service instance.                       | 1      |
| RequestArchivePolicy    | RequestPolicy | The duration of time (in days) after which the "Completed", Self Service create requests will be purged from the repository. | 1      |

### 51.9.3 Request Settings REST API Examples for V2

This sections describes the REST APIs for the Request settings resource. The following operations are explained:

- [Viewing Details of the Global Request Settings](#)
- [Updating the Global Request Settings](#)
- [Viewing Details of the Global Request Settings for a Collection of Roles](#)
- [Creating Global Request Settings for a Role](#)
- [Viewing Details of Global Request Settings for a Specific Role](#)
- [Updating Global Request Settings for a Specific Role](#)
- [Deleting Global Request Settings for a Specific Role](#)
- [Viewing Details of the Request Settings for a Service Family](#)
- [Updating the Request Settings for a Service Family](#)
- [Viewing Details of the Service Family Settings by Roles](#)
- [Creating Service Family Settings for a Role](#)

- [Viewing Details of the Service Family Request Settings for a Specific Role](#)
- [Updating the Service Family Request Settings for a Specific Role](#)
- [Deleting Service Family Request Settings for a Specific Role](#)
- [Viewing Details of the Request Settings for a Service Type](#)
- [Updating the Request Settings for a Service Type](#)
- [Viewing Details of the Service Type Settings by Roles](#)
- [Creating Service Type Settings for Roles](#)
- [Viewing Details of the Service Type Request Settings for a Specific Role](#)
- [Updating the Service Type Request Settings for a Specific Role](#)
- [Deleting Service Type Request Settings for a Specific Role](#)

### 51.9.3.1 Viewing Details of the Global Request Settings

A GET operation is issued to view details of the Global request settings resource.

**Table 51–79** *GET Request Configuration for Viewing Details of the Global Request Settings Resource*

| Feature         | Specification                                                                     |
|-----------------|-----------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json   |
| Body            | None                                                                              |
| Request method  | GET                                                                               |

A sample of the response received is shown below.

```
{
 "requestSettings": [
 {
 "description": "This setting controls how far a user can make a request",
 "displayName": "Future Reservation Length",
 "name": "FUTURE_RESERVATION_LENGTH",
 "restrictionPolicy": "No Restriction"
 },
 {
 "description": "This setting controls the maximum duration for which a user can
 make a
 request",
 "displayName": "Request duration Length",
 "name": "REQUEST_DURATION_LENGTH",
 "restrictionPolicy": "No Restriction"
 },
 {
 "description": "This setting controls the maximum duration after which archived
 requests
 will be automatically deleted by the system",
 "displayName": "Request Archive Retention Length",
 "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
 "restrictionPolicy": "No Restriction"
 }
],
}
```

```

{
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
 "value": "false"
},
{
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
 "value": "false"
}
]
}

```

### 51.9.3.2 Updating the Global Request Settings

A PUT operation is issued to update the Global request settings resource.

**Table 51–80 PUT Request Configuration for Updating the Global Request Settings Resource**

| Feature         | Specification                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global                                                     |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                       |
| Body            | {<br>"name": "FUTURE_RESERVATION_LENGTH",<br>"restrictionPolicy": "Restricted",<br>"unitOfMeasurement": "Weeks",<br>"value": "4"<br>} |
| Request method  | PUT                                                                                                                                   |

A sample of the response received is shown below.

```

{
 "message": "\"Global\" settings updated successfully."
}

```

### 51.9.3.3 Viewing Details of the Global Request Settings for a Collection of Roles

A GET operation is issued to view details of the Global request settings for a collection of roles.

**Table 51–81 GET Request Configuration for Viewing Details of the Global Request Settings for a Collection of Roles**

| Feature         | Specification                                                                           |
|-----------------|-----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json         |
| Body            | None                                                                                    |
| Request method  | GET                                                                                     |

A sample of the response received is shown below.

```
{
 "items": [
 {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setu
 p/requestsettings/
 global/roles/SSA01",
 "name": "SSA01"
 },
 {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setu
 p/requestsettings/
 global/roles/SSA05",
 "name": "SSA05"
 }
],
 "totalResults": 2
}
```

**51.9.3.4 Creating Global Request Settings for a Role**

A POST operation is issued to create Global request settings for a role.

**Table 51–82**    *POST Request Configuration for Creating Global Request Settings for a Role*

| Feature         | Specification                                                                           |
|-----------------|-----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json         |

**Table 51–82 (Cont.) POST Request Configuration for Creating Global Request Settings for a Role**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "SERVICE_INSTANCE_USER_SHARE_ALLOWED": {     "value": "true"   },   "requestSettings": [     {       "name": "REQUEST_DURATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Weeks",       "value": "4"     },     {       "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Hours",       "value": "23"     },     {       "name": "FUTURE_RESERVATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Days",       "value": "21"     }   ],   "role": "TVMCFW_R1" }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

A sample of the response received is shown below.

```
{
 "message": "\"Global role \" settings created successfully."
}
```

### 51.9.3.5 Viewing Details of Global Request Settings for a Specific Role

A GET operation is issued to view details of Global request settings for a specific role.

**Table 51–83 GET Request Configuration for Viewing Details of Global Request Settings for a Specific Role**

| Feature         | Specification                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles/{role} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                |
| Body            | None                                                                                           |
| Request method  | GET                                                                                            |

A sample of the response received is shown below.

```
{
 "requestSettings": [
```

```

{
 "description": "This setting controls how far a user can make a request",
 "displayName": "Future Reservation Length",
 "name": "FUTURE_RESERVATION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R1",
 "unitOfMeasurement": "Days",
 "value": "21"
},
{
 "description": "This setting controls the maximum duration for which a user can
 make a
 request",
 "displayName": "Request duration Length",
 "name": "REQUEST_DURATION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R1",
 "unitOfMeasurement": "Weeks",
 "value": "4"
},
{
 "description": "This setting controls the maximum duration after which archived
 requests
 will be automatically deleted by the system",
 "displayName": "Request Archive Retention Length",
 "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R1",
 "unitOfMeasurement": "Hours",
 "value": "23"
},
{
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
 "value": "true"
},
{
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
 "value": "true"
}
]
}

```

### 51.9.3.6 Updating Global Request Settings for a Specific Role

A PUT operation is issued to update the Global request settings for a specific role.

**Table 51–84 PUT Request Configuration for Updating Global Request Settings for a Specific Role**

| Feature         | Specification                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles/{role} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                |



**Table 51–84 (Cont.) PUT Request Configuration for Updating Global Request Settings for a Specific Role**

| Feature        | Specification                                                                                                                          |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Body           | {<br>"name": "FUTURE_RESERVATION_LENGTH",<br>"restrictionPolicy": "Restricted",<br>"unitOfMeasurement": "Years",<br>"value": "75"<br>} |
| Request method | PUT                                                                                                                                    |

A sample of the response received is shown below.

```
{
 "message": "\"Global role \" settings updated successfully."
}
```

### 51.9.3.7 Deleting Global Request Settings for a Specific Role

A DELETE operation is issued to delete Global request settings for a specific role.

**Table 51–85 DELETE Request Configuration for Deleting Global Request Settings for a Specific Role**

| Feature         | Specification                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/global/roles/{role} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                |
| Body            | None                                                                                           |
| Request method  | DELETE                                                                                         |

A sample of the response received is shown below.

```
{
 "message": "\"Global role \" settings deleted successfully."
}
```

### 51.9.3.8 Viewing Details of the Request Settings for a Service Family

A GET operation is issued to view details of the Request Settings for a service family.

**Table 51–86 GET Request Configuration for Viewing Details of the Request Settings for a Service Family**

| Feature         | Specification                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                          |
| Body            | None                                                                                                     |
| Request method  | GET                                                                                                      |

A sample of the response received is shown below.

```
{
 "requestSettings": [
 {
 "description": "This setting controls how far a user can make a request",
 "displayName": "Future Reservation Length",
 "family": "cfw_samplexaas_servicefamily",
 "name": "FUTURE_RESERVATION_LENGTH",
 "restrictionPolicy": "Restricted",
 "unitOfMeasurement": "Days",
 "value": "25"
 },
 {
 "description": "This setting controls if there is a restriction on the maximum
 duration
 for which requests can be made",
 "displayName": "Request Duration Restricted",
 "family": "cfw_samplexaas_servicefamily",
 "name": "REQUEST_DURATION_LENGTH",
 "restrictionPolicy": "No Restriction"
 },
 {
 "description": "This setting controls if there is a restriction on the maximum
 duration
 after which archived requests will be automatically deleted by the system",
 "displayName": "Request Archive Retention Restricted",
 "family": "cfw_samplexaas_servicefamily",
 "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
 "restrictionPolicy": "No Restriction"
 },
 {
 "displayName": "Service Instance Sharing With Users Restricted",
 "family": "cfw_samplexaas_servicefamily",
 "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
 "value": "false"
 },
 {
 "displayName": "Service Instance Sharing With Roles Restricted",
 "family": "cfw_samplexaas_servicefamily",
 "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
 "value": "false"
 }
]
}
```

### 51.9.3.9 Updating the Request Settings for a Service Family

A PUT operation is issued to update the Request Settings for a Service family.

**Table 51–87** PUT Request Configuration for Updating the Request Settings for a Service Family

| Feature         | Specification                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                          |

**Table 51–87 (Cont.) PUT Request Configuration for Updating the Request Settings for a Service Family**

| Feature        | Specification                                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "FUTURE_RESERVATION_LENGTH",   "restrictionPolicy": "Restricted",   "unitOfMeasurement": "Weeks",   "value": "4" }</pre> |
| Request method | PUT                                                                                                                                       |

A sample of the response received is shown below.

```
{
 "message": "\"Family \" settings updated successfully."
}
```

### 51.9.3.10 Viewing Details of the Service Family Settings by Roles

A GET operation is issued to view details of the Service family settings by roles.

**Table 51–88 GET Request Configuration for Viewing Details of the Service Family Settings by Roles**

| Feature         | Specification                                                                                                  |
|-----------------|----------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                |
| Body            | None                                                                                                           |
| Request method  | GET                                                                                                            |

A sample of the response received is shown below.

```
{
 "items": [
 {
 "href":
 "https://xx.idc.example.com:34518/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/cfw_samplexaas_servicefamily/roles/TVMCFW_R2",
 "name": "TVMCFW_R2"
 }
],
 "totalResults": 1
}
```

### 51.9.3.11 Creating Service Family Settings for a Role

A POST operation is issued to create Service family settings for a role.

**Table 51–89 POST Request Configuration for Creating Service Family Settings for a Role**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Body            | <pre>{   "SERVICE_INSTANCE_USER_SHARE_ALLOWED": {     "value": "true"   },   "requestSettings": [     {       "name": "REQUEST_DURATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Weeks",       "value": "14"     },     {       "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Hours",       "value": "123"     },     {       "name": "FUTURE_RESERVATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Days",       "value": "121"     }   ],   "role": "TVMCFW_R2" }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

A sample of the response received is shown below.

```
{
 "message": "\"Family role \" settings created successfully."
}
```

### 51.9.3.12 Viewing Details of the Service Family Request Settings for a Specific Role

A GET operation is issued to view details of the Service family request settings for a specific role.

**Table 51–90 GET Request Configuration for Viewing Details of the Service Family Request Settings for a Specific Role**

| Feature         | Specification                                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles/{role} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                       |

**Table 51–90 (Cont.) GET Request Configuration for Viewing Details of the Service Family Request Settings for a Specific Role**

| Feature        | Specification |
|----------------|---------------|
| Body           | None          |
| Request method | GET           |

A sample of the response received is shown below.

```
{
 "requestSettings": [
 {
 "description": "This setting controls how far a user can make a request",
 "displayName": "Future Reservation Length",
 "family": "cfw_samplexaas_servicefamily",
 "name": "FUTURE_RESERVATION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R2",
 "unitOfMeasurement": "Days",
 "value": "121"
 },
 {
 "description": "This setting controls the maximum duration for which a user can
 make a
 request",
 "displayName": "Request duration Length",
 "family": "cfw_samplexaas_servicefamily",
 "name": "REQUEST_DURATION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R2",
 "unitOfMeasurement": "Weeks",
 "value": "14"
 },
 {
 "description": "This setting controls the maximum duration after which archived
 requests
 will be automatically deleted by the system",
 "displayName": "Request Archive Retention Length",
 "family": "cfw_samplexaas_servicefamily",
 "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R2",
 "unitOfMeasurement": "Hours",
 "value": "123"
 },
 {
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
 "value": "false"
 },
 {
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
 "value": "false"
 }
]
}
```

### 51.9.3.13 Updating the Service Family Request Settings for a Specific Role

A PUT operation is issued to update the Service family request settings for a specific role.

**Table 51–91 PUT Request Configuration for Updating the Service Family Request Settings for a Specific Role**

| Feature         | Specification                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles/{role}                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                        |
| Body            | {<br>"name": "FUTURE_RESERVATION_LENGTH",<br>"restrictionPolicy": "Restricted",<br>"unitOfMeasurement": "Years",<br>"value": "75"<br>} |
| Request method  | PUT                                                                                                                                    |

A sample of the response received is shown below.

```
{
 "message": "\"Family role\" settings updated successfully."
}
```

### 51.9.3.14 Deleting Service Family Request Settings for a Specific Role

A DELETE operation is issued to delete Service family request settings for a specific role.

**Table 51–92 DELETE Request Configuration for Deleting Service Family Request Settings for a Specific Role**

| Feature         | Specification                                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicefamily/{servicefamily}/roles/{role} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                       |
| Body            | None                                                                                                                  |
| Request method  | DELETE                                                                                                                |

A sample of the response received is shown below.

```
{
 "message": "\"Family role \" settings deleted successfully."
}
```

### 51.9.3.15 Viewing Details of the Request Settings for a Service Type

A GET operation is issued to view details of the Request settings for a service type.

**Table 51–93** *GET Request Configuration for Viewing Details of the Request Settings for a Service Type*

| Feature         | Specification                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                      |
| Body            | None                                                                                                 |
| Request method  | GET                                                                                                  |

A sample of the response received is shown below.

```
{
 "requestSettings": [
 {
 "description": "This setting controls if there is a restriction on how far a user
 can
 make a request",
 "displayName": "Future Reservation Restricted",
 "name": "FUTURE_RESERVATION_LENGTH",
 "restrictionPolicy": "No Restriction",
 "serviceType": "cfw_samplexaas_service"
 },
 {
 "description": "This setting controls if there is a restriction on the maximum
 duration
 for which requests can be made",
 "displayName": "Request Duration Restricted",
 "name": "REQUEST_DURATION_LENGTH",
 "restrictionPolicy": "No Restriction",
 "serviceType": "cfw_samplexaas_service"
 },
 {
 "description": "This setting controls if there is a restriction on the maximum
 duration
 after which archived requests will be automatically deleted by the system",
 "displayName": "Request Archive Retention Restricted",
 "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
 "restrictionPolicy": "No Restriction",
 "serviceType": "cfw_samplexaas_service"
 },
 {
 "displayName": "Service Instance Sharing With Users Restricted",
 "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
 "serviceType": "cfw_samplexaas_service",
 "value": "false"
 },
 {
 "displayName": "Service Instance Sharing With Roles Restricted",
 "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
 "serviceType": "cfw_samplexaas_service",
 "value": "false"
 }
]
}
```

### 51.9.3.16 Updating the Request Settings for a Service Type

A PUT operation is issued to update the Request settings for a service type.

**Table 51–94** PUT Request Configuration for Updating the Request Settings for a Service Type

| Feature         | Specification                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                       |
| Body            | {<br>"name": "FUTURE_RESERVATION_LENGTH",<br>"restrictionPolicy": "Restricted",<br>"unitOfMeasurement": "Weeks",<br>"value": "4"<br>} |
| Request method  | PUT                                                                                                                                   |

A sample of the response received is shown below.

```
{
 "message": "\"Servicetype \"" settings updated successfully."
}
```

### 51.9.3.17 Viewing Details of the Service Type Settings by Roles

A GET operation is issued to view details of the Service type settings by roles.

**Table 51–95** GET Request Configuration for Viewing Details of the Service Type Settings by Roles

| Feature         | Specification                                                                                              |
|-----------------|------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                            |
| Body            | None                                                                                                       |
| Request method  | GET                                                                                                        |

A sample of the response received is shown below.

```
{
 "items": [
 {
 "href":
 "https://xx.idc.example.com:34518/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/cfw_samplexaas_service/roles/TVMCFW_R3",
 "name": "TVMCFW_R3"
 }
],
 "totalResults": 1
}
```



### 51.9.3.18 Creating Service Type Settings for Roles

A POST operation is issued to create a Service type settings for roles.

**Table 51–96 POST Request Configuration for Creating Service Type Settings for Roles**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Body            | <pre>{   "SERVICE_INSTANCE_USER_SHARE_ALLOWED": {     "value": "true"   },   "requestSettings": [     {       "name": "REQUEST_DURATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Weeks",       "value": "14"     },     {       "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Hours",       "value": "123"     },     {       "name": "FUTURE_RESERVATION_LENGTH",       "restrictionPolicy": "Restricted",       "unitOfMeasurement": "Days",       "value": "121"     }   ],   "role": "TVMCFW_R3" }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

A sample of the response received is shown below.

```
{
 "message": "\"Servicetype role \" settings created successfully."
}
```

### 51.9.3.19 Viewing Details of the Service Type Request Settings for a Specific Role

A GET operation is issued to view details of the Service type request settings for a specific role.

**Table 51–97 GET Request Configuration for Viewing Details of the Service Type Request Settings for a Specific Role**

| Feature | Specification                                                                                                     |
|---------|-------------------------------------------------------------------------------------------------------------------|
| URI     | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles/{role} |

**Table 51–97 (Cont.) GET Request Configuration for Viewing Details of the Service Type Request Settings for a Specific Role**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "requestSettings": [
 {
 "description": "This setting controls how far a user can make a request",
 "displayName": "Future Reservation Length",
 "name": "FUTURE_RESERVATION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R3",
 "serviceType": "cfw_samplexaas_service",
 "unitOfMeasurement": "Days",
 "value": "121"
 },
 {
 "description": "This setting controls the maximum duration for which a user can
 make a
 request",
 "displayName": "Request duration Length",
 "name": "REQUEST_DURATION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R3",
 "serviceType": "cfw_samplexaas_service",
 "unitOfMeasurement": "Weeks",
 "value": "14"
 },
 {
 "description": "This setting controls the maximum duration after which archived
 requests
 will be automatically deleted by the system",
 "displayName": "Request Archive Retention Length",
 "name": "REQUEST_ARCHIVE_RETENTION_LENGTH",
 "restrictionPolicy": "Restricted",
 "role": "TVMCFW_R3",
 "serviceType": "cfw_samplexaas_service",
 "unitOfMeasurement": "Hours",
 "value": "123"
 },
 {
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_USER_SHARE_ALLOWED",
 "value": "false"
 },
 {
 "description": "Sharing enabled/disabled",
 "name": "SERVICE_INSTANCE_ROLE_SHARE_ALLOWED",
 "value": "false"
 }
]
}
```

```
}

```

### 51.9.3.20 Updating the Service Type Request Settings for a Specific Role

A PUT operation is issued to update the Service type request settings for a specific role.

**Table 51–98 PUT Request Configuration for Updating the Service Type Request Settings for a Specific Role**

| Feature         | Specification                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles/{role}                      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                        |
| Body            | {<br>"name": "FUTURE_RESERVATION_LENGTH",<br>"restrictionPolicy": "Restricted",<br>"unitOfMeasurement": "Years",<br>"value": "75"<br>} |
| Request method  | PUT                                                                                                                                    |

A sample of the response received is shown below.

```
{
 "message": "\"Servicetype role \" settings updated successfully."
}
```

### 51.9.3.21 Deleting Service Type Request Settings for a Specific Role

A DELETE operation is issued to delete Service type request settings for a specific role.

**Table 51–99 DELETE Request Configuration for Deleting Service Type Request Settings for a Specific Role**

| Feature         | Specification                                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/setup/requestsettings/servicetype/{servicetype}/roles/{role} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                   |
| Body            | None                                                                                                              |
| Request method  | DELETE                                                                                                            |

A sample of the response received is shown below.

```
{
 "message": "\"Servicetype role \" settings deleted successfully."
}
```

## 51.10 VM Adapters for V2

This section explains the VM Adapters REST APIs.

### 51.10.1 VM Adapters Data Model

The table below shows the VM Adapters data model.

**Table 51–100 VM Adapters Data Model**

| Field         | Type            | Description                                                                          |
|---------------|-----------------|--------------------------------------------------------------------------------------|
| name          | String          | Name of the resource.                                                                |
| type          | String          | Type of the resource.                                                                |
| totalResults  | int             | The total results.                                                                   |
| items         | List<VMAdapter> | The list of VM Adapters                                                              |
| canonicalLink | CfwLink         | A GET request against this URI refreshes the client representation of this resource. |
| selfLink      | CfwLink         | Refers to the resource equivalent to the containing elements.                        |

### 51.10.2 Supported Operations

The table below provides the operations supported on the VM Adapters resource.

**Table 51–101 Supported Methods for VM Adapters**

| Request Method | Canonical Link                                                                 | Description                                  |
|----------------|--------------------------------------------------------------------------------|----------------------------------------------|
| GET            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters                | Returns all the registered VM Adapters.      |
| GET            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/{name}         | Returns the registered VM Adapter's details. |
| GET            | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/stagingservers | Returns the staging servers.                 |
| POST           | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/stagingservers | Creates a staging server.                    |

### 51.10.3 VM Adapters REST API Examples for V2

This sections describes the REST APIs for the VM Adapter resource. The following operations are explained:

- [Viewing Details of All the Registered VM Adapters](#)
- [Viewing Details of a Specific Registered VM Adapter](#)
- [Viewing Details of the Staging Servers](#)
- [Creating a Staging Server](#)

#### 51.10.3.1 Viewing Details of All the Registered VM Adapters

A GET operation is issued to view details of all the registered VM Adapters.

**Table 51–102** *GET Request Configuration for Viewing Details of All the Registered VM Adapters*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{ "name": "VMAdapters",
 "type": "VMAdaptersCollection",
 "totalResults": 1,
 "items": [{ "id": "1",
 "name": "SAMPLEADAPTER",
 "displayName": "SampleAdapter",
 "description": "SampleStand alone adapter",
 "instances": { "count": 0,
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/?propertyname=adaptype&propertyvalue=SAMPLEADAPTER" },
 "canonicalLink": {
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/SAMPLEADAPTER" } }],
 "canonicalLink": {
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/" } }
```

### 51.10.3.2 Viewing Details of a Specific Registered VM Adapter

A GET operation is issued to view details of a registered VM Adapter.

**Table 51–103** *GET Request Configuration for Viewing Details of a Specific Registered VM Adapter*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/{name}          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{ "name": "SAMPLEADAPTER",
 "connection": { "endpoints": [{ "purpose": "login_url", "custom": [{ "name": "CloudType", "type": "STRING", "description": "CoudType, e.g. openstack, ec2, etc", "displayName": "CoudType", "required": false, "secret": false },
 { "name": "custom_param1", "type": "STRING", "description": "Custom parameter", "displayName": "Custom parameter", "required": false, "secret": false }] },
 "virtualizationContainers": [{ "name": "Zone" }] }, "proxies": [{}] }
```

### 51.10.3.3 Viewing Details of the Staging Servers

A GET operation is issued to view details of the staging servers.

**Table 51–104** GET Request Configuration for Viewing Details of the Staging Servers

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/stagingservers  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{ "name" : "StagingServers", "totalResults" : 1, "items" : [{ "location" :
"script/location", "targetName" : "blr2223141.idc.oracle.com",
"targetGuid" : "5BC2376B484BC065B6661458DAF1F56D", "credentialGuid" :
"25D30ADD427484310DBC8CF6211A383B" }],
"canonicalLink" : { "href" :
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmad
apters/stagingservers" }}
```

### 51.10.3.4 Creating a Staging Server

A POST operation is issued to create a staging server.

**Table 51–105** POST Request Configuration for Creating a Staging Server

| Feature         | Specification                                                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/vmadapters/stagingservers                                                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                             |
| Body            | { "targetName" : "blr2223141.idc.oracle.com",<br>"location" : "script/location",<br>"credentialGuid" : "25D30ADD427484310DBC8CF6211A383B" } |
| Request method  | POST                                                                                                                                        |

A sample of the response received is shown below.

```
{ "message" : "StagingServer created successfully." }
```

## 51.11 SSA Admin Resources for V1

The Cloud REST APIs can be categorized as follows:

- Collection Resources
  - [PaasZones for V1](#)
  - [SoftwarePools for V1](#)
  - [Service Template Management for V1](#)
- Singular Resources

- [PaasZone for V1](#)
- [SoftwarePool for V1](#)
- [Service Template Management for V1](#)

Every singular resource has its own attributes and methods supported on it, but in general all singular resources have some common attributes, as described in the following table.

**Table 51–106 Common Resource Attributes for Singular Resources**

| Field         | Type      | Supported Method | Description                                                      | Occurs |
|---------------|-----------|------------------|------------------------------------------------------------------|--------|
| name          | String    | Any              | Name of Resource                                                 | 1      |
| type          | String    | Any              | Resource Type                                                    | 1      |
| description   | String    | Any              | Description                                                      | 0..1   |
| id            | String    | GET              | Resource Identifier                                              | 0..1   |
| createdOn     | TimeStamp | GET              | Date and time, in W3C format when the resource was created.      | 0..1   |
| createdBy     | String    | GET              | User who created resource                                        | 0..1   |
| modifiedOn    | TimeStamp | GET              | Date and time, in W3C format when the resource was last modified | 0..1   |
| ModifiedBy    | Date      | GET              | User who last modified resource                                  | 0..1   |
| owner         | String    | GET              | User who owns resource                                           | 0..1   |
| etag          | String    | GET              | HTTP Entity tag value                                            | 0..1   |
| lastModified  | String    | GET              | HTTP Last-Modified value                                         | 0..1   |
| canonicalLink | URI       | GET              | Preferred Version of Resource                                    | 1      |
| selfLink      | URI       | GET              | Refers to resource equivalent to the containing element          | 1      |

Where:

- Supported Method: Indicates in which method type this attribute will be available
- Supported Method type 'Any': Indicates that it might be available with GET, PUT, or POST methods, but not for DELETE.
- Occurs: An occurrence of 0..1 indicates it is an optional parameter. An occurrence of 1 means the parameter is mandatory.

### 51.11.1 Viewing Details of the REST API Entry Point Resources

The table below shows the GET configuration for viewing details of the REST API resources.

**Table 51–107 GET Request Configuration for Viewing Details of the REST API Resources**

| Feature         | Specification                                         |
|-----------------|-------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/API |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=         |

**Table 51–107 (Cont.) GET Request Configuration for Viewing Details of the REST API Resources**

| Feature        | Specification |
|----------------|---------------|
| Body           | None          |
| Request method | GET           |

A sample of the response received is shown below.

```
{
 v1:
 {
 canonicalLink:
 "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1"
 paasZones:
 "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones"
 softwarePools:
 "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools"
 }
}
```

## 51.12 PaasZones for V1

PaasZones is a collection resource representing a Cloud Administrator's view of all the accessible PaasZone resources. The following table describes the PaaS Zones [application/oracle.com.cloud.common.PaaS Zones+json] data model.

**Table 51–108 PaaS Zones Data Model**

| Field         | Type                     | Description                                                                                   | Occurs |
|---------------|--------------------------|-----------------------------------------------------------------------------------------------|--------|
| name          | String                   | Display name of this collection resource                                                      | 1      |
| type          | String                   | Type of this collection resource                                                              | 1      |
| hasMore       | Boolean                  | Indicates whether there are more elements in the collection                                   | 1      |
| count         | Integer                  | Number of elements returned                                                                   | 1      |
| items         | Collection<br><PaasZone> | List of Paas Zone resources.<br>In case no instance are there items will be present but empty | 1      |
| totalCount    | Integer                  | Total number of Paas Zone resources                                                           | 1      |
| canonicalLink | URI                      | A GET against this URI refreshes the client representation of this resource.                  | 1      |
| selfLink      | URI                      | Refers to the resource equivalent to the containing elements.                                 | 1      |

The following table describes the Supported Methods for PaaS Zones:



**Table 51–109 Supported Methods for PaasZones**

| Method       | Query Parameters | Request Payload         | URI                                                                                 | Description                                   |
|--------------|------------------|-------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------|
| GET          | NA               | NA                      | <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</code>         | Returns PaasZones collection resource details |
| GET/metadata | NA               | NA                      | <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/metadata</code> | Returns PaasZone Metadata                     |
| PUT          | NA               | PaasZone (Json Payload) | <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</code>         | Updates PaasZone resource                     |
| POST         | NA               | PaasZone (Json Payload) | <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/</code>         | Creates PaasZone resource                     |

## 51.12.1 PaasZones REST API Examples

The following sections provide example PaasZones REST API operations. Note that you can also use EMCLI commands to perform a range of different operations (including, create, update, and delete operations) and these commands are described in [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#).

The following operations are covered in this section.

- [Viewing PaaS Zones Metadata](#)
- [Listing PaaS Zones](#)

### 51.12.1.1 Viewing PaaS Zones Metadata

The table below shows the GET configuration for viewing the metadata.

**Table 51–110 GET Request Configuration for Viewing the Metadata**

| Feature         | Specification                                                                        |
|-----------------|--------------------------------------------------------------------------------------|
| URI             | <code>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/metadata</code> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json      |
| Body            | None                                                                                 |
| Request method  | GET                                                                                  |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 "constraints" : [{
 "name" : "MAX_CPU_UTILIZATION",
 "description" : "Maximum CPU Utilization (%)",
 "value" : "80"
```

```

 }, {
 "name" : "MAX_MEMORY_ALLOCATION",
 "description" : "Maximum Memory Allocation (%)",
 "value" : "80"
 }],
 "memberTargetTypes" : ["oracle_vm_zone", "host"],
 "message" : "When creating Paas Infrastructure zone: (1) member_type should be
set to one of the values shown in member target types. All Zone members have to be
of the same type. (2) Please change the value of the constraints as required."
 }
}

```

### 51.12.1.2 Listing PaaS Zones

The table below shows the GET configuration for listing the PaaS zones.

**Table 51–111** GET Request Configuration for Viewing the PaaS Zones

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

Status 200 OK
Content-Type: application/json
{
 "name" : "Paas Zones",
 "type" : "Paas Infrastructure Zone",
 "hasMore" : false,
 "count" : 4,
 "items" : [{
 "name" : "pzone1",
 "id" : "A3CF2D49CFF3F3E664D073303EA51F8E",
 "type" : "self_service_zone",
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/A3CF2D49CFF3F3E664D073303EA51F8E"
 }, {
 "name" : "Test Zone 2",
 "id" : "EF3830C71CC54B50B963376F9217AB95",
 "type" : "self_service_zone",
 "description" : "with MAX_CPU_UTILIZATION ",
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/EF3830C71CC54B50B963376F9217AB95"
 }, {
 "name" : "test paas zone",
 "id" : "5D7548C1B879A51CFD894CEA8D5FB19B",
 "type" : "self_service_zone",
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/5D7548C1B879A51CFD894CEA8D5FB19B"
 }, {
 "name" : "Test Zone",

```

```

 "id" : "CACBB07A674F280DF84FC4CBFA76DFA7",
 "type" : "self_service_zone",
 "description" : "with MAX_CPU_UTILIZATION ",
 "canonicalLink" :
 "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
 /CACBB07A674F280DF84FC4CBFA76DFA7"
 }],
 "totalCount" : 4,
 "canonicalLink" :
 "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
 ",
 "selfLink" :
 "https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
 "
}

```

## 51.13 PaasZone for V1

This resource represents a PaaS Infrastructure Zone. The following table describes the PaaSZone [application/oracle.com.cloud.common.PaaSZone+json] data model.

**Table 51–112 PaaSZone Data Model**

| Field        | Type                           | Supported Methods | Description                                                                                                                                                 | Occurs |
|--------------|--------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| name         | String                         | Any               | A human readable name given to the PaaS Zone.<br>It is non editable.                                                                                        | 1      |
| id           | String                         | GET               | Zone ID. GET method will have value for this element.                                                                                                       | 1      |
| description  | String                         | Any               | A brief description given to the zone.                                                                                                                      | 0..1   |
| credential   | String                         | Any               | Global Named Credentials to be used for provisioning in this PaaS Infrastructure Zone                                                                       | 1      |
| members      | Collection<String>             | GET<br>POST       | Members of PaaS Zone. They can be either Host members or Oracle VM Zone members.                                                                            | 1      |
| memberType   | String                         | GET<br>POST       | Target type of the members of PaaS Zone. It can be either "host" for Host members or "oracle_vm_zone" for Oracle VM Zone members.                           | 1      |
| constraints  | Collection<Entity ValueHolder> | Any               | Placement Policy Constraints allow the cloud administrator to set maximum thresholds for any host.<br>Refer to zone metadata REST API for more information. | 0..1   |
| roles        | Collection<String>             | GET<br>POST       | SSA roles that can access this PaaS Infrastructure Zone.                                                                                                    | 0..1   |
| pools        | Collection<SoftwarePool>       | GET               | Software Pools associated with this PaaS Zone                                                                                                               | 0..1   |
| membersToAdd | Collection<String>             | PUT               | Host or Oracle VM Zone targets to be added to an existing PaaS Zone while editing it.                                                                       | 0..1   |

**Table 51–112 (Cont.) PaaSZone Data Model**

| Field           | Type               | Supported Methods | Description                                                                               | Occurs |
|-----------------|--------------------|-------------------|-------------------------------------------------------------------------------------------|--------|
| membersToRemove | Collection<String> | PUT               | Host or Oracle VM Zone targets to be removed from an existing PaaS Zone while editing it. | 0..1   |
| rolesToAdd      | Collection<String> | PUT               | SSA roles to be added while editing a PaaS Zone                                           | 0..1   |
| rolesToRemove   | Collection<String> | PUT               | SSA roles to be removed while editing a PaaS Zone.                                        | 0..1   |

Where:

- Supported Methods: Value 'Any' indicates GET/POST/PUT  
Depending on the Supported Methods column value, the respective attributes need to be specified in the Request Payload or are available in the Response Payload after the operation in complete.  
For example, while executing a PUT operation, the name, description, credential, membersToAdd, membersToRemove, constraints, rolesToAdd, and rolesToRemove attributes can be specified in the Request payload.
- The constraints attribute is not defined for a PaasZone when its memberType is oracle\_vm\_zone.
- The MAX\_CPU\_UTILIZATION and MAX\_MEMORY\_ALLOCATION are the two placement constraints supported for a PaaS Zone when the memberType is "host". If they are not provided, then their default value is taken to be 80 percent.

The following table describes the supported methods on the PaaSZone resource:

**Table 51–113 Supported Methods on PaaSZone Resources**

| Method | Query Parameters                                                                                                                                                | Request Payload | Response Payload              | URI                                                                                 | Description                               |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------|
| GET    | Possible values for this optional query parameter: <ul style="list-style-type: none"> <li>constraints</li> <li>pools</li> <li>members</li> <li>roles</li> </ul> | NA              | PaasZone (Json Payload)       | <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/{zoneId}</code> | Retrieve PaaS Infrastructure Zone details |
| DELETE | NA                                                                                                                                                              | NA              | Status Message (json payload) | <code>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/{zoneId}</code> | Deletes a PaaS Infrastructure Zone        |

### 51.13.1 PaaS Zone REST API Examples

The following sections provide example Paas Zone REST API operations. Note that you can also use EMCLI commands to perform a range of different operations on a PaaS Zone (including, create, update, and delete) and these commands are described in [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#).

The following operations are covered in this section.

- [Creating a PaaS Zone](#)
- [Updating a PaaS Zone](#)
- [Deleting a PaaS Zone](#)
- [Viewing Details of the PaasZone](#)
- [Viewing the Expanded form of a PaasZone](#)

### 51.13.1.1 Creating a PaaS Zone

The table below shows the POST configuration for creating a PaaS zone.

**Table 51–114 POST Request Configuration for Creating a PaaS Zone**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/                                                                                                                                                                                                                                                                                                                                                   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                   |
| Body            | <pre>{   "name": "My Test Zone",   "description": "This is a TestZone",   "credential": "NCAIME",   "memberType": "host",   "members": [     "slc05gvt.us.example.com"   ],   "constraints": [     {       "name": "MAX_CPU_UTILIZATION",       "value": "85"     },     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "95"     }   ],   "roles": [     "SSACOREROLE1",     "SSACOREROLE2"   ], }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                              |

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
 "name" : "My Test Zone",
 "description" : "This is a TestZone",
 "type" : "PaaS Infrastructure Zone",
 "id" : "DDBFEFDAD2AE6490E040F00AA37D4C67",
 "credential" : "NCAIME",
 "members" : {
```

```

 "canonicalLink" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paas
zones/DDBFEFDAD2AE6490E040F00AA37D4C67/members",
 "memberType" : "host",
 "numberOfHostMembers" : "1"
 },
 "constraints" : {
 "canonicalLink" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paas
zones/DDBFEFDAD2AE6490E040F00AA37D4C67/constraints",
 "numberOfConstraints" : "2"
 },
 "roles" : {
 "canonicalLink" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paas
zones/DDBFEFDAD2AE6490E040F00AA37D4C67/roles",
 "numberOfUserRoles" : "2"
 },
 "pools" : {
 "canonicalLink" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paas
zones/DDBFEFDAD2AE6490E040F00AA37D4C67/pools",
 "numberOfSoftwarePools" : "0"
 },
 "createdOn" : "2013-05-27 20:57:18",
 "createdBy" : null,
 "modifiedOn" : null,
 "modifiedBy" : null,
 "owner" : "SYSMAN",
 "etag" : null,
 "lastModified" : null,
 "canonicalLink" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paas
zones/DDBFEFDAD2AE6490E040F00AA37D4C67",
 "selfLink" :
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paas
zones/DDBFEFDAD2AE6490E040F00AA37D4C67"
}

```

### 51.13.1.2 Updating a PaaS Zone

The table below shows the PUT configuration for updating a PaaS zone.

**Table 51–115 PUT Request Configuration for Updating a PaaS Zone**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 51–115 (Cont.) PUT Request Configuration for Updating a PaaS Zone**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "My Test Zone",   "credential": "NCAIME2",   "description": "Description_01",   "membersToAdd": [     "somehost.com",     "someotherhost.com"   ],   "membersToRemove": [     "removehost.com",     "removeotherhost2.com"   ],   "rolesToAdd": [     "ROLE_1",     "ROLE_2"   ],   "rolesToRemove": [     "ROLE_1_1",     "ROLE_2_1"   ],   "constraints": [     {       "name": "MAX_MEMORY_ALLOCATION",       "value": "80"     },     {       "name": "MAX_CPU_UTILIZATION",       "value": "80"     }   ] }</pre> |
| Request method | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 "message" : "PaaS Infrastructure Zone "My Test Zone" updated successfully."
}
```

### 51.13.1.3 Deleting a PaaS Zone

The table below shows the DELETE configuration for deleting a PaaS zone.

**Table 51–116 DELETE Request Configuration for Deleting a PaaS Zone**

| Feature         | Specification                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/pa<br>sszones/DDBFEFDAD2AE6490E040F00AA37D4C67 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                     |
| Body            | None                                                                                                |

**Table 51–116 (Cont.) DELETE Request Configuration for Deleting a PaaS Zone**

| Feature        | Specification |
|----------------|---------------|
| Request method | DELETE        |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 "message" : "PaaS Infrastructure Zone "DDBFEFDAD2AE6490E040F00AA37D4C67"
deleted successfully."
}
```

---

**Note:** A PaaS Infrastructure Zone cannot be deleted if there are Software Pools associated with it.

---

#### 51.13.1.4 Viewing Details of the PaasZone

The table below shows the GET configuration for viewing details of a PaaS zone.

**Table 51–117 GET Request Configuration for Viewing Details of a PaaS Zone**

| Feature         | Specification                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                   |
| Body            | None                                                                                            |
| Request method  | GET                                                                                             |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 "name" : "pzone1",
 "description" : "This zone contains Host members",
 "type" : "PaaS Infrastructure Zone",
 "id" : "A3CF2D49CFF3F3E664D073303EA51F8E",
 "credential" : "SXAASJUNITHOSTCRED",
 "members" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E/members",
 "memberType" : "host",
 "numberOfHostMembers" : "2"
 },
 "constraints" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E/constraints",
 "numberOfConstraints" : "2"
 },
 "roles" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/A3CF2D49CFF3F3E664D073303EA51F8E/roles",

```



```

 "numberOfUserRoles" : "1"
 },
 "pools" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/A3CF2D49CFF3F3E664D073303EA51F8E/pools",
 "numberOfSoftwarePools" : "0"
 },
 "createdOn" : "2013-05-22 01:50:30",
 "createdBy" : null,
 "modifiedOn" : null,
 "modifiedBy" : null,
 "owner" : "SYSMAN",
 "etag" : null,
 "lastModified" : null,
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/A3CF2D49CFF3F3E664D073303EA51F8E",
 "selfLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/A3CF2D49CFF3F3E664D073303EA51F8E"
}

```

### 51.13.1.5 Viewing the Expanded form of a PaasZone

The get request supports expands query parameter. Based on this query parameter the relevant attribute for a PaasZone is expanded.

The following query parameters are supported:

- members
- role
- constraints
- pools

The table below shows the GET configuration for expanded view of a PaaS zone.

**Table 51–118 GET Request Configuration for an Expanded View of a PaaS Zone**

| Feature         | Specification                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones/{zone_id}/?expands=<param_name> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                  |
| Body            | None                                                                                           |
| Request method  | GET                                                                                            |

A sample of the response received is shown below.

```

{
 "name" : "My Test Zone",
 "description" : "Description_02",
 "type" : "PaaS Infrastructure Zone",
 "id" : "DDBFEFDAD2AE6490E040F00AA37D4C67",
 "credential" : "C",
 "members" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/DDBFEFDAD2AE6490E040F00AA37D4C67/members",

```

```

 "memberType" : "host",
 "numberOfHostMembers" : "1"
 },
 "constraints" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/DDBFEFDAD2AE6490E040F00AA37D4C67/constraints",
 "items" : [{
 "name" : "MAX_MEMORY_ALLOCATION",
 "value" : "25"
 }, {
 "name" : "MAX_CPU_UTILIZATION",
 "value" : "25"
 }]
 },
 "roles" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/DDBFEFDAD2AE6490E040F00AA37D4C67/roles",
 "numberOfUserRoles" : "0"
 },
 "pools" : {
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/DDBFEFDAD2AE6490E040F00AA37D4C67/pools",
 "numberOfSoftwarePools" : "0"
 },
 "createdOn" : "2013-05-27 20:57:18",
 "createdBy" : null,
 "modifiedOn" : null,
 "modifiedBy" : null,
 "owner" : "SYSMAN",
 "etag" : null,
 "lastModified" : null,
 "canonicalLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/DDBFEFDAD2AE6490E040F00AA37D4C67",
 "selfLink" :
"https://example.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/paaszones
/DDBFEFDAD2AE6490E040F00AA37D4C67"
}

```

## 51.14 SoftwarePools for V1

SoftwarePools is a collection resource representing an SSA Administrator's view of all the accessible SoftwarePool resources. The following table describes the SoftwarePools [application/oracle.com.cloud.common.SoftwarePools+json] data model.

**Table 51–119 SoftwarePools Data Model**

| Field   | Type    | Description                                                 | Occurs |
|---------|---------|-------------------------------------------------------------|--------|
| name    | String  | Display name of this collection resource                    | 1      |
| type    | String  | Type of this collection resource                            | 1      |
| hasMore | Boolean | Indicates whether there are more elements in the collection | 1      |
| count   | Integer | Number of elements returned                                 | 1      |

**Table 51–119 (Cont.) SoftwarePools Data Model**

| Field         | Type                          | Description                                                                  | Occurs |
|---------------|-------------------------------|------------------------------------------------------------------------------|--------|
| items         | Collection<br><SoftwarePools> | The elements of this collection                                              | 1      |
| totalCount    | Integer                       | Total number of elements in the collection                                   | 1      |
| canonicalLink | URI                           | A GET against this URI refreshes the client representation of this resource. | 1      |
| selfLink      | URI                           | Refers to the resource equivalent to the containing elements.                | 1      |

The following table describes the supported methods on the SoftwarePools resource:

**Table 51–120 Supported Methods on SoftwarePools Resources**

| Method | Query Parameters     | Request Payload            | URI                                                                       | Description                                       |
|--------|----------------------|----------------------------|---------------------------------------------------------------------------|---------------------------------------------------|
| GET    | zonename<br>pooltype | NA                         | <i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/</i> | Returns the collection of existing Software Pools |
| PUT    | NA                   | SoftwarePool(Json Payload) | <i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/</i> | Updates an existing Software Pool resource.       |
| POST   | NA                   | SoftwarePool(Json Payload) | <i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/</i> | Creates a Software Pool                           |

### 51.14.1 Software Pools REST API Example

The following provides an example of a SoftwarePools REST API operation. Note that you can also use EMCLI commands to perform a range of different operations on Software Pools (including, create, update, and delete) and these commands are described in [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#)

The following operations are covered in this section.

- [Viewing Details of the Software Pools](#)
- [Filtering Output based on Search Query Parameters](#)

#### 51.14.1.1 Viewing Details of the Software Pools

The table below shows the GET configuration for viewing details of the Software pools.

**Table 51–121 GET Request Configuration for Viewing Details of the Software Pools**

| Feature         | Specification                                                             |
|-----------------|---------------------------------------------------------------------------|
| URI             | <i>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools</i> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                             |
| Body            | None                                                                      |
| Request method  | GET                                                                       |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 name: "Software Pools"
 type: "Software Pool"
 hasMore: false
 count: 2
 items: [2]
 0: {
 name: "IT_MW_Pool_2"
 type: "mwaas_zone"
 id: "E284FAAA7FBA6A06F7090115A3E07299"
 zoneName: "IT_MW_Zone1"
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/E284FAAA7FBA6A06F7090115A3E07299"
 description: "Middleware Pool of Oracle Homes of Version 10.3.5.0"
 }-
 1: {
 name: "IT_MW_Pool1"
 type: "mwaas_zone"
 id: "DD73A46E9E3C9866E040F00AE5235A7F"
 zoneName: "IT_MW_Zone1"
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/DD73A46E9E3C9866E040F00AE5235A7F"
 description: "Middleware Pool of Oracle Homes"
 }-
 -
 totalCount: 2
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/"
 selfLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/"
}
```

#### 51.14.1.2 Filtering Output based on Search Query Parameters

Search on the Software Pools is supported on the following by the following query parameters:

- zonename
- pooltype

Single or multiple search parameters may be specified at once. Wildcard search is supported using '%' character.

The table below shows the GET configuration for filtering the Software pools.

**Table 51–122 GET Request Configuration for Filtering the Software Pools**

| Feature         | Specification                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools?zonename=IT_MW%&pooltype=mwaas_zone |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                          |
| Body            | None                                                                                                   |

**Table 51–122 (Cont.) GET Request Configuration for Filtering the Software Pools**

| Feature        | Specification |
|----------------|---------------|
| Request method | GET           |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 name: "Software Pools"
 type: "Software Pool"
 hasMore: false
 count: 1
 items: [1]
 0: {
 name: "IT_MW_Pool1"
 type: "mwaas_zone"
 id: "DD73A46E9E3C9866E040F00AE5235A7F"
 zoneName: "IT_MW_Zone1"
 canonicalLink:
 "https://cloudcompany/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/software
 pools/DD73A46E9E3C9866E040F00AE5235A7F"
 description: "Middleware Pool of Oracle Homes"
 }

 totalCount:1
 canonicalLink:
 "https://
 cloudcompany/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/"
 selfLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/soft
 warepools/"
}
```

## 51.15 SoftwarePool for V1

A SoftwarePool resource represents a collection of homogeneous servers or clusters that are used to service requests within a PaaS Infrastructure Zone. All members within a SoftwarePool must be of the same type and must belong to the same PaaS Infrastructure Zone.

In addition, to maintain homogeneity, the members must satisfy a set of filter criteria that restrict the addition of members to a SoftwarePool. The following table describes the SoftwarePool [application/oracle.com.cloud.common.SoftwarePool+json] data model.

**Table 51–123 SoftwarePool Data Model**

| Field | Type   | Supported Methods | Description                                                              | Occurs |
|-------|--------|-------------------|--------------------------------------------------------------------------|--------|
| name  | String | Any               | A human readable name given to the Software Pool.<br>It is non editable. | 1      |
| id    | String | GET               | Pool GUID that uniquely identifies the resource.                         | 1      |

**Table 51–123 (Cont.) SoftwarePool Data Model**

| Field           | Type                          | Supported Methods | Description                                                                                                                                                              | Occurs |
|-----------------|-------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| description     | String                        | Any               | A brief description given to the Software Pool.                                                                                                                          | 0..1   |
| poolTargetType  | String                        | Any               | Target type of the Software Pool to be created.<br><br>Example : "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool. | 1      |
| paasZone        | String                        | GET<br>POST       | Name of the PaaS Zone associated with this Software Pool.                                                                                                                | 1      |
| members         | Collection<String>            | GET<br>POST       | Members of PaaS Zone. They can be either Host members or Oracle VM Zone members.                                                                                         | 1      |
| constraints     | Collection<EntityValueHolder> | Any               | Placement constraints for a Software Pool that allow the self service administrator to set maximum ceilings for resource utilization.                                    | 0..1   |
| filters         | Collection<EntityValueHolder> | GET<br>POST       | Filters on a Software Pool restrict the addition of member targets to it with a set criteria.                                                                            | 1      |
| properties      | Collection<EntityValueHolder> | Any               | Additional properties that need to be specified for a specific pool target type.                                                                                         | 1      |
| membersToAdd    | Collection<String>            | PUT               | Targets to be added to an existing Software Pool while editing it.                                                                                                       | 0..1   |
| membersToRemove | Collection<String>            | PUT               | Targets to be removed from an existing Software Pool while editing it.                                                                                                   | 0..1   |
| canonicalLink   | URI                           | GET               | A GET against this URI refreshes the client representation of this resource.                                                                                             | 1      |

---

**Note:** Supported methods value 'Any' indicates GET/POST/PUT .

---

The following table describes the Supported Methods for Software Pool resources:

**Table 51–124 Supported Methods on Software Pool Resources**

| Method | Query Parameters                                                                                                                                                                   | Request Payload | Response Payload              | URI                                                                              | Description                         |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------|----------------------------------------------------------------------------------|-------------------------------------|
| GET    | param-name : expands<br><br>param-value : members/<br>filters/<br>constraints/all<br><br>Expands a particular attribute to show its data.<br><br>"all" expands all the attributes. | NA              | SoftwarePool (Json Payload)   | <i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepool/{poolId}</i> | Retrieves the Software Pool details |
| DELETE | NA                                                                                                                                                                                 | NA              | Status Message (json payload) | <i>em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepool/{poolId}</i> | Deletes a Software Pool             |

### 51.15.1 SoftwarePool REST API Examples

The following sections provide example SoftwarePool REST API operations. Note that you can also use EMCLI commands to perform a range of different operations on a Software Pool (including, create, update, and delete operations) and these commands are described in [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#).

The following operations are covered in this section.

- [Creating a Software Pool](#)
- [Updating a Software Pool](#)
- [Deleting a Software Pool](#)
- [Viewing Details of the Software Pool](#)
- [Expands Query Parameter](#)

#### 51.15.1.1 Creating a Software Pool

A POST operation is issued on Software Pools Collection resource to create a Software Pool.

The table below shows the POST configuration for creating a Software pool.

**Table 51–125 POST Request Configuration for Creating a Software Pool**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | <i>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools</i>       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |

**Table 51–125 (Cont.) POST Request Configuration for Creating a Software Pool**

| Feature        | Specification                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "IT_MW_Pool1",   "poolTargetType": "mwaas_zone",   "description": "Middleware Pool of Oracle Homes",   "paasZone": "IT_MW_Zone1",   "members": ["WebLogicServer10_3_6_0_slc01afx_6775", "WebLogicServer10_3_6_0_adc2201439_4731"],   "constraints": {     "items": [{"name": "MAX_INSTANCES",       "value": "10"}]},   "filters": {     "items": [{"name": "VERSION", "value": "10.3.6.0"}]} }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                   |

A sample of the response received is shown below.

```
Status 201 Created
Content-Type: application/json
{
 name: "IT_MW_Pool1"
 description: "Middleware Pool of Oracle Homes"
 type: "Middleware Pool"
 id: "687FE169ED3556CED38D11DC9BDD5CCD"
 zoneName: "IT_MW_Zone1"
 members: {
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/members"
 numberOfPoolMembers: "2"
 }-
 constraints: {
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/constraints"
 numberOfConstraints: "1"
 }-
 filters: {
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/filters"
 numberOfFilters: "1"
 }-
 properties: {
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/properties"
 numberOfPropertiess: "0"
 }-
 createdOn: "2013-05-24 00:26:42"
 createdBy: null
 modifiedOn: null
 modifiedBy: null
 owner: "CLOUD_ADMIN1"
 etag: null
}
```



```

lastModified: null
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
selfLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
}

```

### 51.15.1.2 Updating a Software Pool

The table below shows the PUT configuration for updating a Software pool.

**Table 51–126 PUT Request Configuration for Updating a Software Pool**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools                                                                                                                                                                                                                                                            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                               |
| Body            | <pre> {   "name": "IT_MW_Pool1",   "poolTargetType": "mwaas_zone",   "description": "Middleware Pool of Oracle Homes Updated",   "membersToAdd": ["WebLogicServer10_3_6_0_slc01afx_6776", "WebLogicServer10_3_6_0_adc2201439_4732"],   "constraints": {     "items": [{"name": "MAX_INSTANCES",     "value": "10"}]}, }</pre> |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                           |

A sample of the response received is shown below.

```

Status 200 OK
Content-Type: application/json
{
 message: "Software Pool " IT_MW_Pool1" updated successfully."
}

```

### 51.15.1.3 Deleting a Software Pool

The table below shows the DELETE configuration for deleting a Software pool.

**Table 51–127 DELETE Request Configuration for Deleting a Software Pool**

| Feature         | Specification                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                       |
| Body            | None                                                                                                |
| Request method  | DELETE                                                                                              |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 message: "Software Pool "687FE169ED3556CED38D11DC9BDD5CCD" deleted successfully."
}
```

---

**Note:** Software Pool cannot be deleted if there are Service Templates associated with the Pool

---

#### 51.15.1.4 Viewing Details of the Software Pool

The table below shows the GET configuration for viewing details of a Software pool.

**Table 51–128** GET Request Configuration for Viewing Details of a Software Pool

| Feature         | Specification                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                     |
| Body            | None                                                                                                |
| Request method  | GET                                                                                                 |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 name: "IT_MW_Pool1"
 description: "Middleware Pool of Oracle Homes"
 type: "Middleware Pool"
 id: "687FE169ED3556CED38D11DC9BDD5CCD"
 zoneName: "IT_MW_Zone1"
 members: {
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/members"
 numberOfPoolMembers: "2"
 }-
 constraints: {
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/constraints"
 numberOfConstraints: "1"
 }-
 filters: {
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/filters"
 numberOfFilters: "1"
 }-
 properties: {
 canonicalLink:
 https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/properties"
 numberOfPropertiess: "0"
 }-
```

```

createdOn: "2013-05-24 00:26:42"
createdBy: null
modifiedOn: null
modifiedBy: null
owner: "CLOUD_ADMIN1"
etag: null
lastModified: null
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
selfLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD"
}

```

### 51.15.1.5 Expands Query Parameter

GET operation on SoftwarePool resource supports the expands query parameter to expand the following link resource attributes:

- **members:** Expands the members attribute to show all the members of this Software Pool.
- **filters:** Expands the filters attribute to show the filter criteria of the members of this Software Pool.
- **constraints:** Expands the constraints attribute to show the placement constraints associated with this Software Pool.
- **all :** Expands all the attributes of the Software Pool when returning the Software Pool details.

The URI has the following format:

```
/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/{poolid}?expands=<paramname>
```

Example:

```
https://hostname/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD?expands=members
```

If no query parameter is specified then software pool details data is returned to the user without any attributes expanded.

## 51.15.2 SoftwarePoolMetadata for V1

This provides the metadata information for all the software pool target types that is needed while creating a Software Pool. The following table describes the SoftwarePoolMetadata [application/oracle.com.cloud.common.SoftwarePools+json] data model.

**Table 51–129 SoftwarePoolMetadata Data Model**

| Field                | Type   | Description                                                                  | Occurs |
|----------------------|--------|------------------------------------------------------------------------------|--------|
| canonicalLink        | URI    | A GET against this URI refreshes the client representation of this resource. | 1      |
| poolType             | String | Target type of the Software Pool                                             | 1      |
| poolTypeDisplay Name | String | Display name of this Software Pool target type.                              | 0..1   |

**Table 51–129 (Cont.) SoftwarePoolMetadata Data Model**

| Field               | Type                         | Description                                                                                          | Occurs |
|---------------------|------------------------------|------------------------------------------------------------------------------------------------------|--------|
| poolTypeDescription | String                       | Description of the Software Pool target type.                                                        | 0..1   |
| serviceFamily       | String                       | Represents the service family to which this pool type belongs.                                       | 1      |
| serviceType         | String                       | Represents the service type to which this pool type belongs.                                         | 1      |
| constraints         | Collection<ValueDescriptor>  | Represents the metadata information about the possible placement constraints for this pool type.     | 0..1   |
| filters             | Collection<ValueDescriptor > | Represents the metadata information about the possible filters (member constraints) for a pool type. | 0..1   |

The GET method for the SupportedPoolMetadata resource has the following characteristics:

- Response Payload:  
SoftwarePoolMetadata (Json Payload)
- URI:  
`em/websvcs/restful//extws/cloudservices/admin/cfw/v1/softwarepools/metadata`
- Descriptions:  
Retrieves the metadata information for all the software pool types like service type, service family, available constraints, and available filters.

### 51.15.2.1 Retrieving Software Pool Metadata REST API Example

A GET request is issued to obtain the SoftwarePoolMetadata URI, which is then used to retrieve the metadata information of all the software pool types. Note that you can also use EMCLI commands to retrieve Software Pool information and these commands are described in [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#)

The table below shows the GET configuration for viewing metadata of the Software pools.

**Table 51–130 GET Request Configuration for Viewing Metadata of the Software Pools**

| Feature         | Specification                                                                            |
|-----------------|------------------------------------------------------------------------------------------|
| URI             | <code>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/metadata</code> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                            |
| Body            | None                                                                                     |
| Request method  | GET                                                                                      |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json

{
```

```

softwarePoolsMetadata:
{
 items: [1]
 0:
 {
 poolType: "mwaas_zone"
 poolTypeDisplayName: "Middleware Pool"
 poolTypeDescription: "Middleware Pool is a set of homogeneous Middleware Oracle
 Homes."
 serviceFamily: "MWAAS"
 serviceType: "PhysicalWLS"
 constraints:
 {
 items: [1]
 0:
 {
 name: "MAX_INSTANCES"
 description: "Maximum Number of Java Servers (per host)"
 defaultValue: "1"
 isRequiredValue: true
 }
 }
 filters:
 {
 items: [1]
 0:
 {
 name: "VERSION"
 description: "Version"
 defaultValue: "10.3.5.0"
 isRequiredValue: true
 possibleValues: [7]
 0:
 {value: "12.1.1.0"
 description: "12.1.1.0"}
 1:
 {
 value: "10.3.6.0"
 description: "10.3.6.0"
 }
 2:
 {
 value: "10.3.5.0"
 description: "10.3.5.0"
 }
 3:
 {
 value: "10.3.4.0"
 description: "10.3.4.0"
 }
 4:
 {
 value: "10.3.3.0"
 description: "10.3.3.0"
 }
 5:
 {
 value: "10.3.2.0"
 description: "10.3.2.0"
 }
 }
 }
 }
}

```

```

6:
{
 value: "10.3.1.0"
 description: "10.3.1.0"
}
}
}
}
}
canonicalLink:
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/metadata"
}

```

### 51.15.3 SoftwarePoolFilteredTargets for V1

This gives the available targets in a given PaaS Infrastructure Zone based on the filter criteria given, that can be used in POST operation on SoftwarePool resource. The following table describes the SoftwarePoolFilteredTargets [application/oracle.com.cloud.common.SoftwarePoolFilteredTargets+json] data model.

**Table 51–131 SoftwarePoolFilteredTargets Data Model**

| Field         | Type                      | Description                                                                                                                                                                                                                                                        | Occurs |
|---------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| canonicalLink | URI                       | A GET against this URI refreshes the client representation of this resource.                                                                                                                                                                                       | 1      |
| targetType    | String                    | Target type of the Software Pool .<br>Example : "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool.<br><br>Refer SoftwarePoolsMetadata resource to get the available filters for a pool target type.<br>[POST] | 1      |
| paasZone      | String                    | Name of the PaaS Zone representing a filter criteria.<br>[POST]                                                                                                                                                                                                    | 1      |
| targets       | Map<String, List<String>> | Filtered targets after applying the filter criteria.                                                                                                                                                                                                               | 1      |
| filters       | Collection<Filters>       | Filter criteria that needs to be applied to get the filtered targets.<br><br>Refer SoftwarePoolsMetadata resource to get the available filters for a pool target type.<br>[POST]                                                                                   | 1      |

Note that filtered targets satisfy the following:

- Are part of the given PaaS Infrastructure zone.
- Satisfy the filter criteria passed.
- Are not part of any other Software Pool.

The POST method for the SupportedPoolFilteredTargets resource has the following characteristics:

- Request Payload:  
SoftwarePoolFilteredTargets (Json Payload)
- Response Payload  
SoftwarePoolFilteredTargets (Json Payload)
- URI:  
`em/websvcs/restful//extws/cloudservices/admin/cfw/v1/softwarepools/filteredtargets`
- Descriptions:  
Retrieves the metadata information for all the software pool types, such as service type, service family, available constraints, and available filters.

### 51.15.3.1 Retrieving Available Filtered Targets - REST API Example

A POST operation on SoftwarePoolFilteredTargets resource is issued to fetch the filtered targets based on the paas zone and filters given. Note that you can also use EMCLI commands to retrieve Filtered Targets information and these commands are described in [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#)

The table below shows the POST configuration for viewing the filtered targets of the Software pools.

**Table 51–132 POST Request Configuration for Viewing Metadata of the Software Pools**

| Feature         | Specification                                                                                                                                    |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | <code>/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools</code>                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: applicaiton/json                                                                  |
| Body            | <pre>{   "targetType": "mwaas_zone",   "paasZone": "IT_MW_Zone1",   "filters": {"items": [{"name": "VERSION", "value":     "10.3.6.0"}]} }</pre> |
| Request method  | POST                                                                                                                                             |

A sample of the response received is shown below.

Status 201 Created

Content-Type: application/json

```
{
 targets: {
 oracle_home: [2]
 0: "WebLogicServer10_3_6_0_slc01afx_6775"
 1: "WebLogicServer10_3_6_0_adc2201439_4731"
 }
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/filteredtargets"
}
```

## 51.15.4 SoftwarePoolCapacity for V1

This resource retrieves the software pool capacity details like CPU utilization, memory allocation, and number of instances for the pool entities. The following table describes the SoftwarePoolCapacity [application/oracle.com.cloud.common.SoftwarePoolCapacity+json] data model.

**Table 51–133 SoftwarePoolCapacity Data Model**

| Field         | Type                | Description                                                                                                                                                                  | Occurs |
|---------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| canonicalLink | URI                 | A GET against this URI refreshes the client representation of this resource.                                                                                                 | 1      |
| name          | String              | Name of the Software Pool.<br>[POST]                                                                                                                                         | 1      |
| type          | String              | Target type of the Software Pool.<br>Example : "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, "schaas_pool" for Schema Pool.                       | 1      |
| capacity      | Collection<Filters> | Filter criteria that needs to be applied to get the filtered targets.<br>Refer SoftwarePoolsMetadata resource to get the available filters for a pool target type.<br>[POST] | 1      |

The GET method for the SupportedPoolCapacity resource has the following characteristics:

- Response Payload  
SoftwarePoolCapacity (Json Payload)
- URI:  
`em/websvcs/restful//extws/cloudservices/admin/cfw/v1/softwarepools/{poolId}/capacity`
- Descriptions:  
Retrieves the software pool capacity details.

### 51.15.4.1 Retrieving Software Pool Capacity

A GET on SoftwarePoolCapacity resource is issued to get the Software Pool capacity details. Note that you can also use EMCLI commands to retrieve Software Pool Capacity information and these commands are described in [Section 51.18.2, "EM CLI Verbs for SSA Operations for V2"](#)

The table below shows the GET configuration for viewing the Software pool capacity.

**Table 51–134 GET Request Configuration for Viewing the Software Pool Capacity**

| Feature         | Specification                                                                                                |
|-----------------|--------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/softwarepools/687FE169ED3556CED38D11DC9BDD5CCD/capacity |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                |
| Body            | None                                                                                                         |



**Table 51–134 (Cont.) GET Request Configuration for Viewing the Software Pool**

| Feature        | Specification |
|----------------|---------------|
| Request method | GET           |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 name: "mySchemaPool"
 type: "schaas_pool"
 capacity: {
 items: [1]
 0: {
 entityName: "Oemrep_Database"
 entityType: "oracle_database"
 entityCapacity: {
 items: [4]
 0: {
 resourceType: "Storage Utilization"
 resourceUsed: "64.74"
 resourceThreshold: "100.0"
 resourceUnit: "%"
 }-
 }-
 }-
 1: {
 resourceType: "CPU Utilization"
 resourceUsed: "0.0"
 resourceThreshold: "0.0"
 resourceUnit: "%"
 }-
 2: {
 resourceType: "Memory Utilization"
 resourceUsed: "0.0"
 resourceThreshold: "0.0"
 resourceUnit: "%"
 }-
 3: {
 resourceType: "Instances"
 resourceUsed: "0"
 resourceThreshold: "100"
 }-
 }-
 canonicalLink:
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/soft
 warepools/2E7C9C632B18C3FEB4FEA5A614E51BE7/capacity"
}
```

## 51.16 Composite Resource Attributes for V1

Some of the resource entities in this specification contain the following composite resource attributes:

- [ValueDescriptor for V1](#)
- [ValueEntity for V1](#)

- [EntityValueHolder for V1](#)
- [PoolEntityCapacity for V1](#)
- [ResourceTypeCapacity for V1](#)

### 51.16.1 ValueDescriptor for V1

This describes the metadata regarding the type of value that can be set upon an associated object. The following table describes the data model:

**Table 51–135 ValueDescriptor Data Model**

| Field           | Type                    | Description                                                 | Occurs |
|-----------------|-------------------------|-------------------------------------------------------------|--------|
| name            | String                  | Name of the datum being described.                          | 1      |
| description     | String                  | Description of the datum being described.                   | 1      |
| defaultValue    | String                  | Default value of the datum being described.                 | 1      |
| isRequiredValue | Boolean                 | True if the value is required.                              | 1      |
| possibleValues  | Collection<ValueEntity> | Optional list of valid values of the datum being described. | 0..1   |

### 51.16.2 ValueEntity for V1

This represents a value (string representation) and their description (caption). The following table describes the data model:

**Table 51–136 ValueEntity Data Model**

| Field       | Type   | Description                                              | Occurs |
|-------------|--------|----------------------------------------------------------|--------|
| value       | String | String representation of the actual value of the entity. | 1      |
| description | String | Caption of the entity that describes it.                 | 0..1   |

### 51.16.3 EntityValueHolder for V1

This represents a simple entity having a name, value and description. The following table describes the data model:

**Table 51–137 EntityValueHolder Data Model**

| Field       | Type   | Description                                              | Occurs |
|-------------|--------|----------------------------------------------------------|--------|
| name        | String | Name of the entity                                       | 1      |
| value       | String | String representation of the actual value of the entity. | 1      |
| description | String | Caption of the entity that describes it.                 | 0..1   |

### 51.16.4 PoolEntityCapacity for V1

This represents the capacity details of individual entities of the Software Pool. The following table describes the data model:

**Table 51–138** *PoolEntityCapacity Data Model*

| Field          | Type                             | Description                                                                                             | Occurs |
|----------------|----------------------------------|---------------------------------------------------------------------------------------------------------|--------|
| entityName     | String                           | Name of the entity                                                                                      | 1      |
| entityType     | String                           | Target type of the entity.                                                                              | 1      |
| entityCapacity | Collection<ResourceTypeCapacity> | Collection of capacity details of a particular resource type like Storage Utilization, CPU Utilization. | 1      |

### 51.16.5 ResourceTypeCapacity for V1

This represents the capacity details of a particular resource type, such as Storage Utilization and CPU Utilization. The following table describes the data model:

**Table 51–139** *ResourceTypeCapacity Data Model*

| Field             | Type   | Description                                                                             | Occurs |
|-------------------|--------|-----------------------------------------------------------------------------------------|--------|
| resourceType      | String | Type of the resource like Storage Utilization.                                          | 1      |
| resourceUsed      | String | String representation of the used resource.                                             | 1      |
| resourceThreshold | String | String representation of the resource threshold.                                        | 0..1   |
| resourceUnit      | String | String representation of the unit in which the utilization of the resource is measured. | 0..1   |

## 51.17 Service Template Management for V1

This section describes the resources and REST APIs that can be used to manage service templates.

### 51.17.1 Service Templates for V1

Service templates is a collection resource representing a Cloud Administrator's view of all the accessible service template resources. The following table describes the Service Templates data model.

**Table 51–140** *Service Templates Data Model*

| Field         | Type                | Description                                                                                              | Occurs |
|---------------|---------------------|----------------------------------------------------------------------------------------------------------|--------|
| name          | String              | Display name of this collection resource.                                                                | 1      |
| type          | String              | Type of collection resource.                                                                             | 1      |
| hasMore       | Boolean             | Indicates whether there are more elements in this collection resource.                                   | 1      |
| count         | Integer             | The number of elements in the collection resource.                                                       | 1      |
| items         | Collection<integer> | List of service template resources. If there are no service templates present, this field will be blank. | 1      |
| totalCount    | Integer             | Total number of service template resources.                                                              | 1      |
| canonicalLink | URI                 | A GET against this URI refreshes the client representation of this resource.                             | 1      |
| selfLink      | URI                 | Refers to the resource equivalent to the containing elements.                                            | 1      |

### 51.17.1.1 Supported Methods on ServiceTemplates Resources

The following table describes the supported methods on the ServiceTemplates resources.

**Table 51–141 Supported Methods on ServiceTemplates Resources**

| Method | Query Parameters | Request Payload                 | URI                                                                   | Description                                                                 |
|--------|------------------|---------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------------|
| GET    | NA               | NA                              | em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/ | Returns service template collection resource details for all service types. |
| POST   | NA               | Service Template (Json Payload) | em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/ | Creates an instance of service template.                                    |

### 51.17.1.2 ServiceTemplates REST API Example

An example of ServiceTemplates REST API operation is given below.

#### Listing Service Templates

A GET request on ServiceTemplates resource is issued to list all the Service Templates. The table below shows the GET configuration for viewing the Software pool capacity.

**Table 51–142 GET Request Configuration for Viewing All the Service Templates**

| Feature         | Specification                                                         |
|-----------------|-----------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                         |
| Body            | None                                                                  |
| Request method  | GET                                                                   |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
{
 "name": "Service Templates",
 "type": "Service Template",
 "hasMore": false,
 "items": [
 {
 "id": "E821074692058B5DE040F00AA37D75AB",
 "name": "ST_DB_SCH_01",
 "serviceFamily": "DBAAS",
 "description": "Database Schema Service Template",
 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/E821074692058B5DE040F00AA37D75AB"
 }
],
 "totalCount": 1,
 "canonicalLink": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates"
}
```

## 51.17.2 Service Template for V1

A service template is a standardized service definition that can be used by self service users to provision a service instance. The following table describes the Service Template.

**Table 51–143 ServiceTemplate Data Model**

| Field                 | Type                            | Supported Methods | Description                                                                       | Occurs |
|-----------------------|---------------------------------|-------------------|-----------------------------------------------------------------------------------|--------|
| name                  | String                          | Any               | A human readable name given to the service template. This field cannot be edited. | 1      |
| serviceFamily         | String                          | Any               | Service Family.                                                                   | 1      |
| serviceType           | String                          | Any               | Service type                                                                      | 1      |
| id                    | String                          | GET               | Service template ID. The GET method contains the value for this element.          | 1      |
| description           | String                          | Any               | A brief description given to the service template.                                | 0..1   |
| roles                 | Collection<Role>                | GET<br>POST       | SSA roles that can access the template.                                           | 0..1   |
| poolIds               | Collection<String>              | POST              | Software Pool IDs associated with this template.                                  | 1      |
| serviceExecutableMeta | ServiceExecutableMetaDataEntity | Any               | Service executable to be used for the service template.                           | 0..1   |
| createdOn             | String (Date / Time)            | GET               | Date and time on which the resource was created.                                  | 0..1   |
| createdBy             | String                          | GET               | User who created the resource.                                                    | 1      |
| modifiedOn            | String (Date / Time)            | GET               | Date and time on which the resource was modified.                                 | 0..1   |
| modifiedBy            | String                          | GET               | User who modified the resource.                                                   | 1      |
| owner                 | String                          | GET               | User who owns the resource.                                                       | 1      |
| etag                  | String                          | GET               | HTTP entity value tag.                                                            | 0..1   |
| lastModified          | String                          | GET               | HTTP last modified value                                                          | 0..1   |
| canonicalLink         | URI                             | GET               | Preferred version of resource.                                                    | 1      |

where:

- Supported Method:
  - Indicates the method type where this attribute will be available.
  - The method type **Any** indicates that this resource is available for GET, PUT, or POST methods.
- Occurs: An occurrence is 0..1 indicates that this is an optional parameter. An occurrence of 1 indicates that this parameter is mandatory.

### 51.17.2.1 Supported Methods on ServiceTemplate Resources

The following table describes the supported methods for servicetemplates resources.

**Table 51–144 Supported Methods on ServiceTemplate Resources**

| Method | Query Parameters | Request Payload                 | Response Payload                | URI                                                                                                  | Description                        |
|--------|------------------|---------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------|
| GET    |                  | NA                              | Service Template (Json Payload) | em/websvcs/restful/<br>/extws/cloudservices/admin/cfw/v1/servicefamily/{template id}                 | Retrieve service template details. |
| DELETE | NA               | NA                              | Status Message (Json payload)   | em/websvcs/restful/<br>/extws/cloudservices/admin/cfw/v1/servicefamily/<serviceFamily>/{template id} | Delete a service template          |
| PUT    | NA               | Service Template (Json payload) |                                 | em/websvcs/restful/<br>extws/cloudservices/admin/cfw/v1/servicefamily/<serviceFamily>/{template id}  | Updates service template resource  |

### 51.17.3 ServiceTemplateUpdate for V1

This table describes the ServiceTemplateUpdate data model.

**Table 51–145 ServiceTemplateUpdate Data Model**

| Field            | Type                             | Supported Methods | Description                                                                         | Occurs |
|------------------|----------------------------------|-------------------|-------------------------------------------------------------------------------------|--------|
| description      | String                           | PUT               | A brief description given to the service template.                                  | 0..1   |
| rolesAdded       | Collection<Role>                 | PUT               | SSA roles to be added that can access this service template.                        | 0..1   |
| rolesRemoved     | Collection<Role>                 | PUT               | SSA roles to be removed that have access to this service template.                  | 0..1   |
| poolsIdsAdded    | Collection<String>               | PUT               | Software pool IDs to be added to an existing template while it is being edited.     | 0..1   |
| poolsIdsRemoved  | Collection<String>               | PUT               | Software pool IDs to be removed from an existing template while it is being edited. | 0..1   |
| executableEntity | ServiceExecutable MetaDataEntity | PUT               | Service executable to be used for the service template.                             | 0..1   |

### 51.17.4 ServiceExecutableMetaEntity for V1

This table describes the ServiceExecutableMetaEntity data model.

**Table 51–146** *ServiceExecutableMetaDataEntity*

| Field          | Type                            | Description                                                                                                                                                                                                               |
|----------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| name           | String                          | Name of the executable that is used to save the actual executable in Enterprise Manager. This can be the name of a job, configured deployment procedure, deployment procedure, or a profile. This field cannot be edited. |
| type           | String                          | This can be: <ul style="list-style-type: none"> <li>▪ Job</li> <li>▪ DP</li> <li>▪ CDP</li> <li>▪ Profile</li> </ul>                                                                                                      |
| serviceFamily  | String                          | Service Family.                                                                                                                                                                                                           |
| serviceType    | String                          | Service Type                                                                                                                                                                                                              |
| configurations | Collection<TemplateConfigParam> | Executable Parameters                                                                                                                                                                                                     |
| payloads       | Collection<PayloadDescriptor>   | Collection of payload descriptor.                                                                                                                                                                                         |

### 51.17.5 Template Configuration Parameters for V1

The following table lists the TemplateConfigParam data model.

**Table 51–147** *Configuration Parameters*

| Field             | Type                             | Description                                 |
|-------------------|----------------------------------|---------------------------------------------|
| id                | String                           | ID of the configuration parameter.          |
| name              | String                           | Name of the configuration parameter         |
| value             | String                           | Value of the configuration parameter.       |
| values            | Collection<String>               | List of configuration parameter values.     |
| description       | String                           | Description of the configuration parameter. |
| required          | boolean                          | Boolean if parameter is required.           |
| secret            | boolean                          | Boolean if parameter is secret.             |
| subconfigurations | Collection<TemplateConfigParams> | Set of possible values.                     |

### 51.17.6 PayloadDescriptor for V1

The following table describes the PayloadDescriptor data model

**Table 51–148** *PayloadDescriptor data model*

| Field | Type   | Description                 |
|-------|--------|-----------------------------|
| name  | String | Name of the payload entity. |
| id    | String | Id of the payload entity.   |

### 51.17.7 ServiceTemplate Metadata for V1

The ServiceTemplate Metadata is used to generate JSON Payloads that are required to create the service template instance.

The following table describes ServiceTemplate Metadata Data Model.

**Table 51–149 ServiceTemplate Metadata Data Model**

| Field         | Type                         | Description                                   |
|---------------|------------------------------|-----------------------------------------------|
| serviceFamily | String                       | Name of the service family.                   |
| serviceType   | String                       | Name of service type.                         |
| type          | String                       | Can be one of:<br>JOB<br>DP<br>CDP<br>PROFILE |
| description   | String                       | Description                                   |
| payload       | Boolean                      | Is true if payload is expected.               |
| payloads      | Collection<PayloadMeta Data> | Boolean if parameter is required.             |

### 51.17.8 PayloadMetaData for V1

The following table describes the PayloadMetadata.

**Table 51–150 PayloadMetaData**

| Field        | Type   | Description     |
|--------------|--------|-----------------|
| id           | String | Payload Id.     |
| name         | String | Name of payload |
| defaultValue | String | Default value   |

### 51.17.9 ServiceTemplate MetaData for V1

The following table describes the supported methods on the ServiceTemplateMetaData.

**Table 51–151 Supported Methods on ServiceTemplateMetaData**

| Method | Query Parameters | Request Payload | Response Payload                                    | URI                                                                                                       | Description                                                                         |
|--------|------------------|-----------------|-----------------------------------------------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| GET    |                  | NA              | Collection<ServiceTemplate MetaData> (Json Payload) | em/websvcs/restful//extws/cloudservices/admin/cfw/v1/servicetemplates/{serviceFamily}/executable/metadata | Retrieve metadata for given service family and service type for CDP, DP, and so on. |



**Table 51–151 (Cont.) Supported Methods on ServiceTemplateMetaData**

| Method | Query Parameters | Request Payload                          | Response Payload                           | URI                                                                           | Description                                                         |
|--------|------------------|------------------------------------------|--------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------|
| POST   |                  | Service Template MetaData (Json Payload) | ServiceExecutableMetaEntity (Json Payload) | em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/metadata | Retrieve configurations for posted service family and service type. |

### 51.17.10 ServiceTemplates REST API Example

This section covers examples of ServiceTemplates REST API operations.

- [Creating Service Templates](#)
- [Updating a Service Template](#)
- [Deleting a Service Template](#)
- [Viewing Details of a Service Template](#)
- [Viewing Metadata of a Service Template](#)
- [Creating Configuration Values for Service Templates](#)

#### 51.17.10.1 Creating Service Templates

The table below shows the POST configuration for creating a Service template.

**Table 51–152 POST Request Configuration for Creating a Service Template**

| Feature         | Specification                                                         |
|-----------------|-----------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                         |

**Table 51–152 (Cont.) POST Request Configuration for Creating a Service Template**

| Feature | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {      "name": "TestSchaasTemplate3",     "serviceType": "SCHEMA",     "serviceFamily": "DBAAS",     "description": "This is a test schaas service template 1",     "poolIds": [         "FC129EEFFD67CD948B3147D2BAE0BA89"     ],      "roles": [         {             "name": "SSA01"         }     ],     "serviceExecutableMeta": {         "type": "CDP",         "configurations": [             {                  "name": "ROLE_NAME", "value": "SampleRole"             },             {                 "name": "MAX_NUMBER_OF_ SCHEMAS", "value": "2"             },             {                 "name": "ENFORCE_STORAGE_ CONSTRAINT", "value": "NO_LIMIT"             },             {                 "name": "AUTO_EXTEND_BLOCK_ SIZE", "value": "1024"             },             {                 "name": "REF_ZONE", "value": "blr zone"             },             {                 "name": "REF_POOL", "value": "schpool"             },             {                 "name": "REF_ HOST", "value": "mycompanyhost.com"             },             {                 "name": "REF_DB", "value": "Database"             },             {                 "name": "CREATE_SCHEMA_ OPTION", "value": "EMPTY_SCHEMAS"             },             {                 "name": "WORKLOADS",                 "subconfigurations": [                     {                         "name": "WORK_LOADS:1",                         "subconfigurations": [                             {                                 "name": "name",                                 "value": "Small"                             }                         ]                     }                 ]             }         ]     } } </pre> |

**Table 51–152 (Cont.) POST Request Configuration for Creating a Service Template**

| Feature        | Specification |
|----------------|---------------|
| Request method | POST          |

### 51.17.10.2 Updating a Service Template

The table below shows the PUT configuration for updating a Service template.

**Table 51–153 PUT Request Configuration for Updating a Service Template**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Body            | <pre>{   "description": "Service Template",   "rolesAdded": [     {       "name": "SSA02"     }   ],   "rolesRemoved": [     {       "name": "SSA01"     }   ],   "serviceExecutableMeta": {     "type": "CDP",     "configurations": [       {         "name": "REF_ZONE",         "value": "blr zone"       },       {         "name": "REF_POOL",         "value": "schpool"       },       {         "name": "REF_HOST",         "value": "mycompanyhost.com"       }     ]   } }</pre> |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

### 51.17.10.3 Deleting a Service Template

The table below shows the DELETE configuration for deleting a Service template.

**Table 51–154 DELETE Request Configuration for Deleting a Service Template**

| Feature         | Specification                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/687FE169ED3556CED38D11DC9BDD5CCD |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                          |

**Table 51–154 (Cont.) DELETE Request Configuration for Deleting a Service Template**

| Feature        | Specification |
|----------------|---------------|
| Body           | None          |
| Request method | DELETE        |

#### 51.17.10.4 Viewing Details of a Service Template

The table below shows the GET configuration for viewing details of a Service template.

**Table 51–155 DEELTE Request Configuration for Deleting a Service Template**

| Feature         | Specification                                                                                              |
|-----------------|------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/se<br>rvicetemplates/687FE169ED3556CED38D11DC9BDD5CCD |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                            |
| Body            | None                                                                                                       |
| Request method  | GET                                                                                                        |

A sample of the response received is shown below.

Status 200 OK

Content-Type: application/json

```
{
 "name" : "ST_DB_SCH_01",
 "serviceFamily" : "DBAAS",
 "serviceType" : "SCHEMA",
 "type" : "Service Template",
 "description" : "Database Schema Service Template",
 "id" : "E821074692058B5DE040F00AA37D75AB",
 "pools" : [{
 "name" : "SP_DB_SCH_01",
 "id" : "EBECE6B8F0144BEFAB2F1991B4AFCC65",
 "type" : "schaas_pool",
 "zone" : {
 "id" : "E82022FF954B98CFE040F00AA37D447B",
 "name" : "PZ01"
 }
 }
] ,
 "serviceExecutableMeta" : {
 "type" : "CDP",
 "configurations" : [{
 "id" : "targets",
 "name" : "targets",
 "value" : ""
 }, {
 "id" : "ssaRequestId",
 "name" : "ssaRequestId",
 "value" : ""
 }, {
 "id" : "ssaUser",
 "name" : "ssaUser",
 "value" : ""
 }
]
}
```

```

 "id" : "ssaTargetName",
 "name" : "ssaTargetName",
 "value" : ""
 }, {
 "id" : "ssaTargetType",
 "name" : "ssaTargetType",
 "value" : ""
 }, {
 "id" : "zoneTargetName",
 "name" : "zoneTargetName",
 "value" : ""
 }, {
 "id" : "zoneTargetType",
 "name" : "zoneTargetType",
 "value" : ""
 }, {
 "id" : "REQUEST_NAME",
 "name" : "REQUEST_NAME",
 "value" : ""
 }, {
 "id" : "SERV_TEMPLATE_GUID",
 "name" : "SERV_TEMPLATE_GUID",
 "value" : ""
 }, {
 "id" : "CREATE_SCHEMA_OPTION",
 "name" : "Option for creating user schemas",
 "value" : "EMPTY_SCHEMAS"
 }, {
 "id" : "MAX_NUMBER_OF_SCHEMAS",
 "name" : "Maximum number of schemas permissible",
 "value" : "4"
 }, {
 "id" : "DB_PROFILE_URN",
 "name" : "Database Profile Component's URN",
 "value" : ""
 }, {
 "id" : "REMAP_SCHEMA_LIST",
 "name" : "Schema list.",
 "value" : "",
 "values" : []
 }, {
 "id" : "MASTER_ACCOUNT",
 "name" : "Master Account",
 "value" : ""
 }, {
 "id" : "ROLE_NAME",
 "name" : "Database Role Name",
 "value" : "ST_DB_SCH_01_Oct_06_2013_22"
 }, {
 "id" : "SCHEMA_PRIVILEGES",
 "name" : "Schema Privileges",
 "value" : "",
 "values" : ["CREATE TABLE", "CREATE SEQUENCE", "CREATE OPERATOR", "CREATE
DIMENSION", "CREATE VIEW", "CREATE INDEXTYPE", "CREATE TYPE", "CREATE TRIGGER",
"CREATE SESSION", "CREATE SYNONYM", "CREATE PROCEDURE"]
 }, {
 "id" : "ENFORCE_STORAGE_CONSTRAINT",
 "name" : "Enforces Storage Constraint",
 "value" : "false"
 }, {

```

```
 "id" : "INITIAL_BLOCK_SIZE",
 "name" : "Initial Storage Size",
 "value" : ""
 }, {
 "id" : "AUTO_EXTEND_BLOCK_SIZE",
 "name" : "Auto extend block size",
 "value" : ""
 }, {
 "id" : "TABLESPACE_ENCRYPTION_ALGORITHM",
 "name" : "Tablespace Encryption",
 "value" : ""
 }, {
 "id" : "SHARED_STAGE_LOCATION",
 "name" : "Staging Location",
 "value" : ""
 }, {
 "id" : "WORKING_DIRECTORY",
 "name" : "Working Directory",
 "value" : ""
 }, {
 "id" : "SCHAAS_CUSTOM_PRE_SCRIPTS_URN",
 "name" : "Pre-script",
 "value" : ""
 }, {
 "id" : "SCHAAS_CUSTOM_POST_SCRIPTS_URN",
 "name" : "Post-script",
 "value" : ""
 }, {
 "id" : "SCHEMA_PASSWORD_LIST",
 "name" : "Schema password list",
 "value" : "",
 "values" : []
 }, {
 "id" : "CUSTOM_USER_SELECTED_SCRIPT_URN",
 "name" : "Custom Script URN",
 "value" : "",
 "values" : []
 }, {
 "id" : "DBSERVICE_NAME",
 "name" : "Database Service Name",
 "value" : ""
 }
]
},
"createdOn" : null,
"createdBy" : null,
"modifiedOn" : null,
"modifiedBy" : null,
"owner" : "SYSMAN",
"etag" : null,
"lastModified" : null,
"canonicalLink" :
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/serv
icetemplates/E821074692058B5DE040F00AA37D75AB",
"selfLink" :
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/serv
icetemplates/E821074692058B5DE040F00AA37D75AB"
}
```

### 51.17.10.5 Viewing Metadata of a Service Template

The table below shows the GET configuration for viewing metadata of a Service template.

**Table 51–156 GET Request Configuration for Viewing Metadata a Service Template**

| Feature         | Specification                                                                               |
|-----------------|---------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/se<br>rvicetemplates/metadata/DBAAS/DB |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json             |
| Body            | None                                                                                        |
| Request method  | GET                                                                                         |

A sample of the response received is shown below.

```
Status 200 OK
Content-Type: application/json
"metadata" : {
 "serviceFamily:DBAAS" : {
 "serviceType:DB" : {
 "options" : [{
 "serviceFamily" : "DBAAS",
 "serviceType" : "DB",
 "type" : "CDP",
 "description" : "Create a Service Template based on Configured
Deployment Procedure.",
 "name" : "<user_input>",
 "payload" : false
 }, {
 "serviceFamily" : "DBAAS",
 "serviceType" : "DB",
 "type" : "CDP",
 "description" : "Create a Service Template based on Configured
Deployment Procedure and its Payload.",
 "name" : "<user_input>",
 "payload" : true,
 "payloads" : [{
 "id" : "DBDELETE_PRESCRIPT",
 "defaultValue" : "DBDELETE_PRESCRIPT",
 "name" : "<user_input>"
 }]
 }, {
 "serviceFamily" : "DBAAS",
 "serviceType" : "DB",
 "type" : "DP",
 "description" : "Create a Service Template based on Deployment
Procedure.",
 "name" : "<user_input>",
 "payload" : false
 }, {
 "serviceFamily" : "DBAAS",
 "serviceType" : "DB",
 "type" : "DP",
 "description" : "Create a Service Template based on Deployment Procedure
and its Payload.",
```

```

 "name" : "<user_input>",
 "payload" : true,
 "payloads" : [{
 "id" : "DBDELETE_PRESCRIPT",
 "defaultValue" : "DBDELETE_PRESCRIPT",
 "name" : "<user_input>"
 }]
 }]
}
,
"message" : "This gives the metadata information of the different types of
service templates that can be created, the executable options supported and the
allowed configuration parameters.",
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/metadata/DB
AAS/DB"
}
}
}

```

#### 51.17.10.6 Creating Configuration Values for Service Templates

To get configuration values that are required for creation of service template, perform a POST operation on the metadata.

**Table 51–157 POST Request Configuration for Creating Configuration Values for a Service Template**

| Feature         | Specification                                                                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v1/servicetemplates/metadata/                                                                        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                        |
| Body            | {<br>"type": "CDP",<br>"serviceFamily": "MWAAS",<br>"serviceType": "PhysicalWLS",<br>"name": "Provision Middleware_SYSMAN_Jul-18-2013<br>00-52AM"<br>} |
| Request method  | POST                                                                                                                                                   |

#### Note:

- This payload is the one that we get via GET call of metadata.
- User fills <user\_input> appropriately to get ServiceExecutableMetaDataSet as response.
- User uses this ServiceExecutableMetaDataSet in his/her create Payload with values set accordingly to create Service Template MetaData.

A sample of the response received is shown below.



```

{
 "configurations" : [{
 "description" : "Username for the WebLogic Server",
 "id" : "wlsUserName",
 "name" : "WebLogic Username *",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Password for the WebLogic Server",
 "id" : "wlsUserPassword",
 "name" : "WebLogic Password *",
 "required" : "false",
 "secret" : "true"
 }, {
 "description" : "Re-enter Password for the WebLogic Server",
 "id" : "wlsUserPassword2",
 "name" : "Re-enter WebLogic Password *",
 "required" : "false",
 "secret" : "true"
 }, {
 "description" : "Enter 1 for single cluster, 0 for no cluster. For physical provisioning it is auto populated based on the profile selected. For virtual provisioning it is defaulted to 1. Please change based on the actual topology of the assembly. ",
 "id" : "topology",
 "name" : "Topology *",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Enter 1 for 'Yes', 0 for 'No'",
 "id" : "exposeAdminURLs",
 "name" : "Expose WebLogic and FMW Console URLs to SSA User",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Enter 1 to enable, 0 to disable Load Balancer",
 "id" : "enableLoadBalancer",
 "name" : "Enable Load Balancer",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Use ',' to separate multiple target hosts",
 "id" : "hostListForScripts",
 "name" : "Hosts for Executing Scripts",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "This will be used for the above hosts",
 "id" : "namedCredforHostList",
 "name" : "Named Credential for execution of scripts",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "To execute scripts on Admin Server besides the hosts entered above, enter 1 for 'Yes', 0 for 'No'",
 "id" : "isScriptExecuteOnAdminServer",
 "name" : "Execution of Scripts on Admin Server Host",
 "required" : "false",
 "secret" : "false"
 }, {

```

```
 "description" : "Lower Bound for choosing Free Ports",
 "id" : "portRangeStart",
 "name" : "Port Range Start",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Upper Bound for choosing Free Ports",
 "id" : "portRangeEnd",
 "name" : "Port Range End",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Memory required by each additonal instance in GB",
 "id" : "memoryUsagePerInstance",
 "name" : "Expected Memory Consumption (For Use By Placement Logic)",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "CPU required by each additonal instance in percentage",
 "id" : "cpuUsagePerInstance",
 "name" : "Expected CPU Utilization (For Use By Placement Logic)",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Enter memory and java arguments to start the server. Example:
-Xms1280m -Xmx1280m -XX:PermSize=128m -XX:MaxPermSize=256m
-Dweblogic.security.SSL.ignoreHostnameVerification=true (Physical Only)",
 "id" : "startupArguments",
 "name" : "Managed Server Startup Arguments",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Enter 1 for distributing Java Servers uniformly on available
hosts for high availability or 0 for placing maximum number of Java Servers
possible on a host first before provisioning on other available host (Physical
Only)",
 "id" : "requireHighAvailability",
 "name" : "Distribute Java Servers on Available Hosts",
 "required" : "false",
 "secret" : "false"
 }, {
 "description" : "Root Password to override (Virtual Only)",
 "id" : "rootPwd",
 "name" : "Root Password",
 "required" : "false",
 "secret" : "true"
 }, {
 "description" : "Agent Install User Password to override (Virtual Only)",
 "id" : "agentInstallUserPwd",
 "name" : "Agent Install User Password",
 "required" : "false",
 "secret" : "true"
 }, {
 "description" : "Enter name of the host credential to use for provisioning
operations (Virtual Only)",
 "id" : "namedHostCredForVirtualFlow",
 "name" : "Host credential name for virtual flow",
 "required" : "false",
 "secret" : "false"
 }],
```

```
"name" : "Provision Middleware_SYSMAN_Oct-02-2013 10-31AM",
"serviceFamily" : "MWAAS",
"serviceType" : "PhysicalWLS",
"type" : "CDP"
```

## 51.18 EM CLI Verbs for Self Service Applications

The Enterprise Manager Command Line Interface (EM CLI) enables you to access Enterprise Manager Cloud Control functionality from text-based consoles (shells and command windows) for a variety of operating systems. You can call Enterprise Manager functionality using custom scripts, such as SQL\*Plus, OS shell, Perl, or Tcl, thus easily integrating Enterprise Manager functionality with a company's business process.

This section provides details on the EM CLI verbs for Enterprise Manager Self Service Applications (SSA) Admin users.

### 51.18.1 Introduction

A new framework is introduced for the release 12.1.0.9, along with which new EM CLI verbs are introduced. The EM CLI verbs associated with the previous version of the framework are deprecated and users are suggested to move to the supported EM CLI verbs. The EM CLI verbs for the deprecated version are listed as v1 and the supported EM CLI verbs are listed as v2:

- [EM CLI Verbs for SSA Operations for V2](#)
- [EM CLI Verbs for SSA Operations for V1](#)

All PaaS Infrastructure Zone EM CLI operations are available only to users with a EM\_CLOUD\_ADMINISTRATOR role and Software Pool operations can be performed only by users with a EM\_SSA\_ADMINISTRATOR role. EM CLI verbs will obtain user information from the security context and verify only those users authorized to perform these operations.

### 51.18.2 EM CLI Verbs for SSA Operations for V2

The following table provides details of the supported verbs (v2). Note that these verbs are available to SSA Administrator users only and cannot be used with an EM\_SSA\_USER role.

**Table 51–158 EM CLI Verbs Supported for V2**

| Verb               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Format                                                                                                                                                                                                                                            |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli<br>invoke_ws | <p>Invokes the Enterprise Manager Web service.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>▪ -wsname - Indicates the URI of the resource.</li> <li>▪ -method - Type of the REST method.</li> <li>▪ -payload - Indicates the json/xml input payload.</li> <li>▪ -accept - Payload type. These are standard jersey values.</li> <li>▪ -type - Standard jersey response types.</li> <li>▪ -param - Use this option to pass in form/query parameter value. For example, -param="name:value". More than one parameter can be specified. For example, -param="name:value" -param="zip:12345".</li> </ul> <p>The parameter can be provided through a file. To read from file, specify as shown in the example: -param="name:tag" -input_file="tag:file.txt". In this example, the name parameter will be read from file file.txt.</p> <ul style="list-style-type: none"> <li>▪ -input_file - Use this option to pass in payload or param value from file.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>▪ <pre>emcli invoke_ws -wsname=/em/websvcs/restful/emws/core/v 0/list/dataservice -method=get -param="name:Administrators"</pre> <p>Invokes list resource and sources all administrators</p></li> <li>▪ <pre>emcli invoke_ws -wsname=/em/websvcs/restful/emws/core/v 0/list/dataservice -method=get -param="name:tag" -input_ file="tag:file.txt"</pre> <p>Invokes list resource and sources all administrators. The name parameter is read from file.txt.</p></li> </ul> | <pre>emcli invoke_ws -wsname=&lt;WebService Name&gt; -method=&lt;method name&gt; [-payload=&lt;Payload&gt; ] [-accept=&lt;accept type&gt; [-type=response type] [-param=Query Parameters] [-input_file=&lt;Input File for payload data&gt;]</pre> |

**Table 51–158 (Cont.) EM CLI Verbs Supported for V2**

| Verb                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Format         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| emcli<br>invoke_ws<br>-method="post"<br>-wsname="/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/"<br>-type="application/json"<br>-accept="application/json"<br>-payload='{"useExistingTarget":false,"name":"CLI_ZONE", "type":"self_service_zone", "credentials": [{"name":"normal_credential_guid", "value": "AKM"} ], "memberTargetType": "host", "members": ["myhost2.idc.example.com"], "placementConstraints": [{"name":"MAX_CPU_UTILIZATION", "value":["75"]}, {"name":"MAX_MEMORY_ALLOCATION", "value":["75"]}], "characteristics": [{"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_CONTACT", "value":["123456789"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER", "value":["IDC.NOIDA"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT", "value":["CFW"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS", "value":["Test"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS", "value":["ST"]}, {"name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "value":["IDC"]} ], "roles": ["SSA_USER"]}' | Creates a new PaaS Infrastructure zone with the provided payload.<br><br>Example:<br><br>emcli invoke_ws -method="post"<br>-wsname="/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/"<br>-type="application/json"<br>-accept="application/json"<br>-payload='{"useExistingTarget":false,<br>"name":"CLI_ZONE", "type":"self_service_zone", "credentials": [<br>{ "name":"normal_credential_guid",<br>"value": "AKM"} ], "memberTargetType":<br>"host", "members":<br>["myhost2.idc.example.com"],<br>"placementConstraints": [{ "name":"MAX_CPU_UTILIZATION", "value":["75"]},<br>{ "name":"MAX_MEMORY_ALLOCATION", "value":["75"]}],<br>"characteristics": [<br>{ "name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_CONTACT", "value":["123456789"]},<br>{ "name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_COST_CENTER", "value":["IDC.NOIDA"]},<br>{ "name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT", "value":["CFW"]},<br>{ "name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_STATUS", "value":["Test"]},<br>{ "name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS", "value":["ST"]},<br>{ "name":"EXAMPLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "value":["IDC"]} ], "roles":<br>["SSA_USER"]}' | Same as above. |

**Table 51–158 (Cont.) EM CLI Verbs Supported for V2**

| Verb              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli get_targets | <p>Obtain status and alert information for targets.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>■ -targets=name:type - Name or type can be either a full value or a pattern match using "%". Also, name is optional, so the type alone may be specified.</li> <li>■ -limit_rows="Maximum number of targets to be retrieved" - Defaults to 2000 rows, if not specified.</li> <li>■ -config_search="Configuration Search UI Name" - Search UI name should be the display name of the configuration search.</li> <li>■ -alerts - Displays the count of critical and warning alerts for each target.</li> <li>■ -noheader - Displays tabular output without column headers.</li> <li>■ -unmanaged - Displays unmanaged targets (no status or alert information).</li> <li>■ -properties - Displays unmanaged targets with properties.</li> <li>■ -separator_properties="separator_properties" - Displays unmanaged target properties with separator_properties.</li> <li>■ -subseparator_properties="subseparator_properties" - Displays unmanaged target properties with subseparator_properties.</li> <li>■ -script - This option is equivalent to -format="name:script".</li> <li>■ -format - Format specification (default is -format="name:pretty"). <ul style="list-style-type: none"> <li>■ -format="name:pretty" prints the output table in a readable format but is not intended to be parsed by scripts.</li> <li>■ -format="name:script" sets the default column separator to a tab and the default row separator to a new line. The column and row separator strings may be specified to change these defaults.</li> <li>■ -format="name:csv" sets the column separator to a comma and the row separator to a newline.</li> </ul> </li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>■ emcli get_targets<br/>Displays a maximum of 2000 targets. Critical and Warning columns are not shown.</li> <li>■ emcli get_targets -limit_rows=20<br/>Displays a maximum of 20 targets. Critical and Warning columns are not shown.</li> <li>■ emcli get_targets -alerts<br/>Displays a maximum of 2000 targets. Critical and Warning columns are shown.</li> </ul> | <p>emcli get_targets</p> <p>[-targets="[name1:]type1;[name2:]type2;..."]</p> <p>[-alerts]</p> <p>[-noheader]</p> <p>[-script   -format=</p> <p>[name:&lt;pretty   script   csv&gt;];</p> <p>[column_separator:"column_sep_string"];</p> <p>[row_separator:"row_sep_string"];</p> <p>]</p> <p>[-limit_rows="Maximum number of targets to be retrieved"]</p> <p>[-config_search="Configuration Search UI Name"]</p> <p>[-unmanaged]</p> <p>[-properties]</p> <p>[-separator_properties="properties_sep_string"]</p> <p>[-subseparator_properties="properties_subsep_string"]</p> |

**Table 51–158 (Cont.) EM CLI Verbs Supported for V2**

| Verb                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Format                                                                                                  |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| cancel_<br>cloud_<br>service_<br>requests  | <p>Cancels cloud service requests. Either user or names option should be provided. Both cannot be used simultaneously.</p> <ul style="list-style-type: none"> <li>■ user: The user name to be used to filter delete requests.</li> <li>■ family: The Service Family Name to be used to filter cloud requests.</li> <li>■ ids: List of request ids to be used to filter cloud requests separated by a semicolon(";"). Only scheduled requests can be canceled.</li> </ul> <p>Example</p> <pre>emcli cancel_cloud_service_requests -user="user1"</pre> <p>Cancels all Scheduled cloud requests whose owner is specified user.</p> <pre>emcli cancel_cloud_service_requests -user="user1" -family="family1"</pre> <p>Cancels all Scheduled cloud requests owned by "user1" and service family="family1".</p> <pre>emcli cancel_cloud_service_requests -user="user1" -ids="1;2"</pre> <p>Cancels all Scheduled cloud requests owned by "user1" and with ids 1" and "2".</p>                                                                                                                                                                                                                                                | <pre>emcli cancel_cloud_service_requests -user="username"  [-family="family"] [-ids="id1;id2..."]</pre> |
| delete_<br>cloud_<br>service_<br>instances | <p>Deletes the cloud service instances based on a specified filter. This option cleans up all objects owned by a self service user when the instance is deleted.</p> <ul style="list-style-type: none"> <li>■ user: The user name to be used to filter service instances to be deleted.</li> <li>■ family: The service family name to be used to filter service instances to be deleted.</li> <li>■ type: The service type to be used to filter service instances to be deleted.</li> </ul> <p>Examples:</p> <pre>emcli delete_cloud_service_instances -user="user1"</pre> <p>Deletes all cloud instances whose owner is the specified user.</p> <pre>emcli delete_cloud_service_instances -user="user1" -family="family1"</pre> <p>Deletes all cloud instances owned by "user1" that belong to service family="family1".</p> <pre>emcli delete_cloud_service_instances -user="user1" -type="type1"</pre> <p>Deletes all cloud instances owned by "user1" that belong to service type="type".</p> <pre>emcli delete_cloud_service_instances -user="user1" -family="family1" -type="type1"</pre> <p>Deletes all cloud instances owned by "user1", that belong to service family="family1" and service type="type1".</p> | <pre>emcli delete_cloud_service_instances -user="username"  [-family="family"] [-type="type"]</pre>     |

**Table 51–158 (Cont.) EM CLI Verbs Supported for V2**

| Verb                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Format                                                                                            |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| delete_cloud_user_objects   | <p>Deletes cloud user objects including cloud service instances and requests.</p> <ul style="list-style-type: none"> <li>■ user: The user name to be used to filter user objects.</li> <li>■ purge: Purges the completed requests. Default is false</li> <li>■ force: Tries to cancel In Progress requests. Depending on the Job Status, some resources may require manual cleanup. This option should be used with caution as you cannot stop or undo the operation once it has been started.</li> </ul> <p><b>Note:</b> If you use the purge option when some service instances are running, you must wait till the request is fully completed before you use the purge option again.</p> <p>Examples:</p> <pre>emcli delete_cloud_user_objects -user="user1"</pre> <p>Deletes all cloud objects whose owner is "user1". All scheduled requests will be canceled.</p> <pre>emcli delete_cloud_user_objects -user="user1" -purge</pre> <p>Deletes all cloud objects whose owner is "user1". All scheduled requests will be canceled. All Complete Requests will be purged.</p> <pre>emcli delete_cloud_user_objects -user="user1" -force</pre> <p>Deletes all cloud objects whose owner is "user1". All scheduled requests will be canceled. All In Progress Requests will be aborted.</p> | <pre>emcli delete_cloud_user_objects -user="username" [-purge] [-force]</pre>                     |
| get_cloud_service_instances | <p>Retrieves the list of cloud service instances. All instances will be printed if no option is specified.</p> <ul style="list-style-type: none"> <li>■ user: The user name to be used to filter service instances.</li> <li>■ family: The service family name to be used to filter service instances.</li> <li>■ type: The service family type to be used to filter service instances.</li> </ul> <p>Examples:</p> <pre>emcli get_cloud_service_instances</pre> <p>Displays all the cloud instances.</p> <pre>emcli get_cloud_service_instances -user="user1"</pre> <p>Displays all cloud instances whose owner is "user1"</p> <pre>emcli get_cloud_service_instances -family="family1"</pre> <p>Displays all cloud instances that belong to service family "family1"</p> <pre>emcli get_cloud_service_instances -type="type1"</pre> <p>Displays all cloud instances that belong to service type "type1"</p>                                                                                                                                                                                                                                                                                                                                                                               | <pre>emcli get_cloud_service_instances [-user="username"] [-family="family"] [-type="type"]</pre> |



**Table 51–158 (Cont.) EM CLI Verbs Supported for V2**

| Verb                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Format                                                                                                                     |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| get_cloud_service_requests | <p>Retrieves the list of cloud requests. All requests will be printed if no filter is applied. Both options cannot be used simultaneously.</p> <ul style="list-style-type: none"> <li>■ user: The user name to be used to filter cloud requests.</li> <li>■ family: The service family name to be used to filter cloud requests.</li> <li>■ ids: The list of request ids to be used to filter cloud requests separated by a semicolon.</li> </ul> <p>Examples:</p> <pre>emcli get_cloud_service_requests</pre> <p>Displays all cloud requests.</p> <pre>emcli get_cloud_service_requests -user="user1"</pre> <p>Displays all cloud requests created by "user1"</p> <pre>emcli get_cloud_service_requests -family="family1"</pre> <p>Displays all cloud requests that belong to service family "family1"</p> <pre>emcli get_cloud_service_requests -ids="1;2"</pre> <p>Displays all cloud with RequestIds "1" and "2"</p> | <pre>emcli get_cloud_service_requests</pre> <p>[-user="username"]</p> <p>[-family="family"]</p> <p>[-ids="id1;id2..."]</p> |
| get_cloud_user_objects     | <p>Retrieves the list of cloud user objects including cloud service instances and requests. All objects will be printed if the user option is not used.</p> <p>- user: The user name to be used to filter user objects.</p> <p>Examples:</p> <pre>emcli get_cloud_user_objects</pre> <p>Displays all cloud objects, cloud instances, requests, and other objects.</p> <pre>emcli get_cloud_user_objects -user="user1"</pre> <p>Displays cloud objects whose owner is "user1", cloud instances, requests, and other objects.</p>                                                                                                                                                                                                                                                                                                                                                                                          | <pre>emcli get_cloud_user_objects</pre> <p>[-user="username"]</p>                                                          |

### 51.18.3 EM CLI Verbs for SSA Operations for V1

The following table provides details of the deprecated verbs (v1). Users are suggested to avoid using these verbs. These verbs are available to SSA Administrator users only and cannot be used with an EM\_SSA\_USER role.

**Table 51–159 EM CLI Verbs for V1**

| Verb                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Format                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| create_<br>paas_zone | <p>Creates a PaaS Infrastructure Zone.</p> <ul style="list-style-type: none"> <li>name - Name of the PaaS Infrastructure Zone to be created</li> <li>credential - Global Named Credentials to be used for provisioning in this PaaS Infrastructure Zone.</li> <li>hosts - Comma separated list of the Host targets to be added as members of this PaaS Infrastructure Zone. PaaS Infrastructure Zone can contain either hosts or Oracle VM Zones as members.</li> <li>ovm_zones - Comma separated list of the Oracle VM Zone targets to be added as members of this PaaS Infrastructure Zone.</li> <li>roles - Comma separated list of SSA roles that can access this PaaS Infrastructure Zone.</li> <li>description - Description of the PaaS Infrastructure Zone.</li> <li>cpu_utilization - Placement Policy Constraints allow the cloud administrator to set maximum thresholds for any host. Value entered must be between 1 and 100. If not provided, default value is taken to be 80 percent. Parameter is not needed if Oracle VM Zone targets are added as members.</li> <li>memory_utilization - Another Placement Policy Constraint for PaaS Infrastructure Zone. Value entered must be between 1 and 100. If not provided, default value is taken to be 80 percent. Parameter is not needed if Oracle VM Zone targets are added as members.</li> </ul> <p>Example:</p> <pre>emcli create_paas_zone   -name=MyPaaSZone   -credential=ABCDEF   -hosts=slc03qtn.us.example.com   -roles="SSA_USER_ROLE1, SSA_USER_ROLE2"   -description="Test PaaS zone"   -cpu_utilization=40   -memory_utilization=70</pre> <p>Sample Output:</p> <pre>PaaS Infrastructure Zone "MyPaaSZone" created successfully.</pre> | <pre>emcli create_paas_ zone-name=&lt;Name of PaaS Zone&gt;  -credential=&lt;Global Named Credential&gt;  [-hosts=&lt;Host1,Host2, Host3...&gt;]  [-ovm_ zones=&lt;OVMZone1, OVMZone2,OVMZon e3...&gt;]  [-roles=&lt;SsaRole1,Ssa Role2,...&gt;]  [-description=&lt;Descri ption of PaaS Zone&gt;]  [-cpu_ utilization=&lt;Value between 1 and 100&gt;]  [-memory_ utilization=&lt;Value between 1 and 100&gt;]</pre> |

**Table 51–159 (Cont.) EM CLI Verbs for V1**

| Verb                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| update_paas_zone     | <p>Updates a PaaS Infrastructure Zone.</p> <ul style="list-style-type: none"> <li>name - Name of the existing PaaS Infrastructure Zone.</li> <li>credential - Global Named Credentials to be updated.</li> <li>add_hosts - Comma separated list of the Host targets to be added as members of this Paas Infrastructure Zone. The hosts to be added must not be already added to other existing PaaS Zones.</li> <li>remove_hosts - Comma separated list of the Host targets to be removed as members from this Paas Infrastructure Zone.</li> <li>add_ovm_zones - Comma separated list of the Oracle VM Zone targets to be added as members of this Paas Infrastructure Zone. The Oracle VM Zones to be added must not be already added to other existing PaaS Zones.</li> <li>remove_ovm_zones - Comma separated list of the Oracle VM Zone targets to be removed as members from this Paas Infrastructure Zone.</li> <li>add_roles - Comma separated list of SSA roles to be added that can access this PaaS Infrastructure Zone.</li> <li>remove_roles - Comma separated list of SSA roles to be removed from this PaaS Infrastructure Zone.</li> <li>description - Updated description of the PaaS Infrastructure Zone.</li> <li>cpu_utilization - Placement Policy Constraints allow the cloud administrator to set maximum thresholds for any host. Value entered must be between 1 and 100.</li> <li>memory_utilization - Another Placement Policy Constraint for PaaS Infrastructure Zone. Value entered must be between 1 and 100.</li> </ul> | <p>emcli update_paas_zone-name=&lt;Name of PaaS Zone&gt;</p> <p>[-description=&lt;Description of PaaS Zone&gt;]</p> <p>[-credential=&lt;Global Named Credential&gt;]</p> <p>[-add_hosts=&lt;Host1,Host2,Host3...&gt;]</p> <p>[-remove_hosts=&lt;Host4,Host5...&gt;]</p> <p>[-add_ovm_zones=&lt;OVMZone1,OVMZone2,OVMZone3...&gt;]</p> <p>[-remove_ovm_zones=&lt;OVMZone4,OVMZone5...&gt;]</p> <p>[-add_roles=&lt;SsaRole1,SsaRole2,...&gt;]</p> <p>[-remove_roles=&lt;SsaRole3,SsaRole4,...&gt;]</p> <p>[-cpu_utilization=&lt;Value between 1 and 100&gt;]</p> <p>[-memory_utilization=&lt;Value between 1 and 100&gt;]</p> |
| delete_paas_zone     | <p>Deletes a PaaS Infrastructure Zone. PaaS Infrastructure Zone cannot be deleted if there is an existing Software Pool associated with it.</p> <p>name - Name of the existing PaaS Infrastructure Zone to be deleted.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>emcli delete_paas_zone -name=&lt;Name of PaaS Zone&gt;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| get_paas_zone_detail | <p>Retrieves the PaaS Infrastructure Zone details.</p> <p>name - Details of the existing PaaS Infrastructure Zone, such as Name, Description, Named Credentials, Number of Hosts, Roles, Maximum Memory Allocation (%), and Maximum CPU Utilization (%).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>emcli get_paas_zone_detail -name=&lt;Name of PaaS Zone&gt;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**Table 51–159 (Cont.) EM CLI Verbs for V1**

| Verb        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| create_pool | <p>Creates a Software Pool.</p> <ul style="list-style-type: none"> <li>name - Name of the Software Pool to be created</li> <li>target_type - Target type of the Software Pool to be created.</li> <li>paas_zone - Name of PaaS Infrastructure Zone in which the Software Pool is to be created.</li> <li>members - Comma separated list of targets to be added as members of the Software Pool.</li> <li>description - Description of the Software Pool.</li> <li>placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the Software Pool in terms of resource consumption. Refer to the get_pool_allowed_placement_constraints verb to get the available placement constraints for a pool target type.</li> <li>member_constraints - Comma separated key value pairs that restricts the addition of member targets to a Software Pool with a set criteria. Refer to the get_pool_allowed_member_constraints verb to get the available member constraints and their possible values for a pool target type.</li> <li>properties - Comma separated key value pairs for additional properties that need to be specified based on the Software Pool target type.</li> </ul> <p>Example:</p> <pre>emcli create_pool -name=MyDbPool -target_type=oracle_cloud_zone -paas_zone=MyPaaSZone -members=OraDb11g_home1_1_slc03qtn -description="Test Database Pool" -member_constraints="CONFIGURATION=oracle_ database,VERSION=11.2.0.3.0,PLATFORM=226" -placement_constraints="MAX_INSTANCES=7" -properties="host_credential_ guid=DBA449B8967AAF77E040F00A73B11F55, root_credential_ guid=DBA449B8967AAF77E040F00A73B11F55"</pre> <p>Sample Output:</p> <p>Software Pool "MyDbPool" created successfully.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>This verb is for DB Pool. The target_type for Schema Pool is schaas_pool.</li> <li>Though the properties are not mandated by the verb (because SSA framework owns it), they are needed and without them the pools will not work.</li> <li>Valid property names for Schema Pool are host_credential_guid, database_credential_guid, and gi_credential_guid.</li> </ul> | <pre>emcli create_pool -name=&lt;Name of Software Pool&gt; -target_type=&lt;Target type of Software Pool&gt; -paas_zone=&lt;Paas Infrastructure Zone of Software Pool&gt; -members=&lt;Member1 , Member2...&gt; [-description=&lt;Descri ption of Software Pool&gt;] [-placement_ constraints=&lt;constrai nt1=value1, constraint2=value2...&gt; ] [-member_ constraints=&lt;constrai nt1=value1, constraint2=value2&gt;] [-properties=&lt;propert y1=value1, property2=value2&gt;]</pre> |

**Table 51–159 (Cont.) EM CLI Verbs for V1**

| Verb            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Format                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| update_pool     | <p>Updates a Software Pool.</p> <ul style="list-style-type: none"> <li>name - Name of the existing Software Pool.</li> <li>target_type - Target type of the existing Software Pool. For example: "mwaas_zone" for Middleware Pool, "oracle_cloud_zone" for Database Pool, and "schaas_pool" for Schema Pool.</li> <li>description - Description of the Software Pool.</li> <li>add_members - Comma separated list of targets to be added as members of the Software Pool. The targets to be added must satisfy the member constraints of the Software Pool.</li> <li>remove_members - Member targets to be removed from the Software Pool.</li> <li>placement_constraints - Comma separated key value pairs of the placement constraints that allow the self service administrator to set maximum ceilings for resource utilization. This provides protection for the members of the Software Pool in terms of resource consumption.</li> <li>properties - Comma separated key value pairs for properties that need to be updated based on the Software Pool target type.</li> </ul> | <p>emcli update_pool<br/>-name=&lt;Name of Software Pool&gt;</p> <p>-target_type=&lt;Target type of Software Pool&gt;</p> <p>[-description=&lt;Description of Software Pool&gt;]</p> <p>[-add_members=&lt;Member1, Member2...&gt;]</p> <p>[-remove_members=&lt;Member4, Member5...&gt;]</p> <p>[-placement_constraints=&lt;constraint1=value1,constraint2=value2...&gt;]</p> <p>[-properties=&lt;property1=value1, property2=value2&gt;]</p> |
| delete_pool     | <p>Deletes a Software Pool. Software Pool cannot be deleted if there is an existing Service Template associated with it.</p> <ul style="list-style-type: none"> <li>name - Name of an existing Software Pool.</li> <li>target - Target type of the Software Pool.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>emcli delete_pool<br/>-name=&lt;Name of Software Pool&gt;</p> <p>-target_type=&lt;Target type of Software Pool&gt;</p>                                                                                                                                                                                                                                                                                                                    |
| get_pool_detail | <p>Retrieves the Software Pool details, such as name, target type, description, PaaS Infrastructure Zone, number of members, placement constraints, and member constraints.</p> <ul style="list-style-type: none"> <li>name - Name of the Software Pool.</li> <li>target - Target type of the Software Pool</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <p>emcli get_pool_detail<br/>-name=&lt;Name of Software Pool&gt;</p> <p>-target_type=mwaas_zone</p>                                                                                                                                                                                                                                                                                                                                          |

**Table 51–159 (Cont.) EM CLI Verbs for V1**

| Verb                                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Format                                                                                                                                                                                                                            |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| get_pool_capacity                      | <p>Retrieves the software pool capacity details like CPU utilization, memory allocation, and number of instances per host for the pool entities.</p> <ul style="list-style-type: none"> <li>name - Name of Software Pool</li> <li>target_type - Target type of Software Pool</li> </ul> <p>Example:</p> <pre>emcli get_pool_capacity   -name=MyDbPool   -target_type=oracle_cloud_zone</pre> <p>Sample Output:</p> <pre>Details of Software Pool "MyDbPool" : Capacity information for Software Pool "MyDbPool" : Capacity information for Entity "slc03qtn.us.example.com" of type "host" :   Storage Utilization : 29.0 : 100.0   CPU Utilization : 2.96 : 40.0   Memory Utilization : 27.68 : 70.0   Instances : 2 : 7</pre>                                              | <pre>emcli get_pool_capacity   -name=&lt;Name of Software Pool&gt;   -target_type=&lt;Target type of Software Pool&gt;</pre>                                                                                                      |
| get_pool_allowed_placement_constraints | <p>Retrieves the list of placement constraints for a given pool target type.</p> <p>target_type - Target type of the Software Pool</p> <p>Example:</p> <pre>emcli get_pool_allowed_placement_constraints   -target_type=oracle_cloud_zone</pre> <p>Sample Output:</p> <pre>Name          Description MAX_INSTANCES Maximum Number of Instances</pre>                                                                                                                                                                                                                                                                                                                                                                                                                         | <pre>emcli get_pool_allowed_placement_constraints   -target_type=&lt;mwaas_zone&gt;</pre>                                                                                                                                         |
| get_pool_filtered_targets              | <p>Retrieves the filtered targets available for Software Pool creation based on the criteria passed.</p> <ul style="list-style-type: none"> <li>target_type - Target type of the Software Pool</li> <li>paas_zone - Name of PaaS Infrastructure Zone within which the filtered targets are to be retrieved</li> <li>member_constraints - Comma separated key value pairs that restricts the addition of member targets to a Software Pool with a set criteria</li> </ul> <p>Example:</p> <pre>emcli get_pool_filtered_targets   -target_type=oracle_cloud_zone   -paas_zone=MyPaaSZone   -member_constraints="CONFIGURATION=oracle_database,VERSION=11.2.0.3.0,PLATFORM=226"</pre> <p>Sample Output:</p> <pre>Target Type    Target Name oracle_home    OraDb11g_home1</pre> | <pre>emcli get_pool_filtered_targets   -target_type=&lt;Target type of Software Pool&gt;   -paas_zone=&lt;PaaS Infrastructure Zone of Software Pool&gt;   -member_constraints=&lt;constraint1=value1,constraint2=value2&gt;</pre> |

**Table 51–159 (Cont.) EM CLI Verbs for V1**

| Verb                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Format                                                                                |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| get_pool_allowed_member_constraints | Retrieves the list of allowed Software Pool member constraint values for creation of Software Pool.<br>target_type - Target type of the Software Pool.<br>Example:<br>emcli get_pool_allowed_member_constraints<br>-target_type=oracle_cloud_zone                                                                                                                                                                                                                                                                                                                                                                                                             | emcli get_pool_allowed_member_constraints -target_type=<Target type of Software Pool> |
| get_named_credential                | Retrieves credential information used to create DBaaS and SchaaS Pools.<br><ul style="list-style-type: none"> <li>cred_name - The credential name</li> <li>cred_owner - Owner of the credential</li> </ul> Example:<br>emcli get_named_credential<br>-cred_name=ABCDEF<br>-cred_owner=ORACLE<br><br>Sample Output:<br>Output:<br>Credential Name:test12<br>Credential Owner:ORACLE<br>Credential Type:HostCreds<br>Credential Target Type:host<br>Credential Username:test123<br>Credential Scope:global<br>Credential Guid:DBA449B8967AAF77E040F00A73B11F55<br>Credential Stripe:TARGETS<br>Credential Columns:<br>HostPassword=*****<br>HostUserName=test12 |                                                                                       |





---

## SSA Portal Management REST APIs

---

This chapter covers the REST APIs for request scheduling and user preference management.

---

**Note:** For the SSA Plug-in release 12.1.0.9, a new framework is introduced for the REST APIs which is referred to as the v2 framework. The new framework consists of a different approach and signatures, as a result of which the REST APIs also differ when compared to the earlier framework. The earlier framework (v1) is deprecated and users are suggested to move to the v2 REST APIs and EM CLI verbs.

---

In v2, REST APIs for the Self Service Portal application are generally used by the SSA users. These REST APIs are generally in the `.../ssa/...` format. For example, `/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/`. REST APIs for administrative functions (i.e., `.../admin/...` format) are REST APIs that configure the SSA Portal setup, such as creating zones, templates, etc., which are generally performed by Cloud or SSA Administrators. The SSA user REST APIs are covered in this chapter.

This chapter contains the sections listed below. The first two sections provide summaries of all the v2 and v1 REST APIs covered in this chapter, whereas the following sections provide the user preference and request scheduling resource details and their REST APIs.

- [Summary of SSA User REST APIs for V2](#)
- [Summary of User REST APIs for V1](#)
- [Common REST Entities for V2](#)
  - [Cfw Resource for V2](#)
  - [Cfw Link for V2](#)
  - [Cfw Value Descriptor for V2](#)
- [Catalog APIs](#)
- [Service Types for V2](#)
- [Services for V2](#)
  - [Service Collection for V2](#)
  - [Service Offering for V2](#)
  - [Request Metadata for V2](#)

- [Service Requests REST APIs for V1 and V2](#)
  - [Service Requests Resource for V2](#)
  - [Service Request Collection - Collection Resource for V1](#)
  - [Service Request REST API Examples for V1 and V2](#)
- [Service Instances for V2](#)
- [Quota Usage for V2](#)
- [User Preferences for V2](#)
- [User Preferences for V1](#)
  - [My Preferences for V1](#)
  - [Canonical Link for V1](#)
  - [General Preferences for V1](#)
- [Composite Resource Attributes for V1](#)
  - [RequestEntity Data Model for V1](#)
  - [InstanceExpiryEntity Data Model for V1](#)
  - [QuotaEntity Data Model for V1](#)
- [Supported Methods for General Preferences \(for V1\)](#)
- [Service Specific User Preferences for V1](#)
  - [Service Preferences for V1](#)
  - [Supported Methods for My Preferences \(for V1\)](#)
  - [ServicePreferenceMetadata Data Model for V1](#)
  - [Composite Resource Attributes for V1](#)
  - [Service Preferences REST API Examples for V1](#)
  - [My Database Preferences REST API Examples for V1](#)
  - [My Middleware Preferences REST API Examples for V1](#)
  - [My Tests Preferences for V1](#)

## 52.1 Summary of SSA User REST APIs for V2

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v2 framework.

**Table 52–1 Summary of User Preference and Request Scheduling REST APIs for V2**

| Resource             | Data Model                   | GET                                                                                                                                                                          | POST                             | PUT           | DELETE        |
|----------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|---------------|---------------|
| Common REST Entities | <a href="#">Section 52.3</a> | Not applicable                                                                                                                                                               | Not supported                    | Not supported | Not supported |
| Catalog              | Not applicable               | <ul style="list-style-type: none"> <li>■ <a href="#">Section 52.4.2.1</a></li> <li>■ <a href="#">Section 52.4.2.2</a></li> <li>■ <a href="#">Section 52.4.2.3</a></li> </ul> | Not supported                    | Not supported | Not supported |
| Service Types        | Not applicable               | <a href="#">Section 52.5.1.1</a>                                                                                                                                             | Not supported                    | Not supported | Not supported |
| Service Collection   | <a href="#">Table 52–11</a>  | <a href="#">Section 52.6.5.1</a>                                                                                                                                             | <a href="#">Section 52.6.5.4</a> | Not supported | Not supported |

**Table 52–1 (Cont.) Summary of User Preference and Request Scheduling REST APIs for**

| Resource                        | Data Model                  | GET                                                                                                                                                                                                                                                                                                              | POST          | PUT                                | DELETE                           |
|---------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------|----------------------------------|
| Service Offering                | <a href="#">Table 52–12</a> | <a href="#">Section 52.6.5.2</a>                                                                                                                                                                                                                                                                                 | Not supported | Not supported                      | Not supported                    |
| Request Metadata                | <a href="#">Table 52–13</a> | <a href="#">Section 52.6.5.3</a>                                                                                                                                                                                                                                                                                 | Not supported | Not supported                      | Not supported                    |
| Service Requests                | <a href="#">Table 52–19</a> | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.7.4.1</a></li> <li>▪ <a href="#">Section 52.7.4.2</a></li> <li>▪ <a href="#">Section 52.7.4.3</a></li> <li>▪ <a href="#">Section 52.7.4.4</a></li> </ul>                                                                                         | Not supported | Not supported                      | Not supported                    |
| Service Request                 | Not applicable              | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.7.4.5</a></li> <li>▪ <a href="#">Section 52.7.4.8</a></li> <li>▪ <a href="#">Section 52.7.4.9</a></li> </ul>                                                                                                                                     | Not supported | <a href="#">Section 52.7.4.7</a>   | <a href="#">Section 52.7.4.6</a> |
| Service Instances               | <a href="#">Table 52–38</a> | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.8.2.1</a></li> <li>▪ <a href="#">Section 52.8.2.2</a></li> <li>▪ <a href="#">Section 52.8.2.3</a></li> <li>▪ <a href="#">Section 52.8.2.5</a></li> <li>▪ <a href="#">Section 52.8.2.4</a></li> <li>▪ <a href="#">Section 52.8.2.6</a></li> </ul> | Not supported | <a href="#">Section 52.8.2.7</a>   | Not supported                    |
| Quota Usage                     | Not applicable              | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.9.2.1</a></li> <li>▪ <a href="#">Section 52.9.2.2</a></li> </ul>                                                                                                                                                                                 | Not supported | Not supported                      | Not supported                    |
| User Preferences                | Not applicable              | <a href="#">Section 52.10.2.1</a>                                                                                                                                                                                                                                                                                | Not supported | Not supported                      | Not supported                    |
| General User Preferences        | Not applicable              | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.10.2.2</a></li> <li>▪ <a href="#">Section 52.10.2.3</a></li> </ul>                                                                                                                                                                               | Not supported | <a href="#">Section 52.10.2.4</a>  | Not supported                    |
| Services User Preferences       | Not applicable              | <a href="#">Section 52.10.2.5</a>                                                                                                                                                                                                                                                                                | Not supported | Not supported                      | Not supported                    |
| Service Family User Preferences | Not applicable              | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.10.2.6</a></li> <li>▪ <a href="#">Section 52.10.2.7</a></li> </ul>                                                                                                                                                                               | Not supported | <a href="#">Section 52.10.2.8</a>  | Not supported                    |
| Service Type User Preferences   | Not applicable              | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.10.2.9</a></li> <li>▪ <a href="#">Section 52.10.2.10</a></li> </ul>                                                                                                                                                                              | Not supported | <a href="#">Section 52.10.2.11</a> | Not supported                    |

---

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

---

## 52.2 Summary of User REST APIs for V1

The table below shows a summary of all the User preference and Request scheduling REST APIs covered in this chapter for the v1 framework.

**Table 52–2 Summary of User Preference and Request Scheduling REST APIs for V1**

| Resource                   | Data Model                  | GET                                                                                                                                | POST          | PUT                                                                                                                                | DELETE                            |
|----------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| General Preferences        | <a href="#">Table 52–66</a> | <a href="#">Section 52.13.1</a>                                                                                                    | Not supported | <a href="#">Section 52.13.2</a>                                                                                                    | Not supported                     |
| Service Preferences        | <a href="#">Table 52–73</a> | <a href="#">Section 52.14.5.1</a>                                                                                                  | Not supported | Supported                                                                                                                          | Not supported                     |
| Database Preferences       | Not applicable              | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.14.6.1</a></li> <li>▪ <a href="#">Section 52.14.6.4</a></li> </ul> | Not supported | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.14.6.2</a></li> <li>▪ <a href="#">Section 52.14.6.3</a></li> </ul> | Not supported                     |
| Middleware Preferences     | Not applicable              | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.14.7.1</a></li> <li>▪ <a href="#">Section 52.14.7.4</a></li> </ul> | Not supported | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.14.7.2</a></li> <li>▪ <a href="#">Section 52.14.7.3</a></li> </ul> | Not supported                     |
| Testing Preferences        | Not applicable              | <a href="#">Section 52.14.8.1</a>                                                                                                  | Not supported | <a href="#">Section 52.14.8.2</a>                                                                                                  | Not supported                     |
| Service Request Collection | <a href="#">Table 52–20</a> | <a href="#">Section 52.7.4.1</a>                                                                                                   | Not supported | Not supported                                                                                                                      | Not supported                     |
| Service Request Entity     | <a href="#">Table 52–21</a> | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.7.4.10</a></li> <li>▪ <a href="#">Section 52.7.4.11</a></li> </ul> | Not supported | <ul style="list-style-type: none"> <li>▪ <a href="#">Section 52.7.4.7</a></li> <li>▪ <a href="#">Section 52.7.4.12</a></li> </ul>  | <a href="#">Section 52.7.4.13</a> |

---

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

---

## 52.3 Common REST Entities for V2

This section describes the common REST entities to the cloud framework resources. These entities are specific to the new Cloud Framework (CFW) v2.

### 52.3.1 Cfw Resource for V2

Cfw resource is the base class for cloud framework resources. This resource fields that are common to all singular resources.

**Table 52–3 Cfw Resource Data Model**

| Field         | Type     | Description                                   |
|---------------|----------|-----------------------------------------------|
| description   | String   | Description of the resource.                  |
| createdOn     | String   | Date of creation.                             |
| createdBy     | String   | Details of the creator.                       |
| modifiedOn    | String   | Date of last modification.                    |
| modifiedBy    | String   | Details of the modifier.                      |
| owner         | String   | Indicates the owner of the resource.          |
| e-Tag         | String   | Indicates the Etag.                           |
| lastModified  | String   | Details of the last modification.             |
| canonicalLink | Cfw Link | Indicates the canonical link of the resource. |

### 52.3.2 Cfw Link for V2

Cfw link is the base class for the link to a resource.

**Table 52–4 Cfw Link Data Model**

| Field     | Type    | Description                                                                                                                                                                       |
|-----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| href      | String  | Indicates the URI or URI template. If the value is a URI template, then the templated property should be true.                                                                    |
| templated | Boolean | Is True if href is a URI template, else false. The default value is false.                                                                                                        |
| rel       | String  | Indicates the name of the link relation that the consumer may lookup as a secondary key (in addition to the type property) to retrieve actual link details, e.g. href or profile. |
| profile   | String  | Indicates the Json-schema describing the resource expected when deferring the target resource.                                                                                    |
| method    | String  | The method for requesting the target of the link.                                                                                                                                 |
| mediaType | String  | Description of the link target.                                                                                                                                                   |

### 52.3.3 Cfw Value Descriptor for V2

Cfw value descriptor defines the dynamic data.

**Table 52–5 Cfw Value Descriptor Data Model**

| Field             | Type                     | Description                                  |
|-------------------|--------------------------|----------------------------------------------|
| id                | String                   | Indicates the ID.                            |
| name              | String                   | Indicates the name.                          |
| value             | String                   | Indicates the value.                         |
| defaultValue      | String                   | Indicates the default value.                 |
| description       | String                   | Provides a description.                      |
| displayName       | String                   | Provides the display name.                   |
| required          | Boolean                  | Signifies if required or not.                |
| secret            | Boolean                  | Signifies if it is a secret or not.          |
| type              | String                   | Indicates the type.                          |
| unitOfmeasurement | String                   | Indicates the unit of measurement.           |
| values            | List                     | Provides the list of values.                 |
| subvalues         | List<CfwValueDescriptor> | Provides the list of sub-values.             |
| subtype           | String                   | Provides the type of elements in the values. |

## 52.4 Catalog APIs

This section covers the Catalog APIs for SSA user.

### 52.4.1 Supported Operations

The table below lists the supported operations for the Catalog APIs.

**Table 52–6 Supported operations for Catalog APIs**

| Method | URI                                                    | Description                                     |
|--------|--------------------------------------------------------|-------------------------------------------------|
| GET    | /em/websvcs/restful/extws/cloudservices/cfw/API        | Returns links to available REST API catalogs.   |
| GET    | /em/websvcs/restful/extws/cloudservices/cfw/API/v2     | Returns links to REST API catalog by user type. |
| GET    | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API | Returns user REST API catalog.                  |

## 52.4.2 REST API Catalog Examples for V2

This section contains examples of the Catalog APIs. The following REST API examples are covered:

- [Viewing Details of the Available REST API Catalogs](#)
- [Viewing Details of the API Catalog by User Type](#)
- [Viewing Details of the User API Catalog](#)

### 52.4.2.1 Viewing Details of the Available REST API Catalogs

The table below shows the GET configuration for viewing details of the available REST API catalogs.

**Table 52–7 GET Request Configuration for Viewing Details of the Available REST API Catalogs**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/cfw/API                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "items": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/cfw/API/v1",
 "description": "API Summary for version V1"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/cfw/API/v2",
 "description": "API Summary for version V2"
 }
],
 "totalResults": 2
}
```

### 52.4.2.2 Viewing Details of the API Catalog by User Type

The table below shows the GET configuration for viewing details of the REST API catalog by user type.

**Table 52–8** GET Request Configuration for Viewing Details of the REST API Catalog by User Type

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/cfw/API/v2                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "items": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API",
 "description": "APIs for Self Service Application for version V2",
 "type": "SSA"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/admin/cfw/v2/API",
 "description": "APIs for administrative functions for version V2",
 "type": "Admin"
 }
],
 "goBack":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/cfw/API",
 "totalResults": 2
}
```

### 52.4.2.3 Viewing Details of the User API Catalog

The table below shows the GET configuration for viewing details of the user API catalog.

**Table 52–9** GET Request Configuration for Viewing Details of the User API Catalog

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/API                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
```

```
"items": [
{
 "totalResults": 5,
 "resource": "services",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /services",
 "method": "GET",
 "description": "Get all the service offerings"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /services",
 "method": "POST",
 "description": "Create a service"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /services/{
 id}",
 "method": "GET",
 "templated": true,
 "description": "Get details of a service"
 },
 {
 "href":
 "https://bxx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/services/{
 id}/metadata",
 "method": "GET",
 "templated": true,
 "description": "Get the metadata for a service"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /services/{
 id}/metrics",
 "method": "PUT",
 "templated": true,
 "description": "Get the metrics for a service"
 }
]
},
{
 "totalResults": 11,
 "resource": "userpreferences",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences",
 "method": "GET"
 },
 {
```



```

 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/general",
 "method": "GET",
 "description": "Get the general user preferences"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/general/metadata",
 "method": "GET",
 "description": "Get the metadata for general user preferences"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services",
 "method": "GET",
 "description": "Get the service user preferences"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}",
 "method": "GET",
 "templated": true,
 "description": "Get the user preferences for a service family"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}/metadata",
 "method": "GET",
 "templated": true,
 "description": "Get the metadata for user preference at family level"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}/{service-type}",
 "method": "GET",
 "templated": true,
 "description": "Get the user preferences for a service type"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /userprefer
 ences/services/{service-family}/{service-type}/metadata",
 "method": "GET",
 "templated": true,
 "description": "Get the metadata for user preference at service type level"
 },
 {

```

```
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
/userprefer
ences/general",
"method": "PUT",
"description": "Update general user preference"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
/userprefer
ences/services/{service-family}",
"method": "PUT",
"templated": true,
"description": "Update family level user preferences"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
/userprefer
ences/services/{service-family}/{service-type}",
"method": "PUT",
"templated": true,
"description": "Update service type level user preferences"
}
]
},
{
"totalResults": 4,
"resource": "servicerequests",
"APIs": [
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
/servicereq
uests",
"method": "GET",
"description": "Get service requests"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
/servicereq
uests/{id}",
"method": "PUT",
"templated": true,
"description": "Reschedule the request"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
/servicereq
uests/{id}",
"method": "GET",
"templated": true,
"description": "Get the details of request"
},
{
"href":
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
```

```

 /servicereq
 uests/{id}",
 "method": "DELETE",
 "templated": true,
 "description": "Delete the request"
 }
],
{
 "totalResults": 5,
 "resource": "serviceinstances",
 "APIs": [
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances",
 "method": "GET",
 "description": "Get the service instances"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances/{id}",
 "method": "GET",
 "templated": true,
 "description": "Get details of a service instance"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances/{id}/actions",
 "method": "GET",
 "templated": true,
 "description": "Get actions for a service instance"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances/{id}/actions/{action-id}",
 "method": "GET",
 "templated": true,
 "description": "Get metadata details of action"
 },
 {
 "href":
 "https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2
 /serviceins
 tances/{id}/actions/{action-id}",
 "method": "PUT",
 "templated": true,
 "description": "Perform the action on the service instance"
 }
]
},
"goBack":

```

```
"https://xx.idc.example.com:4473/em/websvcs/restful/extws/cloudservices/API",
"totalResults": 4
}
```

## 52.5 Service Types for V2

This section covers the Service type REST APIs.

### 52.5.1 Service Types REST API Example for V2

The Service types REST API for SSA user is as follows.

The query parameter `servicefamily` can be optionally used in the GET request to filter the output for the given service family type.

#### 52.5.1.1 Viewing Details of Service Types

The table below shows the GET configuration for viewing details of Service types.

**Table 52–10** GET Request Configuration for Viewing Details of Service Types

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicetypes                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name": "Service Types",
 "type": "Service Types Collection",
 "totalResults": 3,
 "cfwItems": [
 {
 "name": "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
 "displayName": "Cfw Sample RemoteServer XaaS",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "targetTypes": [
 "Cfw_Xaas_DB_Service"
]
 },
 {
 "name": "CFW_SAMPLEXAAS_SERVICE",
 "displayName": "Cfw Sample XaaS",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "targetTypes": [
 "Cfw_Xaas_DB_Service",
 "cfw_xaas_storage_service"
]
 },
 {
 "name": "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
 "displayName": "Cfw Sample XaaS - Other Service",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",

```

```

"targetTypes": [
 "Cfw_Xaas_DB_Service_for_nomem"
],
"canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service
etypes"
},
"selfLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service
etypes"
}
}

```

## 52.6 Services for V2

The Services resource is defined by the Service collection resource, Service offering resource and the Request metadata resource. These resource are explained below.

The following topics are covered in this section:

- [Service Collection for V2](#)
- [Service Offering for V2](#)
- [Request Metadata for V2](#)
- [Supported Operations for Services for V2](#)
- [Services REST API Examples for V2](#)
- [Creating a Service Instance using V2](#)

### 52.6.1 Service Collection for V2

Service collection resource is an extension of the oracle.sysman.cfw.cloudAPI.common.CfwCollection resource.

**Table 52–11 Service Collection Data Model**

| Field         | Type                  | Description                                      |
|---------------|-----------------------|--------------------------------------------------|
| name          | String                | Name of the collection. The value is "Services". |
| type          | String                | Type of the collection. The value is "Services". |
| totalResults  | Integer               | The total count of items.                        |
| cfwItems      | List<ServiceOffering> | Provides the list of ServiceOffering.            |
| canonicalLink | Cfw link              | Indicates the canonical link.                    |
| selfLink      | Cfw link              | Indicates the self link.                         |

### 52.6.2 Service Offering for V2

Service offering resource is an extension of the oracle.sysman.cfw.cloudAPI.common.CfwResource resource. Service offering resource encapsulates the service offering that is available to the user using which the user can provision a service instance.

**Table 52–12 Service Offering Data Model**

| Field         | Type     | Description                                  |
|---------------|----------|----------------------------------------------|
| id            | String   | Indicates the ID of the service offering.    |
| name          | String   | Name of the service offering.                |
| displayName   | String   | Display name of the service offering.        |
| guid          | String   | GUID of the service offering.                |
| serviceType   | String   | Indicates the service type.                  |
| serviceFamily | String   | Indicates the service family.                |
| description   | String   | Description of the service offering.         |
| modifiedOn    | String   | Indicates the date of the modification.      |
| lastModified  | String   | Indicates the date of the last modification. |
| meta          | String   | Meta details of the service offering.        |
| canonicalLink | Cfw link | Indicates the canonical link.                |
| selfLink      | Cfw link | Indicates the self link.                     |

### 52.6.3 Request Metadata for V2

Request metadata resource is an extension of the `oracle.sysman.cfw.cloudAPI.common.CfwResource`. Request metadata encapsulates the data required to create a service instance. This response returned is filled by user with appropriate values and is used as in "POST" payload required for creation of service instance.

**Table 52–13 Request Metadata Data Model**

| Field           | Type                     | Description                           |
|-----------------|--------------------------|---------------------------------------|
| instanceName    | String                   | Name of the service instance.         |
| schedule        | Schedule entity          | Schedule of the request.              |
| configurations  | List<CfwValueDescriptor> | Provides the list of configurations.  |
| characteristics | List<Characteristic>     | Provides the list of characteristics. |

### 52.6.4 Supported Operations for Services for V2

The table below lists the supported operations for the Services resource.

**Table 52–14 Supported operations for Services Resource**

| Method | URI                                                                         | Description                        |
|--------|-----------------------------------------------------------------------------|------------------------------------|
| GET    | /em/websvcs/restful/extends/cloudservices/ssa/cfw/v2/services               | Returns list of service offerings. |
| GET    | /em/websvcs/restful/extends/cloudservices/ssa/cfw/v2/services/{serviceguid} | Returns service offering details.  |

**Table 52–14 (Cont.) Supported operations for Services Resource**

| Method | URI                                                                                | Description                                       |
|--------|------------------------------------------------------------------------------------|---------------------------------------------------|
| GET    | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{serviceguid}/metadata | Returns service offering metadata details.        |
| POST   | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services                        | Submits request for creation of Service instance. |

## 52.6.5 Services REST API Examples for V2

This section contains the REST APIs which are a part of the Services resource. The following REST API tasks are covered.

- [Viewing Details of the Services Resource](#)
- [Viewing Details of the Service Offering Resource](#)
- [Viewing Details of the Request Metadata](#)
- [Creating a Service Instance](#)

### 52.6.5.1 Viewing Details of the Services Resource

The table below shows the GET configuration for viewing details of the Services resource.

**Table 52–15 GET Request Configuration for Viewing Details of the Services Resource**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services                     |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name": "Services",
 "type": "Service",
 "totalResults": 4,
 "cfwItems": [
 {
 "id": "1",
 "name": "ORACLE_NIMBULA_ORCHESTRATION_TEMPLATE",
 "displayName": "Orchestration",
 "guid": "04FA3C08D3F3398AE053CE74B10A52F3",
 "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
 "serviceFamily": "NIMBULA_INFRASTRUCTURE",
 "description": "Create a set of Oracle VM instances with customized configuration for multi-tier applications",
 "meta": {
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F3398AE053CE74B10A52F3/metadata",

```

```
"canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F6398AE053CE74B10A52F3"
},
{
 "id": "2",
 "name": "ORACLE_NIMBULA_SIMPLE_ORCHESTRATION_TEMPLATE",
 "displayName": "Simple Orchestration",
 "guid": "04FA3C08D3F6398AE053CE74B10A52F3",
 "serviceType": "ORACLE_NIMBULA_ORCHESTRATION_SERVICE",
 "serviceFamily": "NIMBULA_INFRASTRUCTURE",
 "description": "Create one or more Oracle VM instances with default configuration and minimum inputs",
 "meta": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F6398AE053CE74B10A52F3/metadata",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FA3C08D3F6398AE053CE74B10A52F3"
 }
 },
{
 "id": "44",
 "name": "MY DB Schema",
 "displayName": "MY DB Schema",
 "guid": "04FBAB67376E77D1E053CE74B10A9AA8",
 "serviceType": "SCHEMA",
 "serviceFamily": "DBAAS",
 "description": "My DB Schema",
 "meta": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FBAB67376E77D1E053CE74B10A9AA8/metadata",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FBAB67376E77D1E053CE74B10A9AA8"
 }
 },
{
 "id": "41",
 "name": "My WebLogic Template",
 "displayName": "My WebLogic Template",
 "guid": "04FB7EEED9A03798E053CE74B10A753D",
 "serviceType": "WLAAS",
 "serviceFamily": "MIDDLEWARE_CFW",
 "description": "My Web Logic Template",
 "meta": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FB7EEED9A03798E053CE74B10A753D/metadata",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FB7EEED9A03798E053CE74B10A753D"
 }
 },
},
],
```



```

"canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/"
},
"selfLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/"
}
}

```

### 52.6.5.2 Viewing Details of the Service Offering Resource

The table below shows the GET configuration for viewing details of the Service offering resource.

**Table 52–16** *GET Request Configuration for Viewing Details of the Service Offering Resource*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{serviceguid}       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

{
 "id": "42",
 "name": "My Xaas Remote Server",
 "displayName": "My Xaas Remote Server",
 "guid": "04FBAB67376677D1E053CE74B10A9AA8",
 "serviceType": "CFW_SAMPLEXAAS_REMOTE_SERVER_SERVICE",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "description": "My Xaas Remote Server",
 "createdOn": "2014-10-09T10:13:34Z",
 "modifiedOn": "2014-10-09T10:13:34Z",
 "lastModified": "2014-10-09T10:13:34Z",
 "meta":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FBAB67376677D1E053CE74B10A9AA8/metadata",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FBAB67376677D1E053CE74B10A9AA8"
 }
}

```

### 52.6.5.3 Viewing Details of the Request Metadata

The table below shows the GET configuration for viewing details of the Request metadata.

**Table 52–17 GET Request Configuration for Viewing Details of the Request Metadata**

| Feature         | Specification                                                                      |
|-----------------|------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{serviceguid}/metadata |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json    |
| Body            | None                                                                               |
| Request method  | GET                                                                                |

A sample of the response received is shown below.

```
{
 "characteristics": [
 {
 "displayName": "Self Service Zone",
 "name": "ORACLE.SYSMAN.SXAAS.CFW_SAMPLEXAAS_RSRC_POOL",
 "possibleValues": [
 {
 "name": "my_paaszone",
 "value": "1C3A932A9089BBEC27A63EF389C7DF24"
 }
]
 }
],
 "configurations": [
 {
 "name": "temp_param2",
 "type": "STRING",
 "value": "",
 "required": false,
 "secret": false
 },
 {
 "name": "USER_NAME",
 "type": "STRING",
 "description": "User Name (cannot be any of Oracle default accounts) used to login to the requested database",
 "value": "",
 "required": false,
 "secret": false
 },
 {
 "name": "temp_param1",
 "type": "STRING",
 "value": "",
 "required": false,
 "secret": false
 },
 {
 "name": "USER_PASSWORD",
 "type": "STRING",
 "description": "User Password to login to the given User Name database account",
 "required": false,
 "secret": true
 }
],
 "canonicalLink": {
```

```

"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FBAB67376677D1E053CE74B10A9AA8/metadata"
},
"selfLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/04FBAB67376677D1E053CE74B10A9AA8/metadata"
},
"instanceName": "<user-input>"
}

```

#### 52.6.5.4 Creating a Service Instance

The table below shows the POST configuration for creating a Service instance.

**Table 52–18 POST Request Configuration for Creating a Service Instance**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Body            | <pre> {   "name": "Xaas RemoteServer Request",   "offeringId": "04FBAB67376677D1E053CE74B10A9AA8",   "instanceName": "Xaas RemoteServer",   "schedule": {     "scheduleStartTime": "2015-01-12T16:48:10ZAmerica/Los_     Angeles",     "scheduleEndTime": "2015-31-12T16:48:10ZAmerica/Los_     Angeles"   },   "characteristics": [     {       "name": "ORACLE.SYSMAN.SXAAS.CFW_SAMPLEXAAS_RSRC_POOL",       "value": "1C3A932A9089BBEC27A63EF389C7DF24"     }   ],   "configurations": [     {       "name": "temp_param2",       "value": "val2"     },     {       "name": "USER_NAME",       "value": "user"     },     {       "name": "temp_param1",       "value": "val1"     },     {       "name": "USER_PASSWORD",       "value": "passwords"     }   ] } </pre> |

**Table 52–18 (Cont.) POST Request Configuration for Creating a Service Instance**

| Feature        | Specification |
|----------------|---------------|
| Request method | POST          |

A sample of the response received is shown below.

```
{
 "requests": [
 {
 "id": "16",
 "actionName": "CREATE",
 "canonicalLink": {
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 servicerequests/16"
 }
 },
 {
 "id": "17",
 "actionName": "DELETE",
 "canonicalLink": {
 "href": "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 servicerequests/17"
 }
 }
]
}
```

## 52.6.6 Creating a Service Instance using V2

This section provides the procedure to create a Service instance using REST APIs.

Follow the steps below to create a Service instance:

1. Perform a GET operation on the URI -  
em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/. See, [Section 52.6.5.1, "Viewing Details of the Services Resource"](#).  
  
The GET operation returns all the service offerings. Note the required service offering.
2. Perform a GET operation on the URI -  
em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{serviceofferingid}/metadata, using the service offering ID from the previous step. See, [Section 52.6.5.3, "Viewing Details of the Request Metadata"](#).  
  
The GET operation returns the metadata of the service offering. Note the metadata fields.
3. Perform a POST operation on the URI -  
em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/, by providing values for the metadata fields. See, [Section 52.6.5.4, "Creating a Service Instance"](#).

The POST generates a request for the creation of a Service instance. The request payload is expected to have the following fields with values set.

- offeringId - A unique ID for identifying the Service instance.
- name - A name for the Service instance.

- **schedule** - This is an optional field and has two sub-fields, `scheduleStartTime` and `scheduleEndTime`. To schedule an instance for future use provide `scheduleStartTime` value. Additionally, to set expiry or end time for the service instance set the `scheduleEndTime`.
- **instanceName** - This field is dependent on the chosen service offering and may or may not be required.
- **configurations** - This field is dependent on the chosen service offering and may or may not be required.
- **characteristics** - This field is dependent on the chosen service offering and may or may not be required.

## 52.7 Service Requests REST APIs for V1 and V2

A user with the EM\_SSA\_USER role can reschedule and cancel requests that are in the **scheduled** state.

All the REST APIs will be available from the top level URI `/extws/cloudservices/ssa/cfw/v1/`.

### 52.7.1 Service Requests Resource for V2

The Service requests resource is an extension of `oracle.sysman.cfw.cloudAPI.pojo.request.RequestSummary`. A request enables a SSA user to initiate a task for immediate or future execution.

**Table 52–19 Service Requests Data Model for V2**

| Field                         | Type           | Description                                 |
|-------------------------------|----------------|---------------------------------------------|
| <code>requestType</code>      | String         | Type of request.                            |
| <code>serviceFamily</code>    | String         | Name of service family.                     |
| <code>serviceType</code>      | String         | Name of service type.                       |
| <code>startDate</code>        | String         | Start date of request.                      |
| <code>endDate</code>          | String         | End date of request.                        |
| <code>lastModifiedDate</code> | String         | Date of last modification of request.       |
| <code>timeZone</code>         | String         | Time zone of the request.                   |
| <code>displayName</code>      | String         | Display name of the request.                |
| <code>actionName</code>       | String         | Name of the request action.                 |
| <code>description</code>      | String         | Description of the request.                 |
| <code>submissionDate</code>   | String         | Date of submission of the request.          |
| <code>submittedBy</code>      | String         | Name of the user who submitted the request. |
| <code>executionLogs</code>    | String         | Execution logs.                             |
| <code>status</code>           | Request status | Status of the request.                      |

### 52.7.2 Service Request Collection - Collection Resource for V1

Service Request Collection is a collection resource representing a Cloud Administrator's view of all the accessible Service Request resources. The following table describes the Service Request Collection data model for v1.

**Table 52–20 Service Request Collection Data Model for V1**

| Field         | Type                                 | Description                                                                                         | Occurs |
|---------------|--------------------------------------|-----------------------------------------------------------------------------------------------------|--------|
| name          | String                               | Display name of this collection resource.                                                           | 1      |
| type          | String                               | Type of this collection resource.                                                                   | 1      |
| hasMore       | Boolean                              | Indicates whether there are more elements in the collection                                         | 1      |
| count         | Integer                              | Number of elements returned.                                                                        | 1      |
| items         | Collection<br><ServiceRequestEntity> | List of ServiceRequestEntity resources. In case no requests exist, items will be present but empty. | 1      |
| canonicalLink | URI                                  | A GET against this URI refreshes the client representation of this resource.                        | 1      |
| selfLink      | URI                                  | Refers to the resource equivalent to the containing elements.                                       | 1      |

**Table 52–21 Service Request Entity Data Model for V1**

| Field           | Type   | Description                                                                                                                          | Occurs |
|-----------------|--------|--------------------------------------------------------------------------------------------------------------------------------------|--------|
| id              | String | The RequestId of the ServiceRequest.                                                                                                 | 1      |
| beginDate       | String | The String representation of timestamp to which the new schedule has to be updated, in specified format. e.g 2013-10-02T16:14:41ZPST | 1      |
| status          | String | The status of service request                                                                                                        | 1      |
| name            | String | Name of service request.                                                                                                             | 1      |
| serviceFamily   | String | The service family of the request type.                                                                                              | 1      |
| lastUpdatedTime | String | The string value of last modified timestamp, in specified format.                                                                    | 1      |
| lifeCycle       | String | The life cycle of request.                                                                                                           | 1      |
| selfLink        | String | A GET against this URI represents the client representation of this resource.                                                        | 1      |
| canonicalLink   | String | A GET against this URI represents the client representation of this resource                                                         | 1      |

### 52.7.3 Supported Operations for Service Requests

The table below lists the operations that are supported in the Service requests resource.

**Table 52–22 Supported Methods for Service Requests**

| Request Method | V2 Canonical Link                                                   | V1 Canonical Link                                                   | Description                                                                                                                                                                                                             |
|----------------|---------------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GET            | em/websvcs/restful/extws/cloudservices/sssa/cfw/v2/servicerequests/ | em/websvcs/restful/extws/cloudservices/sssa/cfw/v1/servicerequests/ | Provides the list of all service requests.<br><br>There are two query parameter types and status for v1. For v2, see <a href="#">Table 52–23, "Query Parameters for Service Requests in V2"</a> , for query parameters. |

**Table 52–22 (Cont.) Supported Methods for Service Requests**

| <b>Request Method</b> | <b>V2 Canonical Link</b>                                                                            | <b>V1 Canonical Link</b>                                                               | <b>Description</b>                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| GET                   | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}                      | em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<request-id>         | Provides the details of the service request ID.                                                                    |
| PUT                   | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}                      | em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<request-id>         | Re-schedule the specified request to another schedule. The beginDate for the schedule is specified in the payload. |
| DELETE                | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}                      | em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/<service-request-id> | Cancels specified Service Request.                                                                                 |
| GET                   | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs                 | Not applicable                                                                         | Provides the service request logs.                                                                                 |
| GET                   | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs?stepid={stepid} | Not applicable                                                                         | Returns request execution step log.                                                                                |

The table below shows the query parameters supported for the GET request on the Service Requests resource in the v2 framework.

**Table 52–23 Query Parameters for Service Requests in V2**

| <b>Parameter</b> | <b>Input</b>         | <b>Description</b>                         | <b>Required</b> |
|------------------|----------------------|--------------------------------------------|-----------------|
| servicetype      | Name of service type | Returns service type specific information. | Optional        |

**Table 52–23 (Cont.) Query Parameters for Service Requests in V2**

| Parameter     | Input                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Required |
|---------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| status        | Status of service request | Returns status specific information. The possible values are: <ul style="list-style-type: none"> <li>■ CANCELLED</li> <li>■ CLEANUP_ERROR</li> <li>■ CLEANUP_FAILED</li> <li>■ CLEANUP_SCHEDULED</li> <li>■ CLEANED</li> <li>■ CLEANING_UP</li> <li>■ EXECUTION_ERROR</li> <li>■ INCOMPLETE</li> <li>■ IN_PROGRESS</li> <li>■ NO_QUOTA_ERROR</li> <li>■ NO_RESOURCE_ERROR</li> <li>■ PARTIAL_SUCCEEDED</li> <li>■ ENDED</li> <li>■ ERROR_ENDING</li> <li>■ ENDING</li> <li>■ EXECUTING</li> <li>■ SAVED</li> <li>■ SCHEDULED</li> <li>■ SCHEDULING</li> <li>■ ERROR_SCHEDULING</li> <li>■ SUCCESS</li> </ul> | Optional |
| expanded      | Boolean; true or false    | If true, RequestCollection returns a list of requests <code>cfwItems</code> , else status wise summary of requests is returned.<br><br>Possible values are true, and false. Any value apart from true or false is ignored and treated as false.                                                                                                                                                                                                                                                                                                                                                              | Optional |
| servicefamily | Name of service family    | Returns service family specific information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Optional |

#### 52.7.4 Service Request REST API Examples for V1 and V2

This section lists all a few REST API example scenarios. The following operations are covered in this section:

##### V2:

- [Retrieving Top Level View of Service Requests in V1 and V2](#)
- [Querying the Service Requests Resource for Status=SUCCESS in V2](#)
- [Querying the Service Requests Resource for Expanded=true and Expanded=false in V2](#)
- [Querying the Service Requests Resource for status=SUCCESS&expanded=false and status=SUCCESS&expanded=true in V2](#)



- Viewing Details of a Service Request in V2
- Deleting a Service Request in V2
- Rescheduling a Service Request that is in a Scheduled State in V1 and V2
- Viewing the Logs of a Service Request in V2
- Querying the Logs of a Service Request in V2

**V1:**

- Retrieving Top Level View of Service Requests for a Specific Service Family in V1
- Retrieving Top Level View of Service Requests for a Specific Status in V1
- Rescheduling a Service Request that is in a Cancelled State (or in a state other than Scheduled) in V1
- Deleting a Service Request that is in a Scheduled State in V1
- Deleting a Service Request that is in a Canceled State (or in a state other than scheduled) in V1

**52.7.4.1 Retrieving Top Level View of Service Requests in V1 and V2****Table 52–24** *GET Request Configuration for Viewing Details of Service Requests Resource in V1 and V2*

| Feature         | Specification for V1                                               | Specification for V2                                                               |
|-----------------|--------------------------------------------------------------------|------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests                 |
| Request headers | Authorization: basic<br>ZGVtb3VzZXI6ZGVtb3VzZXI=                   | Authorization: basic<br>ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                               | None                                                                               |
| Request method  | GET                                                                | GET                                                                                |

A sample of the response received for v2 is shown below.

```
{
 "name": "Request summary grouped by status",
 "totalResults": 17,
 "requestSummary": [
 {
 "status": "NO_QUOTA_ERROR",
 "count": 1,
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests?status=NO_QUOTA_ERROR&expanded=true"
 },
 {
 "status": "EXECUTION_ERROR",
 "count": 1,
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests?status=EXECUTION_ERROR&expanded=true"
 },
 {
 "status": "SUCCESS",
```

```
"count": 5,
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service
requests?status=SUCCESS&expanded=true"
},
{
"status": "CLEANUP_FAILED",
"count": 1,
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service
requests?status=CLEANUP_FAILED&expanded=true"
},
{
"status": "SCHEDULED",
"count": 9,
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service
requests?status=SCHEDULED&expanded=true"
}
],
"canonicalLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service
requests"
},
"selfLink": {
"href":
"https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service
requests"
}
}
```

A sample of the response received for v1 is shown below.

```
{
"name": "Service Requests",
"type": "Service Request", "count": 2,
"items": [
{
"id": "2",
"name": "future_Create Sample XaaS Service#2",
"beginDate": "2015-02-14T08:37:18Z India Standard Time",
"status": "SCHEDULED",
"selfLink":
"https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/service
requests/2",
"canonicalLink":
"https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/service
requests/2",
"serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY"
},
{
"id": "1",
"name": "eadewegqw_Create Sample XaaS Service#1",
"beginDate": "2015-02-10T07:49:24Z India Standard Time",
"status": "EXECUTION_ERROR",
"selfLink":
"https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/service
requests/1",
"canonicalLink":
"https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/service
requests/1",
```

```

 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY"
 },
 "selfLink":
 "https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/service
 request?status=ALL",
 "canonicalLink":
 "https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/service
 erequests/"
 }
}

```

#### 52.7.4.2 Querying the Service Requests Resource for Status=SUCCESS in V2

The table below shows the GET configuration for querying the Service requests resource.

**Table 52–25** *GET Request Configuration for Querying a Service Request for Status=SUCCESS in V2*

| Feature         | Specification                                                                          |
|-----------------|----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/service<br>erequests?status=SUCCESS |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json        |
| Body            | None                                                                                   |
| Request method  | GET                                                                                    |

A sample of the response received is shown below.

```

{
 "name" : "Request summary grouped by status",
 "totalResults" : 5,
 "requestSummary" : [{
 "status" : "SUCCESS",
 "count" : 3,
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/service
 erequests?status=SUCCESS&expanded=true"
 }, {
 "status" : "SCHEDULED",
 "count" : 2,
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/service
 erequests?status=SCHEDULED&expanded=true"
 }],
 "canonicalLink" : {
 "href" :
 3.4 22
 -
 -
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/service
 erequests"
 },
 "selfLink" : {
 "href" :

```

```

"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
2/servicere
quests?status=SUCCESS"
}
}

```

### 52.7.4.3 Querying the Service Requests Resource for Expanded=true and Expanded=false in V2

The table below shows the GET configuration for querying the Service requests resource for expanded=true. A similar approach is followed for expanded=false, where the query change is made in the URI.

**Table 52–26** GET Request Configuration for Querying a Service Request for Expanded=true in V2

| Feature         | Specification                                                                    |
|-----------------|----------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests?expanded=true |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json  |
| Body            | None                                                                             |
| Request method  | GET                                                                              |

A sample of the response received for expanded=true is shown below.

```

{
 "name" : "Service Requests",
 "type" : "Service Request",
 "totalResults" : 5,
 "cfwItems" : [{
 "id" : "5",
 "name" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663",
 "startDate" : "2014-09-11T16:23:06Z",
 "status" : "SUCCESS",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests/5"
 },
 "displayName" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663"
 }, {
 "id" : "4",
 "name" : "Remove Sample XaaS Service_XaaS_Storage__11-Sep-14 21:52:58.553",
 "startDate" : "2017-07-12T23:48:10Z",
 "status" : "SCHEDULED",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests/4"
 },
 "displayName" : "Remove Sample XaaS Service_XaaS_Storage__11-Sep-14 21:52:58.553"
 }, {
 "id" : "3",
 "name" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363",
 "startDate" : "2014-09-11T16:22:58Z",
 "status" : "SUCCESS",
 "canonicalLink" : {

```

```

 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests/3"
 },
 "displayName" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363"
}, {
 "id" : "2",
 "name" : "Rst_st_en_14-09-11 09.52.58_11-Sep-14 21:52:54.187",
 "startDate" : "2015-01-13T00:48:10Z",
 "status" : "SCHEDULED",
 "canonicalLink" : {
 "href" :
 3.5 23
 -
 -
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests/2"
 },
 "displayName" : "Rst_st_en_14-09-11 09.52.58_11-Sep-14 21:52:54.187"
}, {
 "id" : "1",
 "name" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360",
 "startDate" : "2014-09-11T16:22:49Z",
 "status" : "SUCCESS",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests/1"
 },
 "displayName" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360"
}],
"canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests"
},
"selfLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests?expanded=true"
}
}

```

A sample of the response received for `expanded=false` is shown below.

```

{
 "name" : "Request summary grouped by status",
 "totalResults" : 5,
 "requestSummary" : [{
 "status" : "SUCCESS",
 "count" : 3,
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests?status=SUCCESS&expanded=true"
 }, {
 "status" : "SCHEDULED",
 "count" : 2,
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests?status=SCHEDULED&expanded=true"
 }],
}

```

```

"canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicerequests"
},
"selfLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests?expanded=false"

```

#### 52.7.4.4 Querying the Service Requests Resource for status=SUCCESS&expanded=false and status=SUCCESS&expanded=true in V2

The table below shows the GET configuration for querying the Service requests resource for status=SUCCESS&expanded=false. A similar approach is followed for status=SUCCESS&expanded=true, where the query change is made in the URI.

**Table 52–27 GET Request Configuration for Querying a Service Request for status=SUCCESS&expanded=false in V2**

| Feature         | Specification                                                                                    |
|-----------------|--------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests?status=SUCCESS&expanded=false |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                  |
| Body            | None                                                                                             |
| Request method  | GET                                                                                              |

A sample of the response received for status=SUCCESS&expanded=false is shown below.

```

{
 "name" : "Request summary grouped by status",
 "totalResults" : 5,
 "requestSummary" : [{
 "status" : "SUCCESS",
 "count" : 3,
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests?status=SUCCESS&expanded=true"
 }, {
 "status" : "SCHEDULED",
 "count" : 2,
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests?status=SCHEDULED&expanded=true"
 }],
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests"
 },
 "selfLink" : {
 "href" :

```

```
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
2/servicere
quests?status=SUCCESS&expanded=false"
}
}
```

A sample of the response received for status=SUCCESS&expanded=true is shown below.

```
{
 "name" : "Service Requests",
 "type" : "Service Request",
 "totalResults" : 3,
 "cfwItems" : [{
 "id" : "5",
 "name" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663",
 "startDate" : "2014-09-11T16:23:06Z",
 "status" : "SUCCESS",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/5"
 },
 "displayName" : "Rst_rpc_14-09-11 09.52.58_11-Sep-14 21:53:06.663"
 }, {
 "id" : "3",
 "name" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363",
 "startDate" : "2014-09-11T16:22:58Z",
 "status" : "SUCCESS",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/3"
 },
 "displayName" : "Rst_en_14-09-11 09.52.58_11-Sep-14 21:52:58.363"
 }, {
 "id" : "1",
 "name" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360",
 "startDate" : "2014-09-11T16:22:49Z",
 "status" : "SUCCESS",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/1"
 },
 "displayName" : "Rst_14-09-11 09.52.58_11-Sep-14 21:52:49.360"
 }],
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests"
 },
 "selfLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests?status=SUCCESS&expanded=true"
 }
}
```

```

}
}

```

#### 52.7.4.5 Viewing Details of a Service Request in V2

The GET request configuration for viewing details of a Service request is shown below.

**Table 52–28** *GET Request Configuration for Viewing Details of a Service Request in V2*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceerequests/{requestid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

{
 "id": "44",
 "name": "dp_2b022961-c#44",
 "status": "SUCCESS",
 "serviceType": "CFW_SAMPLEXAAS_SERVICE",
 "serviceFamily": "Sample Services",
 "actionName": "Create Sample XaaS Service",
 "startDate": "2014-10-15T09:29:23Z",
 "createdOn": "2014-10-15T09:29:23Z",
 "createdBy": "SYSMAN",
 "owner": "SYSMAN",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceerequests/44"
 },
 "executionLogs":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceerequests/44/logs"
}

```

#### 52.7.4.6 Deleting a Service Request in V2

The DELETE request configuration for deleting a Service request is shown below.

**Table 52–29** *DELETE Request Configuration for Deleting a Service Request in V2*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceerequests/{requestid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | DELETE                                                                          |

A sample of the response received is shown below.



```
{
 "message" : "[\"Request 31 deleted successfully\"]"
}
```

#### 52.7.4.7 Rescheduling a Service Request that is in a Scheduled State in V1 and V2

The table below shows the PUT request configuration.

**Table 52–30 PUT Request Configuration for Rescheduling a Service Request in a Scheduled State in V1 and V2**

| Feature         | Specification for V1                                                               | Specification for V2                                                               |
|-----------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/2               | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}     |
| Request headers | Authorization: basic<br>ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json | Authorization: basic<br>ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | {<br>"beginDate":<br>"2013-10-02T16:14:41ZPST"<br>}                                | { "startDate": "2015-08-12T16:48:10ZAmerica/Los_Angeles" }                         |
| Request method  | PUT                                                                                | PUT                                                                                |

A sample of the response received for v2 is shown below.

```
{
 "message" : "Request 2 rescheduled successfully."
}
```

A sample of the response received for v1 is shown below.

```
Status 200 OK
{
 message: "Service request 2 rescheduled successfully."
}
```

#### 52.7.4.8 Viewing the Logs of a Service Request in V2

The table below shows the GET request configuration for viewing the Service request logs.

**Table 52–31 GET Request Configuration for Viewing the Logs of a Service Request in V2**

| Feature         | Specification                                                                       |
|-----------------|-------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json     |
| Body            | None                                                                                |
| Request method  | GET                                                                                 |

A sample of the response received is shown below.

```
{
 "submittedOn" : "2014-09-12T07:20:38Z",
}
```

```

"steps" : [{
 "stepName" : "CfwRequestInitCommand",
 "stepId" : "CfwRequestInitCommand",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/21/logs?stepid=CfwRequestInitCommand"
}, {
 "stepName" : "CfwRequestPreProcessCommand",
 "stepId" : "CfwRequestPreProcessCommand",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/21/logs?stepid=CfwRequestPreProcessCommand"
}, {
 "stepName" : "CfwRequestJobInvokerCommand",
 "stepId" : "CfwRequestJobInvokerCommand",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/21/logs?stepid=CfwRequestJobInvokerCommand"
}, {
 "stepId" : "",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/21/logs?stepid="
}, {
 "stepName" : "CfwRequestPostProcessCommand",
 "stepId" : "CfwRequestPostProcessCommand",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicere
 quests/21/logs?stepid=CfwRequestPostProcessCommand"
}],
"id" : "21"
}

```

#### 52.7.4.9 Querying the Logs of a Service Request in V2

The table below shows the GET request configuration for querying the Service request logs.

**Table 52–32** *GET Request Configuration for Querying the Logs of a Service Request in V2*

| Feature         | Specification                                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/{requestid}/logs?stepid=CfwRequestPreProcessCommand |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                        |
| Body            | None                                                                                                                   |
| Request method  | GET                                                                                                                    |

A sample of the response received is shown below.

```

{
 "id" : "21",

```

```

"stepName" : "CfwRequestPreProcessCommand",
"stepId" : "CfwRequestPreProcessCommand",
"data" : "INFO:Request Pre-processing in progress.\nINFO:Preparing the inputs for
Request Action:
Create Sample XaaS Service\nINFO:Performing placement checks to identify the
appropriate Service-
Provider.\nINFO:Placement checks executed successfully.\nINFO:Request
pre-processing successfully
executed.",
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
2/servicere
quests/21/logs?stepid=CfwRequestPreProcessCommand"
}
}

```

#### 52.7.4.10 Retrieving Top Level View of Service Requests for a Specific Service Family in V1

The table below shows the GET request configuration.

**Table 52–33 GET Request Configuration for Viewing Details of a Service Request for a Specific Service Family in V1**

| Feature         | Specification                                                                 |
|-----------------|-------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests?type=mwaas |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                 |
| Body            | None                                                                          |
| Request method  | GET                                                                           |

A sample of the response received is shown below.

```

Status 200 OK
{
name: "Service Requests"
type: "Service Request"
count: 2
items: [2]
0:
{
id: "2"
name: "request2_14153ee61c5_Create_20130925_123353"
beginDate: "2013-09-25T12:48:50ZAsia/Calcutta"
status: "Scheduled"
lifeCycle: "Create Service Instance"
selfLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/2"
canonicalLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/2"
serviceFamily: "MWAAS"
}
1:
{
id: "1"
name: "request1_14153ea0bb6_Create_20130925_122909"
}
}

```

```

beginDate: "2013-09-25T12:44:03ZAsia/Calcutta"
status: "Cancelled"
lifeCycle: "Create Service Instance"
selfLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/1"
canonicalLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/1"
serviceFamily: "MWAAS"
}

selfLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests?status=ALL"
canonicalLink: "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests"
}

```

#### 52.7.4.11 Retrieving Top Level View of Service Requests for a Specific Status in V1

The table below shows the GET request configuration.

**Table 52–34** GET Request Configuration for Viewing Details of a Service Request for with a Specific Status in V1

| Feature         | Specification                                                                        |
|-----------------|--------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/?status=SCHEDULED |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                        |
| Body            | None                                                                                 |
| Request method  | GET                                                                                  |

A sample of the response received is shown below.

```

{
 "name": "Service Requests",
 "type": "Service Request",
 "count": 1,
 "items": [
 {
 "id": "2",
 "name": "future_Create Sample XaaS Service#2",
 "beginDate": "2015-02-14T08:37:18Z India Standard Time",
 "status": "SCHEDULED",
 "selfLink":
 "https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/2",
 "canonicalLink":
 "https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/2",
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY"
 }
],
 "selfLink":
 "https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequest?status=SCHEDULED",
 "canonicalLink":
 "https://cloudcompnay.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/servicerequests/"
}

```

#### 52.7.4.12 Rescheduling a Service Request that is in a Cancelled State (or in a state other than Scheduled) in V1

The table below shows the PUT request configuration.

**Table 52–35 PUT Request Configuration for Rescheduling a Service Request that is in Cancelled State in v1**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/serviceRequests/1            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | {<br>"beginDate": "2013-10-02T16:14:41ZPST"<br>}                                |
| Request method  | PUT                                                                             |

A sample of the response received is shown below.

```
Status : 400 Bad request
{
 errorMessages: "Error occurred while rescheduling. Verify that schedule is not in
past and status is scheduled."
}
```

#### 52.7.4.13 Deleting a Service Request that is in a Scheduled State in V1

The table below shows the DELETE request configuration.

**Table 52–36 DELETE Request Configuration for Cancelling a Scheduled Service Request in V1**

| Feature         | Specification                                                        |
|-----------------|----------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/serviceRequests/1 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                        |
| Body            | None                                                                 |
| Request method  | DELETE                                                               |

A sample of the response received is shown below.

```
Status 200 OK
{
 message: "Service request 1 cancelled successfully."
}
```

#### 52.7.4.14 Deleting a Service Request that is in a Canceled State (or in a state other than scheduled) in V1

The table below shows the DELETE request configuration.

**Table 52–37 DELETE Request Configuration for Deleting a Service Request in Cancelled State in V1**

| Feature         | Specification                                                        |
|-----------------|----------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/serviceRequests/1 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                        |
| Body            | None                                                                 |
| Request method  | DELETE                                                               |

A sample of the response received is shown below.

```
Status : 400 Bad request
{
 errorMessages: "Error occurred while cancelling. Only request with status SCHEDULED
is cancellable."
}
```

## 52.8 Service Instances for V2

Service instances resource comprises of Service instance and Action entities. The data models of the Service instances resource and its associated entities is given below.

**Table 52–38 Service Instance Data Model for V2**

| Field         | Type   | Description                           |
|---------------|--------|---------------------------------------|
| guid          | String | Guid of the service instance.         |
| serviceFamily | String | Name of the service family.           |
| serviceType   | String | Name of the service type.             |
| status        | String | Status of the service instance.       |
| displayName   | String | Display name of the service instance. |
| targetType    | String | Target type of the service instance.  |

**Table 52–39 Action Data Model for V2**

| Field           | Type                     | Description                   | Occurs |
|-----------------|--------------------------|-------------------------------|--------|
| offeringId      | String                   | Guid of the service.          | 1      |
| name            | String                   | Name of the request.          | 1      |
| instanceName    | String                   | Name of the service instance. | 0..1   |
| schedule        | ScheduleEntity           | Schedule of the request.      | 0..1   |
| configurations  | List<CfwValueDescriptor> | Configurations.               | 0..1   |
| characteristics | List<Characteristic>     | List of characteristics.      | 0..1   |

The supported request parameters and their descriptions are provided in the table below.

## 52.8.1 Supported Methods for Service Instance in V2

The table below provides information on the supported methods for Service instance resource.

**Table 52–40 Supported methods for Service Instance Resource**

| Request Method | URI                                                                                                 | Description                                                                                                                                              |
|----------------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/                                | Returns the service instances collection details. See <a href="#">Table 52–41, "Query Parameters for Service Instance in V2"</a> , for query parameters. |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}                    | Returns the details of specified service instance.                                                                                                       |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions            | Returns actions available on the specified service instance.                                                                                             |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/attributes         | Returns attributes for the specified service instance.                                                                                                   |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions/{actionid} | Returns the action details and the action inputs required to execute the action on the specified service instance.                                       |
| PUT            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/                   | Executes the action on a given service instance.                                                                                                         |

The table below shows the query parameters supported for the GET request on the Service instance resource in the v2 framework.

**Table 52–41 Query Parameters for Service Instance in V2**

| Parameter   | Input                 | Description                                | Required |
|-------------|-----------------------|--------------------------------------------|----------|
| servicetype | Name of service type. | Returns service type specific information. | Optional |

**Table 52–41 (Cont.) Query Parameters for Service Instance in V2**

| Parameter | Input                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Required |
|-----------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| status    | Status of service instance. | <p>Returns status specific information. The possible values are:</p> <ul style="list-style-type: none"> <li>■ <b>PENDING_CREATION:</b> Indicates that a request to create the service instance is scheduled to run on a later date and the relevant service instance is scheduled to be created.</li> <li>■ <b>PROCESSING_CREATION:</b> Indicates that a request to create the service instance is running and is in the process of creation.</li> <li>■ <b>ERROR_CREATION:</b> Indicates that a request to create the service instance failed due to error.</li> <li>■ <b>STATUS_DOWN:</b> Indicates that the service instance is currently down.</li> <li>■ <b>STATUS_UP:</b> Indicates that the service instance is up and running fine.</li> <li>■ <b>STATUS_METRIC_ERROR:</b> Indicates that the system (EM/OMS) monitoring the service instance has encountered issues while collecting certain data on the service instance.</li> <li>■ <b>STATUS_AGENT_DOWN:</b> Indicates that the agent monitoring the service instance is down. Hence, the monitoring data of the service instance cannot be uploaded.</li> <li>■ <b>STATUS_UNREACHABLE:</b> Indicates that the system is not able to get the service instance availability status.</li> <li>■ <b>STATUS_BLACKOUT:</b> Indicates that the Administrator has black-out the service instance for upgrades/patches. The upgrades will be applied generally to the machines hosting the service.</li> <li>■ <b>STATUS_PENDING:</b> Indicates that the system is in the process of collecting the availability status of the service instance.</li> </ul> | Optional |
| expanded  | Boolean; true or false.     | ServiceInstanceCollection contains cfwItems if true and serviceInstanceSummary if false.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Optional |



## 52.8.2 Service Instances REST API Examples for V2

This section provides the REST API examples of the Service instances resource. The following operations are covered in this section:

- [Viewing Details of the Service Instance Resource in V2](#)
- [Querying the Service Instance Resource in V2](#)
- [Viewing Details of a Service Instance in V2](#)
- [Viewing Details of the Attributes of a Service Instance in V2](#)
- [Viewing Details of the Available Actions on a Service Instance in V2](#)
- [Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2](#)
- [Executing an Action on a Service Instance in V2](#)

### 52.8.2.1 Viewing Details of the Service Instance Resource in V2

The table below shows the GET request configuration.

**Table 52–42** *GET Request Configuration for Viewing Details of Service Instance Resource in V2*

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name" : "Service Instances Summary",
 "totalResults" : 7,
 "serviceInstanceSummary" : [{
 "status" : "STATUS_UP",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/serviceinstances?status=STATUS_UP&expanded=true",
 "count" : 3
 }, {
 "status" : "PENDING_CREATION",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/serviceinstances?status=PENDING_CREATION&expanded=true",
 "count" : 4
 }],
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/serviceinstances"
 }
}
```

### 52.8.2.2 Querying the Service Instance Resource in V2

The table below shows the GET request configuration for querying the Service instance resource based on the following parameters:

- expanded=true
- expanded=false
- status=STATUS\_UP
- servicetype=CFW\_SAMPLEXAAS\_SERVICE
- expanded=true,status=STATUS\_UP
- expanded=false,status=STATUS\_UP,servicetype=CFW\_SAMPLEXAAS\_SERVICE

**Table 52–43 GET Request Configuration for Querying Service Instance Resource in V2**

| Feature                                                                    | Specification                                                                                                                          |
|----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| URI for expanded=true                                                      | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=true                                                      |
| URI for expanded=false                                                     | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=false                                                     |
| URI for status=STATUS_UP                                                   | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?status=STATUS_UP                                                   |
| URI for servicetype=CFW_SAMPLEXAAS_SERVICE                                 | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?servicetype=CFW_SAMPLEXAAS_SERVICE                                 |
| URI for expanded=true&status=STATUS_UP                                     | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=true&status=STATUS_UP                                     |
| URI for expanded=false,status=STATUS_UP,servicetype=CFW_SAMPLEXAAS_SERVICE | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?expanded=false&status=STATUS_UP&servicetype=CFW_SAMPLEXAAS_SERVICE |
| Request headers                                                            | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                        |
| Body                                                                       | None                                                                                                                                   |
| Request method                                                             | GET                                                                                                                                    |

A sample of the response received for expanded=false is shown below.

```
{
 "name" : "Service Instances Summary",
 "totalResults" : 7,
 "serviceInstanceSummary" : [{
 "status" : "STATUS_UP",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?status=STATUS_UP&expanded=true",
 "count" : 3
 }, {
 "status" : "PENDING_CREATION",
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances?status=PENDING_CREATION&expanded=true",
```

```

"count" : 4
}],
"canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicein
 stances"
},
"selfLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicein
 stances?expanded=false"
}
}

```

### 52.8.2.3 Viewing Details of a Service Instance in V2

The table below shows the GET request configuration.

**Table 52–44** GET Request Configuration for Viewing Details of a Service Instance in V2

| Feature         | Specification                                                                    |
|-----------------|----------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json  |
| Body            | None                                                                             |
| Request method  | GET                                                                              |

A sample of the response received is shown below.

```

{
 "name" : "test",
 "targetName" : "test",
 "guid" : "CCA88E9507D4A9E2214935F956D83150",
 "serviceType" : "CFW_SAMPLEXAAS_SERVICE",
 "serviceFamily" : "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "status" : "STATUS_UP",
 "targetType" : "Cfw_Xaas_DB_Service",
 "createdOn" : "2014-11-15T00:00:00Asia/Calcutta",
 "createdBy" : "SYSMAN",
 "owner" : "SYSMAN",
 "attributes" : {
 "href" :
 "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicein
 stances/CCA88E9507D4A9E2214935F956D83150/attributes"
 },
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/servicein
 stances/CCA88E9507D4A9E2214935F956D83150"
 },
 "selfLink" : {
 "href" :
 "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v

```

```

2/serviceinstances/CCA88E9507D4A9E2214935F956D83150"
}
}

```

#### 52.8.2.4 Viewing Details of the Attributes of a Service Instance in V2

The table below shows the GET request configuration.

**Table 52–45** GET Request Configuration for Viewing Details of the Attributes of a Service Instance in V2

| Feature         | Specification                                                                               |
|-----------------|---------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/attributes |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json             |
| Body            | None                                                                                        |
| Request method  | GET                                                                                         |

A sample of the response received is shown below.

```

{
 "serviceInstanceGuid" : "CCA88E9507D4A9E2214935F956D83150",
 "attributes" : [{
 "name" : "xaasServiceName",
 "type" : "STRING",
 "value" : "test"
 }],
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/CCA88E9507D4A9E2214935F956D83150/attributes"
 },
 "selfLink" : {
 "href" :
 "https://xx.idc.example.com:14488/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/CCA88E9507D4A9E2214935F956D83150/attributes"
 }
}

```

#### 52.8.2.5 Viewing Details of the Available Actions on a Service Instance in V2

The table below shows the GET request configuration.

**Table 52–46** GET Request Configuration for Viewing Details of the Available Actions on a Service Instance in V2

| Feature         | Specification                                                                            |
|-----------------|------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json          |
| Body            | None                                                                                     |
| Request method  | GET                                                                                      |

A sample of the response received is shown below.

```
{
 "totalResults" : 6,
 "selfLink" : {
 "href" :
"/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/2A2BD0D7C40F7C2814FA6788704E313A/actions"
 },
 "cfwItems" : [{
 "name" : "DELETE",
 "id" : "82",
 "displayName" : "Remove Sample XaaS Service",
 "description" : "Removing my Sample XaaS service"
 }, {
 "name" : "START",
 "id" : "84",
 "displayName" : "Start Service",
 "description" : "Starts this service"
 }, {
 "name" : "STOP",
 "id" : "85",
 "displayName" : "Stop Service",
 "description" : "Stops this service"
 }, {
 "name" : "CLEANUP",
 "id" : "86",
 "displayName" : "Cleanup Sample XaaS Failed Request",
 "description" : "Cleanup Sample XaaS Failed Request"
 }, {
 "name" : "SYNCSTARTSERVICE",
 "id" : "87",
 "displayName" : "Sync Start Service",
 "description" : "Synchronous Action to Start Sample Service"
 }, {
 "name" : "SYNCSTOPSERVICE",
 "id" : "88",
 "displayName" : "Sync Stop Service",
 "description" : "Synchronous Action to Stop Sample Service"
 }],
 "name" : "Actions",
 "type" : "Action",
 "canonicalLink" : {
 "href" :
"/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/2A2BD0D7C40F7C2814FA6788704E313A/actions"
 }
}
```

### 52.8.2.6 Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2

The table below shows the GET request configuration.

**Table 52–47 GET Request Configuration for Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2**

| Feature         | Specification                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions/{actionid} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                     |
| Body            | None                                                                                                |
| Request method  | GET                                                                                                 |

A sample of the response received is shown below.

```
{
 "name" : "START",
 "id" : "94",
 "displayName" : "START",
 "actionInputs" : [{
 "name" : "WorkLoads",
 "type" : "VECTOR",
 "description" : "WorkLoad Values",
 "required" : false,
 "secret" : false,
 "subvalues" : [{
 "name" : "Small",
 "type" : "VECTOR",
 "description" : "Configuration Values for Small WorkLoad",
 "required" : false,
 "secret" : false,
 "subvalues" : [{
 "name" : "DEPL_SIZE_IS_DEFAULT_KEY",
 "value" : "Y",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "CPU",
 "value" : "60",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "MEMORY",
 "value" : "4048",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "STORAGE",
 "value" : "500",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "XAAS_TEST",
 "value" : "NONE",
 "type" : "STRING",
 "required" : false,
```

```

"secret" : false
}]
}, {
 "name" : "Medium",
 "type" : "VECTOR",
 "description" : "Configuration Values for Medium WorkLoad",
 "required" : false,
 "secret" : false,
 "subvalues" : [{
 "name" : "DEPL_SIZE_IS_DEFAULT_KEY",
 "value" : "N",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "CPU",
 "value" : "80",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "MEMORY",
 "value" : "8088",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "STORAGE",
 "value" : "750",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }]
}, {
 "name" : "Large",
 "type" : "VECTOR",
 "description" : "Configuration Values for Large WorkLoad",
 "required" : false,
 "secret" : false,
 "subvalues" : [{
 "name" : "DEPL_SIZE_IS_DEFAULT_KEY",
 "value" : "Y",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "CPU",
 "value" : "60",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "MEMORY",
 "value" : "40448",
 "type" : "STRING",
 "required" : false,
 "secret" : false
 }, {
 "name" : "STORAGE",
 "value" : "500",

```

```

"type" : "STRING",
"required" : false,
"secret" : false
}]
}],
"description" : "Starts this service"
}

```

### 52.8.2.7 Executing an Action on a Service Instance in V2

The table below shows the PUT request configuration.

**Table 52–48 PUT Request Configuration for Executing an Action on a Service Instance in V2**

| Feature         | Specification                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}                                                                                                                                                                                                                                                                                                                     |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                                                                                                                                                                                                                                      |
| Body            | <pre> {   "actionId":94,   "configurations":[     {       "name":"domainName",       "type":"STRING",       "description":"Domain Name",       "required":true,       "value":"/mwaas_rest_9_SSA_USER1/rest_9_SSA_USER1"     },     {       "name":"applicationName",       "type":"STRING",       "description":"Application Name",       "required":true,       "value":"test1"     }   ] } </pre> |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                                  |

A sample of the response received is shown below.

```

{
 "requests": [
 {
 "id": "4",
 "actionName": "STOP",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/4"
 }
 }
]
}

```



### 52.8.3 Executing Actions on a Service Instance in V2

This section provides the procedure to execute an action on a Service instance using REST APIs.

Follow the steps below to execute an action on a Service instance:

1. Perform a GET operation on the URI -  
`em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions`. See, [Section 52.8.2.5, "Viewing Details of the Available Actions on a Service Instance in V2"](#).

The GET operation returns all the supported actions that an user can execute on the specified Service instance. The Action name, Action ID, Display name and Description are provided for each action. Note the required Action ID.

2. Perform a GET operation on the URI -  
`/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}/actions/{actionid}`, using the Action ID from the previous step. See, [Section 52.8.2.6, "Viewing Details of the Action Inputs Required To Execute an Action on a Service Instance in V2"](#).

The GET operation returns all the action details and the action inputs. Some actions require action inputs to complete an action. Action inputs capture the data or input which is to be provided by the user while executing an action on an instance. Note the action inputs.

3. Perform a PUT operation on the URI -  
`/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/{instanceid}`, using the action inputs from the previous step. See, [Section 52.8.2.7, "Executing an Action on a Service Instance in V2"](#).

The PUT operation executes the action on the Service instance. To execute the action, provide appropriate action input values as configurations in the payload.

## 52.9 Quota Usage for V2

This section describes the quota usage REST APIs for SSA user.

### 52.9.1 Supported Operations for Quota Usage for V2

The table below lists the supported operations for quota usage.

**Table 52–49 Supported Methods for Quota Usage**

| Request Method | URI                                                                                        | Description                            |
|----------------|--------------------------------------------------------------------------------------------|----------------------------------------|
| GET            | <code>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage</code>                 | Returns links to quota usage.          |
| GET            | <code>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/{servicefamily}</code> | Returns quota usage by service family. |

### 52.9.2 Quota Usage REST API Examples for V2

This section provides the REST API examples for Quota usage. The following examples are covered:

- [Viewing Details of Quota Usage](#)
- [Viewing Details of Quota Usage by Service Family](#)

### 52.9.2.1 Viewing Details of Quota Usage

The table below shows the GET request configuration.

**Table 52–50** GET Request Configuration for Viewing Details of Quota Usage

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage                   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/"
 },
 "usages": [
 {
 "serviceFamily": "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/CFW_SAMPLEXAAS_SERVICEFAMILY"
 }
 },
 {
 "serviceFamily": "NIMBULA_INFRASTRUCTURE",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/NIMBULA_INFRASTRUCTURE"
 }
 },
 {
 "serviceFamily": "DBAAS",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/DBAAS"
 }
 },
 {
 "serviceFamily": "MIDDLEWARE_CFW",
 "canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/MIDDLEWARE_CFW"
 }
 }
]
}
```

```

}
],
"selfLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/"
}
}

```

### 52.9.2.2 Viewing Details of Quota Usage by Service Family

The table below shows the GET request configuration.

**Table 52–51** GET Request Configuration for Viewing Details of Quota Usage by Service Family

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/{servicefamily}   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```

{
 "name": "Usages",
 "type": "Usages Collection",
 "totalResults": 4,
 "cfwItems": [
 {
 "id": "sampleActionOpen",
 "name": "Storage",
 "type": "Others",
 "allowed": "10.0",
 "used": "3.0",
 "unit": "GB"
 },
 {
 "name": "Cfw Sample XaaS - Other Service",
 "type": "Service Instances",
 "serviceType": "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
 "used": "0"
 },
 {
 "name": "Cfw Sample XaaS",
 "type": "Service Instances",
 "serviceType": "CFW_SAMPLEXAAS_SERVICE",
 "used": "0"
 },
 {
 "name": "Cfw Sample RemoteServer XaaS",
 "type": "Service Instances",
 "serviceType": "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
 "used": "0"
 }
],

```

```

"canonicalLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/CFW_SAMPLEXAAS_SERVICEFAMILY"
},
"selfLink": {
 "href":
 "https://cloudcompany.com/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/quotausage/CFW_SAMPLEXAAS_SERVICEFAMILY"
}
}

```

## 52.10 User Preferences for V2

This section describes the User preference resource in the v2 framework.

### 52.10.1 Supported Request Methods for User Preference Resource in V2

The table below shows the supported request methods on the User preference resource.

**Table 52–52 Supported Request Methods for the User Preferences Resource in V2**

| Request Method | URI                                                                                                                | Description                                                         |
|----------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/                                                | Returns top level view of general and service specific preferences. |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general                                         | Returns general user preferences.                                   |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general/metadata                                | Returns metadata for general user preferences.                      |
| PUT            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general                                         | Updates general preferences of the user.                            |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services                                        | Returns the top level view of the service preferences.              |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}                        | Returns service family user preferences.                            |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/metadata               | Returns metadata for the specified service family preferences.      |
| PUT            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}                        | Updates service family user preferences.                            |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}          | Returns service type user preferences.                              |
| GET            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}/metadata | Returns metadata for the specified service type preferences.        |

**Table 52–52 (Cont.) Supported Request Methods for the User Preferences Resource in**

| Request Method | URI                                                                                                       | Description                                     |
|----------------|-----------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| PUT            | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype} | Updates service family preferences of the user. |

## 52.10.2 User Preferences for V2 REST API Examples

The following REST APIs are covered in this section. The following operations are covered in this section:

- [Viewing Details of the User Preferences Resource for V2](#)
- [Viewing Details of the General User Preferences Resource for V2](#)
- [Viewing Metadata of the General User Preferences Resource for V2](#)
- [Updating the General User Preferences for V2](#)
- [Viewing Details of the Services User Preferences Resource for V2](#)
- [Viewing Details of the Service Family User Preferences Resource for V2](#)
- [Viewing Metadata of the Service Family User Preferences for V2](#)
- [Updating the Service Family User Preferences for V2](#)
- [Viewing Details of the Service Type User Preferences Resource for V2](#)
- [Viewing Metadata of the Service Type User Preferences for V2](#)
- [Updating the Service Type User Preferences for V2](#)

### 52.10.2.1 Viewing Details of the User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 52–53 GET Request Configuration for Viewing Details of the User Preferences Resource in V2**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "generalPreferences" :
 "https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general",
 "servicePreferences" :
 "https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services",
 "canonicalLink" : {
 "href" :
 "https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/s
```

```
sa/cfw/v2/userpreferences"
}
}
```

### 52.10.2.2 Viewing Details of the General User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 52–54 GET Request Configuration for Viewing Details of the General User Preferences Resource in V2**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/general      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "name" : "General Preference",
 "type" : "General User Preferences",
 "preferences" : [{
 "name" : "USER_LOCALE",
 "value" : "en",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "English",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "REQUEST_STATUS",
 "type" : "VECTOR",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,
 "secret" : false
 }, {
 "name" : "REQUEST_NOTIFICATION",
 "value" : "false",
 "type" : "BOOLEAN",
 "defaultValue" : "false",
 "description" : "This allows the user to receive notifications for different statuses of the request.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "NOTIFICATION_DAYS_1",
 "value" : "0",
 "type" : "INTEGER",
 "defaultValue" : "0",
 "description" : "Number of days before the first notification is sent to the user before the expiry date of the service instance.",
 "required" : false,
 "secret" : false
 }, {
```

```

"name" : "NOTIFICATION_DAYS_2",
"value" : "0",
"type" : "INTEGER",
"defaultValue" : "0",
"description" : "Number of days before the second notification is sent to the user
before the expiry date of the service instance.",
"required" : false,
"secret" : false
}, {
"name" : "DEFAULT_SERVICE",
"value" : "MWAAS",
"type" : "STRING",
"defaultValue" : "IAAS",
"description" : "This will be used as your default service after successful login
to Self Service Portal.",
"required" : false,
"secret" : false
}, {
"name" : "EMAIL",
"type" : "VECTOR",
"description" : "This is the default Email address for receiving cloud
notifications.",
"required" : false,
"secret" : false
}, {
"name" : "QUOTA_THRESHOLD",
"value" : "0.0",
"type" : "FLOAT",
"defaultValue" : "0.0",
"description" : "Notifications will be sent to users when resources exceed the
defined quota percentage.",
"required" : false,
"secret" : false
}, {
"name" : "QUOTA_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Receive quota related notification when the quota reaches the
specified threshold.",
"required" : false,
"secret" : false
}, {
"name" : "INSTANCE_EXPIRY_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Enables user to receive notifications for Service Instances that
are due to expire based on the notification period.",
"required" : false,
"secret" : false
}],
"meta" :
"https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/s
sa/cfw/v2/userpreferences/general/metadata",
"canonicalLink" : {
"href" :
"https://blr2223141.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/s
sa/cfw/v2/userpreferences/general"
}

```

```
}
```

### 52.10.2.3 Viewing Metadata of the General User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 52–55** *GET Request Configuration for Viewing Metadata of the General User Preferences Resource in V2*

| Feature         | Specification                                                                           |
|-----------------|-----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userp<br>references/general/metadata |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json         |
| Body            | None                                                                                    |
| Request method  | GET                                                                                     |

A sample of the response received is shown below.

```
{
 "name" : "General Preference",
 "type" : "General User Preferences",
 "preferences" : [{
 "name" : "USER_LOCALE",
 "value" : "en",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "English",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false,
 "possibleValues" : [{
 "name" : "USER_LOCALE",
 "value" : "es_ES",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "Spanish",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "USER_LOCALE",
 "value" : "ja",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "Japanese",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "USER_LOCALE",
 "value" : "fr",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "French",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }
]
}
```



```

 }, {
 "name" : "USER_LOCALE",
 "value" : "ko",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "Korean",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "USER_LOCALE",
 "value" : "de",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "German",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "USER_LOCALE",
 "value" : "zh_TW",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "Traditional Chinese",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "USER_LOCALE",
 "value" : "zh_CN",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "Simplified Chinese",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "USER_LOCALE",
 "value" : "en",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "English",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }, {
 "name" : "USER_LOCALE",
 "value" : "pt_BR",
 "type" : "STRING",
 "defaultValue" : "en",
 "displayName" : "Brazilian Portuguese",
 "description" : "This is the default Locale for receiving cloud notifications.",
 "required" : false,
 "secret" : false
 }]
 }, {
 "name" : "REQUEST_STATUS",
 "type" : "VECTOR",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,

```

```
"secret" : false,
"possibleValues" : [{
 "name" : "REQUEST_STATUS",
 "value" : "PARTIAL_SUCCEEDED",
 "type" : "VECTOR",
 "displayName" : "Partially Succeeded",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,
 "secret" : false
}, {
 "name" : "REQUEST_STATUS",
 "value" : "ERROR",
 "type" : "VECTOR",
 "displayName" : "Error",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,
 "secret" : false
}, {
 "name" : "REQUEST_STATUS",
 "value" : "CANCELLED",
 "type" : "VECTOR",
 "displayName" : "Cancelled",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,
 "secret" : false
}, {
 "name" : "REQUEST_STATUS",
 "value" : "EXECUTING",
 "type" : "VECTOR",
 "displayName" : "Running",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,
 "secret" : false
}, {
 "name" : "REQUEST_STATUS",
 "value" : "SUCCESS",
 "type" : "VECTOR",
 "displayName" : "Success",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,
 "secret" : false
}, {
 "name" : "REQUEST_STATUS",
 "value" : "SCHEDULED",
 "type" : "VECTOR",
 "displayName" : "Scheduled",
 "description" : "Request Status For Which Notifications Are Enabled",
 "required" : false,
 "secret" : false
}]
}, {
 "name" : "REQUEST_NOTIFICATION",
 "value" : "false",
 "type" : "BOOLEAN",
 "defaultValue" : "false",
 "description" : "This allows the user to receive notifications for different
statuses of the request.",
 "required" : false,
 "secret" : false
}, {
```

```

"name" : "NOTIFICATION_DAYS_1",
"value" : "0",
"type" : "INTEGER",
"defaultValue" : "0",
"description" : "Number of days before the first notification is sent to the user
before the expiry date of the service instance.",
"required" : false,
"secret" : false
}, {
"name" : "NOTIFICATION_DAYS_2",
"value" : "0",
"type" : "INTEGER",
"defaultValue" : "0",
"description" : "Number of days before the second notification is sent to the user
before the expiry date of the service instance.",
"required" : false,
"secret" : false
}, {
"name" : "DEFAULT_SERVICE",
"value" : "MWAAS",
"type" : "STRING",
"defaultValue" : "IAAS",
"description" : "This will be used as your default service after successful login
to Self Service Portal.",
"required" : false,
"secret" : false
}, {
"name" : "EMAIL",
"type" : "VECTOR",
"description" : "This is the default Email address for receiving cloud
notifications.",
"required" : false,
"secret" : false
}, {
"name" : "QUOTA_THRESHOLD",
"value" : "0.0",
"type" : "FLOAT",
"defaultValue" : "0.0",
"description" : "Notifications will be sent to users when resources exceed the
defined quota percentage.",
"required" : false,
"secret" : false
}, {
"name" : "QUOTA_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Receive quota related notification when the quota reaches the
specified threshold.",
"required" : false,
"secret" : false
}, {
"name" : "INSTANCE_EXPIRY_NOTIFICATION",
"value" : "false",
"type" : "BOOLEAN",
"defaultValue" : "false",
"description" : "Enables user to receive notifications for Service Instances that
are due to expire based on the notification period.",
"required" : false,
"secret" : false

```

```

 }],
 "canonicalLink" : {
 "href" :
 "https://xxx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/
v2/userpreferences/general/metadata"
 }
 }
}

```

#### 52.10.2.4 Updating the General User Preferences for V2

The table below shows the configuration for the PUT request.

**Table 52–56 PUT Request Configuration for Updating the General User Preferences in V2**

| Feature         | Specification                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userp<br>references/general                                                                                                        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                                       |
| Body            | <pre> {   "preferences": [     {       "value": "MWAAS",       "name": "DEFAULT_SERVICE"     },     {       "value": "false",       "name": "REQUEST_NOTIFICATION"     }   ] } </pre> |
| Request method  | PUT                                                                                                                                                                                   |

A sample of the response received is shown below.

```

{
 "message" : "General preferences updated successfully."
}

```

#### 52.10.2.5 Viewing Details of the Services User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 52–57 GET Request Configuration for Viewing Details of the Services User Preferences Resource in V2**

| Feature         | Specification                                                                   |
|-----------------|---------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userp<br>references/services |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json |
| Body            | None                                                                            |
| Request method  | GET                                                                             |

A sample of the response received is shown below.

```
{
 "preferences" : [{
 "name" : "MIDDLEWARE_CFW",
 "type" : "Service Family User Preferences",
 "required" : false,
 "secret" : false,
 "meta" : {
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/MIDDLEWARE_CFW/metadata",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/MIDDLEWARE_CFW"
 }
 }, {
 "name" : "NIMBULA_INFRASTRUCTURE",
 "type" : "Service Family User Preferences",
 "required" : false,
 "secret" : false,
 "meta" : {
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/NIMBULA_INFRASTRUCTURE/metadata",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/NIMBULA_INFRASTRUCTURE"
 }
 }, {
 "name" : "DBAAS",
 "type" : "Service Family User Preferences",
 "required" : false,
 "secret" : false,
 "meta" : {
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/DBAAS/metadata",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/DBAAS"
 }
 }, {
 "name" : "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "type" : "Service Family User Preferences",
 "required" : false,
 "secret" : false,
 "meta" : {
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY"
 }
 }
 }],
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
 2/userpreferences/services"
 }
 }
}
```

```
}

```

### 52.10.2.6 Viewing Details of the Service Family User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 52–58** GET Request Configuration for Viewing Details of the Service Family User Preferences Resource in V2

| Feature         | Specification                                                                               |
|-----------------|---------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json             |
| Body            | None                                                                                        |
| Request method  | GET                                                                                         |

### 52.10.2.7 Viewing Metadata of the Service Family User Preferences for V2

The table below shows the configuration for the GET request.

**Table 52–59** GET Request Configuration for Viewing Metadata of the Service Family User Preferences in V2

| Feature         | Specification                                                                                        |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/metadata |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                      |
| Body            | None                                                                                                 |
| Request method  | GET                                                                                                  |

A sample of the response received is shown below.

```
{
 "name" : "CFW_SAMPLEXAAS_SERVICEFAMILY",
 "type" : "Service Type User Preferences",
 "preferences" : [{
 "name" : "SAMPLE_PREFERENCE_1",
 "value" : "test",
 "type" : "STRING",
 "defaultValue" : "Sample Value 1",
 "description" : "Type of the Supported Files",
 "required" : false,
 "secret" : false
 }],
 "subPreferences" : [{
 "name" : "CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM",
 "type" : "Service Type User Preferences",
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata/CFW_SAMPLEXAAS_SERVICE_FOR_NOMEM"
 }
 }], {
 }, {

```

```

"name" : "CFW_SAMPLEXAAS_SERVICE",
"type" : "Service Type User Preferences",
"canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata/CFW_SAMPLEXAAS_
SERVICE"
}
}, {
"name" : "CFW_SAMPLEXAAS_REMOTESERVER_SERVICE",
"type" : "Service Type User Preferences",
"canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata/CFW_SAMPLEXAAS_
REMOTESERVER_SERVICE"
}
}],
"canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/metadata"
}
}

```

### 52.10.2.8 Updating the Service Family User Preferences for V2

The table below shows the configuration for the PUT request.

**Table 52–60 PUT Request Configuration for Updating the Service Family User Preferences in V2**

| Feature         | Specification                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userp<br>references/services/{servicefamily} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                 |
| Body            | {<br>"preferences": [<br>{<br>"value": "test",<br>"name": "SAMPLE_PREFERENCE_1"<br>}<br>]<br>}  |
| Request method  | PUT                                                                                             |

A sample of the response received is shown below.

```

{
 "message" : "User service preferences updated successfully."
}

```

### 52.10.2.9 Viewing Details of the Service Type User Preferences Resource for V2

The table below shows the configuration for the GET request.

**Table 52–61 GET Request Configuration for Viewing Details of the Service Type User Preferences Resource in V2**

| Feature         | Specification                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                           |
| Body            | None                                                                                                      |
| Request method  | GET                                                                                                       |

A sample of the response received is shown below.

```
{
 "name" : "CFW_SAMPLEXAAS_SERVICE",
 "type" : "Service Type User Preferences",
 "preferences" : [{
 "name" : "SAMPLE_PREFERENCE_1",
 "value" : "UPD_ST_Rest_14-09-06 11.59.34",
 "type" : "STRING",
 "defaultValue" : "Sample Value 1",
 "description" : "Type of the Supported Files",
 "required" : false,
 "secret" : false
 }],
 "canonicalLink" : {
 "href" :
 "https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/CFW_SAMPLEXAAS_SERVICE"
 }
}
```

### 52.10.2.10 Viewing Metadata of the Service Type User Preferences for V2

The table below shows the configuration for the GET request.

**Table 52–62 GET Request Configuration for Viewing Metadata of the Service Type User Preferences in V2**

| Feature         | Specification                                                                                                      |
|-----------------|--------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userpreferences/services/{servicefamily}/{servicetype}/metadata |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                    |
| Body            | None                                                                                                               |
| Request method  | GET                                                                                                                |

A sample of the response received is shown below.

```
{
 "name" : "CFW_SAMPLEXAAS_SERVICE",
 "type" : "Service Type User Preferences",
 "preferences" : [{
 "name" : "SAMPLE_PREFERENCE_1",
 "value" : "test",
 "type" : "STRING",
```



```

"defaultValue" : "Sample Value 1",
"description" : "Type of the Supported Files",
"required" : false,
"secret" : false
}],
"canonicalLink" : {
"href" :
"https://xx.idc.example.com:24503/em/websvcs/restful/extws/cloudservices/ssa/cfw/v
2/userpreferences/services/CFW_SAMPLEXAAS_SERVICEFAMILY/CFW_SAMPLEXAAS_
SERVICE/metadata"
}
}

```

### 52.10.2.11 Updating the Service Type User Preferences for V2

The table below shows the configuration for the PUT request.

**Table 52–63 PUT Request Configuration for Updating the Service Type User Preferences in V2**

| Feature         | Specification                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/userp<br>references/services/{servicefamily}/{servicetype}           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                         |
| Body            | {<br>"preferences": [<br>{<br>"value": "UPD_ST_Rest_14-09-07 12.03.39",<br>"name": "SAMPLE_PREFERENCE_1"<br>}<br>]<br>} |
| Request method  | PUT                                                                                                                     |

A sample of the response received is shown below.

```

{
"message" : "User service preferences updated successfully."
}

```

## 52.11 User Preferences for V1

An SSA user (with the EM\_SSA\_USER role) can set user preferences (both general and service specific) using Cloud REST APIs.

### 52.11.1 My Preferences for V1

This is the top level resource and is used to get the following preferences:

- General Preferences
- Service Preferences: This includes My Database Preferences, My Middleware Preferences, and My Tests Preferences

## 52.11.2 Canonical Link for V1

The URI (canonicalLink) for user preferences is `em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/`. A GET request to this URI provided a top level view of the general and service specific preferences. The table below shows the GET request configuration on this URI.

**Table 52–64 Canonical Link**

| Method | Query Parameters | Request Payload | URI                                                                           | Description                                                             |
|--------|------------------|-----------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| GET    | NA               | NA              | <code>em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/</code> | Gives a top level view of the general and service specific preferences. |

**Table 52–65 GET Request Configuration for Viewing Details of My Preferences Resource**

| Feature         | Specification                                                                  |
|-----------------|--------------------------------------------------------------------------------|
| URI             | <code>/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/</code> |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                  |
| Body            | None                                                                           |
| Request method  | GET                                                                            |

A sample of the response received is shown below.

```
{
 "servicePreferences": "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services",
 "canonicalLink": "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/"
}
```

## 52.11.3 General Preferences for V1

This represents the general user preferences that are applicable across all service types.

**Table 52–66 General Preferences Data Model**

| Field        | Type   | Description                                                          | Occurs |
|--------------|--------|----------------------------------------------------------------------|--------|
| emailAddress | String | This is the default email address for receiving cloud notifications. | 0..1   |

**Table 52–66 (Cont.) General Preferences Data Model**

| Field              | Type                 | Description                                                                                                                                                                                                                                                                                                                                                                                                         | Occurs |
|--------------------|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| locale             | String               | This is the default locale for receiving cloud notifications. The default locale is English. Supported values include: <ul style="list-style-type: none"> <li>en (English)</li> <li>es_ES (Spanish)</li> <li>zh_CN (Simplified Chinese)</li> <li>zh_TW (Traditional Chinese)</li> <li>ja (Japanese)</li> <li>ko (Korean)</li> <li>fr (French)</li> <li>pt_BR (Brazilian Portuguese)</li> <li>de (German)</li> </ul> | 0..1   |
| request            | RequestEntity        | Request notification values.                                                                                                                                                                                                                                                                                                                                                                                        | 0..1   |
| instanceExpiry     | InstanceExpiryEntity | Instance expiry notification values.                                                                                                                                                                                                                                                                                                                                                                                | 0..1   |
| quota              | QuotaEntity          | Instance expiry notification values.                                                                                                                                                                                                                                                                                                                                                                                | 0..1   |
| quotaThreshold     | Integer              | Notifications will be sent to users when resources exceed the defined quota percentage.                                                                                                                                                                                                                                                                                                                             | 0..1   |
| defaultServiceType | String               | This is the default service after successful login to Self Service Portal.<br><br>If not specified, this is defaulted to servers. Supported service type values include: IAAS (Servers), DBAAS (Databases), MWAAS (Middleware) , TAAS (Tests)                                                                                                                                                                       | 0..1   |
| canonicalLink      | URI                  | A GET against this URI refreshes the client representation of this resource.                                                                                                                                                                                                                                                                                                                                        | 1      |

## 52.12 Composite Resource Attributes for V1

The following composite resource attribute data model are described in this section.

- RequestEntity
- InstanceExpiryEntity
- QuotaEntity

### 52.12.1 RequestEntity Data Model for V1

The following table describes the RequestEntity data model:

**Table 52–67 RequestEntity Data Model**

| Field                | Type    | Description                                                                          | Occurs |
|----------------------|---------|--------------------------------------------------------------------------------------|--------|
| requestNotifications | boolean | This allows the user to receive notifications for different statuses of the request. | 0..1   |

**Table 52–67 (Cont.) RequestEntity Data Model**

| Field         | Type         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Occurs |
|---------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| requestStatus | List<String> | <p>The list of request statuses for which notifications are enabled. Supported request status values are:</p> <ul style="list-style-type: none"> <li>▪ Incomplete</li> <li>▪ Scheduling</li> <li>▪ Scheduling Error</li> <li>▪ Scheduled</li> <li>▪ Canceled</li> <li>▪ Insufficient Quota</li> <li>▪ Insufficient Resources in Zone</li> <li>▪ In Progress</li> <li>▪ Execution Error</li> <li>▪ Partially Succeeded</li> <li>▪ Success</li> <li>▪ Running</li> <li>▪ All</li> </ul> |        |

### 52.12.2 InstanceExpiryEntity Data Model for V1

The following table describes the InstanceExpiryEntity data model:

**Table 52–68 InstanceExpiryEntity Data Model**

| Field                        | Type    | Description                                                                                                                | Occurs |
|------------------------------|---------|----------------------------------------------------------------------------------------------------------------------------|--------|
| instanceExpiryNotifications  | boolean | Enables user to receive notifications for service instances that are scheduled to expire based on the notification period. | 0..1   |
| daysBeforeFirstNotification  | Integer | The number of days before the first notification is sent to the user before the expiry date of the service instance.       | 0..1   |
| daysBeforeSecondNotification | Integer | The number of days before the second notification is sent to the user before the expiry date of the service instance.      | 0..1   |

### 52.12.3 QuotaEntity Data Model for V1

The following table describes the QuotaEntity data model:

**Table 52–69 QuotaEntity Data Model**

| Field              | Type    | Description                                                                             | Occurs |
|--------------------|---------|-----------------------------------------------------------------------------------------|--------|
| quotaNotifications | boolean | Receive quota related notification when the quota reaches the specified threshold.      | 0..1   |
| quotaThreshold     | Integer | Notifications will be sent to users when resources exceed the defined quota percentage. | 0..1   |

## 52.13 Supported Methods for General Preferences (for V1)

The following table shows the supported methods:

**Table 52–70 Supported Methods**

| Method | Query Parameters | Request Payload    | URI                                                                     | Description                                      |
|--------|------------------|--------------------|-------------------------------------------------------------------------|--------------------------------------------------|
| GET    | NA               | NA                 | em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general | Gives the general preferences for an SSA user.   |
| PUT    | NA               | GeneralPreferences | em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general | Updates the general preferences for an SSA user. |

### 52.13.1 Viewing Details of the General Preferences for an SSA User

The table below provides the configuration for a GET request to know the general preferences for an SSA user.

**Table 52–71 GET Request Configuration for Viewing Details of General Preferences for an SSA User**

| Feature         | Specification                                                             |
|-----------------|---------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general/ |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                             |
| Body            | None                                                                      |
| Request method  | GET                                                                       |

A sample of the response received is shown below.

```
{
 "emailAddress": "john.smith@cloudcompany.com",
 "locale": "English",
 "request": {
 "requestNotifications": true,
 "requestStatus": ["SUCCESS", "INCOMPLETE"]
 },
 "instanceExpiry": {
 "instanceExpiryNotifications": true,
 "daysBeforeFirstNotification": 10,
 "daysBeforeSecondNotification": 5
 },
 "quota": {
 "quotaNotifications": true,
 "quotaThreshold": 80.0
 },
 "defaultServiceType": "Servers",
 "canonicalLink":
 "em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general"
}
```

### 52.13.2 Updating the General Preferences for an SSA User

The table below provides the configuration for a PUT request to update the general preferences for an SSA user.

**Table 52–72 PUT Request Configuration for Updating the General Preferences for an SSA User**

| Feature                                            | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI                                                | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/general/                                                                                                                                                                                                                                                                                                                                                                           |
| Request headers                                    | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                                                                                       |
| Body to update a single field                      | <pre>{   "emailAddress": "john.smith@cloudcompany.com",   "locale": "en",   "defaultServiceType": "IAAS", }</pre>                                                                                                                                                                                                                                                                                                                                   |
| Body to update all fields                          | <pre>{   "emailAddress": "john.smith@cloudcompany.com",   "locale": "en",   "request": {     "requestNotifications": true,     "requestStatus": ["SCHEDULED", "INCOMPLETE"]   },   "instanceExpiry": {     "instanceExpiryNotifications": true,     "daysBeforeFirstNotification": 10,     "daysBeforeSecondNotification": 5   },   "quota": {     "quotaNotifications": true,     "quotaThreshold": 80   },   "defaultServiceType": "IAAS" }</pre> |
| Body to update Notification fields                 | <pre>{   "request": {     "requestNotifications": true,     "requestStatus": ["SCHEDULED", "INCOMPLETE"]   } }</pre>                                                                                                                                                                                                                                                                                                                                |
| Body to update instance expiry notification fields | <pre>{   "instanceExpiry": {     "instanceExpiryNotifications": true,     "daysBeforeFirstNotification": 10,     "daysBeforeSecondNotification": 5   } }</pre>                                                                                                                                                                                                                                                                                      |
| Body to update quota notification fields           | <pre>{   "quota": {     "quotaNotifications": true,     "quotaThreshold": 80   } }</pre>                                                                                                                                                                                                                                                                                                                                                            |
| Request method                                     | GET                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

A sample of the response received is shown below.

Status 200 OK

```
{
```

```

 message: "General Preferences updated successfully."
 }

```

## 52.14 Service Specific User Preferences for V1

This section describes the following:

### 52.14.1 Service Preferences for V1

The Service Preferences resource represents the user preferences of an SSA user per service family.

**Table 52–73 ServicePreferences Data Model**

| Field              | Type                           | Description                                                                  | Occurs |
|--------------------|--------------------------------|------------------------------------------------------------------------------|--------|
| canonicalLink      | URI                            | A GET against this URI refreshes the client representation of this resource. | 1      |
| servicePreferences | Collection<EntityValue Holder> | User preferences of SSA user for a specific service family.                  | 1      |

### 52.14.2 Supported Methods for My Preferences (for V1)

**Table 52–74 Supported Methods (II)**

| Method | Query Parameters | Request Payload    | URI                                                                                      | Description                                                                    |
|--------|------------------|--------------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| GET    | NA               | NA                 | em/websvcs/restful/etxtws/cloudservices/ssacfw/v1/mypreferences/services                 | This gives the top level view of service preferences for all service families. |
| GET    | NA               | NA                 | em/websvcs/restful/etxtws/cloudservices/ssacfw/v1/mypreferences/services/<servicefamily> | Gives user preferences of SSA user for a specific service family.              |
| PUT    | NA               | ServicePreferences | em/websvcs/restful/etxtws/cloudservices/ssacfw/v1/mypreferences/services/<servicefamily> | Updates the user preferences of SSA user for a specific service family.        |

### 52.14.3 ServicePreferenceMetadata Data Model for V1

This fetches the set of user preferences metadata relevant to the respective service family.

Using this, the user can identify the user preferences available for each service family and the possible values of each.

**Table 52–75 ServicePreferenceMetaData Data Model**

| Field                  | Type                        | Description                                                                   | Occurs |
|------------------------|-----------------------------|-------------------------------------------------------------------------------|--------|
| canonicalLink          | URI                         | A GET against this URI refreshes the client representation of this resource.  | 1      |
| servicePreferencesMeta | Collection<ValueDescriptor> | The set of user preferences metadata relevant to the respective service type. | 0..1   |

## 52.14.4 Composite Resource Attributes for V1

Some of the resource entities in this specification contain the following composite resource attributes:

### 52.14.4.1 ValueEntity Data Model for V1

This represents a value (string representation) and their description (caption). The following table describes the data model:

**Table 52–76 ValueEntity Data Model**

| Field       | Type   | Description                                              | Occurs |
|-------------|--------|----------------------------------------------------------|--------|
| value       | String | String representation of the actual value of the entity. | 1      |
| description | String | Caption of the entity that describes it.                 | 0..1   |

### 52.14.4.2 EntityValueHolder Data Model for V1

This represents a simple entity having a name, value and description. The following table describes the data model:

**Table 52–77 EntityValueHolder Data Model**

| Field       | Type   | Description                                              | Occurs |
|-------------|--------|----------------------------------------------------------|--------|
| name        | String | Name of the entity.                                      | 1      |
| value       | String | String representation of the actual value of the entity. | 1      |
| description | String | Caption of the entity that describes it.                 | 0..1   |

### 52.14.4.3 ValueDescriptor Data Model for V1

This describes the metadata regarding the type of value that can be set upon an associated object. The following table describes the data model.

**Table 52–78 ValueDescriptor Data Model**

| Field               | Type    | Description                                 | Occurs |
|---------------------|---------|---------------------------------------------|--------|
| name                | String  | Name of the datum being described.          | 1      |
| displayName         | String  | Display name of the datum being described.  | 0..1   |
| description         | String  | Description of the datum referred.          | 0..1   |
| currentValue        | String  | Current value of the datum being described. | 0..1   |
| isRequiredAttribute | boolean | True if the value of the datum is required. | 0..1   |



**Table 52–78 (Cont.) ValueDescriptor Data Model**

| Field          | Type                    | Description                                                 | Occurs |
|----------------|-------------------------|-------------------------------------------------------------|--------|
| possibleValues | Collection<ValueEntity> | Optional list of valid values of the datum being described. | 0..1   |
| description    | String                  | Description of the datum referred.                          | 0..1   |

## 52.14.5 Service Preferences REST API Examples for V1

This section describes the REST API examples of the Service Preferences resource.

### 52.14.5.1 Viewing Details of the Service Preferences Resource

The table below shows the GET request configuration for getting top level view of service preferences for all service families.

**Table 52–79 GET Request Configuration for Viewing Details of Service Preferences Resource**

| Feature         | Specification                                                              |
|-----------------|----------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/ |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                              |
| Body            | None                                                                       |
| Request method  | GET                                                                        |

A sample of the response received is shown below.

Status 200 OK

```
{
 DBAAS: {
 displayName: "My Database Preferences"
 description: "User preferences for Database services"
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas"
 }
 MWAAS: {
 displayName: "My Middleware Preferences"
 description: "User preferences for Middleware services"
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/mwaas"
 }
 TAAS: {
 displayName: "My Tests Preferences"
 description: "User preferences for Testing as a Service (TaaS)"
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/taas"
 }
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services"
}
```

## 52.14.6 My Database Preferences REST API Examples for V1

This section details the REST API examples for My Database Preferences resource which specifies the preferences for database services.

### 52.14.6.1 Viewing Details of the DBaaS User Preferences Metadata

The table below shows the configuration for the GET request.

**Table 52–80** GET Request Configuration for Viewing Details of the DBaaS User Preferences Metadata

| Feature         | Specification                                                                            |
|-----------------|------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/metadata |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                            |
| Body            | None                                                                                     |
| Request method  | GET                                                                                      |

A sample of the response received is shown below.

Status 200 OK

```
{
 servicePreferencesMetadata: {
 items:
 {
 name: "defaultPaasZone"
 displayName: "Default PaaS Infrastructure Zone"
 description: "Default PaaS Infrastructure Zone"
 currentValue: ""
 isRequiredAttribute: false
 possibleValues:
 {
 value: "dbaas_west_coast_zone"
 }
 }
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/metadata"
 }
}
```

### 52.14.6.2 Updating DBaaS User Preferences

The table below shows the PUT request configuration.

**Table 52–81** PUT Request Configuration for Updating the DBaaS User Preferences

| Feature         | Specification                                                                    |
|-----------------|----------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/ |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json  |

**Table 52–81 (Cont.) PUT Request Configuration for Updating the DBaaS User**

| Feature        | Specification                                                                                                                                                  |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "servicePreferences":   {     "items":[       {         "name": "defaultPaasZone",         "value": "dbaas_west_coast_zone"       }     ]   } }</pre> |
| Request method | PUT                                                                                                                                                            |

A sample of the response received is shown below.

Status 200 OK

```
{
 message: Service Preferences updated successfully."
}
```

### 52.14.6.3 Setting a Blank DBaaS User Preference Setting

The table below shows the PUT request configuration.

**Table 52–82 PUT Request Configuration for Setting a Blank DBaaS User Preference Setting**

| Feature         | Specification                                                                                                                             |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                           |
| Body            | <pre>{   "servicePreferences":   {     "items":[       {         "name": "defaultPaasZone",         "value": ""       }     ]   } }</pre> |
| Request method  | PUT                                                                                                                                       |

A sample of the response received is shown below.

Status 200 OK

```
{
 message: Service Preferences updated successfully."
}
```

#### 52.14.6.4 Viewing the DBaaS User Preferences

The table below shows the GET request configuration.

**Table 52–83** GET Request Configuration for Viewing the DBaaS User Preference Setting

| Feature         | Specification                                                                    |
|-----------------|----------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas/ |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json  |
| Body            | None                                                                             |
| Request method  | GET                                                                              |

A sample of the response received is shown below.

Status 200 OK

```
{
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/dbaas"
 servicePreferences: {
 items: {
 name: "defaultPaasZone"
 value: "dbaas_west_coast_zone"
 }
 }
}
```

### 52.14.7 My Middleware Preferences REST API Examples for V1

This section shows the REST API examples of user preferences for Middleware services:

#### 52.14.7.1 Viewing MWaaS User Preferences Metadata

The table below shows the GET request configuration.

**Table 52–84** GET Request Configuration for Viewing the MWaaS User Preferences Metadata

| Feature         | Specification                                                                             |
|-----------------|-------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/mwaas/metadata/ |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                             |
| Body            | None                                                                                      |
| Request method  | GET                                                                                       |

A sample of the response received is shown below.

Status 200 OK

```
{
 servicePreferencesMetadata: {
```

```

items:
{
name: "defaultPaasZone"
displayName: "Default PaaS Infrastructure Zone"
description: "Default PaaS Infrastructure Zone"
currentValue: ""
isRequiredAttribute: false
possibleValues:
{
value: "mwaas_east_coast_zone"
}
}
}
canonicalLink:
"/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/mwaas/
metadata"
}

```

### 52.14.7.2 Updating MWaaS User Preferences

The table below shows the PUT request configuration.

**Table 52–85 PUT Request Configuration for Updating MWaaS User Preferences**

| Feature         | Specification                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypr<br>eferences/services/mwaas/                                                                             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                                                  |
| Body            | <pre> {   "servicePreferences":   {     "items":[       {         "name": "defaultPaasZone",         "value": "mwaas_east_coast_zone"       }     ]   } } </pre> |
| Request method  | PUT                                                                                                                                                              |

A sample of the response received is shown below.

Status 200 OK

```

{
 message: Service Preferences updated successfully."
}

```

### 52.14.7.3 Setting a Blank MWaaS User Preference Setting

The table below shows the PUT request configuration.

**Table 52–86 PUT Request Configuration for Setting a Blank MWaaS User Preference Setting**

| Feature         | Specification                                                                                                                              |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/mwaas/                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json                                                            |
| Body            | <pre>{   "servicePreferences":   {     "items": [       {         "name": "defaultPaasZone",         "value": ""       }     ]   } }</pre> |
| Request method  | PUT                                                                                                                                        |

A sample of the response received is shown below.

Status 200 OK

```
{
 message: Service Preferences updated successfully.
}
```

#### 52.14.7.4 Viewing MWaaS User Preference Settings

The table below shows the GET request configuration.

**Table 52–87 GET Request Configuration for Viewing MWaaS User Preference Settings**

| Feature         | Specification                                                                    |
|-----------------|----------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/mwaas/ |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                    |
| Body            | None                                                                             |
| Request method  | GET                                                                              |

A sample of the response received is shown below.

Status 200 OK

```
{
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/mwaas"
 servicePreferences: {
 items: {
 name: "defaultPaasZone"
 value: "mwaas_west_coast_zone"
 }
 }
}
```

## 52.14.8 My Tests Preferences for V1

This section details the REST API examples of user preferences for Testing as a Service (TaaS).

### 52.14.8.1 Viewing TaaS User Preferences Metadata

The table below shows the GET request configuration.

**Table 52–88** GET Request Configuration for Viewing TaaS User Preferences Metadata

| Feature         | Specification                                                                           |
|-----------------|-----------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/taas/metadata |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Content-Type: application/json         |
| Body            | None                                                                                    |
| Request method  | GET                                                                                     |

A sample of the response received is shown below.

Status 200 OK

```
{
 servicePreferencesMetadata: {
 items:
 {
 name: "defaultInstanceRootPassword"
 displayName: "Default Instance Root Password"
 description: "The password that will be set as default root password to new
 environment and test driver instance."
 currentValue: ""
 isRequiredAttribute: false
 }
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/taas/metadata"
 }
}
```

### 52.14.8.2 Updating TaaS User Preferences

The table below shows the PUT request configuration.

**Table 52–89** PUT Request Configuration for Updating TaaS User Preferences

| Feature         | Specification                                                                  |
|-----------------|--------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v1/mypreferences/services/taas |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                  |

**Table 52–89 (Cont.) PUT Request Configuration for Updating TaaS User Preferences**

| Feature        | Specification                                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "servicePreferences":   {     "items": [       {         "name": "defaultInstanceRootPassword",         "value": "AQPY8bgHk"       }     ]   } }</pre> |
| Request method | PUT                                                                                                                                                             |

A sample of the response received is shown below.

Status 200 OK

```
{
 message: "Service Preferences updated successfully."
}
```



---

## WebLogic as a Service REST APIs

---

This chapter describes the resource model for WebLogic as a Service (WLaaS) REST APIs and their responses. Application component filtering, which is supported for WLaaS zones, and templates are also described.

---

**Note:** For the Plug-in release 12.1.0.9, a new framework is introduced for the REST APIs which is referred to as the v2 framework. The new framework consists of a different approach and signatures, as a result of which the REST APIs also differ when compared to the earlier framework. The earlier framework (v1) is deprecated and users are suggested to move to the v2 REST APIs.

---

This chapter contains the topics listed below. The first two sections provide a summary of all the REST APIs covered in this chapter whereas the following sections provide the resource details and the related REST APIs.

- [Summary of WebLogic as a Service REST APIs for V2](#)
- [Summary of WebLogic as a Service REST APIs for V1](#)
- [Resource Providers for V2 - PaaS Infrastructure Zone and Middleware Pool](#)
- [Quotas for V2](#)
- [Service Templates for V2](#)
- [Load Balancer Configurations for V2](#)
- [User Operation REST API Examples for V2](#)
- [WebLogic as a Service Resource Model for V1](#)
  - [Cloud](#)
  - [JaaS Service Family Type](#)
  - [Zone](#)
  - [JavaPlatformTemplate](#)
  - [Java Platform Instance](#)
  - [Application Instance Deployment](#)
  - [DataSource](#)
  - [Application Instance Component](#)
- [Application Component Filtering for V1](#)

- [Load Balancer Configuration for V1](#)
- [Quotas for V1](#)
- [Service Templates for V1](#)
- [User Operation REST API Examples for V1](#)
- [EMCLI Support for Administration Operations](#)

## 53.1 Summary of WebLogic as a Service REST APIs for V2

The table below shows a summary of all the v2 WLaaS REST APIs covered in this chapter.

**Table 53–1 Summary of WLaaS REST APIs for V2**

| Resource                                     | Data Model                  | GET                                                                                                                                                                    | POST                             | PUT                                                                                                                                                                                                                                                             | DELETE                           |
|----------------------------------------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Resource provider - PaaS infrastructure zone | <a href="#">Table 53–3</a>  | <a href="#">Section 53.3.1.1</a>                                                                                                                                       | <a href="#">Section 53.3.1.2</a> | <a href="#">Section 53.3.1.4</a>                                                                                                                                                                                                                                | <a href="#">Section 53.3.1.6</a> |
| Resource provider - Middleware pool          | <a href="#">Table 53–3</a>  | <a href="#">Section 53.3.1.1</a>                                                                                                                                       | <a href="#">Section 53.3.1.3</a> | <a href="#">Section 53.3.1.5</a>                                                                                                                                                                                                                                | <a href="#">Section 53.3.1.6</a> |
| Quotas                                       | <a href="#">Table 53–10</a> | <a href="#">Section 53.4.1.1</a>                                                                                                                                       | <a href="#">Section 53.4.1.2</a> | <a href="#">Section 53.4.1.3</a>                                                                                                                                                                                                                                | <a href="#">Section 53.4.1.4</a> |
| Service templates                            | <a href="#">Table 53–15</a> | <ul style="list-style-type: none"> <li>■ <a href="#">Section 53.5.1.1</a></li> <li>■ <a href="#">Section 53.5.1.2</a></li> </ul>                                       | Not supported                    | Not supported                                                                                                                                                                                                                                                   | <a href="#">Section 53.5.1.3</a> |
| Load balancer configuration                  | <a href="#">Table 53–19</a> | <ul style="list-style-type: none"> <li>■ <a href="#">Section 53.6.2.1</a></li> <li>■ <a href="#">Section 53.6.2.2</a></li> </ul>                                       | <a href="#">Section 53.6.2.3</a> | <a href="#">Section 53.6.2.4</a>                                                                                                                                                                                                                                | <a href="#">Section 53.6.2.5</a> |
| Service instance                             | <a href="#">Table 53–26</a> | <ul style="list-style-type: none"> <li>■ <a href="#">Section 53.8.2</a></li> <li>■ <a href="#">Section 53.8.3</a></li> <li>■ <a href="#">Section 53.8.5</a></li> </ul> | <a href="#">Section 53.8.4</a>   | <ul style="list-style-type: none"> <li>■ <a href="#">Section 53.8.6</a></li> <li>■ <a href="#">Section 53.8.7</a></li> <li>■ <a href="#">Section 53.8.8</a></li> <li>■ <a href="#">Section 53.8.9</a></li> </ul>                                                | <a href="#">Section 53.8.10</a>  |
| Application                                  | Not available               | <ul style="list-style-type: none"> <li>■ <a href="#">Section 53.8.17</a></li> <li>■ <a href="#">Section 53.8.18</a></li> </ul>                                         | Not supported                    | <ul style="list-style-type: none"> <li>■ <a href="#">Section 53.8.12</a></li> <li>■ <a href="#">Section 53.8.13</a></li> <li>■ <a href="#">Section 53.8.14</a></li> <li>■ <a href="#">Section 53.8.15</a></li> <li>■ <a href="#">Section 53.8.16</a></li> </ul> | Not supported                    |
| Data source                                  | Not available               | Not supported                                                                                                                                                          | Not supported                    | <ul style="list-style-type: none"> <li>■ <a href="#">Section 53.8.21</a></li> <li>■ <a href="#">Section 53.8.22</a></li> <li>■ <a href="#">Section 53.8.23</a></li> <li>■ <a href="#">Section 53.8.24</a></li> <li>■ <a href="#">Section 53.8.25</a></li> </ul> | Not supported                    |

---

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

---

## 53.2 Summary of WebLogic as a Service REST APIs for V1

The table below shows a summary of all the v1 WLaaS REST APIs covered in this chapter.

**Table 53–2 Summary of WLaaS REST APIs for V1**

| Resource                        | Data Model                                                | GET                                                                                                                            | POST                                                                                                                         | PUT                                                                                                                                                                                                            | DELETE                            |
|---------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Cloud                           | <a href="#">Table 53–52</a>                               | <a href="#">Section 53.9.1.1</a>                                                                                               | Not supported                                                                                                                | Not supported                                                                                                                                                                                                  | Not supported                     |
| Jaas service family type        | <a href="#">Table 53–54</a>                               | <a href="#">Section 53.9.2.1</a>                                                                                               | <a href="#">Section 53.9.2.2</a>                                                                                             | Not supported                                                                                                                                                                                                  | Not supported                     |
| Zone                            | <a href="#">Table 53–56</a>                               | <a href="#">Section 53.9.3.1</a>                                                                                               | Not supported                                                                                                                | Not supported                                                                                                                                                                                                  | Not supported                     |
| Java platform template          | <a href="#">Table 53–58</a>                               | <a href="#">Section 53.9.4.1</a>                                                                                               | <a href="#">Section 53.9.4.2</a>                                                                                             | Not supported                                                                                                                                                                                                  | Not supported                     |
| Java platform instance          | <a href="#">Table 53–62</a>                               | <a href="#">Section 53.9.5.1</a>                                                                                               | <ul style="list-style-type: none"> <li><a href="#">Section 53.9.5.4</a></li> <li><a href="#">Section 53.9.5.6</a></li> </ul> | <a href="#">Section 53.9.5.8</a>                                                                                                                                                                               | <a href="#">Section 53.9.5.2</a>  |
| Application instance deployment | <a href="#">Table 53–71</a>                               | <a href="#">Section 53.9.6.1</a>                                                                                               | <a href="#">Section 53.9.5.4</a>                                                                                             | <a href="#">Section 53.9.6.4</a>                                                                                                                                                                               | <a href="#">Section 53.9.6.2</a>  |
| Data source                     | <a href="#">Table 53–76</a>                               | <a href="#">Section 53.9.7.1</a>                                                                                               | <a href="#">Section 53.9.5.6</a>                                                                                             | <a href="#">Section 53.9.7.4</a>                                                                                                                                                                               | <a href="#">Section 53.9.7.2</a>  |
| Application instance component  | <a href="#">Application Instance Component Data Model</a> | <a href="#">Section 53.9.8.1</a>                                                                                               | Not supported                                                                                                                | Not supported                                                                                                                                                                                                  | <a href="#">Section 53.9.8.2</a>  |
| Service template finds          | Not applicable                                            | <a href="#">Section 53.10.1</a>                                                                                                | Not applicable                                                                                                               | Not applicable                                                                                                                                                                                                 | Not applicable                    |
| Zone finds                      | Not applicable                                            | <a href="#">Section 53.10.2</a>                                                                                                | Not applicable                                                                                                               | Not applicable                                                                                                                                                                                                 | Not applicable                    |
| Load balancer configuration     | Not applicable                                            | <ul style="list-style-type: none"> <li><a href="#">Section 53.11.1.1</a></li> <li><a href="#">Section 53.11.1.2</a></li> </ul> | <a href="#">Section 53.11.1.4</a>                                                                                            | <a href="#">Section 53.11.1.3</a>                                                                                                                                                                              | Not supported                     |
| Quotas                          | Not applicable                                            | <a href="#">Section 53.12.1.1</a>                                                                                              | <a href="#">Section 53.12.1.2</a>                                                                                            | <a href="#">Section 53.12.1.3</a>                                                                                                                                                                              | <a href="#">Section 53.12.1.4</a> |
| Service templates               | Not applicable                                            | Not supported                                                                                                                  | <a href="#">Section 53.13.1</a>                                                                                              | Not supported                                                                                                                                                                                                  | Not supported                     |
| Service instance                | Not applicable                                            | Not supported                                                                                                                  | <a href="#">Section 53.14.5</a>                                                                                              | <ul style="list-style-type: none"> <li><a href="#">Section 53.14.1</a></li> <li><a href="#">Section 53.14.2</a></li> <li><a href="#">Section 53.14.4</a></li> </ul> see also <a href="#">Section 53.14.3</a> ) | Not supported                     |

---

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

---

## 53.3 Resource Providers for V2 - PaaS Infrastructure Zone and Middleware Pool

Resource Providers is a collection resource representing a Cloud Administrator's view of all the accessible Resource provider resources. In the WLaaS structure, PaaS Infrastructure zone and Middleware pool are the Resource provider resources. The following table describes the Resource Providers data model.

**Table 53–3 Resource Providers Data Model**

| Field         | Type                             | Description                                                                                    | Occurs |
|---------------|----------------------------------|------------------------------------------------------------------------------------------------|--------|
| name          | String                           | Display name of this collection resource.                                                      | 1      |
| type          | String                           | Type of collection resource.                                                                   | 1      |
| hasMore       | Boolean                          | Indicates whether there are more elements in the collection.                                   | 1      |
| count         | Integer                          | Number of elements returned.                                                                   | 1      |
| items         | Collection<br><ResourceProvider> | List of Resource Provider resources. In case no instance exist, the items field will be empty. | 1      |
| totalCount    | Integer                          | Total number of Resource Provider resources.                                                   | 1      |
| canonicalLink | URI                              | A GET request against this URI refreshes the client representation of this resource.           | 1      |
| selfLink      | URI                              | Refers to the resource equivalent to the containing elements.                                  | 1      |

### 53.3.1 Resource Providers - PaaS Infrastructure Zone and Middleware Pool REST API Examples

This section provides the REST API examples for PaaS infrastructure zones and Middleware pools.

The REST APIs covered in this section are:

- [Viewing Details of All the Resource Providers](#)
- [Creating a PaaS Infrastructure Zone](#)
- [Creating a Middleware Pool](#)
- [Updating a PaaS Infrastructure Zone](#)
- [Updating a Middleware Pool](#)
- [Deleting a Resource Provider \(PaaS Infrastructure Zone or Middleware Pool\)](#)

#### 53.3.1.1 Viewing Details of All the Resource Providers

The following table shows an example of a GET operation on the Resource providers URI to return its representation.

**Table 53–4 GET Request Configuration for Viewing Details of the Resource Providers**

| Feature         | Description                                                            |
|-----------------|------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                          |
| Body            | None                                                                   |
| Request method  | GET                                                                    |

### 53.3.1.2 Creating a PaaS Infrastructure Zone

The following table shows an example of a POST operation on the Resource providers URI to create a PaaS infrastructure zone.

**Table 53–5 POST Request Configuration for Creating a PaaS Infrastructure Zone**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Body            | <pre>{   "useExistingTarget" : false,   "name": "WlaaS_Zone1", "type": "self_service_zone",   "credentials": [ {"name": "normal_credential_guid",     method", "value": "AIME_CLOUD_CRED"}],   "memberTargetType": "host",   "members": ["xyxy.example.com", "xxxy.example.com"],   "placementConstraints": [{ "name": "MAX_CPU_     UTILIZATION", "value": ["80"]}, {"name": "MAX_MEMORY_     ALLOCATION", "value": ["80"]}],   "characteristics": [{"name": "ORACLE.SYSMAN.CFW.SELF_SERVICE_     ZONE", "value": ["70F61D030338B79AFEC42E008AF6F6B7"]},     {"name": "ORACLE.SYSMAN.CFW.ORCL_GTP_     CONTACT", "value": ["123456789"]},     {"name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_     CENTER", "value": ["IDC.LEX"]},     {"name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT", "value": ["FMW"]},     {"name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_     STATUS", "value": ["Test"]},     {"name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS", "value": ["ST"]},     {"name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "value": ["IDC"]}],   "roles": ["MWAS_SSA_USER_ROLE1"] }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

### 53.3.1.3 Creating a Middleware Pool

The following table shows an example of a POST operation on the Resource providers URI to create a Middleware pool.

**Table 53–6 POST Request Configuration for Creating a Middleware Pool**

| Feature         | Description                                                            |
|-----------------|------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                          |

**Table 53–6 (Cont.) POST Request Configuration for Creating a Middleware Pool**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{ "useExistingTarget": "false",   "name": "WlaaS_Pool1", "type": "mwaas_zone", "description": "This is a Windows Pool for WLAAS testing",   "memberTargetType": "host",   "members": [ "xyxy.example.com", "xxxy.example.com" ],   "parentResourceProviderId": "1",   "placementConstraints": [ { "name": "MAX_INSTANCES", "value": "10" } ],    "memberConstraints": [ { "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.PLATFOR M", "value": "226" } ],   "characteristics": [ { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_ CENTER", "value": "IDC" } ] }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

#### 53.3.1.4 Updating a PaaS Infrastructure Zone

The following table shows an example of a PUT operation to update the PaaS infrastructure zone.

**Table 53–7 PUT Request Configuration for Updating a PaaS Infrastructure Zone**

| Feature         | Description                                                                                                                                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/1                                                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                             |
| Body            | <pre>{ "description": "This is description frpm the REST PUT method",   "placementConstraints": [ { "name": "MAX_CPU_ UTILIZATION", "value": [ "90" ] },   { "name": "MAX_MEMORY_ALLOCATION", "value": [ "90" ] } ]</pre> |
| Request method  | PUT                                                                                                                                                                                                                       |

#### 53.3.1.5 Updating a Middleware Pool

The following table shows an example of a PUT operation to update a Middleware pool.

**Table 53–8 PUT Request Configuration for Updating a Middleware Pool**

| Feature         | Description                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/2                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                      |
| Body            | <pre>{   "placementConstraints": [ { "name": "NUMBER_OF_ INSTANCES", "value": [ "15" ] } ] }</pre> |

**Table 53–8 (Cont.) PUT Request Configuration for Updating a Middleware Pool**

| Feature        | Description |
|----------------|-------------|
| Request method | PUT         |

### 53.3.1.6 Deleting a Resource Provider (PaaS Infrastructure Zone or Middleware Pool)

The following table shows an example of a DELETE operation to delete a PaaS Infrastructure zone or Middleware pool.

**Table 53–9 DELETE Request Configuration for Deleting a PaaS Infrastructure Zone**

| Feature         | Description                                                              |
|-----------------|--------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/1 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                            |
| Body            | None                                                                     |
| Request method  | DELETE                                                                   |

## 53.4 Quotas for V2

The table below provides the data model for Quotas resource.

**Table 53–10 Quotas Data Model for V2**

| Field       | Type                    | Description                                                             | Occurs |
|-------------|-------------------------|-------------------------------------------------------------------------|--------|
| name        | String                  | Display name of the quota.                                              | 1      |
| description | String                  | Description of the quota resource.                                      | 1      |
| quotas      | Collection <Quota Item> | List of quotas. In case no quota exist, the quotas field will be empty. | 1      |
| selfLink    | URI                     | Refers to the resource equivalent of the containing elements.           | 1      |

### 53.4.1 Quotas REST API Examples

This section lists the REST APIs for the Quotas resource.

The REST APIs covered in this section are:

- [Viewing Details of Quota Settings](#)
- [Creating a Quota for a SSA User Role](#)
- [Updating a Quota for a SSA User Role](#)
- [Deleting a Quota for a SSA User Role](#)

#### 53.4.1.1 Viewing Details of Quota Settings

The following table shows an example of a GET operation on the quotas URI to return its representation. This operation returns quota settings for all the SSA user roles for MWaaS.

**Table 53–11 GET Request Configuration for Viewing Details of Quota Settings**

| Feature         | Description                                                  |
|-----------------|--------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                |
| Body            | None                                                         |
| Request method  | GET                                                          |

A sample of the response received is shown below.

```
{
 name: "Middleware Cloud Quotas"
 description: "Middleware Cloud Quotas per SSA User Role"
 quotas: [1]
 0: {
 roleName: "SSA_USER_ROLE"
 memory: "4"
 javaServersCount: "10"
 }-
 -
 selfLink:
 "https://slc06ekg.us.example.com:5416/em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas"
}
```

#### 53.4.1.2 Creating a Quota for a SSA User Role

The following table shows an example of a POST operation on the quotas URI to create a quota for the SSA user role.

**Table 53–12 POST Request Configuration for Creating a Quota Setting for a SSA User Role**

| Feature         | Description                                                                             |
|-----------------|-----------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas                            |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                           |
| Body            | {       "roleName": "SSA_ROLE"       "memory": "5"       "javaServersCount": "10"     } |
| Request method  | POST                                                                                    |

A sample of the response received is shown below.

```
Status 200 OK
{
 message: "Quota has been created."
 statusUri:
 "https://slc03sey.us.example.com:11040/em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas"
}
```



### 53.4.1.3 Updating a Quota for a SSA User Role

The following table shows an example of a PUT operation to update a quota for the SSA user role.

**Table 53–13** *PUT Request Configuration for Updating a Quota Setting for a SSA User Role*

| Feature         | Description                                                                   |
|-----------------|-------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                 |
| Body            | {<br>"roleName": "SSA_ROLE"<br>"memory": "10"<br>"javaServersCount": "5"<br>} |
| Request method  | PUT                                                                           |

A sample of the response received is shown below.

```
Status 200 OK
{
 message: "Quota has been updated."
 statusUri:
 "https://xxyy.us.example.com:11040/em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas"
}
```

### 53.4.1.4 Deleting a Quota for a SSA User Role

The following table shows an example of a DELETE operation to delete a quota for a SSA user role.

**Table 53–14** *DELETE Request Configuration for Deleting a Quota for a SSA User Role*

| Feature         | Description                                                  |
|-----------------|--------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                |
| Body            | {<br>"roleName": "SSA_ROLE"<br>}                             |
| Request method  | DELETE                                                       |

A sample of the response received is shown below.

```
Status 200 OK
{
 message: "Quota has been deleted."
}
```

## 53.5 Service Templates for V2

Service Templates is a collection resource representing an SSA administrator's view of all the accessible Service Template resources. The following table describes the Service Template data model.

**Table 53–15 Service Templates Collection Resource Data Model**

| Field         | Type                            | Description                                                                                       | Occurs |
|---------------|---------------------------------|---------------------------------------------------------------------------------------------------|--------|
| name          | String                          | Display name of the collection resource.                                                          | 1      |
| type          | String                          | Indicates the type of the collection resource.                                                    | 0..1   |
| hasMore       | Boolean                         | Indicates whether there are more elements in the collection.                                      | 1      |
| count         | Integer                         | Number of elements returned.                                                                      | 1      |
| items         | Collection<br><ServiceTemplate> | List of Service Template resources In case no instances exist, <code>items</code> field is empty. | 1      |
| totalCount    | Integer                         | Total number of Service Template resources.                                                       | 1      |
| canonicalLink | URI                             | A GET against this URI refreshes the client representation of this resource.                      | 1      |
| selfLink      | URI                             | Refers to the resource equivalent of the containing elements.                                     | 1      |

### 53.5.1 Service Templates REST API Examples

This section lists the REST APIs for Service Templates for v2.

The REST APIs covered in this section are:

- [Viewing Details of all Service Templates](#)
- [Viewing Details of a Specific Service Template](#)
- [Deleting a Service Template](#)

#### 53.5.1.1 Viewing Details of all Service Templates

The following table shows an example of a GET operation on the service templates URI to return its representation.

**Table 53–16 GET Request Configuration for Viewing Details of all Service Templates**

| Feature         | Description                                                          |
|-----------------|----------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                        |
| Body            | None                                                                 |
| Request method  | GET                                                                  |

#### 53.5.1.2 Viewing Details of a Specific Service Template

The following table shows an example of a GET operation on a specific service template URI to return its representation.

**Table 53–17** *GET Request Configuration for Viewing Details of a Specific Service Template*

| Feature         | Description                                                             |
|-----------------|-------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/21 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                           |
| Body            | None                                                                    |
| Request method  | GET                                                                     |

### 53.5.1.3 Deleting a Service Template

The following table shows an example of a DELETE operation to delete a service template.

**Table 53–18** *DELETE Request Configuration for Deleting a Service Template*

| Feature         | Description                                                             |
|-----------------|-------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/21 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                           |
| Body            | None                                                                    |
| Request method  | DELETE                                                                  |

## 53.6 Load Balancer Configurations for V2

Load balancer configurations is a collection resource. The table below shows the data model for the Load balancer configurations collection resource.

**Table 53–19** *Load Balancer Configurations Data Model for V2*

| Field       | Type                           | Description                                                                                                                   | Occurs |
|-------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------|
| name        | String                         | Display name of the load balancer configurations.                                                                             | 1      |
| description | String                         | Description of the load balancer configurations resource.                                                                     | 1      |
| lbrconfigs  | Collection<br><Lbrconfig Item> | List of load balancer configurations. In case, load balancer configurations do not exist, the lbrconfigs field will be empty. | 1      |
| selfLink    | URI                            | Refers to the resource equivalent of the containing elements.                                                                 | 1      |

### 53.6.1 Load Balancer Configuration for V2

Load balancer configuration is a singular resource. The table below shows the data model for the Load balancer configuration singular resource.

**Table 53–20 Load Balancer Configuration Data Model for V2**

| Field           | Type                     | Description                                                                                                                   | Occurs |
|-----------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------|
| name            | String                   | Display name of the load balancer configuration.                                                                              | 1      |
| description     | String                   | Description of the load balancer configuration resource.                                                                      | 1      |
| type            | String                   | Indicates the type of Load balancer. It is either Oracle Traffic Director (OTD), or Oracle Https Server(OHS), or third party. | 1      |
| id              | Integer                  | Indicates the Load balancer configuration ID. The id is unique.                                                               | 1      |
| owner           | String                   | Owner of the Load balancer configuration.                                                                                     | 1      |
| host            | String                   | Load balancer host. The Load balancer host must be added as a EM target in advance.                                           | 1      |
| credential      | String                   | Credential associated with the Load balancer host.                                                                            | 1      |
| agentTargetName | String                   | Indicates the agent target name.                                                                                              | 1      |
| instanceHome    | String                   | Load balancer instance home location.                                                                                         | 1      |
| poolTargets     | Collection <Pool Guids > | List of Guids of Middleware pool associated to the Load balancer (Resource provider).                                         | 1      |
| properties      | Collection <String>      | List of all properties of Load balancer configuration.                                                                        | 1      |
| selfLink        | URI                      | Refers to the resource equivalent of the containing elements.                                                                 | 1      |

## 53.6.2 Load Balancer Configurations REST API Examples

This section details the REST APIs for Load balancer configurations for v2.

The REST APIs covered in this section are:

- [Viewing all the Load Balancer Configurations](#)
- [Viewing Details of a Specific Load Balancer Configuration](#)
- [Creating a Load Balancer Configuration](#)
- [Updating a Load Balancer Configuration](#)
- [Deleting a Load Balancer Configuration](#)

### 53.6.2.1 Viewing all the Load Balancer Configurations

The following table shows an example of a GET operation to view all the Load balancer configurations.

**Table 53–21 GET Request Configuration for Viewing Details of all Load Balancer Configurations**

| Feature | Description                                                      |
|---------|------------------------------------------------------------------|
| URI     | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs |

**Table 53–21 (Cont.) GET Request Configuration for Viewing Details of all Load Balancer Configurations**

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= |
| Body            | None                                          |
| Request method  | GET                                           |

A sample of the response received is shown below.

```
{
 name: "Load Balancer Configurations"
 description: "Load Balancer Configurations available"
 selfLink:
 "https://xyxy.example.com:5416/em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs"
 lbrconfigs: [1]
 0: {
 name: "ohs_1"
 type: "OHS"
 id: 1000
 selfLink:
 "https://xyxy.example.com:5416/em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs/1000"
 }-
 -
}
```

### 53.6.2.2 Viewing Details of a Specific Load Balancer Configuration

The following table shows an example of a GET operation to view a specific Load balancer configuration.

**Table 53–22 GET Request Configuration for Viewing Details of a Specific Load Balancer Configuration**

| Feature         | Description                                                           |
|-----------------|-----------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs/1000 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                         |
| Body            | None                                                                  |
| Request method  | GET                                                                   |

A sample of the response received is shown below.

```
{
 name: "ohs_1"
 description: null
 type: "OHS"
 id: 1000
 owner: "SSA_ADMIN1"
 host: "xyxy.example.com"
 credential: "Insufficient Priviege"
```

```
agentTargetName: "xyxy.example.com:1838"
instanceHome: "/scratch/PS5_OHS/instance_home"
poolTargets: [1]
0: "10729BD1A3B12FA254232EE4F84CB71B"
-
properties: {
OHS_ROUTING_HTTP_PORT: "80"
HTTP_PORT_RANGE: "8000-9000"
OHS_ROUTING_PROTOCOL: "HTTP"
COMPONENT_NAME: "ohs1"
}-
selfLink:
"https://xyxy.example.com:5416/em/websvcs/restful/extws/cloudservices/admin/wlaas/
v2/lbrconfigs/1000"
}
```

53.6.2.3 Creating a Load Balancer Configuration

The following table shows an example of a POST operation to create a Load balancer configuration.

Table 53–23 POST Request Configuration for Creating a Load Balancer Configuration

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs                                                                                                                                                                                                                                                                                                                                                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Body            | { "name": "lbr1", "description": "desc by rest", "type": "OHS", "host": "xyxy.example.com", "agentTargetName": "xyxy.example.com:1838", "credential": "NC_HOST_2014-08-13-015648", "instanceHome": "/scratch/PS5_OHS/instance_home", "properties":{ "items": [ {"name":"HTTP_PORT_RANGE", "value":"8000-9000"}, {"name":"OHS_ROUTING_PROTOCOL", "value": "HTTP"}, {"name":"COMPONENT_NAME", "value": "ohs1"} ] }, "poolTargets": [ "002E15567E25ED53EA2EC76BADE76B08" ] } |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

A sample of the response received is shown below.

```
Status 200 OK
{
message: "Load Balancer Configuration has been created with ID: 1000"
statusUri:
"https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/admin/wlaas/
v2/lbrconfigs/1000"
}
```

### 53.6.2.4 Updating a Load Balancer Configuration

The following table shows an example of a PUT operation to update a Load balancer configuration.

**Table 53–24 PUT Request Configuration for Updating a Load Balancer Configuration**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Body            | <pre>{   "name": "lbr1",   "description": "desc by rest",   "type": "OHS",   "id": 1004,   "host": "xyxy.example.com",   "agentTargetName": "xyxy.example.com:1838",   "credential": "NC_HOST_2014-08-13-015648",   "instanceHome": "/scratch/PS5_OHS/instance_home",   "properties":{ "items":     [       { "name":"HTTP_PORT_RANGE", "value":"8001-9001"},       { "name":"OHS_ROUTING_PROTOCOL", "value": "HTTP"},       { "name":"COMPONENT_NAME", "value": "ohs1"}     ]   },   "poolTargets": [ "002E15567E25ED53EA2EC76BADE76B08" ] }</pre> |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

A sample of the response received is shown below.

```
Status 200 OK
{
 message: "Load Balancer Configuration has been updated."
 statusUri:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs"
}
```

### 53.6.2.5 Deleting a Load Balancer Configuration

The following table shows an example of a DELETE operation to delete a Load balancer configuration.

**Table 53–25 DELETE Request Configuration for Deleting a Load Balancer Configuration**

| Feature         | Description                                                           |
|-----------------|-----------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs/1000 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                         |
| Body            | None                                                                  |
| Request method  | DELETE                                                                |

A sample of the response received is shown below.

```
Status 200 OK
{
 message: "Load Balancer Configuration has been deleted."
}
```

## 53.7 Service Instance Action for V2

Service instance action resource is a SSA user resource. The table below shows the data model for this resource.

**Table 53–26 Service Instance Action Data Model for V2**

| Field         | Type   | Description                                                                          | Occurs |
|---------------|--------|--------------------------------------------------------------------------------------|--------|
| id            | String | Request ID of the performed action.                                                  | 1      |
| actionName    | String | Name of the action.                                                                  | 1      |
| canonicalLink | String | A GET request against this URI refreshes the client representation of this resource. | 1      |

## 53.8 User Operation REST API Examples for V2

The following REST API examples are described in this section:

- [Viewing Details of all Service Templates](#)
- [Viewing Details of all Service Instances](#)
- [Viewing all Service Instances With UP Status](#)
- [Creating a Service Instance Request](#)
- [Viewing Details of all Possible Actions on a Specific Service Instance](#)
- [Scaling Up a Service Instance](#)
- [Scaling Down a Service Instance](#)
- [Stopping a Service Instance](#)
- [Starting a Service Instance](#)
- [Deleting a Service Instance](#)
- [Viewing Details of Java EE Applications Components from the Software Library](#)
- [Deploying an Application](#)
- [Redeploying an Application](#)
- [Un-deploying an Application](#)
- [Stopping an Application](#)
- [Starting an Application](#)
- [Viewing Details of all Applications Deployed in a Domain](#)
- [Viewing an Application URL](#)
- [Viewing Details of the Libraries Deployed in a Domain](#)
- [Viewing the WebLogic Console URL](#)
- [Creating a Data Source](#)



- [Editing a Data Source](#)
- [Deleting a Data Source](#)
- [Viewing Details of all the Data Sources](#)
- [Testing a Data Source](#)

### 53.8.1 Viewing Details of all Service Templates

The following table shows an example of a GET operation to view all the service templates.

**Table 53–27** *GET Request Configuration for Viewing Details of all Service Templates*

| Feature         | Description                                                |
|-----------------|------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=              |
| Body            | None                                                       |
| Request method  | GET                                                        |

A sample of the response received is shown below.

```
{
 name: "Services"
 type: "Service"
 totalResults: 1
 cfwItems: [1]
 0: {
 id: "1"
 name: "PS4_LowHeapTemplate"
 displayName: "PS4_LowHeapTemplate"
 guid: "089D4C0EA3EB1E41E0532B54F20A7740"
 serviceType: "WLAAS"
 serviceFamily: "MIDDLEWARE_CFW"
 description: "This is a service template using the profile"
 meta:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services/089D4C0EA3EB1E41E0532B54F20A7740/metadata"
 canonicalLink: {
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services/0 89D4C0EA3EB1E41E0532B54F20A7740"
 }-
 }-
 -
 canonicalLink: {
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services/"
 }-
 selfLink: {
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 services/"
 }-
}
```

### 53.8.2 Viewing Details of all Service Instances

The following table shows an example of a GET operation to view all the service instances.

**Table 53–28** *GET Request Configuration for Viewing Details of all Service Instances*

| Feature         | Description                                                         |
|-----------------|---------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                       |
| Body            | None                                                                |
| Request method  | GET                                                                 |

A sample of the response received is shown below.

```
{
 name: "Service Instances Summary"
 totalResults: 1
 serviceInstanceSummary: [1]
 0: {
 status: "STATUS_UP"
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 serviceinstances/?expanded=true&status=STATUS_UP"
 count: 1
 }-
 -
 canonicalLink: {
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 serviceinstances"
 }-
 selfLink: {
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 serviceinstances"
 }-
}
```

### 53.8.3 Viewing all Service Instances With UP Status

The following table shows an example of a GET operation to view all the service instances with UP status.

**Table 53–29** *GET Request Configuration for Viewing all Service Instances with UP Status*

| Feature         | Description                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/?expanded=true&status=STATUS_UP |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                      |
| Body            | None                                                                                               |

**Table 53–29 (Cont.) GET Request Configuration for Viewing all Service Instances with UP Status**

| Feature        | Description |
|----------------|-------------|
| Request method | GET         |

A sample of the response received is shown below.

```
{
 name: "Service Instances"
 type: "Service Instance"
 totalResults: 0
 cfwItems: [0]
 canonicalLink: {
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 serviceinstances/?expanded=true&status=STATUS_UP"
 }-
 selfLink: {
 href:
 "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/
 serviceinstances/?expanded=true&status=STATUS_UP"
 }-
}
```

### 53.8.4 Creating a Service Instance Request

The following table shows an example of a POST operation to request a service instance.

**Table 53–30 POST Request Configuration for Creating a Service Instance Request**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services                                                                                                                                                                                                                                                                                                                             |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                          |
| Body            | {       "offeringId": "0731632460E41A38E0539D8DF50A9D13",       "name": "rest_inst01", "instanceName": "rest_inst01",       "configurations": [{"name": "serviceName", "value": "rest_inst01"},         {"name": "initialNumberOfManagedServers", "value": "1"},         {"name": "wlsNewPassword", "value": "extra3"},         {"name": "wlsNewUserName", "value": "control1"}]     } |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                   |

A sample of the response received is shown below.

```
{
 "requests": [{"id": "1", "actionName": "CREATE",

 "canonicalLink": {"href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/c
 loud services/ssa/cfw/v2/servicerequests/1"}
 }
]
}
```

### 53.8.5 Viewing Details of all Possible Actions on a Specific Service Instance

The following table shows an example of a GET operation to view details of all the actions that can be performed on a specific service instance.

**Table 53–31 GET Request Configuration for Viewing Details of all Possible Actions on a Specific Service Instance**

| Feature         | Description                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/actions |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                               |
| Body            | None                                                                                                        |
| Request method  | GET                                                                                                         |

A sample of the response received is shown below.

```
{
 "name": "Actions", "type": "Action", "totalResults": 13,
 "cfwItems": [
 { "id": "10", "name": "DELETE", "displayName": "Delete", "description": "Deletes WebLogic Service instance." },
 { "id": "11", "name": "START", "displayName": "Start Instance", "description": "Starts the WebLogic Service instance." },
 { "id": "12", "name": "STOP", "displayName": "Stop Instance", "description": "Stops the WebLogic Service instance." },
 { "id": "13", "name": "SCALE_UP", "displayName": "Scale Up", "description": "Scale up WebLogic Service instance." },
 { "id": "14", "name": "SCALE_DOWN", "displayName": "Scale Down", "description": "Scale down WebLogic Service instance." },
 { "id": "15", "name": "CREATEDATASOURCE", "displayName": "Create Data Source", "description": "Request for creating a Data source." },
 { "id": "16", "name": "EDITDATASOURCE", "displayName": "Edit Data Source", "description": "Request for editing a JDBC Data source." },
 { "id": "17", "name": "DELETEDATASOURCE", "displayName": "Delete Data Source", "description": "Request for deleting a JDBC Data source." },
 { "id": "18", "name": "DEPLOY_APP", "displayName": "Deploy Application", "description": "Deploy application from service." },
 { "id": "19", "name": "REDEPLOY_APP", "displayName": "Redeploy Application", "description": "Redeploy application from service." },
 { "id": "20", "name": "UNDEPLOY_APP", "displayName": "Undeploy Application", "description": "Undeploy application from service." },
 { "id": "21", "name": "STARTAPPLICATION", "displayName": "Start Application", "description": "Request for Starting a J2EE Application" },
 { "id": "22", "name": "STOPAPPLICATION", "displayName": "Stop Application", "description": "Request for Stopping a J2EE Application" }
],

 "canonicalLink": { "href": "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/7B7027E1E89427C6B3E8B9BE494AD9E8/actions" },

 "selfLink": { "href": "/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/7B7027E1E89427C6B3E8B9BE494AD9E8/actions" }
}
```

### 53.8.6 Scaling Up a Service Instance

The following table shows an example of a PUT operation to scale up a service instance.

**Table 53–32 PUT Request Configuration for Scaling Up a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                        |
| Body            | { "actionId":33,<br>"configurations": [{ "name": "numberOfServers", "value": "1" }]<br>}             |
| Request method  | PUT                                                                                                  |

A sample of the response received is shown below.

```
{
 "requests": [{ "id": "27",
 "actionName": "SCALE_UP",
 "canonicalLink": { "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/27" }
 }]
}
```

### 53.8.7 Scaling Down a Service Instance

The following table shows an example of a PUT operation to scale down a service instance.

**Table 53–33 PUT Request Configuration for Scaling Down a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                        |
| Body            | { "actionId":34,<br>"configurations": [{ "name": "numberOfServers", "value": "1" }]<br>}             |
| Request method  | PUT                                                                                                  |

A sample of the response received is shown below.

```
{
 "requests": [{ "id": "28",
 "actionName": "SCALE_DOWN",
 "canonicalLink": { "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/28" }
 }]
}
```

### 53.8.8 Stopping a Service Instance

The following table shows an example of a PUT operation to stop a service instance.

**Table 53–34 PUT Request Configuration for Stopping a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                        |
| Body            | {"actionId":32}                                                                                      |
| Request method  | PUT                                                                                                  |

A sample of the response received is shown below.

```
{
 "requests":[{"id":"29",
 "actionName":" STOP",
 "canonicalLink":{"href":"https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/29"}
 }]
}
```

### 53.8.9 Starting a Service Instance

The following table shows an example of a PUT operation to start a service instance.

**Table 53–35 PUT Request Configuration for Starting a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                        |
| Body            | {"actionId":31}                                                                                      |
| Request method  | PUT                                                                                                  |

A sample of the response received is shown below.

```
{
 "requests":[{"id":"30",
 "actionName":" START ",
 "canonicalLink":{"href":"https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/30"}
 }]
}
```

### 53.8.10 Deleting a Service Instance

The following table shows an example of a PUT operation to delete a service instance.

**Table 53–36 PUT Request Configuration for Deleting a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                        |
| Body            | {"actionId":30}                                                                                      |
| Request method  | PUT                                                                                                  |

A sample of the response received is shown below.

```
{
 "requests":[{"id":"40",
 "actionName":" DELETE",
 "canonicalLink":{"href":"https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/40"}
 }]
}
```

### 53.8.11 Viewing Details of Java EE Applications Components from the Software Library

The following table shows an example of a GET operation to view details of the Java EE application components from the software library.

**Table 53–37 GET Request Configuration for Viewing Details of Java EE Applications Components from the Software Library**

| Feature         | Description                                                             |
|-----------------|-------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2/javaeeappcomponents |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                           |
| Body            | None                                                                    |
| Request method  | GET                                                                     |

A sample of the response received is shown below.

```
{
 "name":"Java EE Application Components uploaded in My Library ",
 "selfLink":"https://xyxy.example.com:443/em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2/javaeeappcomponents",
 "appUrn":[{"type":"Java EE
Application", "description":null, "status":"Ready", "appName":"Riddles", "creator":"MWAS_SSA_USER1", "revision":"0.1", "maturity":"Untested", "createdTime":"2014-10-28 01:42:22.0",
"appUrn":"oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_JavaEEApplication:06783833EA2545ECE0537492F20AAD84:0.1"},
{"type":"Java EE
Application", "description":null, "status":"Ready", "appName":"riddles_1413283657449",
"creator":"MWAS_SSA_USER1", "revision":"0.1", "maturity":"Untested", "createdTime":"2014-10-14 10:47:37.0",
```

```
"appUrn": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_
JavaEEApplication:055ED28CCB3F3E9BE0537492F20A5827:0.1"}
}
}
```

### 53.8.12 Deploying an Application

The following table shows an example of a PUT operation to deploy an application.

**Table 53–38 PUT Request Configuration for Deploying an Application**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E                                                                                                                                                                                                                                                                                                      |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                                             |
| Body            | {           "actionId": 38,           "configurations":           [             {"name": "applicationName", "value": "Riddles_app"},             {"name": "isSharedLibrary", "value": "false"},             {"name": "applicationUrn", "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_           JavaEEApplication:077E2D85D70E60D0E0539D8DF50A19F1:0.1"}           ]         } |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                                       |

A sample of the response received is shown below.

```
{
 "requests": [{
 "id": "31",
 "actionName": "DEPLOY_APP",
 "canonicalLink": {
 "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/31"
 }
 }]
}
```

### 53.8.13 Redeploying an Application

The following table shows an example of a PUT operation to redeploy an application.

**Table 53–39 PUT Request Configuration for Redeploying an Application**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                        |



**Table 53–39 (Cont.) PUT Request Configuration for Redeploying an Application**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "actionId": 39,   "configurations": [     {       "name": "applicationName",       "value": "Riddles_app"     },     {       "name": "isSharedLibrary",       "value": "false"     },     {       "name": "applicationUrn",       "value": "oracle.defaultService:em:provisioning:1:cmp:COMP_Component:SUB_JavaEEApplication:06783833EA2545ECE0537492F20AAD84:0.1"     }   ] }</pre> |
| Request method | PUT                                                                                                                                                                                                                                                                                                                                                                                           |

A sample of the response received is shown below.

```
{
 "requests": [
 {
 "id": "32",
 "actionName": "REDEPLOY_APP",
 "canonicalLink": {
 "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/32"
 }
 }
]
}
```

### 53.8.14 Un-deploying an Application

The following table shows an example of a PUT operation to un-deploy an application.

**Table 53–40 PUT Request Configuration for Un-deploying an Application**

| Feature         | Description                                                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                        |
| Body            | <pre>{   "actionId": 40,   "configurations": [     {       "name": "applicationName",       "value": "Riddles_app"     }   ] }</pre> |
| Request method  | PUT                                                                                                                                  |

A sample of the response received is shown below.

```
{
 "requests": [
 {
 "id": "33",
 "actionName": "UNDEPLOY_APP",
 "canonicalLink": {
 "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/33"
 }
 }
]
}
```

### 53.8.15 Stopping an Application

The following table shows an example of a PUT operation to stop an application.

**Table 53–41 PUT Request Configuration for Stopping an Application**

| Feature         | Description                                                                                                                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                         |
| Body            | {           "actionId": 41,           "configurations":             [               {"name": "applicationName", "value": "Riddles_app"},               {"name": "moduleType", "value": "ear"}             ]         } |
| Request method  | PUT                                                                                                                                                                                                                   |

A sample of the response received is shown below.

```
{
 "requests": [{
 "id": "34",
 "actionName": " STOPAPPLICATION",
 "canonicalLink": {
 "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/34"
 }
 }]
}
```

### 53.8.16 Starting an Application

The following table shows an example of a PUT operation to start an application.

**Table 53–42 PUT Request Configuration for Starting an Application**

| Feature         | Description                                                                                                                                                                                                           |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                         |
| Body            | {           "actionId": 42,           "configurations":             [               {"name": "applicationName", "value": "Riddles_app"},               {"name": "moduleType", "value": "ear"}             ]         } |
| Request method  | PUT                                                                                                                                                                                                                   |

A sample of the response received is shown below.

```
{
 "requests": [{
 "id": "35",
 "actionName": " STARTAPPLICATION",
 "canonicalLink": {
 "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/35"
 }
 }]
}
```

```

 }]
 }

```

### 53.8.17 Viewing Details of all Applications Deployed in a Domain

The following table shows an example of a GET operation to view details of all the applications deployed in a domain.

**Table 53–43** GET Request Configuration for Viewing Details of all Applications Deployed in a Domain

| Feature         | Description                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/applications |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                     |
| Body            | None                                                                                                              |
| Request method  | GET                                                                                                               |

A sample of the response received is shown below.

```

{
 name: "Applications "
 description: "Applications deployed in the domain"
 selfLink:
 "https://xyxy.example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2/
 serviceinstances/0148F63816763D1C34900CBDCB86C3DB/applications"
 apps: [1]
 0: {
 appName: "/mwaas_slc06ekg__1_149e5639b55_SSA_USER1/slc06ekg__1_149e5639b55_SSA_
 USER1/Cluster_1/app1"
 moduleType: "war"
 appDisplayName: "app1"
 }-
}

```

### 53.8.18 Viewing an Application URL

The following table shows an example of a PUT operation to view an application's URL.

**Table 53–44** PUT Request Configuration for Viewing Details an Application's URL

| Feature         | Description                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/applications |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                     |
| Body            | { "appDisplayName": "app1" }                                                                                      |
| Request method  | PUT                                                                                                               |

A sample of the response received is shown below.

```

{

```

```
name: "Application URLs"
description: "Applications URLs for deployed Application"
appName: "app1"
selfLink:
"https://xyxy.example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2
/serviceinstances/0148F63816763D1C34900CBDCB86C3DB/applications"
apps: [1]
0: {
httpsurl: "http://xyxy.example.com:18536/Calendar"
httpsUrl: "https://xyxy.example.com:13241/Calendar"
}
}
```

53.8.19 Viewing Details of the Libraries Deployed in a Domain

The following table shows an example of a GET operation to view details of all the libraries deployed in a domain.

Table 53–45 GET Request Configuration for Viewing Details of all Libraries Deployed in a Domain

| Feature         | Description                                                                                                    |
|-----------------|----------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/libraries |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                  |
| Body            | None                                                                                                           |
| Request method  | GET                                                                                                            |

A sample of the response received is shown below.

```
{
name: "Libraries"
description: "Libraries deployed in the domain"
selfLink:
"https://xyxy.example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2
/serviceinstances/0148F63816763D1C34900CBDCB86C3DB/libraries"
libs: [18]
0: {
libName: "oracle.adf.desktopintegration.model"
libDisplayName: "oracle.adf.desktopintegration.model(1.0,11.1.1.2.0)"
}-
1: {
libName: "adf.oracle.domain.webapp"
libDisplayName: "adf.oracle.domain.webapp(1.0,11.1.1.2.0)"
}-
2: {
libName: "oracle.adf.desktopintegration"
libDisplayName: "oracle.adf.desktopintegration(1.0,11.1.1.2.0)"
}-
3: {
libName: "ohw-uix"
libDisplayName: "ohw-uix(5,5.0)"
}-
4: {
libName: "oracle.wsm.seedpolicies"
libDisplayName: "oracle.wsm.seedpolicies(11.1.1,11.1.1)"
}
```

```

}-
5: {
 libName: "adf.oracle.domain"
 libDisplayName: "adf.oracle.domain(1.0,11.1.1.2.0)"
}-
6: {
 libName: "oracle.pwdgen"
 libDisplayName: "oracle.pwdgen(11.1.1,11.1.1.2.0)"
}-
7: {
 libName: "oracle.jrf.system.filter"
 libDisplayName: "oracle.jrf.system.filter"
}-
8: {
 libName: "oracle.dconfig-infra"
 libDisplayName: "oracle.dconfig-infra(11,11.1.1.1.0)"
}-
9: {
 libName: "orai18n-adf"
 libDisplayName: "orai18n-adf(11,11.1.1.1.0)"
}-
10: {
 libName: "ohw-rcf"
 libDisplayName: "ohw-rcf(5,5.0)"
}-
11: {
 libName: "jsf"
 libDisplayName: "jsf(1.2,1.2.9.0)"
}-
12: {
 libName: "adf.oracle.businesseditor"
 libDisplayName: "adf.oracle.businesseditor(1.0,11.1.1.2.0)"
}-
13: {
 libName: "oracle.jsp.next"
 libDisplayName: "oracle.jsp.next(11.1.1,11.1.1)"
}-
14: {
 libName: "oracle.adf.management"
 libDisplayName: "oracle.adf.management(1.0,11.1.1.2.0)"
}-
15: {
 libName: "UIX"
 libDisplayName: "UIX(11,11.1.1.1.0)"
}-
16: {
 libName: "jstl"
 libDisplayName: "jstl(1.2,1.2.0.1)"
}-
17: {
 libName: "oracle.adf.dconfigbeans"
 libDisplayName: "oracle.adf.dconfigbeans(1.0,11.1.1.2.0)"
}-
}

```

### 53.8.20 Viewing the WebLogic Console URL

The following table shows an example of a GET operation to view the WebLogic console URL.

**Table 53–46 GET Request Configuration for Viewing the WebLogic Console URL**

| Feature         | Description                                                                                                              |
|-----------------|--------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/weblogicconsoleurls |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                            |
| Body            | None                                                                                                                     |
| Request method  | GET                                                                                                                      |

### 53.8.21 Creating a Data Source

The following table shows an example of a PUT operation to create a data source.

**Table 53–47 PUT Request Configuration for Creating a Data Source**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E                                                                                                                                                                                                                                                                                       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                                                                                                                                                                                              |
| Body            | { "actionId": 35,<br>"configurations": [{ "name": "dsName", "value": "Test_DS1"},<br>{ "name": "jndiName", "value": "DS_1"},<br>{ "name": "driverClass", "value": "oracle.jdbc.OracleDriver"},<br>{ "name": "jdbcUrl", "value":<br>"jdbc:oracle:thin:@xyxy.example.com:13914:db2430"},<br>{ "name": "dbUserName", "value": "sysman"},<br>{ "name": "dbPassword", "value": "Welcome1" } ] } |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                        |

A sample of the response received is shown below.

```
{
 "requests": [{ "id": "36",
 "actionName": "CREATEDATASOURCE",
 "canonicalLink": { "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/36" }
 }]
}
```

### 53.8.22 Editing a Data Source

The following table shows an example of a PUT operation to edit a data source.

**Table 53–48 PUT Request Configuration for Editing a Data Source**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                        |

**Table 53–48 (Cont.) PUT Request Configuration for Editing a Data Source**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "actionId": 36,   "configurations": [     { "name": "dsName", "value": "Test_DS1" },     { "name": "jndiName", "value": "DS_1_edit" },     { "name": "driverClass", "value": "oracle.jdbc.OracleDriver" },     { "name": "jdbcUrl", "value": "jdbc:oracle:thin:@xyxy.example.com:13914:db2430" },     { "name": "dbUserName", "value": "sysman" },     { "name": "dbPassword", "value": "Welcome1" }   ] }</pre> |
| Request method | PUT                                                                                                                                                                                                                                                                                                                                                                                                                       |

A sample of the response received is shown below.

```
{
 "requests": [
 {
 "id": "37",
 "actionName": "EDITDATASOURCE",
 "canonicalLink": {
 "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/37"
 }
 }
]
}
```

### 53.8.23 Deleting a Data Source

The following table shows an example of a PUT operation to delete a data source.

**Table 53–49 PUT Request Configuration for Deleting a Data Source**

| Feature         | Description                                                                                              |
|-----------------|----------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E     |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                            |
| Body            | <pre>{   "actionId": 37,   "configurations": [     { "name": "dsName", "value": "Test_DS1" }   ] }</pre> |
| Request method  | PUT                                                                                                      |

A sample of the response received is shown below.

```
{
 "requests": [
 {
 "id": "38",
 "actionName": "DELETEDATASOURCE",
 "canonicalLink": {
 "href": "https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/38"
 }
 }
]
}
```

### 53.8.24 Viewing Details of all the Data Sources

The following table shows an example of a GET operation to view details of all the data sources.

**Table 53–50 GET Request Configuration for Viewing Details of all Data Sources**

| Feature         | Description                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/datasources |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                     |
| Body            | None                                                                                                              |
| Request method  | GET                                                                                                               |

A sample of the response received is shown below.

```
{
 name: "Data Sources"
 description: "Data Sources in the domain"
 selfLink:
 "https://xyxy.example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2/
 /serviceinstances/0148F63816763D1C34900CBDCB86C3DB/datasources"
 datasources: [1]
 0: {
 jndiName: [1]
 0: "ds_1"
 -
 driverClass: null
 dbUrl: "jdbc:oracle:thin:@xyxy.example.com:15044:sekg3"
 dsName: "ds_1"
 driverKey: "oracle.jdbc.OracleDriver"
 }-
 -
}
```

### 53.8.25 Testing a Data Source

The following table shows an example of a PUT operation to test a data source.

**Table 53–51 PUT Request Configuration for Testing a Data Source**

| Feature         | Description                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/wlaas/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/datasources |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                     |
| Body            | { "dsName": "ds_1" }                                                                                              |
| Request method  | PUT                                                                                                               |

A sample of the response received is shown below.

```
{
 message: "Test Connection succeeded for data source "
 statusUri:
 "https://xyxy.example.com:5416/em/websvcs/restful//extws/cloudservices/ssa/wlaas/v
 2/serviceinstances"
}
```



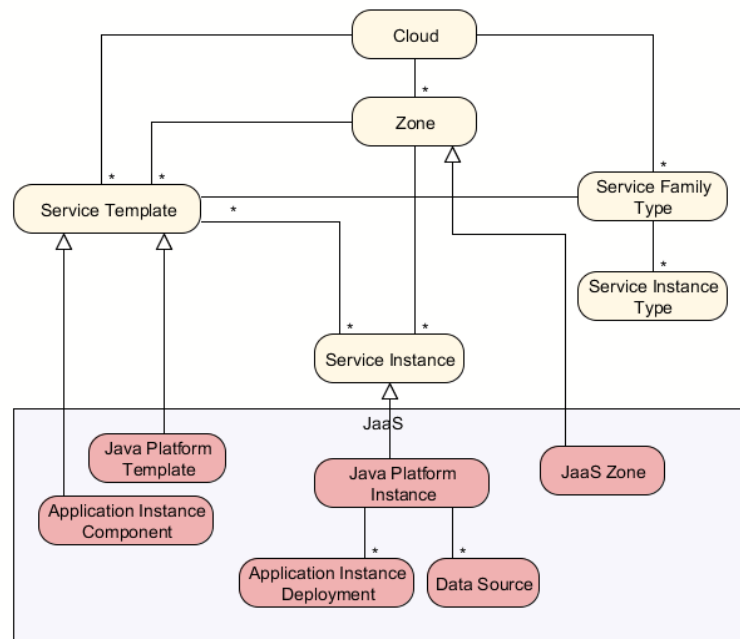
## 53.9 WebLogic as a Service Resource Model for V1

The following sections describe the resource models that are supported by the Java as a Service family type and provide examples of supported operations. The following resource models are described:

- [Cloud](#)
- [JaaS Service Family Type](#)
- [Zone](#)
- [JavaPlatformTemplate](#)
- [Java Platform Instance](#)
- [Application Instance Deployment](#)
- [DataSource](#)
- [Application Instance Component](#)
- [Filtering Service Templates](#)
- [Filtering Zones](#)

The figure below shows the WebLogic as a Service resource model.

**Figure 53–1 WLaaS Resource Model**



### 53.9.1 Cloud

The following table describes the Cloud [application/oracle.com.cloud.common.Cloud+json] data model.

**Table 53–52 Cloud Resource Data Model**

| Field               | Type                          | Description                                                                                                                                                                                                                                                            | Occurs |
|---------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                 | URI                           | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                                                                                                                   | 1      |
| name                | String                        | A human readable name. It is a UNICODE string to support different languages.                                                                                                                                                                                          | 1      |
| description         | String                        | A brief description. This is a UNICODE string to support different languages.                                                                                                                                                                                          | 0..1   |
| service_template    | Collection<ServiceTemplates>  | List of service templates that are accessible to the user.                                                                                                                                                                                                             | 0..1   |
| zones               | Collection<Zone>              | List of zones that are supported by the cloud and accessible to the user.                                                                                                                                                                                              | 0..1   |
| service_family_type | Collection<ServiceFamilyType> | The list of service family types that are supported by the cloud.                                                                                                                                                                                                      | 0..1   |
| resource_state      | ResourceState                 | A cloud that is online and running has READY as its state. If this field is not returned, the client can assume the cloud is READY. If the state of the returned field is not READY, the client cannot assume the viability of subsequent interactions into the cloud. | 0..1   |
| media_type          | String                        | The value of this media type with the payload format. For example, application/oracle.com.cloud.common.Cloud+json.                                                                                                                                                     | 1      |
| canonicalLink       | String                        | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user.                                                                                                                                                | 1      |

### 53.9.1.1 Viewing Details of the Cloud Resource

The following shows an example of a GET operation on the Cloud URI to return its representation.

#### Example Request:

**Table 53–53 GET Request Configuration for Viewing the Cloud Resources**

| Feature         | Description                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/                                                                                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.common.Cloud+json |
| Body            | None                                                                                                    |
| Request method  | GET                                                                                                     |

#### Example Response:

```
{
 "uri" : "/em/cloud" ,
 "name" : "Oracle Cloud by Enterprise Manager" ,
 "description" : "This represents the Cloud resource of the Oracle Enterprise
Manager Cloud Management solution" ,
```

```

"resource_state" : {
 "state" : "READY"
 } ,
"media_type" : "application/oracle.com.cloud.common.Cloud+json" ,
"canonicalLink": "/em/websvcs/restful/extws/cloudservices/service/v0
/ssa/em/cloud" ,
"zones" : {
 "media_type" : "application/oracle.com.cloud.common.Zone+json" ,
 "total" : "3" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas"
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/zone/A1B44A4
EBCC4563125D9D0A3AAE4FD51"
 } ,
 {
 "uri" : "/em/cloud/dbaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "description" : "Zone for Physical Pool" ,
 "media_type" : "application/oracle.com.cloud.common.DbZone+json" ,
 "type" : "self_service_zone"
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/dbaas/zone/A1B44A
4EBCC4563125D9D0A3AAE4FD51"
 } ,
 {
 "uri" : "/em/cloud/opc/opczone" ,
 "name" : "OPC Zone" ,
 "media_type" : "application/oracle.com.cloud.opc.OpcZone+json" ,
 "service_family_type" : "opc" ,
 "type" : "opc"
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/opc"
 }
]
 } ,
"service_templates" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate+json" ,
 "total" : "5" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/jaas/javaplatformtemplate/D016AADD465462ACE040F20AD18167BA" ,
 "name" : "PS4_LowHeapTemplate" ,
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformTemplate+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
template/ D016AADD465462ACE040F20AD18167BA"
 } ,
 {
 "uri" :

```

```

"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovis
ioning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AD03030FAE80F6B58E040F20AD1812FE2%3A0.1" ,
 "name" : " rtriddappjul18_Deploy_20120718_051319824" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_
Component%3ASUB_JavaEEApplication%3AD03030FAE80F6B58E040F20AD1812FE2%3A0.1"
 } ,
 {
 "uri" :
"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovis
ioning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AD03517A824EBFCF9E040F20AD1811CD9%3A0.1" ,
 "name" : "FileUploadFromCode" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_
Component%3ASUB_JavaEEApplication%3AD03517A824EBFCF9E040F20AD1811CD9%3A0.1"
 } ,
 {
 "uri" :
"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovis
ioning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AD03EFA365D58A674E040F20AD18134AE%3A0.1" ,
 "name" : "Test_1354864500315" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_
Component%3ASUB_JavaEEApplication%3AD03EFA365D58A674E040F20AD18134AE%3A0.1"
 } ,
 {
 "uri" :
"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovis
ioning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AD1103FE5F6877372E040F20AD1814215%3A0.1" ,
 "name" : "RiddleApp" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_
Component%3ASUB_JavaEEApplication%3AD1103FE5F6877372E040F20AD1814215%3A0.1"
 }
]
 } ,
 "service_family_types" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceFamilyType+json"
 } ,
 "total" : "4" ,

```

```

 "elements" :
 [
 {
 "uri" : "/em/cloud/service_family_type/jaas" ,
 "name" : "jaas" ,
 "media_type" :
 "application/oracle.com.cloud.common.ServiceFamilyType+json" ,
 "type" : "jaas"
 "canonicalLink":
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
 type/jaas"
 } ,
 {
 "uri" : "/em/cloud/service_family_type/dbaas" ,
 "name" : "dbaas" ,
 "media_type" :
 "application/oracle.com.cloud.common.ServiceFamilyType+json" ,
 "type" : "dbaas"
 "canonicalLink":
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
 type/dbaas"
 } ,
 {
 "uri" : "/em/cloud/service_family_type/opc" ,
 "name" : "opc" ,
 "media_type" :
 "application/oracle.com.cloud.common.ServiceFamilyType+json" ,
 "type" : "opc"
 canonicalLink:
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
 type/opc"
 } ,
 {
 "uri" : "/em/cloud/service_family_type/iaas" ,
 "name" : "iaas" ,
 "media_type" :
 "application/oracle.com.cloud.iaas.IaasServiceFamilyType+json" ,
 "type" : "iaas"
 "canonicalLink":
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
 type/iaas"
 }
]
 } ,
 "service_requests" : {
 "media_type" : "application/oracle.com.cloud.common.Request+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 }
}

```

### 53.9.2 JaaS Service Family Type

Jaas service family type is a category of services that are offered by WebLogic as a Service (WLaaS). The following table describes the Jaas ServiceFamilyType [application/oracle.com.cloud.common.ServiceFamilyType+json] data model:

**Table 53–54 JaaS Service Family Type Data Model**

| Field             | Type                         | Description                                                                                                             | Occurs |
|-------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------|
| uri               | URI                          | A GET against this URI refreshes the client representation of the Jaas ServiceFamilyType definition to this user.       | 1      |
| name              | String                       | Name of the Jaas ServiceFamilyType.                                                                                     | 1      |
| description       | String                       | Human readable description of the Service Family Type. Shall be a UNICODE string to support different languages.        | 1      |
| resource_state    | ResourceState                | The resource state of the resource.                                                                                     | 0..1   |
| media_type        | String                       | The media type of the resource.                                                                                         | 1      |
| service_templates | Collection <ServiceTemplate> | The collection of service templates that are of this service family type.                                               | 0..1   |
| zones             | Collection <Zone>            | The collection of zones that support service instances of this service family type.                                     | 0..1   |
| instance_types    | Collection <InstanceType>    | The collection of instance types that are supported by this service family type.                                        | 0..1   |
| canonicalLink     | String                       | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user. | 1      |

### 53.9.2.1 Viewing Detail of the JaaS Service Family Type Resource

The following shows an example of a GET operation on the JaaS Service Family Type URI to return its representation.

#### Example Request:

**Table 53–55 GET Request Configuration for Viewing Details of the JaaS Service Family Type Resource**

| Feature         | Description                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/service_family_type/jaas                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.common.ServiceFamilyType+json |
| Body            | None                                                                                                                |
| Request method  | GET                                                                                                                 |

#### Example Response:

```
{
 "uri" : "/em/cloud/service_family_type/jaas" ,
 "name" : "jaas" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "media_type" : "application/oracle.com.cloud.common.ServiceFamilyType+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
```

```

type/jaas" ,
 "type" : "jaas" ,
 "service_templates" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/jaas/javaplatformtemplate/D016AADD465462ACE040F20AD18167BA" ,
 "name" : "PS4_LowHeapTemplate" ,
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformTemplate+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
template/D016AADD465462ACE040F20AD18167BA"
 }
]
 }
 "zones" : {
 "media_type" : "application/oracle.com.cloud.common.Zone+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas" ,
 "type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/zone/A1B44A4
EBCC4563125D9D0A3AAE4FD51"
 }
]
 } ,
 "instance_types" : {
 "media_type" : "application/oracle.com.cloud.common.InstanceType+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 } ,
 "service_requests" : {
 "total" : "0" ,
 "elements" :
 [
]
 }
 }
}

```

### 53.9.2.2 Creating an Application Instance Component by Passing a POST Request on the Jaas Service Family Type Resource

ApplicationInstanceComponent can be created using a post request on JaaS. Right now this is being done using a Java Program. The following shows a sample program:

---

**Note:** <<>> : Provides a hint to an appropriate value.

---

```
import java.io.File;
import java.io.FileInputStream;
import java.io.PrintWriter;
import java.io.StringWriter;

import java.util.ArrayList;
import java.util.List;
import java.util.Properties;

import oracle.sysman.emInternalSDK.ssa.cloudapi.client.EMRestService;

public class FileUpload {
 static public void main(String[] args)
 throws Exception {
 String emUser = <<JAAS_USER_NAME>>;
 String emPassword = <<password>>;
 String emHost = <<host_machine_name/ip>>;
 String emPort = <<port>>;
 String emLocation = "https://" + emHost + ":" + emPort;
 String applicationLocation = <<application_location>>;
 String deployPlanLocation = <<deploy_plan_location>>;
 File f = new File(applicationLocation + "deploy_app.ear");
 StringWriter sw = new StringWriter();
 PrintWriter pw = new PrintWriter(sw);
 pw.println("{");
 String fileName = "MyApplication" + emUser + "_" + System.currentTimeMillis();
 pw.println("\nname\":" + "\"" + fileName + "\",");
 pw.println("\ndescription\":" + "\"Riddles App\",");
 pw.println("\noriginate\":" + "\"STREAMING\",");
 pw.println("\nfiles\":[");
 pw.println("{");
 //pw.println("\npath\":" + "\"swlib_internal_path\",");
 pw.println("\nfile_archive_path\":" + "\"swlib_internal_path\",");
 pw.println("\ncontent_type\":" + "\"application/octet-stream\",");
 pw.println("\nsource\":" + "\"" + f.getName() + "\"");
 pw.println("}");
 pw.println("]");
 pw.print("}");
 pw.flush();
 pw.close();
 String content = sw.toString();
 System.out.println("CONTENT:\n" + content + "\n");
 //String content = "{\n\nname\":" + "\"STOPPED\"\n\n}";
 List<EMRestService.MultipartItem> items = new
 ArrayList<EMRestService.MultipartItem>();
 EMRestService.MultipartItem item1, item2, item3, item4, item5;
 item1 = new EMRestService.MultipartItem("item1", false);
 item1.setContentType("multipart/form-data");
 item1.setContent(content);
 items.add(item1);
 item2 = new EMRestService.MultipartItem("item2", true);
 item2.setFileAlias(f.getName());
 item2.setFile(f);
 items.add(item2);
 File deploymentPlanFile = new File(applicationLocation + "deployment_
 plan.xml");
 item3 = new EMRestService.MultipartItem("item3", true);
 item3.setFileAlias(deploymentPlanFile.getName());
 item3.setFile(deploymentPlanFile);
 items.add(item3);
```



```

File preDeployFile = new File(deployPlanLocation+" predeploy_script.py");
item4 = new EMRestService.MultipartItem("item4", true);
item4.setFileAlias(preDeployFile.getName());
item4.setFile(preDeployFile);
items.add(item4);
File postDeployFile = new File(deployPlanLocation+" postdeploy_
script.py");
item5 = new EMRestService.MultipartItem("item5", true);
item5.setFileAlias(postDeployFile.getName());
item5.setFile(postDeployFile);
items.add(item5);

String uri = emLocation+"/em";
EMRestService ers = new EMRestService(uri, emUser, emPassword.getBytes());
ers.setReadTimeout(600*1000);
Object o = ers.webserviceMultipart(EMRestService.Method.POST,
uri+"/cloud/service_family_type/jaas",
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent", items);
System.out.println(o);
}
}

```

### 53.9.3 Zone

The following table describes the Zone  
[application/oracle.com.cloud.common.Zone+json] data model.

**Table 53–56 Zone Data Model**

| Field               | Type                            | Description                                                                                                                       | Occurs |
|---------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                 | URI                             | A GET against this URI refreshes the client representation of the zone definition to this user.                                   | 1      |
| name                | String                          | Name of the Zone.                                                                                                                 | 1      |
| description         | String                          | Human readable description of the Zone. It is a UNICODE string to support different languages.                                    | 0..1   |
| context_id          | String                          | This is an ID indication the internal reference of the zone                                                                       | 1      |
| service_instances   | Collection<br><ServiceInstance> | Collection of the service instances that are in this zone.                                                                        | 0..1   |
| service_family_type | String                          | The name of the service family type that this zone is associated with.<br>Each Zone is contextualized in the service family type. | 0..1   |
| resource_state      | ResourceState                   | The resource state of the resource.                                                                                               | 0..1   |
| media_type          | String                          | The media type of the resource.                                                                                                   | 1      |
| canonicalLink       | String                          | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user.           | 1      |

#### 53.9.3.1 Viewing Details of the Zone Resource

The following shows an example of a GET operation on the Zone URI to return its representation.

**Example Request:****Table 53–57 GET Request Configuration for Viewing Details of a Zone**

| Feature         | Description                                                                                            |
|-----------------|--------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51                                                   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.common.Zone+json |
| Body            | None                                                                                                   |
| Request method  | GET                                                                                                    |

**Example Response:**

```
{
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "description" : "Zone for Physical Pool" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/zone/
A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/jaas/javaplatforminstance/8AF6E65447FBA84E968CCD909BD05D42" ,
 "name" : "MyServer-1" ,
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "status" : "RUNNING"
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
instance/8AF6E65447FBA84E968CCD909BD05D42"
 }
]
 }
}
```

**53.9.4 JavaPlatformTemplate**

The JavaPlatformTemplate extends the CloudServiceTemplate SDK class. It is permissible to accept the ServiceTemplate media type on an instance of JavaPlatformTemplate. It is a preconfigured deployable entity that realizes a JavaPlatformInstance resource.

The following table describes the JavaPlatformTemplate [application/oracle.com.cloud.jaas.JavaPlatformTemplate+json] data model.

**Table 53–58 JavaPlatformTemplate Data Model**

| Field                       | Type                                 | Description                                                                                                                                                         | Occurs |
|-----------------------------|--------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                         | URI                                  | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                        | String                               | A human readable name given to the template.                                                                                                                        | 1      |
| description                 | String                               | A brief description given to the template.                                                                                                                          | 0...1  |
| created                     | Timestamp                            | Date and time, in ISO 8601 format, when the template was created/last modified.                                                                                     | 1      |
| zones                       | Collection<br><Zone>                 | List of all zones configured for this template.                                                                                                                     | 1      |
| service_family_type         | String                               | Denotes the type of Service Template (for example, "jaas").                                                                                                         | 1      |
| resource_state              | ResourceState                        | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| service_instances           | Collection<br><JavaPlatformInstance> | All service instances created based on this JavaPlatformTemplate.                                                                                                   | 0...1  |
| media_type                  | String                               | The media type of the service template that this type represents.                                                                                                   | 1      |
| default_instance_media_type | String                               | Default media type for the request, value "application/oracle.com.cloud.jaas.JavaPlatformInstance+json".                                                            | 1      |
| context_id                  | String                               | This is an ID indication the internal reference of the service template.                                                                                            | 1      |
| canonicalLink               | String                               | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user.                                             | 1      |

#### 53.9.4.1 Viewing Details of the Java Platform Template Resource

The following shows an example of a GET operation on the JavaPlatformTemplate URI to return its representation.

##### Example Request:

**Table 53–59 GET Request Configuration for Viewing Details of the Java Platform Template Resource**

| Feature         | Description                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatfromtemplate/D016AADD465462ACE040F20AD18167BA                                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformTemplate+json |
| Body            | None                                                                                                                 |
| Request method  | GET                                                                                                                  |

**Example Response:**

```
{
 "uri" : "/em/cloud/jaas/javaplatformtemplate/D016AADD465462ACE040F20AD18167BA" ,
 "name" : "PS4_LowHeapTemplate" ,
 "description" : "This is a service template using the CDP CDP_PS4_lowHeap_
MWProfile" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "D016AADD465462ACE040F20AD18167BA" ,
 "media_type" : "application/oracle.com.cloud.jaas.JavaPlatformTemplate+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
template/ D016AADD465462ACE040F20AD18167BA" ,
 "created" : "2012-12-04 23:16:10.0" ,
 "default_instance_media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "zones" : {
 "media_type" : "application/oracle.com.cloud.common.Zone+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/jaas"
 }
]
 } ,
 "service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/jaas/javaplatforminstance/8AF6E65447FBA84E968CCD909BD05D42" ,
 "name" : "MyServer-1" ,
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "status" : "RUNNING"
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
instance/8AF6E65447FBA84E968CCD909BD05D42"
 }
]
 }
}
```

**53.9.4.2 Creating a Java Platform Instance by Passing POST Request on a Java Platform Template**

The following shows a sample POST on the JavaPlatformTemplate URI to create an "empty" JavaPlatformInstance by providing:

- Name of JavaPlatformInstance in "name" attribute
- Destination Zone URI in "zone" attribute

**Example Request:****Table 53–60 POST Request Configuration for Creating a Java Platform Instance**

| Feature         | Description                                                                                                                                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatfromtemplate/D016AADD465462ACE040F20AD18167BA                                                                                                                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformTemplate+json<br>Content-Type: application/oracle.com.cloud.jaas.JavaPlatformInstance+json |
| Body            | {<br>"name" : "rtjul17",<br>"zone" : "/em/cloud/jaas/zone/C355810A6"<br>}                                                                                                                         |
| Request method  | POST                                                                                                                                                                                              |

**Example Response (When the operation is in progress):**

```
{
 "uri" : "/em/cloud/jaas/javaplatfrominstancerequest/1" ,
 "name" : "rtjul17_Create_20120717_045804697" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "null" ,
 "date" : "2012-07-17T09:16:13+0000"
 }
]
 } ,
 "context_id": "1",
 "media_type": "application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "service_family_type": "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatfrominstancerequest/1" ,
 "status": "SCHEDULED"
 "created" : "2013-05-09T07:06:57+0000"
}
```

**Example Response (After the instance has been created):**

```
{
 "uri" : "/em/cloud/jaas/javaplatfromtemplate/D016AADD465462ACE040F20AD18167BA" ,
 "name" : "PS4_LowHeapTemplate" ,
 "description" : "This is a service template using the CDP CDP_PS4_lowHeap_MWProfile" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "D016AADD465462ACE040F20AD18167BA" ,
 "media_type" : "application/oracle.com.cloud.jaas.JavaPlatformTemplate+json" ,
}
```

```

 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
template/ D016AADD465462ACE040F20AD18167BA" ,
 "created" : "2012-12-04 23:16:10.0" ,
 "default_instance_media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "zones" : {
 "media_type" : "application/oracle.com.cloud.common.Zone+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/jaas"
 }
]
 } ,
 "service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/jaas/javaplatforminstance/8AF6E65447FBA84E968CCD909BD05D42" ,
 "name" : "MyServer-1" ,
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "status" : "RUNNING"
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
instance/8AF6E65447FBA84E968CCD909BD05D42"
 }
]
 }
}

```

### 53.9.4.3 Viewing Details of the Java Platform Request Resource

The following shows a sample GET operation on the JavaPlatform Request URL:

#### Example Request:

**Table 53–61** *GET Request Configuration for Viewing the Status of the Java Platform Request*

| Feature         | Description                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatforminstancerequest/1                                                                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformInstance+json |
| Body            | None                                                                                                                 |

**Table 53–61 (Cont.) GET Request Configuration for Viewing the Status of the Java Platform Request**

| Feature        | Description |
|----------------|-------------|
| Request method | GET         |

**Example Response (When the operation is in progress):**

```
{
 "uri" : "/em/cloud/jaas/javaplatforminstancerequest/1" ,
 "name" : "rtjul17_Create_20120717_045804697" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "null" ,
 "date" : "2012-07-17T09:16:13+0000"
 }
]
 } ,
 "context_id": "1",
 "media_type": "application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "service_family_type": "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatforminstancerequest/1" ,
 "status": "SCHEDULED"
 "created" : "2013-05-09T07:06:57+0000"
}
```

**Example Response (After the instance has been created):**

```
{
 "uri" : "/em/cloud/jaas/javaplatformtemplate/D016AADD465462ACE040F20AD18167BA" ,
 "name" : "PS4_LowHeapTemplate" ,
 "description" : "This is a service template using the CDP CDP_PS4_lowHeap_MWProfile" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "D016AADD465462ACE040F20AD18167BA" ,
 "media_type" : "application/oracle.com.cloud.jaas.JavaPlatformTemplate+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatformtemplate/D016AADD465462ACE040F20AD18167BA" ,
 "created" : "2012-12-04 23:16:10.0" ,
 "default_instance_media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "zones" : {
 "media_type" : "application/oracle.com.cloud.common.Zone+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas"
 }
]
 }
}
```

```

 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/service_family_
type/jaas"
 }
]
},
"service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/jaas/javaplatforminstance/8AF6E65447FBA84E968CCD909BD05D42" ,
 "name" : "MyServer-1" ,
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "status" : "RUNNING"
 "canonicalLink":
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
instance/8AF6E65447FBA84E968CCD909BD05D42"
 }
]
}
}

```

### 53.9.5 Java Platform Instance

JavaPlatformInstance will extend the ServiceInstance from the Cloud framework resource model. It is linked to an Oracle Composite Application target in Enterprise Manager.

The following table describes the JavaPlatformInstance [application/oracle.com.cloud.jaas.JavaPlatformInstance+json] data model.

**Table 53–62 JavaPlatformInstance Data Model**

| Field                            | Type                                       | Description                                                                                                                                                         | Occurs |
|----------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                              | URI                                        | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                             | String                                     | A human readable name given to the instance.<br>[POST]                                                                                                              | 1      |
| zone                             | Zone (uri, name, media_type)               | The Zone to which the instance is deployed.<br>[POST]                                                                                                               | 1      |
| media_type                       | String                                     | Indicates the additional media type that clients can use to perform a GET.                                                                                          | 1      |
| application_instance_deployments | Collection <ApplicationInstanceDeployment> | This is a list of all the ApplicationInstanceDeployments deployed on the JavaPlatformInstance.                                                                      | 0...1  |
| resource_state                   | ResourceState                              | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |



**Table 53–62 (Cont.) JavaPlatformInstance Data Model**

| Field               | Type                   | Description                                                                                                             | Occurs |
|---------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------|--------|
| based_on            | JavaPlatformTemplate   | JavaPlatformTemplate based on which this instance was created.                                                          | 1      |
| jdbc_drivers        | String[]               | List of JDBC drivers available to create a data source on this instance.                                                | 0...1  |
| data_sources        | Collection<DataSource> | This is a list of all the data sources configured for this instance.                                                    | 0...1  |
| status              | String                 | Indicates the status of the underlying Weblogic cluster<br>Values are<br>STOPPED, RUNNING, UNREACHABLE, UNKNOWN         | 0...1  |
| server_count        | String                 | Number of Java servers in the Weblogic cluster of the JavaPlatformInstance<br>[PUT]                                     | 1      |
| service_family_type | String                 | Denotes the type of Service Instance (for example, "jaas").                                                             | 1      |
| context_id          | String                 | This is an ID indication the internal reference of the service template                                                 | 1      |
| canonicalLink       | String                 | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user. | 1      |

### 53.9.5.1 Viewing Details of the Java Platform Instance Resource

The following shows a sample GET operation on the JavaPlatformInstance URI to return its representation.

#### Example Request:

**Table 53–63 GET Request Configuration for Viewing Details of the Java Platform Instance Resource**

| Feature         | Description                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatfrominstance/960A4A8244145EC7949303B4ECD650D0                                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformInstance+json |
| Body            | None                                                                                                                 |
| Request method  | GET                                                                                                                  |

#### Example Response:

```
{
 "uri" : "/em/cloud/jaas/javaplatfrominstance/960A4A8244145EC7949303B4ECD650D0" ,
 "name" : "jb_sd_platform_12_24_2012_13_38_28" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "960A4A8244145EC7949303B4ECD650D0" ,
```

```

 "media_type" : "application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
instance/960A4A8244145EC7949303B4ECD650D0" ,
 "status" : "RUNNING" ,
 "zone" : {
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "context_id" : "A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/zone/
A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "type" : "jaas"
 } ,
 "based_on" : {
 "uri" :
"/em/cloud/jaas/javaplatformtemplate/D016AADD465462ACE040F20AD18167BA" ,
 "name" : "PS4_LowHeapTemplate" ,
 "context_id" : "D016AADD465462ACE040F20AD18167BA" ,
 "media_type" : "application/oracle.com.cloud.jaas.JavaPlatformTemplate+json"
 } ,
 "service_family_type" : "jaas"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
template/ D016AADD465462ACE040F20AD18167BA "
 } ,
 "data_sources" : {
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 } ,
 "jdbc_drivers" :
 [
 "com.ddtek.jdbc.oracle.OracleDriver" ,
 "oracle.jdbc.xa.client.OracleXADataSource" ,
 "oracle.jdbc.OracleDriver" ,
 "com.ddtek.jdbcx.oracle.OracleDataSource"
] ,
 "server_count" : "1" ,
 "application_instance_deployments" : {
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 }
}

```

### 53.9.5.2 Deleting a Service Instance by Passing a DELETE Request on a Java Platform Instance

The following shows a sample DELETE operation on the JavaPlatformInstance URI to retire the service instance.

**Example Request:****Table 53–64 DELETE Request Configuration for Deleting a Java Platform Instance**

| Feature         | Description                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatforminstance/960A4A8244145EC7949303B4ECD650D0                                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformInstance+json |
| Body            | None                                                                                                                 |
| Request method  | DELETE                                                                                                               |

**Example Response:**

```
{
 "uri" : "/em/cloud/jaas/javaplatforminstancerequest/121" ,
 "name" : "rtjul17_Delete_20120719_035504227" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "null" ,
 "date" : "2012-07-19T09:16:13+0000"
 }
]
 } ,
 "context_id": "121",
 "media_type": "application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "service_family_type": "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatforminstancerequest/121" ,
 "status": "SCHEDULED"
 "created" : "2013-05-09T09:08:38+0000"
}
```

**53.9.5.3 Viewing Status of the DELETE Request****Example Request:****Table 53–65 GET Request Configuration for Viewing Status of the Delete Operation**

| Feature         | Description                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatforminstancerequest/121                                                                       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformInstance+json |
| Body            | None                                                                                                                 |
| Request method  | GET                                                                                                                  |

**Example Response (When the operation is in progress):**

```
{
```

```

"uri" : "/em/cloud/jaas/javaplatforminstancerequest/121" ,
"name" : "rtjul17_Delete_20120719_035504227" ,
"resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "null" ,
 "date" : "2012-07-19T09:16:13+0000"
 }
]
} ,
"context_id": "121",
"media_type": "application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
"service_family_type": "jaas" ,
"canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
instancerequest/121" ,
"status": "SCHEDULED"
"created" : "2013-05-09T09:08:38+0000"
}

```

#### Example Response (when the operation is complete):

The Status field will show that the resource has been deleted.

#### 53.9.5.4 Creating an Application Instance Deployment By Passing a POST Request on Java Platform Instance

The following shows a sample POST operation on the JavaPlatformInstance URI to deploy an ApplicationInstanceDeployment.

- Name of ApplicationInstanceDeployment in the "name" attribute
- ApplicationInstanceComponent URI in the "application\_instance\_component" attribute

#### Example Request:

**Table 53–66 POST Request Configuration for Creating an Application Instance Deployment Resource**

| Feature         | Description                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatforminstance/8AF6E65447FBA84E968CCD909BD05D42                                                                                                                                                                                                |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json<br>Content-Type:<br>application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json                                           |
| Body            | {<br>"name" : "rtriddappjul18",<br>"application_instance_component" :<br>"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_Component%3ASUB_JavaEEApplication%3AC414FFB7A0912357E040F10A716015F9%3A0.1"<br>} |

**Table 53–66 (Cont.) POST Request Configuration for Creating an Application Instance Deployment Resource**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

**Example Response:**

```
{
 "uri" : "/em/cloud/jaas/applicationinstancedeploymentrequest/ rtriddappjul18@131"
 ,
 "name" : " rtriddappjul18_Deploy_20120718_051319824" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-18T12:13:28+0000" ,
 "text" : "null"
 }
]
 } ,
 "context_id" : "rtriddappjul18@131" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstedeploymentrequest/ rtriddappjul18@131" ,
 "status" : "SCHEDULED"
 }
}
```

**53.9.5.5 Viewing Status of the Application Instance Deployment Creation Request**

The following shows a sample GET of an Application Instance Deployment Request returned by POST to create Application Instance.

**Example Request:****Table 53–67 GET Request Configuration for Viewing the Status of the Application Instance Deployment Creation**

| Feature         | Description                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappju118@131                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json |
| Body            | None                                                                                                                             |
| Request method  | GET                                                                                                                              |

**Example Response (When the operation is in progress)**

```
{
 "uri" : "/em/cloud/jaas/applicationinstancedeploymentrequest/ rtriddappjul18@131"
 ,
}
```

```
 "name" : " rtriddappjul18_Deploy_20120718_051319824" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-18T12:13:28+0000" ,
 "text" : "null"
 }
]
 } ,
 "context_id" : "rtriddappjul18@131" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 "status" : "SCHEDULED"
 }
}
```

### Example Response (When the operation is complete)

```
{
 "uri" : "/em/cloud/jaas/applicationinstancedeployment/9D8868C9632E3" ,
 "name" : "rtriddappjul19" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "9D8868C9632E3" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 "status" : "RUNNING" ,
 "http_application_invocation_url" : {
 "ms_3" : "http://example.com:32463/RiddlesWeb" ,
 "ms_4" : "http://example.com:40298/RiddlesWeb"
 } ,
 "https_application_invocation_url" : {
 "ms_3" : "https://example.com:3550/RiddlesWeb" ,
 "ms_4" : "https://example.com:41467/RiddlesWeb"
 } ,
 "contained_in" : {
 "uri" : "/em/cloud/jaas/javaplatforminstance/CF4339D922C" ,
 "name" : "rtjul17" ,
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "status" : "RUNNING"
 }
}
```

#### 53.9.5.6 Creating a Data Source by Passing a POST Request on the Java Platform Instance Resource

The following shows a sample POST operation on the JavaPlatformInstance URI to create a DataSource on the JavaPlatformInstance

- Name of DataSource in the "name" attribute
- JNDI Name in "jndi\_name" attribute
- JDBC Driver in "jdbc\_driver" attribute
- Database connect string in "database\_connect\_string" attribute

- Database type in "database\_type" attribute
- username and password

**Example Request:****Table 53–68 POST Request Configuration for Creating a Data Source on the Java Platform Instance**

| Feature         | Description                                                                                                                                                                                                                                                                                                              |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatforminstance/8AF6E65447FBA84E968CCD909BD05D42                                                                                                                                                                                                                                                     |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.DataSource+json<br>Content-Type: application/oracle.com.cloud.jaas.DataSource+json                                                                                                                                            |
| Body            | <pre>{   "name" : "tarunDS_wthParamchanges" ,   "jndi_name" : ["jndi_1Paramchanges"] ,   "jdbc_driver" : "oracle.jdbc.OracleDriver" ,   "database_connect_string" :     "jdbc:oracle:thin:sysman/sysman@example.com:15044:test2" ,   "database_type" : "Oracle" ,   "username": "sysman",   "password": "sysman" }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                     |

**Example Response:**

```
{
 "uri" : "/em/cloud/jaas/datasourcerequest/rtrepodsjul23@181" ,
 "name" : "rtrepodsjul23_CreateDS_20120722_112705396" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T06:27:06+0000" ,
 "text" : "null"
 }
]
 },
 "context_id" : "rtrepodsjul23@181" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/datasourcerequest/rtrepodsjul23@181" ,
 "status" : "SCHEDULED"
}
```

**53.9.5.7 Viewing Status of the Data Source Creation Request**

The following shows a sample GET of Data Source request returned by POST to create Data Source

**Example Request:****Table 53–69** GET Request Configuration for Viewing the Status of the Data Source Creation

| Feature         | Description                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/datasourcerequest/rtrepodsjul23@181                                                                   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformInstance+json |
| Body            | None                                                                                                                 |
| Request method  | GET                                                                                                                  |

**Example Response (When the operation is in progress):**

```
{
 "uri" : "/em/cloud/jaas/datasourcerequest/rtrepodsjul23@181" ,
 "name" : "rtrepodsjul23_CreateDS_20120722_112705396" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T06:27:06+0000" ,
 "text" : "null"
 }
]
 },
 "context_id" : "rtrepodsjul23@181" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/
datasourcerequest/rtrepodsjul23@181" ,
 "status" : "SCHEDULED"
}
```

**Example Response (When the operation is complete):**

```
{
 "uri" : "/em/cloud/jaas/datasource/ rtrepodsjul18@CF4339D922C" ,
 "name" : "rtrepodsjul18" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : " rtrepodsjul18@CF4339D922C" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/datasource/r
trepodsjul18@CF4339D922C " ,
 "jndi_name" :
[
 "jndi_1"
] ,
 "jdbc_driver" : "oracle.jdbc.OracleDriver" ,
 "username" : "sysam",
 "database_connect_string" :
"jdbc:oracle:thin:sysman/sysman@example.com:15044:sjuly14" ,
}
```



```

 "contained_in" : {
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "context_id" : "CF4339D922C51" ,
 "name" : "rtjul17" ,
 "uri" : "/em/cloud/jaas/javaplatforminstance/CF4339D922C51"
 }
 }
}

```

### 53.9.5.8 Scaling Up/Down the Service Instance

The following shows a sample PUT operation on JavaPlatformInstance URI to scale up or scale down the service instance. The final server count is contained in "server\_count" attributes. A Scale up or scale down request will be submitted according to Current server count being greater than or lesser than the Final server count.

#### Example Request:

**Table 53–70 PUT Request Configuration for Scaling Up/Down the Service Instance**

| Feature         | Description                                                                                                                                                                                       |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/javaplatforminstance/CF4339D922C5                                                                                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.JavaPlatformInstance+json<br>Content-type: application/oracle.com.cloud.jaas.JavaPlatformInstance+json |
| Body            | {<br>"server_count" : "3"<br>}                                                                                                                                                                    |
| Request method  | PUT                                                                                                                                                                                               |

#### Example Response:

```

{
 "uri" : "/em/cloud/jaas/javaplatforminstancerequest/211" ,
 "name" : "rtjul17_Scaleup_20120719_045804697" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "null" ,
 "date" : "2012-07-19T09:16:13+0000"
 }
]
 } ,
 "context_id": "211",
 "media_type": "application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "service_family_type": "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/
javaplatforminstancerequest/211" ,
 "status": "SCHEDULED"
 "created" : "2013-05-09T11:46:27+0000"
}

```

## 53.9.6 Application Instance Deployment

This represents the deployment of an Application Instance in a JavaPlatformInstance.

The following table describes the ApplicationInstanceDeployment [application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json] data model.

**Table 53–71 Application Instance Deployment Data Model**

| Field                            | Type                                                | Description                                                                                                                                                         | Occurs |
|----------------------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                              | URI                                                 | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                             | String                                              | A human readable name given to the instance.<br>[POST]                                                                                                              | 1      |
| application_instance_component   | Application InstanceComponent<br>(uri,name,version) | The ApplicationInstanceComponent in the Software library which was used during deployment of this instance.<br>[POST]                                               | 1      |
| http_application_invocation_url  | Map<String,String>                                  | Map of server name and HTTP URL of the deployed application. Will be populated after the instance has been created.                                                 | 0...1  |
| https_application_invocation_url | Map<String,String>                                  | Map of server name and HTTPS URL of the deployed application. Will be populated after the instance has been created.                                                | 0...1  |
| contained_in                     | JavaPlatformInstance<br>(uri,name)                  | JavaPlatformInstance on which the application is deployed.                                                                                                          | 1      |
| deployment_plan                  | String                                              | Vendor specific configuration parameters for this deployment in the prescribed XML format.<br>[POST]                                                                | 0...1  |
| status                           | String                                              | Indicates the status of the ApplicationInstanceDeployment.<br>Values are<br>STOPPED, RUNNING, UNREACHABLE, UNKNOWN<br>[PUT]                                         | 0...1  |
| metrics                          | Collection<Metric>                                  | The list of metrics (uri, name, type current_value) that are pertinent to this service instance.                                                                    | 0...1  |
| resource_state                   | ResourceState                                       | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| service_family_type              | String                                              | Denotes the type of ApplicationInstanceDeployment (for example, "jaas").                                                                                            | 1      |
| media_type                       | String                                              | Indicates the additional media type that clients can use to perform a GET.                                                                                          | 1      |
| context_id                       | String                                              | This is an ID indication of the internal reference of the application deployment.                                                                                   | 1      |

**Table 53–71 (Cont.) Application Instance Deployment Data Model**

| Field         | Type   | Description                                                                                                             | Occurs |
|---------------|--------|-------------------------------------------------------------------------------------------------------------------------|--------|
| canonicalLink | String | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user. | 1      |

### 53.9.6.1 Viewing Details of the Application Instance Deployment Resource

The following shows a sample GET operation on the ApplicationInstanceDeployment URI to return its representation.

#### Example Request:

**Table 53–72 GET Request Configuration for Viewing Details of the Application Instance Deployment**

| Feature         | Description                                                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/applicationinstancedeployment/9D8868C9632E3                                                                    |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.ApplicaitonInstanceDeployment+json |
| Body            | None                                                                                                                          |
| Request method  | GET                                                                                                                           |

#### Example Response:

```
HTTP/1.1 200 OK
Content-Type: application/oracle.com.cloud.jaas.
ApplicationInstanceDeployment+json
Content-Location: /em/cloud/jaas/applicationinstancedeployment/9D8868C9632E3
Cache-Control: public
Content-Length: nnn
{
 "uri" : "/em/cloud/jaas/applicationinstancedeployment/9D8868C9632E3" ,
 "name" : "rtriddappjul19" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "media_type":
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstancedeployment/9D8868C9632E3" ,
 "status" : "RUNNING" ,
 "http_application_invocation_url" : {
 "ms_3" : "http://example.com:32463/RiddlesWeb" ,
 "ms_4" : "http://example.com:40298/RiddlesWeb"
 } ,
 "https_application_invocation_url" : {
 "ms_3" : "https://example.com:3550/RiddlesWeb" ,
 "ms_4" : "https://example.com:41467/RiddlesWeb"
 } ,
 "contained_in" : {
 "uri" : "/em/cloud/jaas/javaplatforminstance/CF4339D922C" ,
 "name" : "rtjul17" ,
```

```

 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "status" : "RUNNING"
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/javaplatform
instance/ CF4339D922C "
 }
}

```

### 53.9.6.2 Deleting an Application Instance Deployment

The following shows a sample DELETE operation on the Application Instance Deployment URI which undeploys the application from Java Platform Instance.

#### Example Request:

**Table 53–73 DELETE Request Configuration for Deleting an Application Instance Deployment**

| Feature         | Description                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/applicationinstancedeployment/9D8868C9632E3                                                                       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.jaas.ApplicaitonInstanceDeployment+json |
| Body            | None                                                                                                                             |
| Request method  | DELETE                                                                                                                           |

#### Example Response:

```

HTTP/1.1 200 OK
Content-Type: application/oracle.com.cloud.jaas.
ApplicationInstanceDeployment+json
Content-Location:
/em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappjul19@184
Cache-Control: public
Content-Length: nnn
{
 "uri" :
"/em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappjul19@184" ,
 "name" : "rtriddappjul19_Undeploy_20120723_011757881" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T08:18:01+0000" ,
 "text" : "null"
 }
]
 } ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 canonicalLink:
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstedeploymentrequest/rtriddappjul19@184" ,
 "status" : "SCHEDULED"
}

```

```
}

```

### 53.9.6.3 Viewing Status of the Application Instance Deployment Deletion Request

The following shows a sample GET operation on an Application Instance Deployment Request.

#### Example Request:

**Table 53–74** *GET Request Configuration for Viewing the Status of the Application Instance Deployment Deletion*

| Feature         | Description                                                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappjul19@184                                                        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.ApplicaitonInstanceDeployment+json |
| Body            | None                                                                                                                          |
| Request method  | GET                                                                                                                           |

#### Example Response: (operation in progress):

```
{
 "uri" :
"/em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappjul19@184" ,
 "name" : "rtriddappjul19_Undeploy_20120723_011757881" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T08:18:01+0000" ,
 "text" : "null"
 }
]
 } ,
 "context_id" : "rtriddappjul19@184" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 canonicalLink:
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstedeploymentrequest/rtriddappjul19@184" ,
 "status" : "SCHEDULED"
}
```

#### Example Response: (operation is complete):

The status field will show that the resource has been deleted.

### 53.9.6.4 Starting, Stopping and Redeploying an Application Instance Deployment

The following shows a sample PUT operation on the Application Instance Deployment URI to start or stop the instance.

- STOPPED to RUNNING

Put on status attribute, value = "START"

- RUNNING to STOPPED

Put on status attribute, value = "STOP"

- REDEPLOY

Put on status attribute, value = "REDEPLOY" and ApplicationInstanceComponent URI in the "application\_instance\_component" attribute

### Example Request: Starting/Stopping

**Table 53–75 PUT Request Configuration for Starting/Stopping the Status of the Application Instance Deployment**

| Feature         | Description                                                                                                                                                                                                               |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/applicationinstancedeployment/9D8868C9632E3                                                                                                                                                                |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept:<br>application/oracle.com.cloud.jaas.ApplicaitonInstanceDeployment+json<br>Content-type:<br>application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json |
| Body            | {<br>"status" : "STOP"<br>}                                                                                                                                                                                               |
| Request method  | PUT                                                                                                                                                                                                                       |

### Example Response:

```
HTTP/1.1 200 OK
Content-Type: application/oracle.com.cloud.jaas.
ApplicationInstanceDeployment+json
Content-Location:
/em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappjul19@182
Cache-Control: public
Content-Length: nnn
{
 "uri" :
"/em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappjul19@182" ,
 "name" : "rtriddappjul19_Stop_20120723_123327380" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T07:33:27+0000" ,
 "text" : "null"
 }
]
 } ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstancedeploymentrequest/rtriddappjul19@182" ,
 "status" : "SCHEDULED"
```

```
}
```

**Example Request for Redeploying:**

```
PUT /em/cloud/jaas/applicationinstancedeployment/9D8868C9632E3
Host: cloudcompany.com
Authorization: Basic xxxxxxx
Accept: application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json
Content-type:
application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json
{
 "status" : "STOP" ,
 "application_instance_component" :
"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovis
ioning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AC414FFB7A0912357E040F10A716015F9%3A0.1"
}
```

**Example Response:**

```
{
 "uri" :
"/em/cloud/jaas/applicationinstancedeploymentrequest/rtriddappjul19@183" ,
 "name" : "rtriddappjul19_Undeploy_20120723_123327380" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T07:33:27+0000" ,
 "text" : "null"
 }
]
 } ,
 "context_id" : "rtriddappjul19@183" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationi
nstedeploymentrequest/rtriddappjul19@183" ,
 "status" : "SCHEDULED"
}
```

**53.9.7 DataSource**

The DataSource resource model has the following characteristics:

The following table describes the DataSource  
[application/oracle.com.cloud.jaas.DataSource+json] data model.

**Table 53–76    DataSource Data Model**

| Field | Type   | Description                                                                                          | Occurs |
|-------|--------|------------------------------------------------------------------------------------------------------|--------|
| uri   | URI    | A GET against this URI refreshes the client representation of the resources accessible to this user. | 1      |
| name  | String | A human readable name given to the data source.<br>[POST][PUT]                                       | 1      |

**Table 53–76 (Cont.) DataSource Data Model**

| Field                   | Type                                | Description                                                                                                                                                         | Occurs |
|-------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| jndi_name               | String[]                            | JNDI path to where this data source will be bound. Applications look up the data source on the JNDI tree by this name when reserving a connection.<br>[POST][PUT]   | 1      |
| database_type           | String                              | The DBMS of the database that the data source represents.<br>[POST]                                                                                                 | 0...1  |
| jdbc_driver             | String                              | The database driver used to connect to the database.<br>[POST]                                                                                                      | 1      |
| contained_in            | JavaPlatformInstance<br>(uri, name) | JavaPlatformInstance on which the data source exists.                                                                                                               | 1      |
| resource_state          | ResourceState                       | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| database_connect_string | String                              | Connect String of the database can be provided to create the data source.<br>[POST][PUT]                                                                            | 0...1  |
| service_family_type     | String                              | Denotes the type of Data Source (for example, "jaas").                                                                                                              | 1      |
| media_type              | String                              | Indicates the additional media type that clients can use to perform a GET.                                                                                          | 1      |
| username                | String                              | Username of the DB connection.                                                                                                                                      | 1      |
| password                | String                              | Password of the DB connection.                                                                                                                                      | 1      |
| context_id              | String                              | This is an ID indication the internal reference of the data source.                                                                                                 | 1      |
| canonicalLink           | String                              | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user.                                             | 1      |

**53.9.7.1 Viewing Details of the Data Source Resource**

The following shows a sample GET operation on the DataSource URI to return its representation.

**Example Request:****Table 53–77 GET Request Configuration for Viewing Details of the Data Source**

| Feature         | Description                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/datasource/rtrepodsjul18@CF4339D922C                                                        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.DataSource+json |
| Body            | None                                                                                                       |
| Request method  | GET                                                                                                        |



**Example Response:**

```
{
 "uri" : "/em/cloud/jaas/datasource/ rtrepodsjul18@CF4339D922C" ,
 "name" : "rtrepodsjul18" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : " rtrepodsjul18@CF4339D922C" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/datasource/r
trepodsjul18@CF4339D922C " ,
 "jndi_name" :
[
 "jndi_1"
] ,
 "jdbc_driver" : "oracle.jdbc.OracleDriver" ,
 "username" : "sysam",
 "database_connect_string" :
"jdbc:oracle:thin:sysman/sysman@example.com:15044:sjuly14" ,
 "contained_in" : {
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "context_id" : "CF4339D922C51" ,
 "name" : "rtjul17" ,
 "uri" : "/em/cloud/jaas/javaplatforminstance/CF4339D922C51"
 }
}
```

**53.9.7.2 Deleting a Data Source**

The following shows a sample DELETE operation on the DataSource URI removes it from the JavaPlatformInstance.

**Example Request:****Table 53–78 DELETE Request Configuration for Deleting the Data Source**

| Feature         | Description                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/datasource/rtrepodsjul18@CF4339D922C                                                        |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.DataSource+json |
| Body            | None                                                                                                       |
| Request method  | DELETE                                                                                                     |

**Example Response:**

```
HTTP/1.1 200 OK
Content-Type: application/oracle.com.cloud.jaas.DataSource+json
Content-Location: /em/cloud/jaas/datasourcerequest/rtrepodsjul18@201
Cache-Control: public
Content-Length: nnn
{
 "uri" : "/em/cloud/jaas/datasourcerequest/rtrepodsjul18@201" ,
 "name" : "rtrepodsjul18_DeleteDS_20120723_024836692" ,
```

```

 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T09:48:37+0000" ,
 "text" : "null"
 }
]
 } ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/
datasourcerequest/rtrepodsjul18@201" ,
 "status" : "SCHEDULED"
 }
}

```

### 53.9.7.3 Viewing Status of the Data Source Deletion Request

The following shows a sample GET operation on a DataSource request.

#### Example Request:

**Table 53–79 GET Request Configuration for Viewing Status of the Data Source Deletion**

| Feature         | Description                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/datasourcerequest/rtrepodsjul18@201                                                         |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.DataSource+json |
| Body            | None                                                                                                       |
| Request method  | GET                                                                                                        |

#### Example Response: (operation in progress):

```

{
 "uri" : "/em/cloud/jaas/datasourcerequest/rtrepodsjul18@201" ,
 "name" : "rtrepodsjul18_DeleteDS_20120723_024836692" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T09:48:37+0000" ,
 "text" : "null"
 }
]
 } ,
 "context_id" : "rtrepodsjul18@201" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/
datasourcerequest/rtrepodsjul18@201" ,
 "status" : "SCHEDULED"
}

```

**Example Response: (operation is complete)**

The status field will show that the resource has been deleted.

**53.9.7.4 Updating a Data Source**

The following shows a sample PUT operation on the DataSource URI to update the DataSource to add/remove JNDI names and edit the database connect string. An example request for TEST DataSource is also provided.

**Example Request:****Table 53–80 PUT Request Configuration for Updating the Data Source**

| Feature         | Description                                                                                                                                                                           |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/datasource/rtrepodsjul18@CF4339D922C                                                                                                                                   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.DataSource+json<br>Content-type: application/oracle.com.cloud.jaas.DataSource+json         |
| Body            | {<br>"jndi_name" : ["jndi_2"],<br>"database_connect_string" :<br>"jdbc:oracle:thin:sysman/sysman@example.com:15044:sep25cc" ,<br>"username" : "sysman",<br>"password" : "sysman"<br>} |
| Request method  | PUT                                                                                                                                                                                   |

**Example Response:**

```
{
 "uri" : "/em/cloud/jaas/datasourcerequest/rtrepodsjul18@CF4339D922C" ,
 "name" : "rtrepodsjul18_UpdateDS_20121216_062909975" ,
 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "date" : "2012-12-16T14:29:16+0000" ,
 "text" : "null"
 }
]
 } ,
 "context_id" : "rtrepodsjul18@681" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
 "/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/datasourcerequest/rtrepodsjul18@191" ,
 "status" : "SCHEDULED"
}
```

**Example Request for TEST Data Source****Table 53–81 PUT Request Configuration for Testing the Data Source**

| Feature         | Description                                                                                                                                                                   |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/datasource/rtrepodsjul18@CF4339D922C                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.DataSource+json<br>Content-type: application/oracle.com.cloud.jaas.DataSource+json |
| Body            | {<br>"status" : "TEST"<br>}                                                                                                                                                   |
| Request method  | PUT                                                                                                                                                                           |

**Example Response**

```
{
 "uri" : "/em/cloud/jaas/datasource/rtrepodsjul18@CF4339D922C" ,
 "name" : "rtrepodsjul18" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : " rtrepodsjul18@CF4339D922C" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/datasource/r
trepodsjul18@CF4339D922C " ,
 "jndi_name" :
[
 "jndi_1"
] ,
 "jdbc_driver" : "oracle.jdbc.OracleDriver" ,
 "username" : "sysam",
 "database_connect_string" :
"jdbc:oracle:thin:sysman/sysman@example.com:15044:sjuly14" ,
 "contained_in" : {
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "context_id" : "CF4339D922C51" ,
 "name" : "rtjul17" ,
 "uri" : "/em/cloud/jaas/javaplatforminstance/CF4339D922C51"
 }
}
```

**53.9.7.5 Viewing Status of the Data Source Request**

The following shows a sample GET on Data Source request.

**Example Request:****Table 53–82 GET Request Configuration for Viewing Status of the Data Source**

| Feature | Description                                        |
|---------|----------------------------------------------------|
| URI     | /em/cloud/jaas/datasourcerequest/rtrepodsjul18@201 |

**Table 53–82 (Cont.) GET Request Configuration for Viewing Status of the Data Source**

| Feature         | Description                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.DataSource+json |
| Body            | None                                                                                                       |
| Request method  | GET                                                                                                        |

**Example Response (when operation is in progress):**

```
{
 "uri" : "/em/cloud/jaas/datasourcerequest/rtrepodsjul18@201" ,
 "name" : "rtrepodsjul18_DeleteDS_20120723_024836692" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "date" : "2012-07-23T09:48:37+0000" ,
 "text" : "null"
 }
]
 } ,
 "context_id" : "rtrepodsjul18@201" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/
datasourcerequest/rtrepodsjul18@201" ,
 "status" : "SCHEDULED"
}
```

**Example Response (when operation is complete):**

```
{
 "uri" : "/em/cloud/jaas/datasource/ rtrepodsjul18@CF4339D922C" ,
 "name" : "rtrepodsjul18" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : " rtrepodsjul18@CF4339D922C" ,
 "media_type" : "application/oracle.com.cloud.jaas.DataSource+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/datasource/r
trepodsjul18@CF4339D922C " ,
 "jndi_name" :
[
 "jndi_1"
] ,
 "jdbc_driver" : "oracle.jdbc.OracleDriver" ,
 "username" : "sysam",
 "database_connect_string" :
"jdbc:oracle:thin:sysman/sysman@example.us.com:15044:sjuly14" ,
 "contained_in" : {
 "media_type" :
"application/oracle.com.cloud.jaas.JavaPlatformInstance+json" ,
 "context_id" : "CF4339D922C51" ,

```

```

 "name" : "rtjul17" ,
 "uri" : "/em/cloud/jaas/javaplatforminstance/CF4339D922C51"
 }
}

```

### 53.9.8 Application Instance Component

This represents the application component in the software library. It can be created by POST-ing to the Jaas service type.

The following table describes the ApplicationInstanceComponent [application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json] data model.

**Table 53–83 Application Instance Component Data Model**

| Field               | Type          | Description                                                                                                                                                         | Occurs |
|---------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| uri                 | URI           | A GET against this URI refreshes the client representation of the resources accessible to this user.                                                                | 1      |
| name                | String        | A human readable name given to the instance.<br>[POST]                                                                                                              | 1      |
| creator             | String        | Creator of the ApplicationInstanceComponent in the Software Library.                                                                                                | 1      |
| created             | Timestamp     | Date and time, in ISO 8601 format, when the instance was created.                                                                                                   | 1      |
| version             | String        | Version of the ApplicationInstanceComponent in the Software library.<br>[POST]                                                                                      | 1      |
| resource_state      | ResourceState | The validity of the fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields. | 1      |
| context_id          | String        | This is an ID indication the internal reference of the ApplicationInstanceComponent.                                                                                | 1      |
| service_family_type | String        | Denotes the type of ApplicationInstanceComponent (for example, "jaas").                                                                                             | 1      |
| media_type          | String        | Indicates the additional media type that clients can use to perform a GET.                                                                                          | 1      |
| status              | String        | Status of the ApplicationInstanceComponent in the Software Library.                                                                                                 | 1      |
| maturity            | String        | Maturity of the ApplicationInstanceComponent in the Software Library.                                                                                               | 1      |
| component_type      | String        | Component type of ApplicationInstanceComponent (for example, Java EE Application).                                                                                  | 1      |
| canonicalLink       | String        | GET against this normalized/canonical URI refreshes the client representation of the resources accessible to this user.                                             | 1      |

#### 53.9.8.1 Viewing Details of the Application Instance Component Resource

The following shows a sample GET operation on the ApplicationInstanceComponent URI to return its representation.

**Example Request:****Table 53–84 GET Request Configuration for Viewing Details of the Application Instance Component**

| Feature         | Description                                                                                                                                                                         |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_Component%3ASUB_JavaEEApplication%3AC514D5CF9FC00CD7E040F10A716020D0%3A0.1 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json                                                        |
| Body            | None                                                                                                                                                                                |
| Request method  | GET                                                                                                                                                                                 |

**Example Response:**

```

HTTP/1.1 200 OK
Content-Type: application/oracle.com.cloud.jaas.
ApplicationInstanceComponent+json
Content-Location:
/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisi
oning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AC514D5CF9FC00CD7E040F10A716020D0%3A0.1
Cache-Control: public
Content-Length: nnn
{
 "uri" :
"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovis
ioning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AC514D5CF9FC00CD7E040F10A716020D0%3A0.1" ,
 "name" : "Riddles" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "oracle:defaultService:em:provisioning:1:cmp:COMP_
Component:SUB_JavaEEApplication:C514D5CF9FC00CD7E040F10A716020D0:0.1" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json" ,
 "service_family_type" : "jaas" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/
applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp
%3ACOMP_Component%3ASUB_
JavaEEApplication%3AC514D5CF9FC00CD7E040F10A716020D0%3A0.1" ,
 "created" : "2012-07-17 22:31:33.0" ,
 "version" : "0.1" ,
 "creator" : "SSA_USER_1" ,
 "componenttype" : "Java EE Application" ,
 "status" : "Ready" ,
 "maturity" : "Untested"
}

```

**53.9.8.2 Deleting an Application Instance Component**

The following shows a sample DELETE operation on the ApplicationInstanceComponent URI.

**Example Request:****Table 53–85** *DELETE Request Configuration for Deleting the Application Instance Component*

| Feature         | Description                                                                                                                                                                         |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_Component%3ASUB_JavaEEApplication%3AC514D5CF9FC00CD7E040F10A716020D0%3A0.1 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json                                                        |
| Body            | None                                                                                                                                                                                |
| Request method  | DELETE                                                                                                                                                                              |

**Example Response:**

```
{
 "uri" :
"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_Component%3ASUB_JavaEEApplication%3AC514D5CF9FC00CD7E040F10A716020D0%3A0.1" ,
 "resource_state" : {
 "state" : "DESTROYED"
 } ,
 "context_id" : "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_JavaEEApplication:C514D5CF9FC00CD7E040F10A716020D0:0.1" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json" ,
 "canonicalLink" :
"/em/websvcs/restful/extws/cloudservices/service/v0/ssa/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3ACOMP_Component%3ASUB_JavaEEApplication%3AC514D5CF9FC00CD7E040F10A716020D0%3A0.1"
}
```

## 53.10 Application Component Filtering for V1

Application component filtering is supported for JaaS zones, templates, and application components.

### 53.10.1 Filtering Service Templates

The filtering attributes supported are name, service\_template\_type, owner, and media\_type. The following are sample requests and responses to Service Template Finds:

**Example Request****Table 53–86** *GET Request Configuration for Filtering Service Templates*

| Feature         | Description                                                                                                            |
|-----------------|------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud?filters=                                                                                                     |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.common.ServiceTemplateFinds+json |



**Table 53–86 (Cont.) GET Request Configuration for Filtering Service Templates**

| Feature        | Description                              |
|----------------|------------------------------------------|
| Body           | {<br>"filters":{"name":"RiddleApp"}<br>} |
| Request method | GET                                      |

**Example Response**

```
{
 "uri" : "/em/cloud/finds/service_
template/bWVkaWffdhLwZSUyNTNEYXBwbGljYXRpb241MjUyRm9yYWNSZS5jb20uY2xvdWQuY29tbW9uL
lNl%0AcnZpY2VUZWlwbGF0ZSUyRm5hbWU1MjUzRFJpZGRsZUFwcA%3D%3D" ,
 "name" : "Service Template Finds" ,
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplateFinds+json" ,
 "description" : "This is a Resource Finds for 'Service Template Finds' with
media type 'application/oracle.com.cloud.common.ServiceTemplateFinds+json'" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "filters" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "name" : "RiddleApp"
 } ,
 "finds" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/jaas/applicationinstancecomponent/oracle%3AdefaultService%3Aem%3Aprovis
ioning%3A1%3Acmp%3ACOMP_Component%3ASUB_
JavaEEApplication%3AD1103FE5F6877372E040F20AD1814215%3A0.1" ,
 "name" : "RiddleApp" ,
 "media_type" :
"application/oracle.com.cloud.jaas.ApplicationInstanceComponent+json" ,
 "service_family_type" : "jaas"
 }
]
 }
}
```

**53.10.2 Filtering Zones**

The filtering attributes supported are name, owner, service\_family\_type, and media\_type.

**Example for Filtering Zones****Table 53–87 GET Request Configuration for Filtering Zones**

| Feature         | Description                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------|
| URI             | /em/cloud?filters=                                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=<br>Accept: application/oracle.com.cloud.common.ZoneFinds+json |

**Table 53–87 (Cont.) GET Request Configuration for Filtering Zones**

| Feature        | Description                                   |
|----------------|-----------------------------------------------|
| Body           | <pre>{   "filters": {"name": "Zone1"} }</pre> |
| Request method | GET                                           |

**Example Response**

```
{
 "uri" :
"/em/cloud/finds/zone/bWwkaWffdhLwZSUyNTNEYXBwbGljYXRpb24lMjUyRm9yYWNSZS5jb20uY2xv
dWQuY29tbW9uLlpv%0AbmU1MkZuYW1lJT1M0Rab25lMQ%3D%3D" ,
 "name" : "Zone Finds" ,
 "media_type" : "application/oracle.com.cloud.common.ZoneFinds+json" ,
 "description" : "This is a Resource Finds for 'Zone Finds' with media type
'application/oracle.com.cloud.common.ZoneFinds+json'" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "filters" : {
 "media_type" : "application/oracle.com.cloud.common.Zone" ,
 "name" : "Zone1"
 } ,
 "finds" : {
 "media_type" : "*/*" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ,
 "name" : "Zone1" ,
 "media_type" : "application/oracle.com.cloud.jaas.Zone+json" ,
 "service_family_type" : "jaas"
 }
]
 }
}
```

## 53.11 Load Balancer Configuration for V1

The following table describes the load balancer configuration.

**Table 53–88 Load Balancer Configuration**

| Method | Request Payload | URI                                                                        | Description                                                                       |
|--------|-----------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| GET    | NA              | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs          | Returns all load balancer configurations with lbr Id, lbr name and lbr self link. |
| GET    | NA              | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs/{lbr id} | Returns all details about the given load balancer configuration.                  |

**Table 53–88 (Cont.) Load Balancer Configuration**

| Method | Request Payload                | URI                                                                        | Description                                |
|--------|--------------------------------|----------------------------------------------------------------------------|--------------------------------------------|
| POST   | LBR Config Item (Json Payload) | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs          | Creates a new load balancer configuration. |
| PUT    | LBR Config Item (Json Payload) | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs          | Edits the load balancer configuration.     |
| DELETE | NA                             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs/{lbr id} | Deletes the lbr with the specified lbr id. |

### 53.11.1 Load Balance Configuration REST API Examples

This section explains the REST API examples related to the Load Balancer Configuration.

#### 53.11.1.1 Viewing Details of the Load Balancer Configuration Resource

The table below lists the GET request configuration.

**Table 53–89 GET Request Configuration for Viewing Details of the Load Balancer Configuration Resource**

| Feature         | Description                                                       |
|-----------------|-------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                     |
| Body            | None                                                              |
| Request method  | GET                                                               |

A sample of the response received is shown below.

```
{
 name: "Load Balancer Configurations"
 description: "Load Balancer Configurations available"
 selfLink: " /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs"
 lbrconfigs: [2]
 0: {
 name: "lbr1"
 type: "OHS"
 id: 1001
 selfLink: "/em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs/1001"
 }
 1: {
 name: "lbr2"
 type: "OTD"
 id: 1002
 selfLink: "
/em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs/1002"
 }
}
```

### 53.11.1.2 Viewing Details of the specified Load Balancer Configuration

The table below lists the GET request configuration for viewing details of the Load Balancer Configuration.

**Table 53–90** *GET Request Configuration for Viewing Details of the specified Load Balancer Configuration*

| Feature         | Description                                                            |
|-----------------|------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs/1001 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                          |
| Body            | None                                                                   |
| Request method  | GET                                                                    |

A sample of the response received is shown below.

```
{
 name: "lbr1"
 description: "Real ohs lbr"
 type: "OHS"
 id: 1001
 owner: "SYSMAN"
 host: "example.com"
 credential: "HOST_CREDS"
 agentTargetName: "example.com:11852"
 instanceHome: "/scratch/PS5_OHS/instance_home"
 poolTargets: [1]
 0: "10729BD1A3B12FA254232EE4F84CB71B"
 planTargets: [0]
 properties:
 {
 OHS_ROUTING_HTTP_PORT: "7777"
 OHS_ROUTING_PROTOCOL: "HTTP"
 COMPONENT_NAME: "ohs1"
 }
 selfLink: "/em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs/1001"
}
```

### 53.11.1.3 Editing the Load Balancer Configuration

The table below lists the PUT request configuration for editing the Load Balancer Configuration.

**Table 53–91** *PUT Request Configuration for Editing the Load Balancer Configuration*

| Feature         | Description                                                       |
|-----------------|-------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                     |

**Table 53–91 (Cont.) PUT Request Configuration for Editing the Load Balancer**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "lbr2",   "description": "desc by rest",   "type": "OTD",   "id": 1002,   "host": "xyxy.example.com",   "agentTargetName": "xyxy.example:11852",   "credential": "USER_CREDS",   "instanceHome": "as",   "properties":{ "items":     [       { "name": "SNMP_PORT", "value": "11161"},       { "name": "CERT_NAME", "value": "sdfsdf"},       { "name": "OTD_INSTANCENODES", "value": "sd"},       { "name": "HTTP_PORT", "value": "80"},       { "name": "CONFIG_NAME", "value": "config1"},       { "name": "VIRTUAL_SERVER_NAME", "value":         "dfsdfs"},       { "name": "HTTPS_PORT", "value": "443"},       { "name": "ROUTING_PROTOCOL", "value": "HTTP_         HTTPS" }     ]   },   "poolTargets": [ "10729BD1A3B12FA25432EE4F84CB71B" ] }</pre> |
| Request method | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

#### 53.11.1.4 Adding a Load Balancer Configuration

The table below lists the POST request configuration for adding a Load Balancer Configuration.

**Table 53–92 PUT Request Configuration for Editing the Load Balancer Configuration**

| Feature         | Description                                                       |
|-----------------|-------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/lbrconfigs |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                     |

**Table 53–92 (Cont.) PUT Request Configuration for Editing the Load Balancer**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "lbr1",   "description": "desc by rest",   "type": "OHS",   "host": "abc.us.example.com",   "agentTargetName": "abc.us.example.com:11852",   "credential": "USER_CREDS",   "instanceHome": "instHome",   "properties":{ "items":     [       {"name":"OHS_ROUTING_HTTP_PORT", "value":"80"},       {"name":"OHS_ROUTING_PROTOCOL", "value": "HTTP"},       {"name":"COMPONENT_NAME", "value": "compName"}     ]   },   "poolTargets": [ "10729BD1A33B12FA254232EE4F84CB71B" ] }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 53.12 Quotas for V1

The following table describes the quota configuration.

**Table 53–93 Quota Configuration**

| Method | Request Payload           | URI                                                           | Description                                              |
|--------|---------------------------|---------------------------------------------------------------|----------------------------------------------------------|
| GET    | NA                        | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas | Returns quota settings for all ssa user roles for MWaaS. |
| POST   | Quota Item (Json Payload) | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas | Creates quota for the SSA user role.                     |
| PUT    | Quota Item (Json Payload) | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas | Edits quota for the SSA user role.                       |
| DELETE | Quota Item (Json Payload) | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas | Deletes quota for the SSA user role.                     |

### 53.12.1 Quotas REST API Examples

This section explains the Quotas REST API examples.

#### 53.12.1.1 Viewing Details of the Quota Settings for All SSA User Roles

The table below lists the GET request configuration.

**Table 53–94 GET Request Configuration for Viewing Details of the Quota Settings for All SSA User Roles**

| Feature | Description                                                   |
|---------|---------------------------------------------------------------|
| URI     | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas |

**Table 53–94 (Cont.) GET Request Configuration for Viewing Details of the Quota Settings for All SSA User Roles**

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= |
| Body            | None                                          |
| Request method  | GET                                           |

A sample of the response received is shown below.

```
{ "name": "Middleware Cloud Quotas", "description": "Middleware Cloud Quotas per SSA
User Role", "quotas": [{ "roleName": "SSA_DEMO_ROLE",
"memory": "10", "javaServersCount": "10" }], "selfLink": "https://example.com
:5416/em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas" }
```

### 53.12.1.2 Creating Quota Settings for a SSA User Role

The table below lists the POST request configuration.

**Table 53–95 POST Request Configuration for Creating Quota Settings for a SSA User Role**

| Feature         | Description                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas                                   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                   |
| Body            | {         "roleName": "SSA_ROLE"         "memory": "5"         "javaServersCount": "10"       } |
| Request method  | POST                                                                                            |

### 53.12.1.3 Editing Quota Settings for a SSA User Role

The table below lists the PUT request configuration.

**Table 53–96 PUT Request Configuration for Editing Quota Settings for a SSA User Role**

| Feature         | Description                                                                                     |
|-----------------|-------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas                                   |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                   |
| Body            | {         "roleName": "SSA_ROLE"         "memory": "10"         "javaServersCount": "5"       } |
| Request method  | PUT                                                                                             |

### 53.12.1.4 Deleting Quota Settings for a SSA User Role

The table below lists the DELETE request configuration.

**Table 53–97** *DELETE Request Configuration for Deleting Quota Settings for a SSA User Role*

| Feature         | Description                                                   |
|-----------------|---------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/quotas |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                 |
| Body            | {<br>"roleName": "SSA_ROLE"<br>}                              |
| Request method  | DELETE                                                        |

## 53.13 Service Templates for V1

For Create requests, the CDP based template and profiles are supported.

---

**Note:** Middleware Virtual Template management is not supported in this release.

---

### 53.13.1 Creating a Service Template

The table below lists the POST request configuration.

**Table 53–98** *POST Request Configuration for Creating a Service Template*

| Feature         | Description                                                            |
|-----------------|------------------------------------------------------------------------|
| URI             | /em/websvcs/restful//extws/cloudservices/admin/cfw/v1/servicetemplates |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                          |



**Table 53–98 (Cont.) POST Request Configuration for Creating a Service Template**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "restTemplate",   "serviceFamily": "MWAAS",   "serviceType": "PhysicalWLS",   "description": " CDP based template created through REST",   "poolIds": [ "10729BD1A3B12FA254232EE4F84CB71B" ],   "roles": [{ "name": "SSA_USER_ROLE1" } ],   "serviceExecutableMeta": {     "type": "CDP",     "name": "CDP1",     "configurations": [       { "id": "wlsUserName", "value": "weblogic" },       { "id": "wlsUserPassword", "value": "welcome1" },       { "id": "wlsUserPassword2", "value": "welcome1" },       { "id": "topology", "value": "1" },       { "id": "exposeAdminURLs", "value": "0" },       { "id": "enableLoadBalancer", "value": "0" },       { "id": "hostListForScripts", "value": "" },       { "id": "namedCredforHostList", "value": "" },       { "id": "isScriptExecuteOnAdminServer", "value": "" },       { "id": "portRangeStart", "value": "1024" },       { "id": "portRangeEnd", "value": "65000" },       { "id": "memoryUsagePerInstance", "value": "0.25" },       { "id": "cpuUsagePerInstance", "value": "10" },       { "id": "startupArguments", "value": "" },       { "id": "requireHighAvailability", "value": "1" },       { "id": "rootPwd", "value": "" },       { "id": "agentInstallUserPwd", "value": "" },       { "id": "namedHostCredForVirtualFlow", "value": "" } ]     }   } }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## 53.14 User Operation REST API Examples for V1

The following operations are described in this section:

- [Starting/Stopping Service Instances](#)
- [Rescheduling Service Instance](#)
- [Viewing Details of the Java EE Application Components in Software Library](#)
- [Deploying an Application as a Library](#)
- [User Operations for Scheduling Support](#)

### 53.14.1 Starting/Stopping Service Instances

The following table describes the REST API to stop a service instance.

**Table 53–99 PUT Request Configuration for Starting/Stopping Service Instances**

| Feature | Description                                                                        |
|---------|------------------------------------------------------------------------------------|
| URI     | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances/{instance_id} |

**Table 53–99 (Cont.) PUT Request Configuration for Starting/Stopping Service Instances**

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= |
| Body            | {<br>"operation": "STOP"<br>}                 |
| Request method  | PUT                                           |

A sample of the response received is shown below.

```
{
 message: "Stop service instance request has been submitted. Request ID = 122"
 statusUri:
 "https://example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/cf
 w/v1/servicerequests"
}
```

Similar to the above example, to start a service instance all the features of the REST API shown above remain the same, except for "operation": "START" should be mentioned in the Body instead of "operation": "STOP".

### 53.14.2 Rescheduling Service Instance

The following table describes the reschedule service instance configuration. The following REST API reschedules the service instance based on the schedule date.

**Table 53–100 PUT Request Configuration for Rescheduling a Service Instance**

| Feature         | Description                                                                                |
|-----------------|--------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances/{instance_id}       |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                              |
| Body            | {<br>"operation": "RESCHEDULE"<br>, "reschedule": "2013-12-20T02:10:45ZAsia/Calcutta"<br>} |
| Request method  | PUT                                                                                        |

A sample of the response received is shown below.

```
{
 message: "Reschedule request has been submitted. Request ID = 124 "
 statusUri:
 "https://example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/cf
 w/v1/servicerequests"
}
```

### 53.14.3 Viewing Details of the Java EE Application Components in Software Library

The following table describes the Java EE application components configuration. The following REST API returns all the Java EE app components uploaded in the software library.

**Table 53–101 GET Request Configuration for Rescheduling a Service Instance**

| Feature         | Description                                                              |
|-----------------|--------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/javaeeappcomponets |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                            |
| Body            | None                                                                     |
| Request method  | GET                                                                      |

A sample of the response received is shown below.

```
{
 name: "Java EE Application Components uploaded in My Library "
 selfLink:
 "https://example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/mw
 aas/v1/javaeeappcomponets"
 appUrns: [1]
 0: {
 type: "Java EE Application"
 description: null
 status: "Ready"
 appName: "Calendar"
 creator: "SSA_USER1"
 revision: "0.1"
 maturity: "Untested"
 createTime: "2013-12-12 04:19:17.0"
 appUrn: "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB
 _JavaEEApplication:ED561AB14BA02907E043AB53F20AC335:0.1"
 }
}
```

### 53.14.4 Deploying an Application as a Library

This section shows the REST APIs to deploy, redeploy, and undeploy the application as a library.

**Table 53–102 Deploy Application as a Library Supported Request Methods**

| Method | Request Payload | URI                                                                                     | Description                         |
|--------|-----------------|-----------------------------------------------------------------------------------------|-------------------------------------|
| PUT    | Instance Item   | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances/{Instance_Guid} | Deploys application as a library.   |
| PUT    | Instance Item   | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances/{Instance_Guid} | Redeploys the deployed application. |
| PUT    | Instance Item   | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances/{Instance_Guid} | Undeploys the library.              |

### 53.14.4.1 Deploying an Application as a Library

The table below lists the PUT request configuration for deploying an application as a library.

**Table 53–103 PUT Request Configuration for Deploying an Application as a Library**

| Feature         | Description                                                                                                                                                                                                 |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances/{instance_id}                                                                                                                          |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                               |
| Body            | <pre>{   "operation": "DEPLOYLIB"   , "appName": "testLib" ,    "appUrn": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB _JavaEEApplication:ED561AB14BA02907E043AB53F20AC335:0.1" }</pre> |
| Request method  | PUT                                                                                                                                                                                                         |

A sample of the response received is shown below.

```
{
 message: "Deploy Library request has been submitted. Request ID = 125 "
 statusUri:
 "https://example.com:5416/em/websvcs/restful/extws/cloudservices/ssa/
cfw/v1/servicerequests"
}
```

### 53.14.4.2 Redeploying an Application as a Library

The table below lists the PUT request configuration for redeploying an application as a library.

**Table 53–104 PUT Request Configuration for Redeploying an Application as a Library**

| Feature         | Description                                                                                                                                                                                                  |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances/{instance_id}                                                                                                                           |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                                                                                |
| Body            | <pre>{   "operation": "REDEPLOYLIB"   , "appName": "testLib" ,   "appUrn": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB _JavaEEApplication:ED561AB14BA02907E043AB53F20AC335:0.1" }</pre> |
| Request method  | PUT                                                                                                                                                                                                          |

### 53.14.4.3 Undeploying an Application as a Library

The table below lists the PUT request configuration for undeploying an application as a library.

**Table 53–105 PUT Request Configuration for Undeploying an Application as a Library**

| Feature         | Description                                                                        |
|-----------------|------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances/{instance_id} |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                      |
| Body            | {<br>"operation": "UNDEPLOYLIB"<br>, "appName": "testLib"<br>}                     |
| Request method  | PUT                                                                                |

## 53.14.5 User Operations for Scheduling Support

This sections shows the REST APIs for the POST operations for Service Instances.

**Table 53–106 Java EE Applications Components POST Request Descriptions**

| Method | Request Payload | URI                                                                     | Description                                   |
|--------|-----------------|-------------------------------------------------------------------------|-----------------------------------------------|
| POST   | Instance Item   | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances | Submits request for service instance creation |
| POST   | Instance Item   | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances | Scale up request.                             |
| POST   | Instance Item   | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances | Scale down request.                           |
| POST   | Instance Item   | /em/websvcs/restful/extws/cloudservices/admin/mwaas/v1/serviceinstances | Deletes the service instance.                 |

### 53.14.5.1 Creating a Service Instance

The table below lists the POST request configuration for creating a service instance.

**Table 53–107 POST Request Configuration for Creating a Service Instance**

| Feature         | Description                                                          |
|-----------------|----------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                        |

**Table 53–107 (Cont.) POST Request Configuration for Creating a Service Instance**

| Feature        | Description                                                                                                                                                                                                         |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "operation": "REQUEST_INSTANCE"   , "stGuid": "ED638689D4483CA4E043AB53F20A98C1"   , "serviceName": "instanceName"   , "zoneName": "paas_zone"   , "schedule": "2013-11-23T02:10:45ZAsia/Calcutta" }</pre> |
| Request method | POST                                                                                                                                                                                                                |

### 53.14.5.2 Scaling Up a Service Instance

The table below lists the POST request configuration for scaling up a service instance.

**Table 53–108 POST Request Configuration for Scaling Up a Service Instance**

| Feature         | Description                                                                                                                                           |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances                                                                                  |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                                         |
| Body            | <pre>{   "operation": "SCALEUP"   , "serviceName": "instanceName"   , "numberOfServer": 1   , "schedule": "2013-11-23T02:10:45ZAsia/Calcutta" }</pre> |
| Request method  | POST                                                                                                                                                  |

---

**Note:** For immediate execution the schedule object should be empty in the Body.

---

### 53.14.5.3 Scaling Down a Service Instance

The table below lists the POST request configuration for scaling down a service instance.

**Table 53–109 POST Request Configuration for Scaling Down a Service Instance**

| Feature         | Description                                                                                                                          |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances                                                                 |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                        |
| Body            | <pre>{   "operation": "SCALEDOWN"   , "serviceName": "testInstance20_142768fdfff"   , "numberOfServer": 1   , "schedule": "" }</pre> |

**Table 53–109 (Cont.) POST Request Configuration for Scaling Down a Service Instance**

| Feature        | Description |
|----------------|-------------|
| Request method | POST        |

---

**Note:** For a scheduled execution the schedule object should specify the date, time and zone in the Body.

---

#### 53.14.5.4 Deleting a Service Instance

The table below lists the POST request configuration for deleting a service instance.

**Table 53–110 POST Request Configuration for Deleting a Service Instance**

| Feature         | Description                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/mwaas/v1/serviceinstances                                                              |
| Request headers | Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=                                                                                     |
| Body            | <pre>{   "operation": "DELETE_INSTANCE"   , "serviceName": " instanceName"   , "zoneName": "paas_zone"   , "schedule": "" }</pre> |
| Request method  | POST                                                                                                                              |

## 53.15 EMCLI Support for Administration Operations

This section contains a few samples and usage of the EM CLI commands. For more details, refer to the Enterprise Manager Command Line Reference Guide.

**Table 53–111 General WLaaS EM CLI Verbs**

| Verb            | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Format                                                                                                                                                                                                                                            |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli invoke_ws | <p>Invokes the Enterprise Manager Web service.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>■ -wsname - Indicates the URI of the resource.</li> <li>■ -method - Type of the REST method.</li> <li>■ -payload - Indicates the json/xml input payload.</li> <li>■ -accept - Payload type. These are standard jersey values.</li> <li>■ -type - Standard jersey response types.</li> <li>■ -param - Use this option to pass in form/query parameter value. For example, -param="name:value". More than one parameter can be specified. For example, -param="name:value" -param="zip:12345".</li> </ul> <p>The parameter can be provided through a file. To read from file, specify as shown in the example:<br/>-param="name:tag" -input_file="tag:file.txt". In this example, the name parameter will be read from file file.txt.</p> <ul style="list-style-type: none"> <li>■ -input_file - Use this option to pass in payload or param value from file.</li> </ul> <p>Examples:</p> <ul style="list-style-type: none"> <li>■ <pre>emcli invoke_ws -wsname=/em/websvcs/restful/emws/ core/v0/list/dataservice -method=get -param="name:Administrators"</pre> <p>Invokes list resource and sources all administrators</p></li> <li>■ <pre>emcli invoke_ws -wsname=/em/websvcs/restful/emws/ core/v0/list/dataservice -method=get -param="name:tag" -input_file="tag:file.txt"</pre> <p>Invokes list resource and sources all administrators. The name parameter is read from file.txt.</p></li> </ul> | <pre>emcli invoke_ws -wsname=&lt;WebService Name&gt; -method=&lt;method name&gt; [-payload=&lt;Payload&gt;] [-accept=&lt;accept type&gt;] [-type=response type] [-param=Query Parameters] [-input_file=&lt;Input File for payload data&gt;]</pre> |



**Table 53–111 (Cont.) General WLaaS EM CLI Verbs**

| Verb              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| emcli get_targets | <p>Obtain status and alert information for targets.</p> <p>Options:</p> <ul style="list-style-type: none"> <li>■ -targets=name:type - Name or type can be either a full value or a pattern match using "%". Also, name is optional, so the type alone may be specified.</li> <li>■ -limit_rows="Maximum number of targets to be retrieved" - Defaults to 2000 rows, if not specified.</li> <li>■ -config_search="Configuration Search UI Name" - Search UI name should be the display name of the configuration search.</li> <li>■ -alerts - Displays the count of critical and warning alerts for each target.</li> <li>■ -noheader - Displays tabular output without column headers.</li> <li>■ -unmanaged - Displays unmanaged targets (no status or alert information).</li> <li>■ -properties - Displays unmanaged targets with properties.</li> <li>■ -separator_properties="separator_properties" - Displays unmanaged target properties with separator_properties.</li> <li>■ -subseparator_properties="subseparator_properties" - Displays unmanaged target properties with subseparator_properties.</li> <li>■ -script - This option is equivalent to -format="name:script".</li> <li>■ -format - Format specification (default is -format="name:pretty"). <ul style="list-style-type: none"> <li>■ -format="name:pretty" prints the output table in a readable format but is not intended to be parsed by scripts.</li> <li>■ -format="namescript" sets the default column separator to a tab and the default row separator to a new line. The column and row separator strings may be specified to change</li> </ul> </li> </ul> | <p>emcli get_targets</p> <p>[-targets="[name1:]type1;[name2:]type2;..."]</p> <p>[-alerts]</p> <p>[-noheader]</p> <p>[-script   -format=<br/>[name:&lt;pretty   script   csv&gt;];<br/>[column_<br/>separator:"column_sep_<br/>string"];<br/>[row_separator:"row_sep_<br/>string"];<br/>]</p> <p>[-limit_rows="Maximum<br/>number of targets to be<br/>retrieved"]</p> <p>[-config_<br/>search="Configuration Search<br/>UI Name"]</p> <p>[-unmanaged]</p> <p>[-properties]</p> <p>[-separator_<br/>properties="properties_sep_<br/>string"]</p> <p>[-subseparator_<br/>properties="properties_<br/>subsep_string"]</p> |



---

## SOAaaS and OSBaaS APIs

---

This chapter describes the resource model for SOA as a Service (SOAaaS) APIs and OSB as a Service (OSBaaS) APIs and their responses.

In particular, this chapter contains the following topics:

- [PaaS Infrastructure Zone and Middleware Pool](#)
- [Quotas](#)
- [Service Templates](#)
- [Load Balance Configuration](#)
- [SSA User Operation API Examples](#)

### 54.1 PaaS Infrastructure Zone and Middleware Pool

This section lists the APIs for PaaS Infrastructure zone and Middleware pool.

- [Viewing Details of All the Resource Providers](#)
- [Creating a PaaS Infrastructure Zone for SOA/OSB Domains](#)
- [Creating Middleware Pool for SOA/OSB](#)
- [Updating a PaaS Infrastructure Zone](#)
- [Updating a Middleware Pool](#)
- [Deleting a Resource Provider \(PaaS Infrastructure Zone or Middleware Pool\)](#)

#### 54.1.1 Viewing Details of All the Resource Providers

The following table shows an example of a GET operation on the Resource providers URI to return its representation.

**Table 54–1** *GET Request Configuration for Viewing Details of the Resource Providers*

| Feature         | Description                                                            |
|-----------------|------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                              |
| Body            | None                                                                   |
| Request method  | GET                                                                    |

### 54.1.2 Creating a PaaS Infrastructure Zone for SOA/OSB Domains

The following table shows an example of a POST operation on the Resource providers URI to create a PaaS infrastructure zone.

**Table 54–2 POST Request Configuration for Creating a PaaS Infrastructure Zone**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Body            | <pre>{   "useExistingTarget" : false,   "name": "WlaaS_Zone1", "type": "self_service_zone",   "credentials": [ { "name": "normal_credential_ guid", "description": "This is description frpm the REST method", "value": "AIME_CLOUD_CRED" } ],   "memberTargetType": "host",   "members": [ "slc05tgu.example.com", "slc02pog.example.com" ],   "placementConstraints": [ { "name": "MAX_CPU_ UTILIZATION", "value": [ "80" ] }, { "name": "MAX_MEMORY_ ALLOCATION", "value": [ "80" ] } ],   "characteristics": [ { "name": "ORACLE.SYSMAN.CFW.SELF_SERVICE_ ZONE", "value": [ "70F61D030338B79AFEC42E008AF6F6B7" ] },     { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_ CONTACT", "value": [ "123456789" ] },     { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_ CENTER", "value": [ "IDC.LEX" ] },     { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_DEPARTMENT", "value": [ "FMW" ] },     { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LIFECYCLE_ STATUS", "value": [ "Test" ] },     { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LINE_OF_BUS", "value": [ "ST" ] },     { "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_LOCATION", "value": [ "IDC" ] } ],   "roles": [ "MWAS_SSA_USER_ROLE1" ] }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

### 54.1.3 Creating Middleware Pool for SOA/OSB

The following table shows an example of a POST operation on the Resource providers URI to create a Middleware pool.

**Table 54–3 POST Request Configuration for Creating a Middleware Pool**

| Feature         | Description                                                            |
|-----------------|------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                              |

**Table 54–3 (Cont.) POST Request Configuration for Creating a Middleware Pool**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "useExistingTarget": "false",   "name": "WlaaS_Pool1", "type": "mwaas_zone", "description": "This is a   Windows Pool for WLAAS testing",   "memberTargetType": "host",   "members": ["slc05tgu.example.com", "slc02pog.example.com"],   "parentResourceProviderId": "1",   "placementConstraints": [{ "name": "MAX_INSTANCES", "value": "10" }],    "memberConstraints": [{ "name": "ORACLE.SYSMAN.EMAS.MWC.WLAAS.PLATFOR   M", "value": "226" }],   "characteristics": [{ "name": "ORACLE.SYSMAN.CFW.ORCL_GTP_COST_   CENTER", "value": "IDC" }] }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### 54.1.4 Updating a PaaS Infrastructure Zone

The following table shows an example of a PUT operation to update the PaaS infrastructure zone.

**Table 54–4 PUT Request Configuration for Updating a PaaS Infrastructure Zone**

| Feature         | Description                                                                                                                                                                                                                  |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/1                                                                                                                                                     |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                                                                                                                                                                    |
| Body            | <pre>{   "description": "This is description from the REST PUT method",   "placementConstraints": [{ "name": "MAX_CPU_   UTILIZATION", "value": ["90"] },   { "name": "MAX_MEMORY_ALLOCATION", "value": ["90"] }   ] }</pre> |
| Request method  | PUT                                                                                                                                                                                                                          |

### 54.1.5 Updating a Middleware Pool

The following table shows an example of a PUT operation to update a Middleware pool.

**Table 54–5 PUT Request Configuration for Updating a Middleware Pool**

| Feature         | Description                                                                                      |
|-----------------|--------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/2                         |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                                        |
| Body            | <pre>{   "placementConstraints": [{ "name": "NUMBER_OF_   INSTANCES", "value": ["15"] }] }</pre> |

**Table 54–5 (Cont.) PUT Request Configuration for Updating a Middleware Pool**

| Feature        | Description |
|----------------|-------------|
| Request method | PUT         |

### 54.1.6 Deleting a Resource Provider (PaaS Infrastructure Zone or Middleware Pool)

The following table shows an example of a DELETE operation to delete a PaaS Infrastructure zone or Middleware pool.

**Table 54–6 DELETE Request Configuration for Deleting a PaaS Infrastructure Zone**

| Feature         | Description;                                                             |
|-----------------|--------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/resourceproviders/1 |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                |
| Body            | None                                                                     |
| Request method  | DELETE                                                                   |

## 54.2 Quotas

This section lists the SOA/OSB APIs for Quotas.

- [Viewing Details of Quota Settings](#)
- [Creating a Quota for a SSA User Role](#)
- [Updating a Quota for a SSA User Role](#)
- [Deleting a Quota for a SSA User Role](#)

### 54.2.1 Viewing Details of Quota Settings

The following table shows an example of a GET operation on the quotas URI to return its representation. This operation returns quota settings for all the SSA user roles for MWaaS.

**Table 54–7 GET Request Configuration for Viewing Details of Quota Settings**

| Feature         | Description                                                  |
|-----------------|--------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                    |
| Body            | None                                                         |
| Request method  | GET                                                          |

A sample of the response received is shown below.

```
{
 name: "Middleware Cloud Quotas"
 description: "Middleware Cloud Quotas per SSA User Role"
 quotas: [1]
 0: {
```

```

roleName: "SSA_USER_ROLE"
memory: "4"
javaServersCount: "10"
}-
-
selfLink:
"https://slc06ekg.us.example.com:5416/em/websvcs/restful/extws/cloudservices/admin
/wlaas/v2/quotas"
}

```

### 54.2.2 Creating a Quota for a SSA User Role

The following table shows an example of a POST operation on the quotas URI to create a quota for the SSA user role.

**Table 54–8 POST Request Configuration for Creating a Quota Setting for a SSA User Role**

| Feature         | Description                                                                          |
|-----------------|--------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas                         |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                            |
| Body            | <pre> {   "roleName": "SSA_ROLE"   "memory": "5"   "javaServersCount": "10" } </pre> |
| Request method  | POST                                                                                 |

### 54.2.3 Updating a Quota for a SSA User Role

The following table shows an example of a PUT operation to update a quota for the SSA user role.

**Table 54–9 PUT Request Configuration for Updating a Quota Setting for a SSA User Role**

| Feature         | Description                                                                          |
|-----------------|--------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas                         |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                            |
| Body            | <pre> {   "roleName": "SSA_ROLE"   "memory": "10"   "javaServersCount": "5" } </pre> |
| Request method  | PUT                                                                                  |

### 54.2.4 Deleting a Quota for a SSA User Role

The following table shows an example of a DELETE operation to delete a quota for a SSA user role.

**Table 54–10 DELETE Request Configuration for Deleting a Quota for a SSA User Role**

| Feature         | Description                                                  |
|-----------------|--------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/quotas |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                    |
| Body            | {<br>"roleName": "SSA_ROLE"<br>}                             |
| Request method  | DELETE                                                       |

## 54.3 Service Templates

This section lists the APIs for Service Templates,

- [Viewing Details of all Service Templates](#)
- [Viewing Details of a Specific Service Template](#)
- [Deleting a Service Template](#)
- [Creating a Service Template](#)

### 54.3.1 Viewing Details of all Service Templates

The following table shows an example of a GET operation on the service templates URI to return its representation.

**Table 54–11 GET Request Configuration for Viewing Details of all Service Templates**

| Feature         | Description                                                           |
|-----------------|-----------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                             |
| Body            | None                                                                  |
| Request method  | GET                                                                   |

### 54.3.2 Viewing Details of a Specific Service Template

The following table shows an example of a GET operation on a specific service template URI to return its representation.

**Table 54–12 GET Request Configuration for Viewing Details of a Specific Service Template**

| Feature         | Description                                                               |
|-----------------|---------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/21/ |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                 |
| Body            | None                                                                      |



**Table 54–12 (Cont.) GET Request Configuration for Viewing Details of a Specific Service Template**

| Feature        | Description |
|----------------|-------------|
| Request method | GET         |

### 54.3.3 Deleting a Service Template

The following table shows an example of a DELETE operation to delete a service template.

**Table 54–13 DELETE Request Configuration for deleting the Service Templates**

| Feature         | Description                                                              |
|-----------------|--------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/21 |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                |
| Body            | None                                                                     |
| Request method  | DELETE                                                                   |

### 54.3.4 Creating a Service Template

The table below lists the POST request configuration for creating SOA/OSB service templates.

#### 54.3.4.1 Viewing Service Template Types

The following table shows an example of a GET operation on the service template type URI to return its representation.

**Table 54–14 GET Request Configuration for Viewing Details of Service Template Types**

| Feature         | Description                                                                          |
|-----------------|--------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/templatetypes/ |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                            |
| Body            | None                                                                                 |
| Request method  | GET                                                                                  |

#### 54.3.4.2 Getting Service Template Metadata Details

The following is an example of a POST operation on the Service Template URI to update the Service template metadata information.

**Table 54–15 POST Request Configuration for Getting Service Template Metadata Details**

| Feature | Description                                                                   |
|---------|-------------------------------------------------------------------------------|
| URI     | em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/metadata |

**Table 54–15 (Cont.) POST Request Configuration for Getting Service Template Metadata**

| Feature         | Description                                                                    |
|-----------------|--------------------------------------------------------------------------------|
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                      |
| Body            | <pre>{   "serviceType": "OSB_SERVICE",   "serviceTemplateTypeId": "21" }</pre> |
| Request method  | POST                                                                           |

#### 54.3.4.3 Getting the Resource Provider Characteristics

The following is an example of a POST operation on the Service Template URI to create the resource providers.

**Table 54–16 POST Request Configuration for Getting the Resource Provider Characteristics**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/resourceProviders                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Body            | <pre>{   "serviceType": "OSB_SERVICE",   "serviceTemplateTypeId": "21",   "rscProvAssocOption": [     "byRscLookupChars"   ],   "selectedExecutableName": {     "name": "MW_OSBAAS_CREATE_INSTANCE",     "type": "STRING",     "value": "SOAaaSOuterDP",     "defaultValue": "SOAaaSOuterDP",     "required": true,     "secret": false   },   "payloads": [     {       "name": "Profile for OSB",       "value": "&lt;user_input&gt;",       "required": true     }   ],   "characteristics": [] }</pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

#### 54.3.4.4 Creating the Service Template Configuration

The following is an example of a POST operation on the Service Template URI to create the service template configuration.

**Table 54–17 POST Request Configuration for Creating the Resource Providers**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates/configurations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Body            | Payload: Use b,c responses.<br><pre> {   "serviceType": "OSB_SERVICE",   "serviceTemplateTypeId": "21",   "rscProvAssocOption": ["byRscLookupChars"],   "payloads": [     {       "name": "Profile for OSB",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_ Component:SUB_FMWBundle:0792B0CF52D06888E053AC75B10A17C8:0.1"     }   ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.EMAS.MWAAS_ZONE",              "values": ["C5E76791838043BC71F5D6B70886F13B"]           }         ],         "purposeId": 1       }     ]   } }           </pre> |
| Request method  | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

#### 54.3.4.5 Creating Service Templates Using these Responses

The following is an example of a POST operation on the Service Template URI to create the service templates using the responses received.

**Table 54–18 POST Request Configuration for Creating the Resource Providers**

| Feature         | Description                                                           |
|-----------------|-----------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/cfw/v2/servicetemplates |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbg==                             |

**Table 54–18 (Cont.) POST Request Configuration for Creating the Resource Providers**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "name": "OSB_ST1",   "displayName": "OSB_ST1",   "serviceType": "OSB_SERVICE",   "serviceTemplateTypeId": "21",   "rscProvAssocOption": ["byRscProvInst"],   "roles": [     "SSA_USER1"   ],   "payloads": [     {       "name": "Profile for OSB",       "value": "oracle:defaultService:em:provisioning:1:cmp:COMP_Component:SUB_ FMWBundle:0792B0CF52D06888E053AC75B10A17C8:0.1",       "required": null     }   ],   "selectedExecutableName":     [       {         "name": "MW_OSBAAS_CREATE_INSTANCE",         "value": "SOAaaSOuterDP"       }     ],   "resourceProvider": {     "lookupCharacteristics": [       {         "characteristics": [           {             "name": "ORACLE.SYSMAN.EMAS.MWAAS_ZONE",             "values": ["C5E76791838043BC71F5D6B70886F13B"]           }         ],         "purposeId": 1       }     ]   },   "configurations": [     {       "name": "postScriptForInstanceCreation",       "type": "SWLIB",       "description": "Script that is invoked after service instance creation",       "required": false,       "secret": false,       "value": "&lt;URN of Script&gt;"     },     {       "name": "portRangeStart",       "type": "STRING",       "description": "Port Range Start",       "value": "1024",       "required": true,       "secret": false     }   ] } </pre> |

**Table 54–18 (Cont.) POST Request Configuration for Creating the Resource Providers**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <pre> {   "name": "preScriptForInstanceCreation",   "type": "SWLIB",   "description": "Script that is invoked before service instance creation",   "required": false,   "secret": false,   "value": "&lt;URN of Script&gt;" }, {   "name": "destinationFmwBase",   "type": "STRING",   "description": "Middleware Base Location",   "value": "/scratch/osb_mid1",   "required": true,   "secret": false }, {   "name": "workDir",   "type": "STRING",   "description": "Work Directory",   "value": "\$MIDDLEWARE_HOME/work",   "required": true,   "secret": false }, {   "name": "wlsUserName",   "type": "STRING",   "description": "Weblogic Admin UserName",   "value": "weblogic",   "required": true,   "secret": false }, {   "name": "startupArguments",   "type": "STRING",   "description": "Server Startup Arguments",   "value": "",   "required": true,   "secret": false }, {   "name": "namedCredforHostList",   "type": "STRING",   "description": "Enter the EM Named Credentials to be used for the above hosts in the 'Host for Executing Scripts' field",   "required": false,   "secret": false,   "value": "CredName:CredOwner" }, {   "name": "destinationAdminServerPassword",   "type": "STRING",   "description": "Password for the WebLogic Server",   "value": "welcome1",   "required": true,   "secret": true }, </pre> |

**Table 54–18 (Cont.) POST Request Configuration for Creating the Resource Providers**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | <pre> {   "name": "computedCpuUsagePerServer",   "type": "STRING",   "description": "Avg CPU Usage",   "value": "1.0",   "required": true,   "secret": false }, {   "name": "portRangeEnd",   "type": "STRING",   "description": "Port Range End",   "value": "65535",   "required": true,   "secret": false }, {   "name": "jdkHome",   "type": "STRING",   "description": "Jdk Home",   "value": "/usr/local/packages/jdk6",   "required": true,   "secret": false }, {   "name": "computedMemoryUsagePerServer",   "type": "STRING",   "description": "Max Heap",   "value": "0.45",   "required": true,   "secret": false }, {   "name": "enableLoadBalancer",   "type": "STRING",   "description": "Is LBR",   "value": "0",   "required": true,   "secret": false }, {   "name": "preScriptForInstanceDeletion",   "type": "SWLIB",   "description": "Script that is invoked before service instance deletion",   "required": false,   "secret": false }, {   "name": "isScriptExecuteOnManagedServers",   "type": "STRING",   "description": "Is Script Executable On Managed Server Hosts",   "value": "0",   "required": true,   "secret": false }, </pre> |

**Table 54–18 (Cont.) POST Request Configuration for Creating the Resource Providers**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | <pre> {   "name": "hostListForScripts",   "type": "STRING",   "description": "Use ',' to separate multiple target hosts",   "required": false,   "secret": false,   "value": "host1,host2" }, {   "name": "postScriptForInstanceDeletion",   "type": "SWLIB",   "description": "Script that is invoked after service instance deletion",   "required": false,   "secret": false }, {   "name": "isScriptExecuteOnAdminServer",   "type": "STRING",   "description": "Is Script Executable On Admin Server",   "value": "0",   "required": true,   "secret": false }, {   "name": "destinationDomainHome",   "type": "STRING",   "description": "Domain Home",   "value": "\$MIDDLEWARE_HOME/domains",   "required": true,   "secret": false } } </pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

## 54.4 Load Balance Configuration

This section explains the API examples related to the Load Balancer Configuration.

- [Viewing Details of all the Load Balancer Configuration Resource](#)
- [Viewing Details of the specified Load Balancer Configuration](#)
- [Creating the Load Balancer Configuration](#)
- [Editing the Load Balancer Configuration](#)
- [Deleting a Load Balancer Configuration](#)

### 54.4.1 Viewing Details of all the Load Balancer Configuration Resource

The table below lists the GET request configuration.

**Table 54–19** *GET Request Configuration for Viewing Details of the Load Balancer Configuration Resource*

| Feature         | Description                                                       |
|-----------------|-------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs |
| Request headers |                                                                   |
| Body            | None                                                              |
| Request method  | GET                                                               |

#### 54.4.2 Viewing Details of the specified Load Balancer Configuration

The table below lists the GET request configuration for viewing details of the specified Load Balancer Configuration.

**Table 54–20** *GET Request Configuration for Viewing Details of the specified Load Balancer Configuration*

| Feature         | Description                                                               |
|-----------------|---------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs/{lbrId} |
| Request headers | None                                                                      |
| Body            | None                                                                      |
| Request method  | GET                                                                       |

#### 54.4.3 Creating the Load Balancer Configuration

The following is an example of a POST operation on the Load Balancer URI to create the load balancer configuration.

**Table 54–21** *POST Request Configuration for Creating the Load Balancer Providers*

| Feature         | Description                                                       |
|-----------------|-------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs |
| Request headers | Authorization :Basic c3lzbWFuOnN5c21hbg==                         |



**Table 54–21 (Cont.) POST Request Configuration for Creating the Load Balancer**

| Feature        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body           | <pre>{   "name": "lbr1",   "description": "desc by rest",   "type": "OHS",   "host": "slc06ekg.example.com",   "agentTargetName": "slc06ekg.example.com:1838",   "credential": "NC_HOST_2014-11-06-070337",   "instanceHome": "/scratch/PS5_OHS/instance_home",   "properties":{ "items":     [       {"name":"HTTP_PORT_RANGE", "value":"8000-9000"},       {"name":"OHS_ROUTING_PROTOCOL", "value": "HTTP"},       {"name":"COMPONENT_NAME", "value": "ohs1"}     ]   },   "poolTargets": [ "0FC6D3F6A9FB2456422C1094DA5D14A9" ] }</pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

#### 54.4.4 Editing the Load Balancer Configuration

The table below lists the PUT request configuration for editing the Load Balancer Configuration.

**Table 54–22 PUT Request Configuration for Editing the Load Balancer Configuration**

| Feature         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Request headers | Authorization :Basic c3lzbWFuOnN5c21hbg==                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Body            | <pre>{   "name": "lbr1",   "description": "desc by rest",   "type": "OHS",   "id":1004,   "host": "slc06ekg.example.com",   "agentTargetName": "slc06ekg.example.com:1838",   "credential": "NC_HOST_2014-11-06-070337",   "instanceHome": "/scratch/PS5_OHS/instance_home",   "properties":{ "items":     [       {"name":"HTTP_PORT_RANGE", "value":"8000-9000"},       {"name":"OHS_ROUTING_PROTOCOL", "value": "HTTP"},       {"name":"COMPONENT_NAME", "value": "ohs1"}     ]   },   "poolTargets": [ "0FC6D3F6A9FB2456422C1094DA5D14A9" ] }</pre> |
| Request method  | PUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### 54.4.5 Deleting a Load Balancer Configuration

The table below lists the POST request configuration for deleting a Load Balancer Configuration.

**Table 54–23 DELETE Request Configuration for Deleting a Load Balancer Configuration**

| Feature         | Description                                                               |
|-----------------|---------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/admin/wlaas/v2/lbrconfigs/{lbrId} |
| Request headers | None                                                                      |
| Body            | None                                                                      |
| Request method  | DELETE                                                                    |

## 54.5 SSA User Operation API Examples

The following API examples are described in this section:

- [Viewing Details of all Service Templates](#)
- [Viewing Details of all Service Instances](#)
- [Viewing all Service Instances With UP Status](#)
- [Viewing the Service Offering Metadata](#)
- [Creating a Service Instance Request](#)
- [Viewing all the Action IDs for the Service Instances](#)
- [Stopping a Service Instance](#)
- [Starting a Service Instance](#)
- [Deleting a Service Instance](#)
- [Scaling Up a Service Instance](#)

### 54.5.1 Viewing Details of all Service Templates

The following table shows an example of a GET operation to view all the service templates.

**Table 54–24 GET Request Configuration for Viewing Details of all Service Templates**

| Feature         | Description                                                 |
|-----------------|-------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/ |
| Request headers | Authorization: Basic c3lzbWFuOnN5c21hbG==                   |
| Body            | None                                                        |
| Request method  | GET                                                         |

### 54.5.2 Viewing Details of all Service Instances

The following table shows an example of a GET operation to view all the service instances.

**Table 54–25** *GET Request Configuration for Viewing Details of all Service Instances*

| Feature         | Description                                                         |
|-----------------|---------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances |
| Request headers | None                                                                |
| Body            | None                                                                |
| Request method  | GET                                                                 |

### 54.5.3 Viewing all Service Instances With UP Status

The following table shows an example of a GET operation to view all the service instances with UP status.

**Table 54–26** *GET Request Configuration for Viewing all Service Instances with UP Status*

| Feature         | Description                                                                                        |
|-----------------|----------------------------------------------------------------------------------------------------|
| URI             | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/?expanded=true&status=STATUS_UP |
| Request headers | None                                                                                               |
| Body            | None                                                                                               |
| Request method  | GET                                                                                                |

### 54.5.4 Viewing the Service Offering Metadata

The following table shows an example of a GET operation to view the service offering metadata

**Table 54–27** *GET Request Configuration for Viewing all Service Instances with UP Status*

| Feature         | Description                                                                        |
|-----------------|------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services/{offering_id}/metadata |
| Request headers | None                                                                               |
| Body            | None                                                                               |
| Request method  | GET                                                                                |

### 54.5.5 Creating a Service Instance Request

The following table shows an example of a POST operation to request a service instance.

**Table 54–28** *POST Request Configuration for Creating a Service Instance Request*

| Feature | Description                                                |
|---------|------------------------------------------------------------|
| URI     | em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/services |

**Table 54–28 (Cont.) POST Request Configuration for Creating a Service Instance**

| Feature         | Description                                   |
|-----------------|-----------------------------------------------|
| Request headers | Authorization: Basic c3NhX3VzZXIxOndlbGNvbWUx |

**Table 54–28 (Cont.) POST Request Configuration for Creating a Service Instance**

| Feature | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Body    | <pre> {   "offeringId": "080C47B7F8EA20ECE053AC75B10A50E3",   "name": "rest_inst01", "instanceName": "rest_inst01",   "characteristics": [     {       "name": "ORACLE.SYSMAN.EMAS.MWAAS_ZONE",       "value": "98EB4ECCB01F91E40AA45708112E3920"     }   ],   "configurations": [     {       "name": "wlsNewPassword",       "type": "STRING",       "description": "New Admin password",       "required": true,       "secret": true,       "value": "password"     },     {       "name": "destinationDBTargetName",       "type": "STRING",       "description": "SOA Database Service Instance Name",       "required": true,       "secret": false,       "value": "SOADB"     },     {       "name": "soaTokens",       "type": "VECTOR",       "description": "SOA Tokens",       "values": [         "port=80",         "host=www.aol.com"       ],       "required": false,       "secret": false     },     {       "name": "destinationDBTargetType",       "type": "STRING",       "description": "SOA Database Service Instance Target Type",       "required": true,       "secret": false,       "value": "oracle_database"     },     {       "name": "destinationSchemaPassword",       "type": "STRING",       "description": "SOA Database Schema Password",       "required": true,       "secret": true,       "value": "DBPassword"     }   ] } </pre> |

**Table 54–28 (Cont.) POST Request Configuration for Creating a Service Instance**

| Feature        | Description                                                                                                                                                                                                                                                                                                                           |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | <pre> {   "name": "startupArguments",   "type": "STRING",   "description": "Server Startup Arguments",   "value": "",   "required": true,   "secret": false }, {   "name": "wlsNewUserName",   "type": "STRING",   "description": "New Admin User Name",   "required": true,   "secret": false,   "value": "weblogic_user" } ] </pre> |
| Request method | POST                                                                                                                                                                                                                                                                                                                                  |

### 54.5.6 Viewing all the Action IDs for the Service Instances

The following table shows an example of a GET operation to perform an action on the service instance based on the action id.

**Table 54–29 GET Request Configuration for Performing Action on the Service Instance Based on the Action ID**

| Feature         | Description                                                                                                  |
|-----------------|--------------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E/actions |
| Request headers | None                                                                                                         |
| Body            | None                                                                                                         |
| Request method  | GET                                                                                                          |

### 54.5.7 Stopping a Service Instance

The following table shows an example of a PUT operation to stop a service instance.

**Table 54–30 PUT Request Configuration for Stopping a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: Basic c3NhX3VzZXIxOndlbGNvbWUx                                                        |
| Body            | {"actionId":32}                                                                                      |
| Request method  | PUT                                                                                                  |

### 54.5.8 Starting a Service Instance

The following table shows an example of a PUT operation to start a service instance.

**Table 54–31 PUT Request Configuration for Starting a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | Authorization: Basic c3NhX3VzZXIxOndlbGNvbWUx                                                        |
| Body            | {"actionId":31}                                                                                      |
| Request method  | PUT                                                                                                  |

### 54.5.9 Deleting a Service Instance

The following table shows an example of a PUT operation to delete a service instance.

**Table 54–32 PUT Request Configuration for Deleting a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | None                                                                                                 |
| Body            | {"actionId":30}                                                                                      |
| Request method  | PUT                                                                                                  |

### 54.5.10 Scaling Up a Service Instance

The following table shows an example of a PUT operation to scale up a service instance.

**Table 54–33 PUT Request Configuration for Scaling Up a Service Instance**

| Feature         | Description                                                                                          |
|-----------------|------------------------------------------------------------------------------------------------------|
| URI             | /em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/serviceinstances/21324EF5A81B4D8ECA7F835A209B857E |
| Request headers | None                                                                                                 |
| Body            | {       "actionId":29,       "configurations": [{"name": "numberOfServers","value": "2"}]     }      |
| Request method  | PUT                                                                                                  |

A sample of the response received is shown below.

```
{
 "requests":[{"id":"621",
 "actionName":"SCALE_UP",
 "canonicalLink":{"href":"https://xyxy.example.com:11040/em/websvcs/restful/extws/cloudservices/ssa/cfw/v2/servicerequests/621"}}
```

```
}]
}
```



---

## Rapid Start Cloud Setup

This chapter describes the rapid start cloud setup kit. It contains the following sections:

- [Introduction](#)
- [Installing the Kit](#)
- [Contents of the Kit](#)
- [Prerequisites](#)
- [Artifacts Created by the Rapid Start Kit](#)
- [Rapid Kit Modes](#)
- [Cloud Setup Inputs: Simple Mode](#)
- [Cloud Setup Inputs: Advanced Mode](#)
- [Command Line Interface](#)
- [Rapid Start Kit Sample Run](#)

### 55.1 Introduction

Setting up the DBaaS cloud involves a series of steps. The user with the `CLOUD_ADMINISTRATOR` role has to go through many wizards and clicks to complete the setup. This requires a considerable amount of effort and time before the DBaaS is ready to use.

The Rapid Start Kit provides a single command solution to setup Cloud for Database as a Service (DBaaS) and Pluggable Database as a Service (PDBaaS). One command creates all the Cloud artifacts like Roles, Administrators, Credentials, Database Profiles, PaaS Infrastructure Zone, Database Pools and Service Templates. Once the Rapid Start Kit has been successfully executed, requests can be made to provision databases, and PDBs.

Rapid start kit can create complex topologies involving multiple zones, pools and service templates. It also supports standby databases.

### 55.2 Installing the Kit

The Rapid Start Kit is shipped along with Oracle Cloud Application 12.1.0.8.0. The kit is available on the Oracle Management Server host with the Oracle Cloud Application 12.1.0.8.0 deployed in plug-in home directory.

The Rapid Start Kit can be used from the host on which the Oracle Management Server (OMS) is installed or from any other host that can access Oracle Management Server host using Enterprise Manager Command Line Interface (emcli).

### 55.2.1 OMS Host

The Rapid Start Kit can be used directly from the host on which the OMS has been installed. No separate installation of the kit is required. The kit is available in the following directory:

```
EM_BASE/oracle/MW/plugins/oracle.sysman.ssa.oms.plugin_12.1.0.8.0/dbaas/setup
```

### 55.2.2 Other Hosts

The kit can also be used from any other host. To install the kit on any other machine, copy the setup directory to the desired location on the target machine.

## 55.3 Contents of the Kit

The Rapid Start Kit contains the following files:

- **Cloud Setup Script:**

```
dbaas/setup/exadata_cloud_setup.py
```

```
dbaas/setup/database_cloud_setup.py
```

These scripts contain the code for the one command cloud setup. The scripts use the input files or the cloud artifacts as defined in the configuration file.

- **Cloud Boundary XML:**

```
dbaas/setup/config/cloud_boundary.xml
```

```
dbaas/setup/config/cloud_custom_boundary.xml
```

Cloud Boundary defines the cloud topology. It has the zones and pools along with host names, oracle home locations or container database names. The `cloud_boundary.xml` file can be used as a template for simple cloud setup on Exadata machines with one zone and pool. The `cloud_custom_boundary.xml` can be used for advanced cloud setup on any set of machines with multiple zones and pools.

- **Database as a Service Input XML:**

```
dbaas/setup/config/dbaas_cloud_input.xml dbaas/setup/config/dbaas_cloud_custom_input.xml
```

The Cloud Setup for Database as a Service uses the `dbaas_cloud_input.xml` as the input file. The script reads this configuration file and sets up the cloud artifacts as defined in the file. Simple cloud setup on the Exadata machine is defined in `dbaas_cloud_input.xml` template file and advanced cloud setup should use `dbaas_cloud_custom_input.xml`.

- **Pluggable Database as a Service Input XML:**

```
dbaas/setup/config/pdbaas_cloud_input.xml
```

```
dbaas/setup/config/pdbaas_cloud_custom_input.xml
```

The Cloud Setup for Pluggable Database as a Service uses the `pdbaas_cloud_input.xml` as the input file. The script reads this configuration file and sets up the cloud artifacts as defined in the file. Simple cloud setup on Exadata machine is

defined in `pdbaas_cloud_input.xml` template file and advanced cloud setup should use `pdbaas_cloud_custom_input.xml`.

## 55.4 Prerequisites

Certain prerequisites must be fulfilled before running the Rapid Start Kit. This includes OMS setup with the correct plug-in versions as listed in the [Supported Plug-ins](#) section. Cloud setup can be done on Real application cluster machines with Database instance or Oracle Homes installed. The prerequisites are described in the following sections:

### 55.4.1 Oracle Management Server

- The Oracle Management Server must have the Oracle Cloud Application 12.1.0.8 deployed.
- The Software Library must have been configured.

### 55.4.2 EMCLI Setup

EMCLI with scripting option must be set up on the host from which the kit is going to be executed. To set up EMCLI on the host, follow these steps:

1. Download the `emcliadvancedkit.jar` from the OMS using URL `https://<omshost>:<omsport>/em/public_lib_download/emcli/kit/emcliadvancedkit.jar`
2. Set your `JAVA_HOME` environment variable and ensure that it is part of your `PATH`. You must be running Java 1.6.0\_43 or greater. For example:
  - `setenv JAVA_HOME /usr/local/packages/j2sdk`
  - `setenv PATH $JAVA_HOME/bin:$PATH`
3. You can install the EMCLI with scripting option in any directory either on the same machine on which the OMS is running or on any machine on your network (download the `emcliadvancedkit.jar` to that machine)
 

```
java -jar emcliadvancedkit.jar client -install_dir=<emcli client dir>
```
4. Run `emcli help sync` from the EMCLI Home (the directory where you have installed `emcli`) for instructions on how to use the "sync" verb to configure the client for a particular OMS.
5. Navigate to the Setup menu then the Command Line Interface. See the *Enterprise Manager Command Line Tools Download* page for details on setting EMCLI.

### 55.4.3 Infrastructure Setup

To prepare the infrastructure for cloud setup, make sure that the Real Application Cluster machines are available and the required databases and oracle homes have been setup on them. Targets must have been discovered in Oracle Management Server. The following sections describe the setup requirement for PDBaaS and DBaaS.

#### 55.4.3.1 Pluggable Database as a Service

You must ensure that the Real Application Cluster machine is available and has a 12.1.0.1 Container Database version running on it. All the hosts from Real Application Cluster have the Management Agents installed on it. The following targets must be discovered using the guided discovery process:

- Oracle Cluster
- Cluster ASM
- Oracle RAC Database
- Oracle Database Listeners

#### 55.4.3.1.1 Database as a Service

You must ensure that the Real Application Cluster machine with Oracle home version 12.1.0.1 or 11.2.0.3 installed on it is available. All the hosts in the Real Application Cluster must have the Management Agents installed on it. The following targets must be discovered using guided discovery process:

- Oracle Cluster
- Cluster ASM
- Oracle RAC Database
- Database Instance
- Oracle Database Listener

## 55.5 Artifacts Created by the Rapid Start Kit

The Rapid Start Kit uses cloud input files to create cloud entities. Cloud Input files define the list of entities and input values for each of the entity. See [Section 55.3, "Contents of the Kit"](#) for more details on input files. This section explains the Cloud artifacts created as part of cloud setup.

The following actions occur when the Cloud script is executed:

1. The following roles are created:

**Table 55–1 Created User Roles**

| Role          | Associated System Role |
|---------------|------------------------|
| SSA_USER_ROLE | EM_SSA_USER            |

2. The following users are created:

**Table 55–2 Created Users**

| Administrator / User | Associated Role        |
|----------------------|------------------------|
| CLOUD_ADMIN          | EM_CLOUD_ADMINISTRATOR |
| SSA_ADMIN            | EM_SSA_ADMINISTRATOR   |
| SSA_USER1            | EM_SSA_USER1           |
| SSA_USER2            | EM_SSA_USER2           |
| SSA_USER3            | EM_SSA_USER3           |

3. The Rapid Start Kit does not support the creation of credentials out-of-the-box. The following credentials must be created manually when prompted by the kit during cloud setup:

**Table 55–3 Credentials to be Created Manually**

| Credentials    | Description                                        |
|----------------|----------------------------------------------------|
| HOST_CRED      | Host credentials with host user name and password. |
| HOST_CRED_ROOT | Host credentials with root access.                 |
| DB_CRED        | Database access credentials.                       |
| GI_CRED        | Grid infrastructure owner user.                    |

---

**Note:** A limited support is provided to create named credentials. The credential section is commented in the template XMLs. Un-comment the credential section to enable creation of named credentials.

---

4. The quota is set for the SSA\_USER\_ROLE.
5. The PaaS Infrastructure Zone is created and the hosts that are part of the Oracle Cluster are added as members of the zone.
6. Database provisioning profiles. The Rapid Start Kit can create the following database profiles as part of cloud setup:
  - DBCA Template
  - DBCA Template with data
  - Profile using RMAN image
  - Schema profile with full export database
  - Snapshot database profile
7. The user with the EM\_SSA\_ADMIN role creates the following:
  - DBaaS Pool: The DBaaS Pool contains the Oracle Homes from the hosts that are part of the selected zone. The DBaaS Pool is used for Database as a Service.
  - PDBaaS Pool: The PDBaaS Pool has the container database instances from the hosts that are part of the selected zone. The PDBaaS Pool is used for Pluggable Database as a Service.
8. The user with the EM\_SSA\_ADMIN role creates the following:
  - Default Database Service Template: This service template can be used to submit a request for a Database.
  - Default Pluggable Database Service Template: This service template can be used to submit a request for a Pluggable Database.
  - Service templates using database profiles.

## 55.6 Rapid Kit Modes

The Rapid Start Kit supports two modes:

- Simple Mode (on Exadata only)
- Advanced Mode (on Exadata and non Exadata)

### 55.6.1 Simple Mode (On Exadata Only)

In the simple mode, the Rapid Start kit creates a single zone and pool on a specified Exadata Machine.

The reference templates for the simple mode are:

```
pdbaas_cloud_input.xml
dbaas_cloud_input.xml
cloud_boundary.xml
```

### 55.6.2 Advanced Mode (Exadata and Non Exadata)

In the advanced mode, the Rapid Start kit can be used to create multiple zones and pools on any set of hosts.

The reference templates for advanced mode are:

```
pdbaas_cloud_custom_input.xml
dbaas_cloud_custom_input.xml
cloud_custom_boundary.xml
```

## 55.7 Cloud Setup Inputs: Simple Mode

The cloud setup requires many user inputs specific to the RAC environment and the cloud artifacts. The Rapid Start Kit has two configuration files that define the cloud input. The following cloud input files are under the configuration directory.

- `cloud_boundary.xml`: Defines the cloud topology.
- `dbaas_cloud_input.xml`: Defines the cloud artifacts and the input values for Database as a Service.
- `pdbaas_cloud_input.xml`: Defines the cloud artifacts and the input values for Pluggable Database as a Service.

Review the cloud input files and map the artifacts with the ones defined in [Section 55.5, "Artifacts Created by the Rapid Start Kit"](#). The user marked with `cloudadmin="True"` is used as the Cloud Administrator to create the PaaS Zone and the user marked as `ssaadmin="True"` is used to create the Database Pools. All default passwords used by the kit are `welcome1`.

**Note:** The simple mode can be used to create a cloud only on an Exadata machine. For non exadata setup, refer to Cloud Setup Inputs: Advanced mode.

### 55.7.1 Pluggable Database as a Service: Simple Mode

There is no environment specific value in `pdbaas_cloud_input.xml`. Pluggable Database as a Service can be run with out of box input xml without any change.

### 55.7.2 Database as a Service: Simple Mode

Database as a service has few environment specific values. User must set them to suite the Real Application Cluster used.

**Table 55–4 Environment Details Input Guidelines**

| XML Input                                                                                                                                                                                                                                                                  | Edit Guideline                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pool Filters:<br><code>&lt;platform&gt;226&lt;/platform&gt;</code><br><code>&lt;version&gt;12.1.0.1.0&lt;/version&gt;</code>                                                                                                                                               | Edit the platform value to ARU id of Real Application Cluster machine platform. Use 226 for Linux x86-64, 267 for Solaris x86, and 23 for Solaris Sparc 64.<br><br>Edit the database version to the correct value from the database installed on Real Application Cluster machine. |
| Service Template:<br><code>&lt;REDO_FILE_LOCATION&gt;RECO_SLC16&lt;/REDO_FILE_LOCATION&gt;</code><br><code>&lt;RECOVERY_FILE_LOCATION&gt;RECO_SLC16&lt;/RECOVERY_FILE_LOCATION&gt;</code><br><code>&lt;DATA_FILE_LOCATION&gt;DATA_SLC16&lt;/DATA_FILE_LOCATION&gt;</code>  | Cloud Setup Supports Real Application Cluster with ASM and File System.<br><br>Specify the disk group names used for Redo files, Recovery files and Data files for ASM and shared locations for File System.                                                                       |
| <code>&lt;COMMON_DB_SYSTEM_PASSWORD&gt;welcome1&lt;/COMMON_DB_SYSTEM_PASSWORD&gt;</code><br><code>&lt;COMMON_DB_DBSNMP_PASSWORD&gt;welcome1&lt;/COMMON_DB_DBSNMP_PASSWORD&gt;</code><br><code>&lt;COMMON_DB_SYS_PASSWORD&gt;welcome1&lt;/COMMON_DB_SYS_PASSWORD&gt;</code> | Specify the passwords for system, dbsnmp and sys accounts.                                                                                                                                                                                                                         |

### 55.7.3 Input Customization: Simple Mode

The Rapid Setup Kit supports logical customization of input values. The customer can make a copy of the out-of-the-box input file. Customize the input values logically and pass the modified file to the Rapid Setup Kit.

For example:

The user wants to change the Role name from SSA\_USER\_ROLE to SSA\_QA\_ROLE. Change should be done as follows:

Original xml tag:

```
<role name="SSA_USER_ROLE" description="SSA User role">
 <systemRoles>
 <systemRole>EM_SSA_USER</systemRole>
 </systemRoles>
 <users></users>
</role>
```

Changed tag:

```
<role name="SSA_QA_ROLE" description="SSA QA role">
 <systemRoles>
 <systemRole>EM_SSA_USER</systemRole>
 </systemRoles>
 <users></users>
</role>
```

The user must look at all the usages of above Role name and change them accordingly. Due to the change in Role name, the following user tag:

```
<user>
 <userName>SSA_USER1</userName>
 <passWord>welcome1</passWord>
 <!-- system roles or above created role -->
 <systemRole>SSA_QA_ROLE</systemRole>
</user>
```

Must change to use the new role name

```
<user>
 <userName>SSA_USER1</userName>
 <passWord>welcome1</passWord>
 <!-- system roles or above created role -->
 <systemRole> SSA_USER_ROLE</systemRole>
</user>
```

The user can edit the names and descriptions of Roles, Users, Credential Names, Pool Names and Service template names and their properties defined in the input XML.

For example:

The user may want to customize the work load to suit the environment for PDBaaS. The user can customize the database SID name and Domain name as follows:

Change these tags from dbaas\_cloud\_input.xml

```
<DB_SID_PREFIX>dbsid</DB_SID_PREFIX>
<COMMON_DOMAIN_NAME>mycompany.com</COMMON_DOMAIN_NAME>
```

To

```
<DB_SID_PREFIX>dbsid</DB_SID_PREFIX>
<COMMON_DOMAIN_NAME>company.com</COMMON_DOMAIN_NAME>
```

Similarly the init parameters for DbaaS can be changed for sga\_target and the pga\_aggregate\_target by editing their values in the dbaas\_cloud\_input.xml.

## 55.8 Cloud Setup Inputs: Advanced Mode

The Advanced Mode is useful to setup the cloud on any set of hosts with customized cloud topology. The Rapid Start Kit has three configuration template files that define the cloud input. The following cloud input files are under the configuration directory.

- cloud\_custom\_boundary.xml: Defines the cloud topology.
- dbaas\_cloud\_custom\_input.xml: Defines the cloud artifacts and the input values for Database as a Service.
- pdbaas\_cloud\_custom\_input.xml: Defines the cloud artifacts and the input values for Pluggable Database as a Service.

Review the cloud input files and map the artifacts with the ones defined in [Section 55.5, "Artifacts Created by the Rapid Start Kit"](#). The user marked with cloudadmin="True" is used as the Cloud Administrator to create the PaaS Zone and the user marked as ssaadmin="True" is used to create the Database Pools. All default passwords used by the kit are welcome1.



### 55.8.1 Creating Custom Users

To create custom users, edit the following tags in the `cloud_input.xml` file to add the new user name roles. The user marked with `cloudadmin="True"` is used as the Cloud Administrator to create the PaaS Zone and the user marked as `ssaadmin="True"` is used to create the Database Pools.

```
<user cloudadmin="True">
 <userName>CLOUD_ADMIN</userName>
 <!-- If password is empty, default password welcome1 will be used -->
 <passWord></passWord>
 <!-- system roles or above created custom role name -->
 <systemRole>EM_CLOUD_ADMINISTRATOR</systemRole>
</user>
```

---

---

**Note:**

- You can set one user as the self service administrator by specifying `ssaadmin="True"`.
  - You can set one user as the cloud administrator by specifying `cloudamin="True"`.
- 
- 

### 55.8.2 Pluggable Database as a Service: Advanced Mode

The following input customizations are required to prepare the input files for Pluggable database as a service.

- Make a copy of `cloud_custom_boundary.xml` template file.
- Edit the copy to define the zones and pools. You can create a zone with multiple pools and multiple such zones based on the cloud topology.

**Table 55–5 XML Editing Guidelines for Creating Pools and Zones**

XML Input	Edit Guidelines
<pre>&lt;dbinstance&gt;   &lt;dbName&gt;&lt;/dbName&gt; &lt;/dbinstance&gt;</pre>	Provide the container database instance name for each pool definition in <code>pdbaaspool</code> tag.
Pool Filters: <pre>&lt;dbType&gt;rac_database&lt;/dbType&gt; &lt;version&gt;12.1.0.1.0&lt;/version&gt;</pre>	Edit the database version and database type to the type and version of database used for the pool. For cluster databases, specify the type as <code>rac_database</code> , and for single instance databases, specify the type as <code>oracle_database</code> .
<pre>&lt;zone&gt;DBaaS Zone&lt;/zone&gt;</pre>	Provide the zone name to which the pool belongs.

Make a copy of `pdbaas_cloud_custom_input.xml` template file. You can use an existing profile or create a new database profile using a reference target using Rapid Start Kit. Remove the profiles tag to use existing profile.

The template contains sample tags for different types of profiles. Edit the XML to remove the profiles that are not required for the setup. Provide following details to create the database profile as part of cloud setup using the Rapid Start Kit.

**Table 55–6 XML Editing Guidelines for Creating a Database Profile**

XML	Edit Guide Line
<REFERENCE_DATABASE>skd</REFERENCE_DATABASE>	Enter the reference database target name from Enterprise Manager.
<REF_NODE_SELECTED>abc1.example.com</REF_NODE_SELECTED>	Enter the reference node name.
<REFERENCE_DATABASE_TYPE>rac_database</REFERENCE_DATABASE_TYPE>	Specify the database type such as 'oracle_database' for Single Instance database and 'rac_database' for RAC database.
<DB_VERSION>11.2.0.4.0</DB_VERSION>	Specify RDBMS version for the reference database. For example, 11.2.0.4.0, 12.1.0.1.0, etc.
<PROFILE_PLATORM>linux_x86_64</PROFILE_PLATORM>	Specify Platform for the reference database. Profile will be created in following location by default. Database Provisioning Profiles/ <PROFILE_VERSION>/ <PROFILE_PLATORM>
<REF_GI_CREDENTIALS>ORACLE_NORMAL:SSA_ADMIN</REF_GI_CREDENTIALS>  <REF_DB_CREDENTIALS>DB_CRED_NORMAL:SSA_ADMIN</REF_DB_CREDENTIALS>  <REF_HOST_CREDENTIALS>ORACLE_NORMAL:SSA_ADMIN</REF_HOST_CREDENTIALS>	Enter the credential names for Grid Credential, Reference database credentials and host credentials in <CRED_NAME>:<CRED_OWNER_USER> format.
Dump directories <dumpdir>DATA_PUMP_DIR</dumpdir>	Enter the dump directory that will be used for dump files and export log.
<PROFILE_NAME>RAC dbm01 Profile</PROFILE_NAME>  <PROFILE_DESC>Database provisioning profile</PROFILE_DESC>	Enter the profile name and description.  Enter this profile name in the service template that consumes the profile.

Provide the following details to create the pluggable database service template

**Table 55–7 XML Editing Guidelines for Pluggable Database Service Template**

XML Input	Edit Guide Line
<zone> <zoneName></zoneName> <poolName></poolName> </zone>	Specify the zones and pools that are part of this service template.
<PROFILE_COMPONENT_NAME></PROFILE_COMPONENT_NAME>	Enter the database profile name that is used by this service template. If this tag is empty, an empty pluggable database will be created.

**Table 55–7 (Cont.) XML Editing Guidelines for Pluggable Database Service Template**

XML Input	Edit Guide Line
<DUMP_FILE_SHARED_LOCATION></DUMP_FILE_SHARED_LOCATION>	Specify the shared location where the dump files are copied. Set this to the shared location used while creating the profile.
<customScripts> <beforecreateserviceinstance></beforecreateserviceinstance> <aftercreateserviceinstance></aftercreateserviceinstance>	Specify the custom script software library directive name to be executed before and after creating the service instance. Refer to the pre and post-database scripts.
<beforedeleteserviceinstance></beforedeleteserviceinstance> <afterdeleteserviceinstance></afterdeleteserviceinstance> </customScripts>	Specify the custom script software library directive to be executed before and after deleting the service instance.

### 55.8.3 Database as a Service: Advanced Mode

The following input customizations are required to prepare the input files for Pluggable database as a service.

- Make a copy of cloud\_custom\_boundary.xml template file.
- Edit the copy to define the zones and pools. You can create a zone with multiple pools and multiple such zones based on the cloud topology.

**Table 55–8 XML Editing Guidelines to Define Zones and Pools**

XML Input	Edit Guide Line
<dbHome> <hostName>host1.example.com</hostName> <oracleHomeLocation>/u01/app/oracle/product/11.2.0.4.0/dbhome_1</oracleHomeLocation> </dbHome>	Provide the Oracle Homes present on these hosts will be part of this Database Pool. Provide the full path for Oracle Home Location.  Multiple <dbHome> tags can be provided.
Pool Filters: <dbType>rac_database</dbType> <version>12.1.0.1.0</version>	Edit the database version and database type to the type and version of database used for the pool.
<zone>DBaaS Zone</zone>	Provide the zone name to which the pool belongs.
<standbyPool></standbyPool>	Specify the standby pool names for this pool.

Make a copy of pdbaas\_cloud\_custom\_input.xml template file. You can use an existing profile or create a new database profile using a reference target using Rapid Start Kit.

The following profiles can be created using the Rapid Start Kit:

- Database profile using DBCA template
- Database profile using DBCA template with data
- Snapshot database profile

Provide the following details to create the database profile as part of cloud setup using the Rapid Kit.

**Table 55–9 XML Editing Guidelines to Create a Database Profile**

XML Input	Edit Guide Line
Reference database details: <REFERENCE_DATABASE>refdb</REFERENCE_DATABASE> <REF_NODE_SELECTED>abc1.example.com</REF_NODE_SELECTED> <REFERENCE_DATABASE_TYPE>oracle_database</REFERENCE_DATABASE_TYPE> <DB_VERSION>11.2.0.4.0</DB_VERSION> <PROFILE_PLATORM>linux_x86_64</PROFILE_PLATORM>	Specify following details for reference database used for creating the profile. Reference database target name from Enterprise Manager. Reference host to be used for profile creation operation. Reference database type. Example: 'oracle_database' for Single Instance database and 'rac_database' for RAC database. Profile version. Profile platform.
<data>False</data>	Profile can contain 'Structure and Data' or 'Structure Only'. Choose 'True' to include data. For RMAN, data is always True.
<snapshot>True</snapshot>	Set to 'True' for Snapshot profile. Ensure the following before enabling the Snapshot option: <ul style="list-style-type: none"> <li>■ The storage appliance is registered with Enterprise Manager</li> <li>■ Snap clone option is enabled for the Database used as reference</li> <li>■ Profile owner user (SSA_ADMIN) has access to the storage</li> <li>■ Storage credential and Agent credential used for storage monitoring have view permission for SSA_ADMIN user.</li> </ul> <b>Note:</b> To set the permission, follow the instructions below: <ol style="list-style-type: none"> <li>1. On the Enterprise Manager console, click <b>Setup</b>.</li> <li>2. Click <b>Security</b> and then select <b>Named Credentials</b>.</li> <li>3. Select the credential and then click <b>Manage Access</b>.</li> <li>4. Click <b>Add Grant</b>.</li> <li>5. Select SSA_ADMIN user and click <b>Select</b>.</li> <li>6. Click <b>Save</b>.</li> </ol>

**Table 55–9 (Cont.) XML Editing Guidelines to Create a Database Profile**

XML Input	Edit Guide Line
RMAN Image Profile inputs: <rman> <enable>True</enable> <rmanImage>True</rmanImage> <RMANImageMode>ONLINE</RMANImageMode> <BackupLocation>/u01/sk</BackupLocation> <BackupFileTag>feb201402221143</BackupFileTag> </rman>	Set enable flag to False. Set rmanImage flag to True. Provide a backup location and backup tag to identify the location for backup files. <b>Note:</b> The rman tag will not be present if the profile is not created using rman backup.
Credentials: <REF_GI_CREDENTIALS>ORACLE_NORMAL:SSA_ADMIN</REF_GI_CREDENTIALS> <REF_DB_CREDENTIALS>DB_CRED_NORMAL:SSA_ADMIN</REF_DB_CREDENTIALS> <REF_HOST_CREDENTIALS>ORACLE_NORMAL:SSA_ADMIN</REF_HOST_CREDENTIALS>	Enter the credential names for Grid Credential, Reference database credentials and host credentials in <CRED_NAME>:<CRED_OWNER_USER> format
<PROFILE_NAME>RAC dbm01 Profile</PROFILE_NAME> <PROFILE_DESC>Database provisioning profile</PROFILE_DESC>	Enter the profile name and description. Enter this profile name in the service template that consumes the profile.

Edit the input xml to create single or multiple service templates. The following service templates can be created using the Rapid Start Kit:

- Service template using DBCA template profile
- Service template using DBCA template with data profile
- Service template using snapshot database profile

Provide following details to create the database service template.

**Table 55–10 XML Editing Guidelines to Create a Database Service Template**

XML Input	Edit Guide Line
<zone> <zoneName></zoneName> <poolName></poolName> </zone>	Specify the zones and pools that are part of this service template.

**Table 55–10 (Cont.) XML Editing Guidelines to Create a Database Service Template**

XML Input	Edit Guide Line
<PROFILE_COMPONENT_NAME></PROFILE_COMPONENT_NAME>	Enter the database profile name that is used by this service template. If this tag is empty, empty pluggable database will be created.
<COMMON_DB_SYSTEM_PASSWORD></COMMON_DB_SYSTEM_PASSWORD> <COMMON_DB_DBSNMP_PASSWORD></COMMON_DB_DBSNMP_PASSWORD> <COMMON_DB_SYS_PASSWORD></COMMON_DB_SYS_PASSWORD>	Provide the passwords for system, dbsnmp and sys users.
<LISTENER_PORT>1521</LISTENER_PORT>	Provide the listener port.
<PROFILE_TYPE_USED></PROFILE_TYPE_USED>	Use value snapshot to create a service template using snapshot database profile.  RMAN profile must already exist and the backup location should be updated in the service template.  Leave the parameter empty to create service template using DBCA profile.
<DUMP_FILE_SHARED_LOCATION></DUMP_FILE_SHARED_LOCATION> Storage locations: <DB_STORAGE_TYPE>ASM</DB_STORAGE_TYPE> <DATA_FILE_LOCATION>DA</DATA_FILE_LOCATION> <RECOVERY_FILE_LOCATION>RE</RECOVERY_FILE_LOCATION> <REDO_FILE_LOCATION>RE</REDO_FILE_LOCATION>	Enter Disk Group names for ASM and File locations for FS.  Enter file locations for Data files, Recovery files and Redo files.  For ASM, enter the disk group names.  For FS, enter the shared storage locations.  DA, RE are the disk group names for Data files and redo files.

**Table 55–10 (Cont.) XML Editing Guidelines to Create a Database Service Template**

XML Input	Edit Guide Line
Standby Database: <standbydatabases> <STANDBY_ REQUIRED>False</STANDBY_ REQUIRED> <STANDBY_WORK_ DIR>/tmp</STANDBY_WORK_ DIR> <standbydatabase> <standbyName>Standby1</standby Name> <databaseType></databaseType> <numberOfNodes>2</numberOfNo des> <StandbyDatabaseSIDPrefix>sta1</ StandbyDatabaseSIDPrefix> <STANDBY_ DOMAIN_ NAME>mycompany.com</STAND BY_DOMAIN_NAME> <protectionMode>MAX_ PERFORMANCE</protectionMode > <standbyPoolName></standbyPool Name> </standbydatabase> </standbydatabases>	From 12.1.0.4.0 Service template can be created with standby database. Specify the details for standby database: <ul style="list-style-type: none"> <li>■ If standby database is required, set this to True.</li> <li>■ Standby is not supported with CLONE_OR_FULL_DB=CLONE_DB.</li> <li>■ Specify the working directory for standby database.</li> <li>■ Specify the standby configuration name.</li> <li>■ Standby database type can be rac_database or oracle_database.</li> <li>■ Number of nodes for standby database.</li> <li>■ Database SID pre-fix for standby database.</li> <li>■ Specify database standby domain name.</li> <li>■ Protection modes supported for standby database are: MAX_PROTECTION, MAX_AVAILABILITY, and MAX_PERFORMANCE</li> <li>■ Specify the pool name that should be used to create the standby databases.</li> </ul> <b>Note:</b> This tag can be removed or commented if a standby database is not required.
<storages> <storage> <mountPointPrefix>/oracle1</mou ntPointPrefix> <space>10</space> <!-- GB --> </storage> <storage> <mountPointPrefix>/oracle2</mou ntPointPrefix> <space>11</space> <!-- GB --> </storage> </storages>	Specify the storage volume name and size. The storage volume name will be prefixed to the auto-generated mount point where a clone of this volume will be mounted. With a mount point prefix /oracle, for a source path mount, the mount point will be /oracle_my_zzz/mount. This tag is required for snapshot and can be removed or commented for other service templates.
<customScripts> <beforecreateserviceinstance></befo recreateserviceinstance> <aftercreateserviceinstance></afterc reateserviceinstance>	Specify the custom script software library directive name to be executed before and after creating the service instance. Refer to the pre and post Database scripts.

**Table 55–10 (Cont.) XML Editing Guidelines to Create a Database Service Template**

XML Input	Edit Guide Line
<pre>&lt;beforedeleteserviceinstance&gt;&lt;/beforedeleteserviceinstance&gt; &lt;afterdeleteserviceinstance&gt;&lt;/afterdeleteserviceinstance&gt; &lt;/customScripts&gt;</pre>	<p>Specify the custom script software library directive to be executed before and after deleting the service instance.</p> <p>Leave the tags empty if you do not want to run any scripts.</p>

## 55.9 Command Line Interface

This section describes step by step instructions for setting up the Cloud using Rapid Start Kit.

Make sure all the targets are discovered in Enterprise Manager before starting with Cloud Setup Script.

### 55.9.1 Usage

-help option describes all the supported options.

Usage: emcli @database\_cloud\_setup.py [-exadata\_target\_name=<EM system target name>] [-dbaas|-pdbaas] [-cloud\_boundary=<file name>] [-cloud\_input=<file name>]

-pdbaas: This flag is used to setup Cloud for Pluggable Database as a Service.

-dbaas: This flag is used to setup Cloud for Database as service.

-cloud\_input=<path to custom cloud input xml> [ Optional]

Cloud input XML defines Enterprise Manager entities created as part of Cloud Setup.

Default file config/dbaas\_cloud\_input.xml will be used for database setup

Default file config/pdbaas\_cloud\_input.xml will be used for pluggable database setup.

Use dbaas\_cloud\_custom\_input.xml or pdbaas\_cloud\_custom\_input.xml to perform an advanced cloud setup.

-cloud\_boundary=<path to custom cloud boundary xml> [ Optional]

Cloud boundary XML defines scope for Zones, Pools and the Cloud Hosts.

Default file config/cloud\_boundary.xml will be used.

Use cloud\_custom\_boundary.xml to perform an advanced cloud setup.

-exadata\_target\_name

Pass Exadata Machine Target Name from Enterprise Manager when setup is running from non-Exadata machine and cloud is set on Exadata machine. This will perform simple cloud setup.

-help: Displays Cloud Setup help

For example:

Setup Cloud on a Cluster Machine or a set of standalone hosts:

Run the script on a cluster node or any standalone Machine:

emcli @database\_cloud\_setup.py -pdbaas : Sets up Cloud for PDBaaS using list of container databases given in cloud\_boundary.xml

emcli @database\_cloud\_setup.py -dbaas : Sets up Cloud for DBaaS using given list of hosts and oracle home given in cloud\_boundary.xml

emcli @database\_cloud\_setup.py -pdbaas -cloud\_input=<Full path to Input XML> : Override the default cloud input xml.

emcli @database\_cloud\_setup.py -pdbaas -cloud\_input=<Full path to Input XML>

-cloud\_boundary=<Full path to Input XML> : Override the default cloud input and cloud boundary xmls

### 55.9.2 Database as a Service (DBaaS)

The following command can be used to setup DBaaS.



```
ORACLE_HOME/bin/emcli @database_cloud_setup.py -pdbaas -cloud_input=<Full
path to cloud input xml> -cloud_boundary=<Full path to cloud boundary xml>
```

where the `-dbaas` flag indicates that this is used set up Database as a Service.

The script retrieves the list of hosts and the location of the Oracle Home. Enter the following input when prompted by the Rapid Start Kit.

**Table 55–11 User Input Details**

User Input	Description
Enterprise Manager Host Name	Hostname
Enterprise Manager Port Number	Port number for the secure port.
Enterprise Manager User Name	Enter name of user with administration privileges (sysman).
Enterprise Manager User Password	Enter the password for the sysman user.
Password for the CLOUD_ADMIN user	This user is created by the kit. The default password is welcome1.
Credential verification.	Create the credentials when prompted by the kit.

If any of the cloud artifacts already exist in Enterprise Manager, the Rapid Setup Kit shows the message and does not create or modify it.

The Cloud Setup script can be run again multiple times in case of any failure after fixing the issue. The kit creates the new artifacts and shows the message for already existing ones.

### 55.9.3 Pluggable Database as a Service (PDBaaS)

The following command can be used to set up PDBaaS.

```
ORACLE_HOME/bin/emcli @database_cloud_setup.py -pdbaas -exadata_target_
name=<Exadata target name from EM>
```

```
ORACLE_HOME/bin/emcli @database_cloud_setup.py -pdbaas -cloud_input=<Full
path to cloud input xml> -cloud_boundary=<Full path to cloud boundary xml>
```

where:

- the `-pdbaas` flag indicates that this sets up for Pluggable Database as Service

Enter the following input when prompted by the Rapid Setup Kit.

**Table 55–12 User Input Details**

User Input	Description
Enterprise Manager Host Name	Hostname
Enterprise Manager Port Number	Port number for the secure port.
Enterprise Manager User Name	Enter name of user with administration privileges (sysman).
Enterprise Manager User Password	Enter the password for the sysman user.
Password for the CLOUD_ADMIN user	This user is created by the kit. The default password is welcome1.
Credential verification	Create the credentials when prompted by the kit.

If any of the cloud artifacts already exist in Enterprise Manager, the Rapid Setup Kit shows the message and does not create or modify it.

The Cloud Setup script can be run again multiple times in case of any failure after fixing the issue. The kit creates the new artifacts and shows the message for already existing ones.

## 55.9.4 Securing the Cloud Setup

The Rapid Setup Kit creates the Administrators as part of Cloud Setup. The kit allows the user to secure the cloud setup so that only authorized users can be given access to the selected functionality. If the user opts to secure the Cloud Setup, the passwords for the users created by the kit will automatically expire. Enterprise Manager allows re-setting the password on first login by each user.

### 55.9.4.1 Expire Default Passwords

The Rapid Start Kit will ask for confirmation and will expire the passwords for all the users that are part of input xml.

## 55.9.5 Set New Passwords

Administrator should log in to Enterprise Manager as each user is created. Enterprise Manager will ask to set a new password on first login.

**Note:** If you want to re-run the kit after the passwords have been expired by Rapid Kit, new passwords must be set for CLOUD\_ADMIN and SSA\_ADMIN users before re-running the Rapid Kit and the new passwords must be used when prompted during the second run.

## 55.10 Rapid Start Kit Sample Run

This section shows a sample run for Pluggable Database as a Service

```
<emcli_path>/emcli @database_cloud_setup.py -pdbaas -cloud_
boundary=/u01/cloudsetup/config/boundary_bp.xml -cloud_
input=/u01/cloudsetup/config/pdb_input_bp.xml
=====
Cloud Setup Tool
=====
Log in to Enterprise Manager:
=====
emcli executable was not found in PATH
Enterprise Manager URL found from emcli setup:
Enter Enterprise Manager Host Name: omshost.example.com
Enter Enterprise Manager Port Number. Hit enter if using portless URL: 7802
Enter Enterprise Manager Super Administrator User Name [sysman]:

Connecting to Enterprise Manager 'https://omshost.example.com:7802/em'...
Login as 'sysman'...
Enter password : *****
Login successful

Cloud Boundary XML: '/u01/cloudsetup/config/boundary_bp.xml'

Cloud Setup Inputs:
Cloud Input XML: '/u01/cloudsetup/config/pdb_input_bp.xml'

Fetching system information from Enterprise Manager...
```

Setting up Pluggable Database as a Service (PDBaaS)...  
 List of Container Databases for pool creation: dbmcdb

Node	Oracle Home Location
host1.example.com	/u01/app/oracle/product/12.1.0.1/dbhome_1
host2.example.com	/u01/app/oracle/product/12.1.0.1/dbhome_1

Press Enter to continue:

Creating Roles...

Creating Role "SSA\_USER\_ROLE"...

Role "SSA\_USER\_ROLE" already exists

Creating Users...

Creating User "SSA\_ADMIN"...

User "SSA\_ADMIN" already exists

Creating User "CLOUD\_ADMIN"...

User "CLOUD\_ADMIN" already exists

Creating User "SSA\_USER1"...

User "SSA\_USER1" already exists

Creating User "SSA\_USER2"...

User "SSA\_USER2" already exists

Creating User "SSA\_USER3"...

User "SSA\_USER3" already exists

Following named credentials should be pre-created in Enterprise Manager for this cloud setup:

HOST\_CRED\_SLCC:CLOUD\_ADMIN

HOST\_CRED\_SLCC:SSA\_ADMIN

GI\_CRED\_SLCC:SSA\_ADMIN

DB\_CRED:SSA\_ADMIN

Named Credentials used in Rapid kit should be created manually and given the required grants. Have you created above listed credentials? (yes/no) [yes]:

User confirmed credential creation.

Connecting to Enterprise Manager 'https://omshost.example.com:7802/em '...

Login as 'CLOUD\_ADMIN'...

Enter password : \*\*\*\*\*

Login successful

Creating Quotas...

Creating Quota for Role: SSA\_USER\_ROLE

Updating Quota for Role: SSA\_USER\_ROLE

Quota for Role "SSA\_USER\_ROLE" updated successfully.

Creating zone "PDBaaS Zone"...

PaaS Infrastructure Zone "PDBaaS Zone" created successfully.

Connecting to Enterprise Manager 'https://xyxy.example.com:7802/em'...

Login as 'SSA\_ADMIN'...

Enter password : \*\*\*\*\*

Login successful

```

 Creating pool "PDBaaS Pool"...
 Software Pool "PDBaaS Pool" created successfully.
 Creating Profiles...
 Profiles will be created in 'serial' mode

 Creating Pluggable Database Service Template...
 Creating PdbaaS Service Template...
 Service Template "Default Pluggable Database Service template" created
successfully.
 Securing Cloud setup...
 Do you want to expire passwords for the users created by setup?(yes/no) [yes]: no
 User opted to not expire the passwords.
 Cloud Setup Summary:

```

Type	Cloud Entity	Status
Role	SSA_USER_ROLE	Already exists
User	SSA_ADMIN	Already exists
User	CLOUD_ADMIN	Already exists
User	SSA_USER1	Already exists
User	SSA_USER2	Already exists
User	SSA_USER3	Already exists
PaaS Infrastructure Zone	PDBaaS Zone	Created
Software Pool	PDBaaS Pool	Created
PDB Service Template	Default Pluggable Database Service template	Created

```

Cloud setup completed successfully for Pluggable Database as a Service (PDBaaS)
Log in to Oracle Management Server url 'https://omshost.example.com:7802/em' to
submit the request for Pluggable Database.

```

---

## Chargeback and Metering EMCLI Verbs

This chapter describes the EMCLI verbs used for Chargeback and Metering and provides details on verb names, descriptions, parameters and syntax. Examples of verb output and commands are also provided. This chapter contains the following sections:

- [Performing UI Equivalent Chargeback Operations](#)
- [Using Custom Charge Items](#)
- [Examples of Custom Charge Item Verb Use](#)
- [Creating a Generic Entity Type](#)
- [Retrieving Metering Data from Enterprise Manager](#)

### 56.1 Performing UI Equivalent Chargeback Operations

The section describes EMCLI verbs with which you can perform the same operations you can perform within the Chargeback user interface.

#### 56.1.1 list\_chargeback\_entity\_types

Lists all entity types that Chargeback supports. You can optionally list all entity types and their respective usage mode, or all usage modes that a particular entity type supports.

##### Syntax

```
list_chargeback_entity_types
 -[usage_mode]
 -[entity_type="eType"]
```

##### Parameters

- `usage_mode`—(optional) displays all applicable usage modes for each entity type
- `entity_type`—(optional) displays all applicable usage modes for the specified entity type

##### Examples

```
list_chargeback_entity_types
```

Entity Type	Entity Type Display Name
oracle_database	Database Instance
host	Host

```
list_chargeback_entity_types -usage_mode
```

Entity Type	Entity Type Display Name	Usage Mode
oracle_database	Database Instance	dbMetered
oracle_database	Database Instance	dbByService
oracle_database	Database Instance	cdbBypdb

host	Host	hostMetered
------	------	-------------

```
list_chargeback_entity_types -entity type="oracle database"
```

Entity Type	Entity Type Display Name	Usage Mode
oracle_database	Database Instance	dbMetered
oracle_database	Database Instance	dbByService
oracle_database	Database Instance	cdbBypdb

### 56.1.2 list\_chargeback\_entities

Lists all entities that have been added to Chargeback; that is, all entities of any type for which charges and metering are calculated.

#### Syntax

```
list_chargeback_entities
```

#### Examples

Output appears in tabular format and displays the following information for each added entity:

**Table 56–1    Output Example**

Column Name	Column Value
Entity Name	acme_db
Entity Guid	xrdbyy
Entity Type	oracle_database
Creation Date	2014-01-01 00.00.00.0
Parent Entity Name	No Parent
Parent Entity Type	Not Applicable
Cost Center Name	cc1
Charge Plan Name	cp1

### 56.1.3 add\_chargeback\_entity

Adds an entity instance of a given entity type to Chargeback with the specified usage mode.

#### Syntax

```
add_chargeback_entity
 -entity_name="eName"
 -entity_type="eType"
 -usage_mode="uMode"
```

**Parameters**

- `entity_name`—identifies an entity instance by name currently being monitored by Enterprise Manager that you want to add to Chargeback.
- `entity_type`—identifies the entity type of the instance being added.
- `usage_mode`—specifies the usage mode; that is, how the entity instance is to be metered. Use the `list_chargeback_entity_types` verb with the `-entity_type` option to see available usage modes.

**Examples**

```
add_chargeback_entity -entity_name="db1" -entity_type="oracle_database" -usage_
mode="dbMetered"
```

Adds the entity db1 to Chargeback, metered by database instance.

**56.1.4 remove\_chargeback\_entity**

Removes an entity instance of a given entity type from Chargeback; that is, terminates Chargeback activity on the entity. with the specified usage mode.

**Syntax**

```
remove_chargeback_entity
 -entity_name="eName"
 -entity_type="eType"
 -[entity_guid="entity guid"]
```

**Parameters**

- `entity_name`—identifies an entity instance by name that you want to remove from Chargeback.
- `entity_type`—identifies the entity type of the instance being removed.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

**Examples**

```
remove_chargeback_entity -entity_name="db1" -entity_type="oracle_database"
```

Removes the Oracle database entity db1 from Chargeback.

**56.1.5 list\_charge\_plans**

Lists all charge plans currently in use in Chargeback. Optionally lists charge plans scheduled for use in the future. Can also optionally list current or future plans by entity type or charge plan details.

**Syntax**

```
list_charge_plans
 [-[entity_type="entity type" -[all]]
 -[charge_plan="charge plan name" -[all]]
 -[all]]
```

**Parameters**

- `entity_type`—lists all active charge plans for the specified entity type.
- `charge_plan`—lists details about a particular charge plan.
- `all`—lists all active and future charge plans in Chargeback, or for a specified entity type, or the details of all active and future versions of the specified charge plan.

**Examples**

Output appears in tabular format and displays the following information, depending on parameters specified:

**Table 56–2 Output Example**

Column Name	Column Value
Charge Plan Name	cp1
Entity Type	host
Description	Host flat rate plan
Start Date	2014-01-01 00.00.00.0
End Date	2014-02-01 00.00.00.0

### 56.1.6 `assign_charge_plan`

Assigns a specified charge plan to an entity of a particular type.

**Syntax**

```
assign_charge_plan
 -entity_name="eName"
 -entity_type="eType"
 -plan_name="pName"
 -[entity_guid="entity_guid"]
```

**Parameters**

- `entity_name`—identifies the entity to which a plan is to be assigned.
- `entity_type`—identifies the entity type of the named entity. Charge plans are entity-type specific.
- `plan_name`—specifies the name of an existing charge plan to be assigned to the entity.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

**Examples**

```
assign_charge_plan -entity_name="db1" -entity_type="oracle_database" -plan_name="plan1"
```

Assigns charge plan `plan1` to database instance `db1` of entity type Oracle Database.



### 56.1.7 unassign\_charge\_plan

Removes the charge plan assignment from the specified entity.

#### Syntax

```
unassign_charge_plan
 -entity_name="eName"
 -entity_type="eType"
 -[entity_guid="entity guid"]
```

#### Parameters

- entity\_name—identifies the entity from which to remove the plan assignment.
- entity\_type—identifies the entity type of the named entity.
- entity\_guid—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using entity\_guid instead of the other parameters to correctly identify the intended entity.

#### Examples

```
unassign_charge_plan -entity_name="db1" -entity_type="oracle_database" -plan_
name="plan1"
```

Removes the charge plan assignment from database instance db1 of entity type Oracle Database.

### 56.1.8 list\_cost\_centers

Lists all cost centers known to Chargeback or cost centers in various hierarchical displays.

#### Syntax

```
list_cost_centers
 -[cost_center_name="cName"]
 -[parent]
 -[children]
 -[top]
 -[leaf]]
```

#### Parameters

- cost\_center\_name—identifies a specific cost center for which other options can be specified.
- parent—displays the cost center parent of the specified cost center.
- children—lists all children cost centers of the specified cost center.
- top—displays ancestor cost centers of the specified cost center.
- displays leaf node cost centers of the specified cost center.

#### Examples

```
list_cost_centers
```

Cost Center Name	Parent Node	Number
cc1		[2,4,0,0]

cc11	cc1	[2,2,0,0]
cc12	cc1	[0,0,0,0]
cc111	cc11	[0,0,0,0]
cc112	cc11	[0,0,0,0]

The number column represents number of immediate child cost centers, total child cost centers, number of immediate users, total users, reading left to right.

With the above example as a basis, `list_cost_centers` verb options appear as follows:

```
list_cost_centers -cost_center_name="cc11" -parent
```

```
Parent Node
cc1
```

```
list_cost_centers -cost_center_name="cc1" -children
```

```
Children Nodes
cc11
cc12
```

```
list_cost_centers -cost_center_name="cc111" -top
```

```
Hierarchy
[cc1]----->[cc11]----->[cc111]
```

```
list_cost_centers -cost_center_name="cc1" -leaf
```

```
Leaf Nodes
cc111
cc112
cc12
```

### 56.1.9 assign\_cost\_center

Assigns a specified cost center to an entity of a particular type.

#### Syntax

```
assign_cost_center
 -entity_name="eName"
 -entity_type="eType"
 -cost_center_name="cName"
 -[entity_guid="entity guid"]
```

#### Parameters

- `entity_name`—identifies the entity to which a cost center is to be assigned.
- `entity_type`—identifies the entity type of the named entity.
- `cost_center_name`—specifies the name of an existing cost center to be assigned to the entity.
- `entity_guid`—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using `entity_guid` instead of the other parameters to correctly identify the intended entity.

**Examples**

```
assign_cost_center_plan -entity_name="db1" -entity_type="oracle_database" -cost_center_name="cc1"
```

Assigns cost center cc1 to database instance db1 of entity type Oracle Database.

**56.1.10 unassign\_charge\_plan**

Removes the cost center assignment from the specified entity.

**Syntax**

```
unassign_cost_center
 -entity_name="eName"
 -entity_type="eType"
 -[entity_guid="entity guid"]
```

**Parameters**

- **entity\_name**—identifies the entity from which to remove the cost center assignment.
- **entity\_type**—identifies the entity type of the named entity.
- **entity\_guid**—(optional) specifies the globally unique identifier by which the entity is known internally. When there are multiple entities of the same type with the same name, command output lists all such entities with additional details including GUID. Execute the command again, this time using **entity\_guid** instead of the other parameters to correctly identify the intended entity.

**Examples**

```
unassign_cost_center -entity_name="db1" -entity_type="oracle_database" -plan_name="plan1"
```

Removes the cost center assignment from database instance db1 of entity type Oracle Database.

**56.2 Using Custom Charge Items**

The following sections provide some sample commands along with descriptions and examples. These verbs are used in the following circumstances:

- You would like to meter/charge based on the metric extension/custom configuration that you have defined. Custom charge items can also be used for out of box metrics and target properties. Note that Chargeback only supports metric extensions without key columns.
- These custom charge items, when created in Chargeback, allow you to meter or charge for the custom item like any existing charge items that are shipped along with a plug-in, such as CPU Utilization. Note that the EM\_CBA\_ADMIN role is required to access these verbs.

**56.2.1 list\_charge\_item\_candidates**

Lists the items that can be registered to Chargeback.

**Syntax**

```
emcli list_charge_item_candidates
```

```
-target_type=<target type>
-source_data_type=<metric|config|property>
-target_name=<target name>
-config_name=<config name>
-config_data_source=<target name>
-all
```

### Parameters

- **target\_type**—(required) name of target type. Supported target types include: oracle\_database, oracle\_vm\_guest, host, oracle\_pdb, and weblogic\_j2eeserver.
- **source\_data\_type**—valid values are metric, config, and property.
- **target\_name**—if specified, metering and charge data are retrieved only for the named target. If you do not specify a valid target name, or if the specified target has not been enabled in the given date range, then no data is generated. If this parameter is not specified, **All** targets for the specified target-type are included.
- **config\_name**—required if source\_data\_type=config.
- **config\_data\_source**—data source of the configuration. Required if source\_data\_type=config.
- **all**—displays all items, including out of box metrics of target type. Without this option, only user-defined metric extensions, and configuration extensions are displayed.

### Examples

```
emcli list_charge_item_candidates -target_type="oracle_database" -source_data_type="metric"
```

```
emcli list_charge_item_candidates -target_type="oracle_database" -source_data_type="config" -target_name="myDatabase" -config_name="myCustomCCS" -config_data_source="ccsfile"
```

## 56.2.2 create\_charge\_item

Creates a charge item for Chargeback.

### Syntax

```
emcli create_charge_item -input_file="property_file:<full path of property file>"
```

### Parameters

The option [-input\_file] is the full path of a file that contains the item properties. The following properties can be defined in the file:

- **target\_type**—(required) specifies the target type. Supported target types include: oracle\_database, oracle\_vm\_guest, host, oracle\_pdb, and weblogic\_j2eeserver.
- **source\_data\_type**—(required) specifies the source data type. Valid values are metric, config, and property.
- **item\_name**—(required) specifies the name of the item.
- **metric\_group**—metric group name as listed in list\_item\_candidates. This is a required property if source\_data\_type=metric.
- **metric\_column**—metric column name as listed in list\_item\_candidates. Required property if source\_data\_type=metric.

- `config_view`—config view name as listed in `list_item_candidates`. Required property if `source_data_type=config`.
- `config_key`—config key name as listed in `list_item_candidates`. Required property if `source_data_type=config`.
- `config_column`—config column name as listed in `list_item_candidates`. Required property if `source_data_type=config`.
- `config_data_source`—data source of configuration metric. Required property if `source_data_type=config`.
- `property`—property name as listed in `list_item_candidates`. Required property if `source_data_type=property`.
- `item_displayname`—(required) item display name.
- `unit`—unit display name.
- `aggregation_type`—type of aggregation to use for this item. Applicable only if data type=number. Valid values are sum and avg. Default value is avg.
- `is_config_condition`—Is the item used conditionally in a charge plan. Valid values are 0, 1. Default value is 0.
- `item_category`—category of item. Default value is instance. Valid values are cpu, storage, memory, network, and instance.
- `data_type`—data type. Default value is number. Valid values are string and number.

### Examples

```
emcli create_charge_item -input_file="property_file:/home/user/property_file"
```

Contents of `/home/user/property_file`:

```
target_type=host
source_data_type=metric
item_name=total_proc
metric_group=Load
metric_column=noOfProcs
item_displayname=Total Processes
unit=process
aggregation_type=avg
item_category=instance
data_type=number
```

```
emcli create_charge_item -input_file="property_file:/home/user/property_file"
```

Contents of `/home/user/property_file`:

```
target_type=oracle_database
source_data_type=config
item_name=custom_config
config_view=myCustomCCS
config_key=region
config_column=country
config_data_source=regionList.txt
item_display_name=Region of Instance
item_category=instance
data_type=string
```

## 56.2.3 delete\_charge\_item

Deletes the custom charge item from Chargeback.

**Syntax**

```
emcli delete_charge_item -target_type=<target type> -item_name=<Item name>
```

**Parameters**

- **target\_type**—(required) specifies the target type associated with the custom charge item. Supported target types for this release include `oracle_database`, `oracle_vm_guest`, `host`, `oracle_pdb`, and `weblogic_j2eeserver`.
- **item\_name**—(required) name of the custom charge item to be deleted.

**Examples**

```
emcli delete_charge_item -target_type="oracle_database" -item_name="SampleMetricExtension"
```

```
emcli delete_charge_item -target_type="host" -item_name="SampleCustomConfig"
```

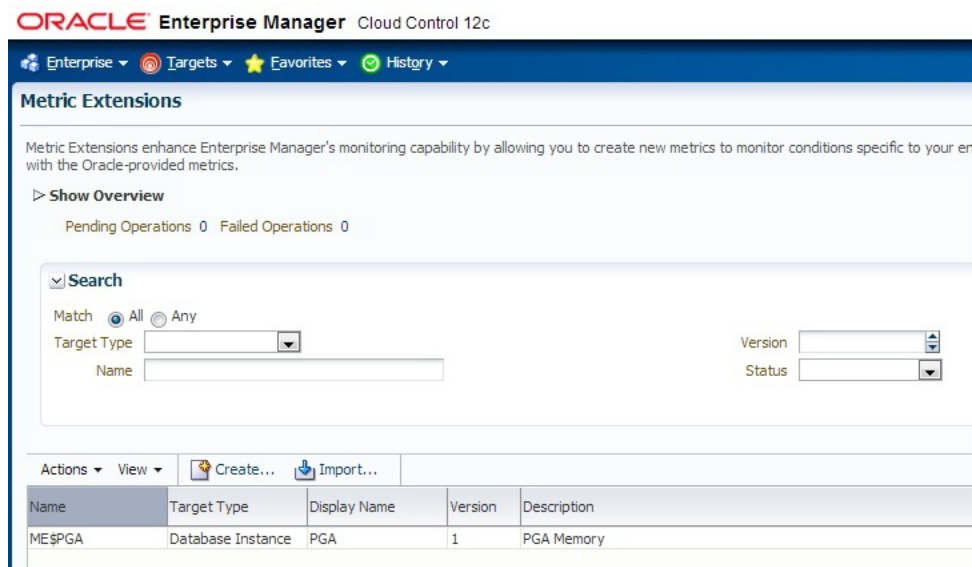
## 56.3 Examples of Custom Charge Item Verb Use

The following sections provide end-to-end examples in the correct use of Custom Charge Item verbs for custom configurations.

### 56.3.1 Metric Extension (PGA)

In this example, a metric extension "PGA" with a metric column named "PGA Memory" is created for a database instance target to collect PGA size.

**Figure 56–1 PGA Memory**



1. Log in to EMCLI and use the Chargeback EMCLI verb `list_charge_item_candidates` to list the items that can be registered to Chargeback.

**Figure 56–2** *list\_charge\_item\_candidates*

```
xterm
$emcli list_charge_item_candidates -source_data_type=metric -target_type=oracle_database
Metric Group Metric Group Display Name Metric Column Metric Column Display Name
ME$PGA PGA PGAMemory PGA Memory
$
```

2. Create a property file `prop_file` to generate the custom charge item for the PGA Memory metric column.

For this metric, the charge rate will be based on the average value over a number of samples, with `aggregation_type` is set to "avg".

**Figure 56–3** *Set aggregation\_type*

```
xterm
target_type=oracle_database
item_displayname=PGA Memory
source_data_type=metric
metric_group=ME$PGA
metric_column=PGAMemory
data_type=number
unit=GB
aggregation_type=avg
item_name=charge_pga_memory
~
~
~
~
~
~
~
~
~
~
~/tmp/prop_file" 10L, 199C
```

3. Create custom item in Chargeback using `create_charge_item` EMCLI verb.

**Figure 56–4** *Create custom item*

```
xterm
$emcli create_charge_item -input_file="property_file:/tmp/prop_file"
Custom item "PGA Memory" is successfully created in Chargeback.
$
```

4. Once the custom charge item is created, the Charge Plans page shows the new custom item. Rates can be set against custom items similar to those set for out-of-box charge items.

**Figure 56–5 Create Plan: Custom Plan**

Chargeback

Create Plan: Custom Plan

Charge Plan: Custom Plan

Effective Date: May 1, 2013 - Onward

Target Types

+ Add... - Remove

Database Instance

Database Instance

Database Instance

Item	Default Configuration
	Charge
Universal Rate Adjustments	
CPU Rate Factor	1x
Memory Rate Factor	1x
Storage Rate Factor	1x

Add Item

Item Name: PGA Memory

Charge Type: Usage

Unit: GB

As the aggregation\_type is set to "avg", the charge rate is related to a time period (for example, per GB per timeperiod).

**Figure 56–6 Confirmation**

Chargeback

Confirmation

Custom Plan has been saved successfully.

Home Charge Plans Cost Centers Targets Reports

Create Set Rates... Delete...

Charge Plans

View

Universal Charge Plan

Custom Plan

May 1, 2013 - Onward

Database Instance

Sample Charge Plan

Custom Plan: May 1, 2013 - Onward: Database Instance

Item	Default Configuration
	Charge
PGA Memory	\$10.00 / GB / Day
Universal Rate Adjustments	
CPU Rate Factor	1x
Memory Rate Factor	1x
Storage Rate Factor	1x

### 56.3.2 Metric Extension (Application A Orders)

A metric extension named "Application A Orders" with a metric column called "Orders Processed" is created for a database instance target. This metric collects the number of orders processed by Application A.





3. Create a custom item in Chargeback using the `create_charge_item` EMCLI verb.

**Figure 56–10** *create-charge\_item*

```
xterm
$emcli create_charge_item -input_file="property_file:/tmp/prop_file2"
Custom item "Orders Processed" is successfully created in Chargeback.
$
```

4. Once the custom charge item is created, the Charge Plans page shows the new custom item. Rates can be set against a custom item similar to those set for out-of-box charge items.

**Figure 56–11** *Set Rates: Custom Plan*

Chargeback

Set Rates: Custom Plan

Charge Plan: Custom Plan  
Effective Date: May 1, 2013 - Onward

Warning: Changing rates for the current report cycle will compute charges based on the n

Target Types: Add... Remove Database Instance

Database Instance: Add Item... Edit Item... Remove Item Setup Configurations...

Item	Default Configuration
PGA Memory	\$ 10.00 / Day
Universal Rate Adjustments	
CPU Rate Factor	1x
Memory Rate Factor	1x
Storage Rate Factor	1x

Add Item

Item Name: Orders Processed  
Charge Type: Usage  
Unit: Order

As the `aggregation_type` is set to "sum", the charge rate does not depend upon time periods but rather on the total value of "Orders Processed".

**Figure 56–12** *Confirmation*

Chargeback

Confirmation: Custom Plan has been saved successfully.

Home Charge Plans Cost Centers Targets Reports

Create Set Rates... Delete...

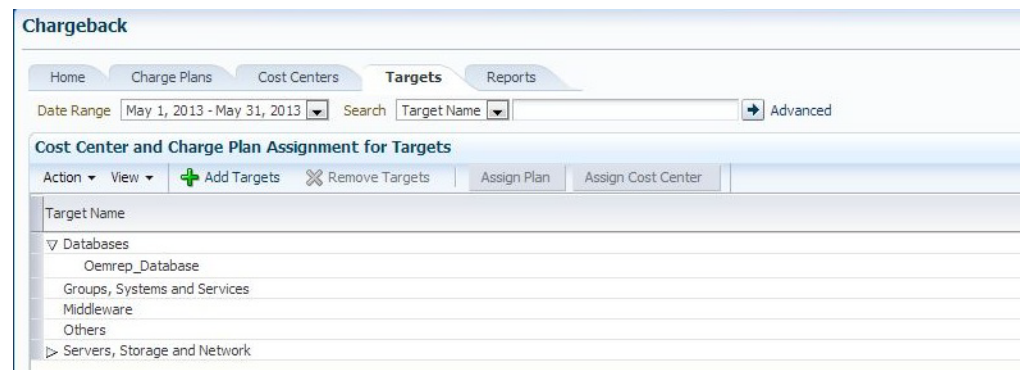
Charge Plans: View Universal Charge Plan Custom Plan May 1, 2013 - Onward Database Instance Sample Charge Plan

Custom Plan: May 1, 2013 - Onward: Database Instance

Item	Default Configuration
Orders Processed	\$2.00 / Order
PGA Memory	\$10.00 / GB / Day
Universal Rate Adjustments	
CPU Rate Factor	1x
Memory Rate Factor	1x
Storage Rate Factor	1x

5. Add the database target to Chargeback and assign the "Custom Plan".

**Figure 56–13 Cost Center and Charge Plan Assignment**



6. Following the daily ETL run, the charge/usage is calculated against new custom items. The charge/usage of custom items can be viewed from the Chargeback report page.

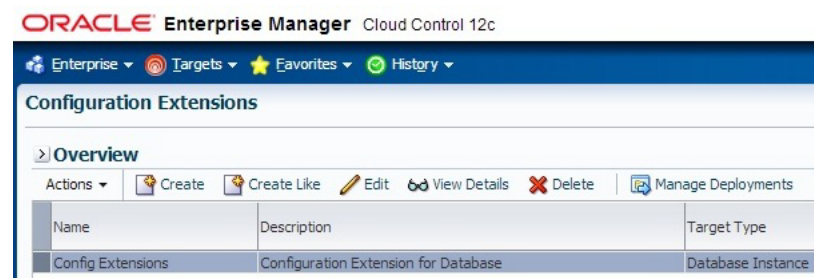
**Figure 56–14 Details**

Details					
View ▾ Detail Level All ▾ Export					
Date	Cost Center	Target Type	Target Name	Plan Name	Plan Configuration
May 22, 2013	Default Cost Center	Database Instance	Oemrep_Database	Custom Plan	Default
May 23, 2013	Default Cost Center	Database Instance	Oemrep_Database	Custom Plan	Default
May 24, 2013	Default Cost Center	Database Instance	Oemrep_Database	Custom Plan	Default
May 23, 2013	Default Cost Center	Database Instance	Oemrep_Database	Custom Plan	Default
May 24, 2013	Default Cost Center	Database Instance	Oemrep_Database	Custom Plan	Default
May 21, 2013	Default Cost Center	Database Instance	Oemrep_Database	Custom Plan	Default

### 56.3.3 Configuration Extensions

A configuration extension named "Config Extensions" is created for the database instance target. This collects the number of high available tablespaces and the name of each high available tablespace as shown below. In this example, the high available tablespaces value is used as the basis of the new custom charge item.

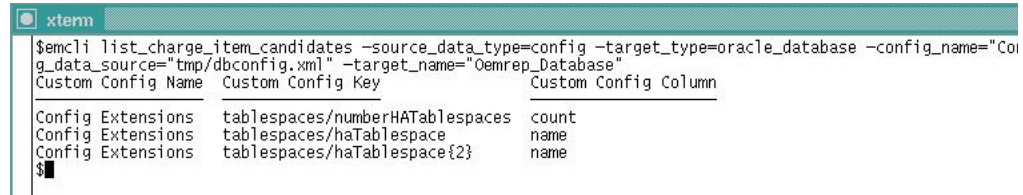
**Figure 56–15 Configuration Extensions**



1. Log in to EMCLI and use the Chargeback EMCLI verb `list_charge_item_candidates` to list the configuration items that can be registered to Chargeback.

Note that `config_name` is the name of the configuration extension shown on the UI ("Config Extensions" in this case). Similarly, `config_data_source` is the name of the config column shown on the UI (in this case "tmp/dbconfig.xml").

**Figure 56–16** *list\_charge\_item\_candidates*



```
$emcli list_charge_item_candidates -source_data_type=config -target_type=oracle_database -config_name="Config Extensions" -config_data_source="tmp/dbconfig.xml" -target_name="Oemrep_Database"
```

Custom Config Name	Custom Config Key	Custom Config Column
Config Extensions	tablespaces/numberHATablespace	count
Config Extensions	tablespaces/haTablespace	name
Config Extensions	tablespaces/haTablespace{2}	name

2. Create a property file `prop_file1` to generate a custom charge item for the "Number of High Available Tablespaces" metric column.

Note that the `config_key` value comes from the output of the "Custom Config Key" column in the output of the `list_charge_item_candidates` verb described previously. Similarly, the value of the `config_view` should be the value of "Custom Config Name" above.

**Figure 56–17** *Number of High Available Tablespaces*



```
target_type=oracle_database
item_displayname=Number of High Available Tablespaces
source_data_type=config
config_data_source=tmp/dbconfig.xml
config_view=Config Extensions
config_key=tablespaces/numberHATablespace
config_column=count
target_name=Oemrep_Database
data_type=number
unit=tablespace
item_name=config_ext_ha_tblspcs
```

3. Create a custom item in Chargeback using the `create_charge_item` EMCLI verb.

**Figure 56–18** *create\_charge\_item*



```
$vi prop_file1
$emcli create_charge_item -input_file="property_file:/tmp/prop_file1"
Custom item "Number of High Available Tablespaces" is successfully created in Chargeback.
```

4. Once the custom charge item is created, the Charge Plans page shows the new custom item. Rates can be set against a custom item similar to those set for regular out-of-box charge items.

Figure 56–19 Set Rates: New Plan

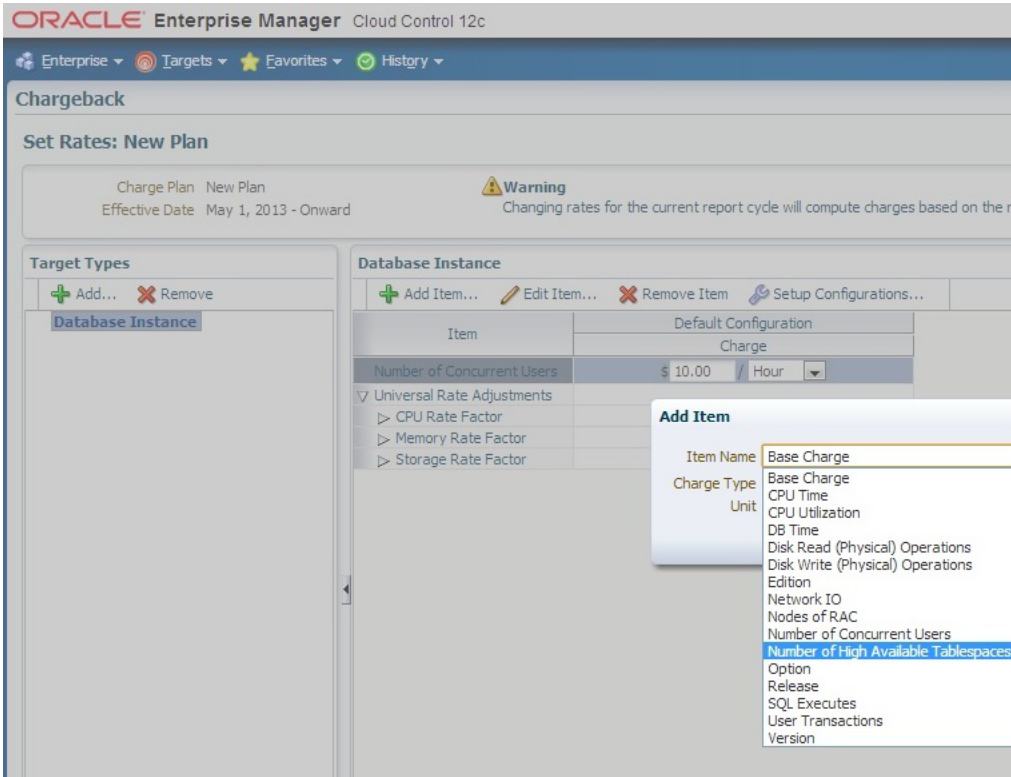
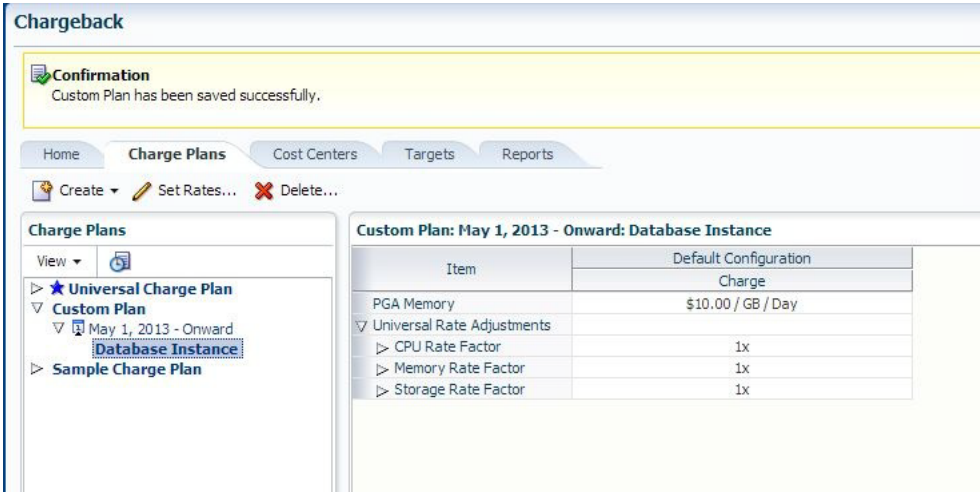
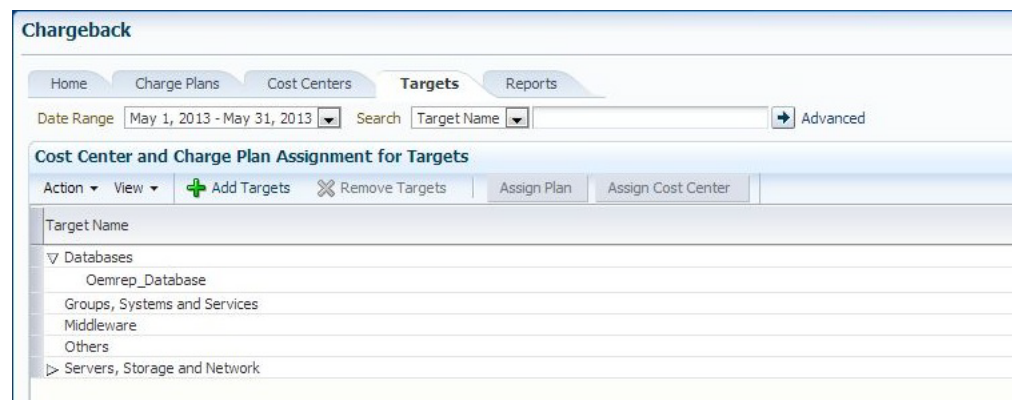


Figure 56–20 Confirmation



5. Add the database target to Chargeback and assign the "New Plan".

**Figure 56–21 New Plan**

6. After the daily ETL run, the charge/usage is calculated against new custom items. The charge/usage of custom items can be viewed from the Chargeback report page.

## 56.4 Creating a Generic Entity Type

Enterprise Manager supports an almost limitless number of target types. Only a relatively small number have out-of-box Chargeback support. You can, however, create a custom entity type for an Enterprise Manager target type for which there is no current Chargeback support. There is a one-to-one correspondence of custom entity type to Enterprise Manager target type.

Use the EM CLI verb `emcli add_custom_cb_entity_type` to identify the custom entity type in terms of an existing target type.

### Syntax

```
add_custom_cb_entity_type -target_type=target_type
```

Where *target\_type* is a known Enterprise Manager target type for which there is no current Chargeback support; for example, Oracle Apache.

After creating the custom entity type, customize charge items appropriate to the new entity type, following the process described in [Section 56.2](#).

### Charge Item Properties

For example, you might create a custom charge item based on an input property file named `properties_oracle_apache` where the properties are as follows:

```
target_type=oracle_apache
source_data_type=metric
item_name=active_sessions
metric_group=ohs_server
metric_column=sessions.active
item_displayname=Active Sessions
unit=sessions
aggregation_type=avg
item_category=instance
data_type=number
```

The custom charge item is based on the average number of active sessions.



**Implementation**

Now proceed as follows:

1. Create a charge plan for the Oracle Apache entity type that includes the active sessions customized charge item.
2. Add the Oracle Apache entity type to Chargeback using the Add wizard in the application, as you would for any entity type. The Oracle Apache entity type is available in Target Selector dialog.
3. Assign the charge plan you created in Step 1 to the Oracle Apache entity type.
4. Optional. Assign a cost center to the Oracle Apache entity type.
5. Using the reporting feature to view metering and charge data related to the Oracle Apache entity type.

## 56.5 Retrieving Metering Data from Enterprise Manager

The Chargeback REST APIs can be used to integrate Enterprise Manager with Billing and Revenue Management systems (including Oracle BRM). They also provide flexible Chargeback mechanisms. Some examples include:

- Integration with a billing system with different rate plans for small, medium, and large configurations.
- To calculate Chargeback for a flexible time period. For example, months starting from 15th and ending on the 15th.
- To rationalize Chargeback based on other attributes that are not captured by Enterprise Manager.
- To adjust or round up Chargeback based on usage. For example charge is calculated for the full-day even if the usage is for the partial day.

### 56.5.1 `get_metering_data`

Retrieves Chargeback metering data in the form of comma-separated output with each row or line containing usage (and optionally charge) information for the specified parameters.

**Syntax**

```
emcli get_metering_data
[-start_date=<start date in mmddyyyy> [-end_date=<end date in mmddyyyy>]]
[-target_type=<target type> [-target_name= <target name>]]
[-cost_center=<cost center name>]
[-charge]
```

**Parameters**

All parameters of this verb are optional.

- `start_date`—specifies the start date in `mmddyyyy` format by which to filter data retrieval, commencing at midnight. Default is the start date of the current report cycle.
- `end_date`—specifies the end date in `mmddyyyy` format by which to filter data retrieval, terminating at midnight. Default is the end date of the current report cycle.
- `target_type`—specifies the target types by which to filter data retrieval, provided targets of the specified types have been configured for Chargeback within the

specified date range. Default is to retrieve data for all targets of all target types that have been configured for Chargeback within the specified date range.

- **target\_name**—retrieves metering and charge data only for the named target of the specified target type. If the target name is invalid or has not been configured for the specified date range, no data retrieval occurs. The default retrieves data for all targets of the specified target type.
- **cost\_center**—specifies a cost center name as it appears on the Cost Center tab in Chargeback. Retrieves appropriate metering and charge data provided the cost center name is valid as of the specified date range. Default value is the logged-in user. To retrieve metering and charge data for all cost centers, specify "All Users" (in quotes). Each user is also a consumer (cost center) in Chargeback. The logged-in user's privileges determine metering and charge data retrieved across different targets.
- **charge\_**—retrieves both metering and charge data. Default retrieves only metering data.

---

**Note:** The privileges required to view target information in Chargeback are:

- **VIEW\_CAT\_TARGET:** Allows you to view information for a specific target (active or inactive).
  - **VIEW\_ANY\_CAT\_TARGET:** Allows you to view information for any Chargeback target (active or inactive).
- 

## 56.5.2 Data Retrieval Output

This `get_metering_data` verb generates the following output:

- **CONSUMER\_NAME:** Name of the cost-center.
- **TARGET\_TYPE:** Type of target.
- **TARGET\_NAME:** Name of the target.
- **ITEM\_TYPE:** Type of the item or metric. Possible values are: **config**, **fixed**, **metric**, **property**, and **usage**.
- **CATEGORY\_NAME:** Possible values are: **cpu**, **memory**, **storage**, **activity**, **instance**, **network**, **service**, and **software**.
- **ENTITY\_NAME:** Name of the shared entity (valid when the target is enabled in Chargeback in shared mode).
- **ITEM\_DISPLAY\_NAME:** Display name of the item or metric (in English language). **Note:** Translation support is currently not available.
- **VALUE\_AVERAGE:** Average value for the metric on the given date (valid for numeric metrics).
- **STRING\_VALUE:** Value for the metric data (valid for string-based metrics).
- **DATA\_TYPE:** Data type of the metric. This can be **string** or **number**.
- **UNIT:** Unit of the metric data (for example, req and GB).
- **COLLECTION\_DATE:** Date on which the data is collected from the Enterprise Manager metric or configuration tables.
- **PLAN\_NAME:** Name of the Charge Plan associated with the particular target.



- **CHARGE:** Charge value for the specific metric of the target on the particular date.
- **DEFINED\_RATE:** Charge rate defined in the charge plan associated with the target.
- **RATE\_TYPE:** Type of the rate. Possible values are: **No value (blank)**, **Flat**, **config**, and **usage**.
- **RATE\_FACTOR:** Adjustment rate for universal metrics, as defined in the associated extended Chargeplan.
- **CHARGE\_RATE\_UNIT:** Unit, corresponding to the metric or item, as defined in the Charge Plan for the specific rate. For example, for an item or metric named **CPU Utilization (%)** or **CPU Utilization (%) per service**, the value will be "CPU". For a metric or item named **Base Charge**, the value will be "instance", a metric named 'User Requests', the value will be "req"). If the rate defined in Chargeplan is \$1 per MB per day, the value for this column will be "MB" .
- **CHARGE\_TIME\_UNIT:** Time unit as defined in the Charge Plan for the specific rate. (such as, hourly, daily, weekly, monthly, yearly). For example, if the rate defined in Charge Plan is \$1 per MB per Day, value for this column will be *daily*.

### Example: Sample Output

```
"CONSUMER_NAME", "TARGET_TYPE", "TARGET_NAME", "ITEM_TYPE", "CATEGORY_NAME", "ENTITY_
NAME", "ITEM_DISPLAY_NAME", "STRING_VALUE", "PLAN_NAME", "COLLECTION_
DATE", "CHARGE", "VALUE_AVERAGE", "DEFINED_RATE", "RATE_TYPE", "RATE_FACTOR", "CHARGE_
RATE_UNIT", "CHARGE_TIME_UNIT", "NORMALIZE_RATE", "ADJUST_RATE", "DATA_TYPE", "UNIT"

"linbo", "oracle_vm_guest", "mySite/myWls/AdminServer:agent_
push", "fixed", "instance", " ", "Base Charge", "", "zone_plan", 15-OCT-11
00:00:00, 72, 1, "3", "flat", 1, "instance", "hourly", 1, 1, "number", ""
"linbo", "oracle_vm_guest", "mySite/myWls/AdminServer:agent_
push", "fixed", "instance", " ", "Base Charge", "", "zone_plan", 16-OCT-11
00:00:00, 72, 1, "3", "flat", 1, "instance", "hourly", 1, 1, "number", ""
"linbo", "oracle_vm_guest", "mySite/myWls/AdminServer:agent_
push", "fixed", "instance", " ", "Base Charge", "", "zone_plan", 17-OCT-11
00:00:00, 72, 1, "3", "flat", 1, "instance", "hourly", 1, 1, "number", ""
"linbo", "oracle_vm_guest", "mySite/myWls/AdminServer:agent_
push", "fixed", "instance", " ", "Base Charge", "", "zone_plan", 18-OCT-11
00:00:00, 72, 1, "3", "flat", 1, "instance", "hourly", 1, 1, "number", ""
"linbo", "oracle_vm_guest", "mySite/myWls/Cluster-0_
vm0:assembly1", "fixed", "instance", " ", "Base Charge", "", "zone_plan", 15-OCT-11
00:00:00, 72, 1, "3", "flat", 1, "instance", "hourly", 1, 1, "number", ""
```

## 56.5.3 get\_metering\_data Examples

Following are examples of verb usage:

- `emcli get_metering_data`: Returns metering information for all targets (active or enabled in Chargeback) for the current report cycle for the logged in user.
- `emcli get_metering_data -charge`: Returns metering and charge information for all targets (active or enabled in Chargeback) for the current report cycle for the logged in user.
- `emcli get_metering_data -start_date=01202011-cost_center=ORG1`: Returns metering information for all targets (active or enabled in Chargeback) starting from 20th January 2011 until the end of the month for the **ORG1** cost-center.
- `emcli get_metering_data -start_date=01152011 -end_date=02152011 -target_type=oracle_database`: Returns metering information for all Oracle DB

targets (active or enabled in Chargeback) that are owned by the logged in user, starting from 15th January 2011 until the 15th February 2011.

- `emcli get_metering_data -target_type=host target_name=my_host -cost_center=organization1`: Returns metering and charge information for "my\_host" target (of type *host*) for the current report cycle for "organization1" cost-center.
- `emcli get_metering_data -cost_center="All Users"`: Returns metering and charge information for all targets (active or enabled in Chargeback) in the current report cycle for all cost centers.
- Log in as `cba_admin_user` (who is the Chargeback Administrator) and enter the following commands:
  - `emcli get_metering_data`: Returns metering information for all targets (active or enabled in Chargeback) for the current report cycle for the `cba_admin_user`.
  - `emcli get_metering_data -cost_center=ssa_user1`: Returns metering information for all targets (active or enabled in Chargeback) that are owned by the `ssa_user1` in the cost center in the current report cycle.
- If the value specified for the cost center, target type, and / or target name is incorrect, no data is generated. For example, the following commands will not generate data:
  - `emcli get_metering_data -target_type=unknown`
  - `emcli get_metering_data -target_type=oracle_database -target_name=unknown_target`

**Note:** There is no target with the name **unknown\_target** configured in Enterprise Manager.

---

## Introduction to Blueprints

This chapter introduces the cloud blueprints (referred to as *blueprints* in this chapter) for the Oracle Private Cloud and describes how to use them and create your own blueprints. It contains the following sections:

- [Introduction to Blueprints](#)
- [Uses of the Blueprint](#)
- [Enterprise Manager Cloud Concepts](#)
- [Blueprint Concepts](#)
- [Deploying a Blueprint](#)
- [Blueprint Deployment Processing](#)
- [Blueprint Examples](#)
- [Conclusion](#)

### 57.1 Introduction to Blueprints

Blueprints are used to describe a desired set of inter-related cloud resources. Like architectural blueprints, they describe what you want including how they are configured to interact with each other, but not how to build them. For instance, a blueprint does not describe the order in which to create the components. Rather, the blueprint orchestration logic figures that out based on inter-resource dependencies.

As an example, suppose you want to create a set of interacting cloud resources such as a WebLogic server instance, an application, and a database. To do so, you must first create the database and WebLogic server instance, deploy the application, and create a JEE datasource that is to be used by the WebLogic server to connect to the database.

You could perform all these operations manually, through the Enterprise Manager Cloud Self Service Portal. You would request creation of the WebLogic server and database and wait for either to complete. Periodically, you would check the status of the creation requests. Once the WebLogic server is created, you could deploy the application. When both the WebLogic server and database are created, you could create the JEE datasource.

Alternatively, you can use a blueprint that describes the four cloud resources to automate the process. To do so, you request instantiation of the blueprint and provide any input parameter values required by the blueprint. The blueprint initiates the creation of the resources and monitors the creation process to ensure that the dependent resources are automatically created as soon as the required resources are created.

The rest of this chapter introduces the blueprint concepts including how to deploy an existing blueprint as well as how to write your own. You can also refer to the [Chapter 58, "Cloud Blueprints and Blueprint Reference"](#) for more details on blueprints.

## 57.2 Uses of the Blueprint

A blueprint can be used to automate the creation of service instances. An EM\_SSA\_USER can use blueprints for various reasons:

- To create an application composed of several service instances and related cloud resources.
- To create such sets of instances several times.
- To facilitate instance creation for other EM\_SSA\_USERS.
- To eliminate the manual interactive steps that would otherwise be needed to create the set of instances
- To create a textual representation that can be reviewed and modified by other users.

To summarize, blueprints allow you to automate the creation of a set of service instances.

For example, the Quality Assurance team in an enterprise needs to allocate and release resources required to test a Web application. Instead of manually creating the service instances using the Enterprise Manager Cloud Self Service application, a blueprint can be used to perform this task. One person authors a blueprint so that all QA engineers can simply invoke the blueprint and enter a few input parameter values, after which the resources are created. Each user can watch as the blueprint processor displays the status for creation of each resource.

Another example illustrates the use of a blueprint to address simplicity and consistency concerns. An IT shop has a service template that accepts 8 input parameters. For a specific group of users, the same set of values should be used for 6 of those 8 parameters. A simple blueprint accepts 2 parameters and uses the template to instantiate the instances with the other 6 parameters consistently defined.

## 57.3 Enterprise Manager Cloud Concepts

The concepts described in this section are Enterprise Manager cloud concepts. They are not introduced as part of blueprints but are concepts used by blueprints. Since they form the basis for blueprints, they are summarized below.

- **Oracle Cloud API:** The Oracle Cloud API (see [Chapter 45, "Introduction to Cloud APIs"](#)) defines a RESTful programming interface to consumers of IaaS, MWaaS, and DBaaS based on Oracle's solution stack. It is the Oracle Cloud API that the blueprint processor uses to create cloud resources based on what's specified by the blueprint.
- **Oracle Cloud Resource Model:** The Oracle Cloud Resource Model (see [Chapter 46, "Cloud Resource Models"](#)) details the types of resources one can manipulate via the Oracle Cloud API and, for each type, both its attributes and the operations that can be performed on instances of a resource type.
- **Cloud Resource Types and Attributes:** The cloud resource model specifies a set of attributes that are common to all cloud resources, such as uri (its URI) and resource\_status (with values such as READY and CREATING). The model also

defines a set of cloud resource types and their attributes. Some resource types discussed later in this document are:

- **DbPlatformInstance:** A database platform instance is created using a template. It has attributes such as zone (location for DBaaS instance) and params,(to specify username and password).
- **JavaPlatformInstance:** A JEE server instance is also created using a template. Similar to DbPlatformInstance, a JavaPlatformInstance has attributes like zone. An example of a MWaaS-specific attribute is `application_instance_deployments`, that identifies all applications deployed to the instance.
- **ApplicationInstanceDeployment:** A resource type that represents an application deployment to a JavaPlatformInstance.
- **Datasource:** A resource type that represents a datasource of a JavaPlatformInstance. It is contained in a JavaPlatformInstance and refers to a DatabaseInstance.
- **Resource Containment:** A cloud resource can contain other resources. For instance, a Datasource of a JavaPlatformInstance is contained in the JavaPlatformInstance, and a template contains all service instances that were created using that template.

Every resource you create will be contained in a parent cloud resource. As part each resource definition in your blueprints, you will identify the resource's container.

## 57.4 Blueprint Concepts

A blueprint generally describes one or more cloud resources to be created. A user *deploys* a blueprint to create the resources described by the blueprint, at which time he provides any input parameter values used by the blueprint.

To create each resource, the blueprint specifies its attribute values, which may be hard-coded, come from blueprint input parameters, or gleaned from other resources. In instantiating all the resources, the blueprint system determines the resource dependencies and uses this to order the resource creation and/or configuration required to properly create the instances described by a blueprint.

- **Input Parameters:** A blueprint can define **input parameters**. Each parameter definition specifies a name, datatype and optional specifications such as default value. A user who deploys a blueprint must specify the value for all parameters not having a default.
- **Resource:** A blueprint **resource** defines how to construct a cloud resource. It specifies a set of attributes and the parent cloud resource that is to contain the newly created resource. Each resource in a blueprint also has a name, which must be unique within a blueprint.
- **Outputs:** If outputs are specified, the specified values are displayed when blueprint deployment completes. Output parameters can be used to display information derived during deployment such as to inform the end user of the URL of a JEE application deployment.
- **Intrinsic Functions:** The blueprint language includes a set of predefined functions, illustrated below.
- **Named Literals:** As a programming convenience, blueprints can include a Data section. This is commonly used to specify symbolic names for literal values.

- **Dependencies:** Blueprint deployment is done by creating resources in parallel when possible, but a resource that depends on another resource can't be created until the latter resource is created. Such dependencies are often implicit, but blueprint processing identifies dependencies and orchestrates the overall steps.

## 57.5 Deploying a Blueprint

### Prerequisites:

- You have the blueprint file.
- You must have installed the blueprint processor software.

A blueprint file is a text file in which the author has used the blueprint language to describe what is required. You deploy the blueprint by running the blueprint processor. For instance, on Windows you would use a command as follows:

```
bp_processor.py myfile.yml -u myname -c https://myhost/em/cloud
```

In this example, the `-u` option specifies the Enterprise Manager user id. If the password is not specified here, you are prompted for it when you execute the blueprint file. The `-c` option is used to specify the cloud URL.

There are numerous other command line options. To view a description of supported options, enter

```
bp_processor.py deploy -h
```

## 57.6 Blueprint Deployment Processing

When a blueprint is deployed, the runtime logic processes the input parameters and orchestrates the creation of resources, doing so in parallel when possible. It also monitors progress and keeps the user informed.

The output you see will depend on the blueprint and your environment. The example below shows the use of a blueprint that deploys a Weblogic server, application, database, and JEE Datasource. The output from running this blueprint should give you a sense for the blueprint processing steps.

```
C:\Users\myname\Dropbox\Code\blueprints>bp_processor.py xyzApp.yml -c
https://... -g deployment_report
...
Cloud user id: ssa_user1
Password:
```

The command you entered above specifies the cloud URL (via the `-c` option) and a directory into which to place the optional deployment report (the `-g` option). You then entered the credentials as prompted to proceed.

### Blueprint Processor - Invocation Summary

```

Cloud URI: https://...
User: ssa_user1
Blueprint file: xyzApp.yml
Timeout: 90 minutes, 0 seconds
Refresh frequency: 15 seconds
Inputs:
Pause points: (none)
Debug logging: False
Instance name: default_instance_name
```

```

Graphical report dir: deployment_report
Versions:
 Blueprint processor: 12.1.0.5, 10-Oct-2012
 Cloud protocol: 10001

```

```
14:24:59 INFO: Connecting to cloud: https://....
```

**Note:** Most of the information in the Invocation Summary reflects default values used because you have not specified the corresponding options.

Because the blueprint you are using defines input parameters, you are then prompted to provide values:

```

Input Parameter Value Entry

 Zone to use for db (Zone1):
 Password to use for db (welcome1):

```

In this example, you pressed **Enter** to accept the default value for zone, Zone1 and then entered a password.

Once all the necessary information has been provided, the blueprint processor starts creating the resources and monitoring the progress. This is depicted in a “vertical timeline” so you can observe the progress. Each resource to be created is represented by a column. As the state transitions for each resource occur, they are noted in the corresponding column of the vertical timeline.

First, the list of all possible states, with their abbreviations, is printed. The states reflect the processing phases and the outcome of each phase.

```

14:25:03 INFO:
14:25:03 INFO: Resource State Timeline
14:25:03 INFO: -----
14:25:03 INFO: State Key:
14:25:03 INFO: e : Evaluating
14:25:03 INFO: ep: Evaluation pending. (See right side for pendee)
14:25:03 INFO: es: Evaluation succeeded, creation requested
14:25:03 INFO: EF: Evaluation failed
14:25:03 INFO: c : Creating
14:25:03 INFO: CF: Creation failed
14:25:03 INFO: CS: Creation succeeded. State = READY
14:25:03 INFO:

```

To process any resource definition, the first step is to evaluate the expressions of the definition that describe the resource (State Key: e). In some cases, evaluation must be delayed (State Key: ep). Once fully evaluated, a creation request is made (State Key: c) and the processing for that resource is successfully completed (State Key: CS). After the State Key is printed, the resource creation timeline appears:

```

14:25:03 INFO:
14:25:03 INFO: MyApp
14:25:03 INFO: /
14:25:03 INFO: / MyDB
14:25:03 INFO: / / MyDS
14:25:03 INFO: / / / MyWebServer
14:25:03 INFO: / / / /
14:25:03 INFO: -----
14:25:03 INFO: | | | | e |
14:25:04 INFO: | | | | es |

```

```

14:25:10 INFO: | | | | c |
14:25:10 INFO: | | e | | . |
14:25:12 INFO: | | es| | . |
14:25:17 INFO: | | c | | . |
14:25:17 INFO: | | . | e | . |
14:25:17 INFO: | | . | ep| . | Awaiting creation of MyWebServer
14:25:17 INFO: | e | . | | . |
14:25:17 INFO: | ep| . | | . | Awaiting creation of MyWebServer
14:25:33 INFO: | | . | | . |
14:25:50 INFO: | | . | | . |
.....
14:41:18 INFO: | | . | | . |
14:41:33 INFO: | | . | | CS|
14:41:33 INFO: | | . | | ====|
14:41:44 INFO: | | . | ep| | Awaiting creation of MyDB
14:41:57 INFO: | es| . | | |
14:42:00 INFO: | c | . | | |
14:42:17 INFO: | . | . | | |
....
14:44:44 INFO: | . | . | | |
14:45:16 INFO: | CS| . | | |
14:45:16 INFO: | ====| . | | |
14:45:32 INFO: | | . | | |
14:45:47 INFO: | | . | | |
14:54:17 INFO: | | . | | |
14:54:17 INFO: | | CS| | |
14:54:17 INFO: | | ====| | |
14:54:18 INFO: | | | es| |
14:54:19 INFO: | | | c | |
14:54:33 INFO: | | | CS| |
14:54:33 INFO: | | | ====| |
14:54:33 INFO: -----
14:54:33 INFO:
14:54:33 INFO:

```

You can see that the timeline is vertical and the four resources are MyApp, MyDB, MyDS, and MyWebServer.

The MyWebServer resource definition is evaluated (state key: e) first. When this is successful, the creation process begins (state key: c). Parallely, the MyDB resource is evaluated and the creation process is initiated. Then the MyDS resource is evaluated and the blueprint processor determines that the evaluation cannot be completed until the MyWebServer resource is created. The same process is applicable to the MyApp resource. When the MyDB and MyWebServer resources are successfully created (state key: CS), the creation process for MyApp and MyDS resources can proceed.

Next, the Outputs section of our example blueprint is processed:

```

14:54:33 INFO: Output Processing
14:54:33 INFO: -----
14:54:33 INFO:
14:54:33 INFO: Output values specified: 1
14:54:49 INFO: Value of URL: {u'ms_1': u'http://...}
14:54:49 INFO:

```

In the example above, you can see that the blueprint specifies one output value named "URL" and a value is represented with https://....

When all the resources have been successfully created, the blueprint processor summarizes the results. This includes the processing summary for each requested resource as well as the timing information for each resource and the overall run:



```

14:54:49 INFO: Blueprint Processing Summary
14:54:49 INFO: -----
14:54:49 INFO:
14:54:49 INFO: Resource State Summary:
14:54:49 INFO: MyWebServer: READY
14:54:49 INFO: URI: /em/cloud/jaas/javaplatforminstancerequest/163
14:54:49 INFO: Cloud resource state: READY
14:54:49 INFO: Timing info:
14:54:49 INFO: Creation start: 14:25:04
14:54:49 INFO: Creation end: 14:41:33
14:54:49 INFO: Duration: 16 minutes, 29.6 seconds
14:54:49 INFO: MyDB: READY
14:54:49 INFO: URI: /em/cloud/dbaas/dbplatforminstance/byrequest/164
14:54:49 INFO: Cloud resource state: READY
14:54:49 INFO: Timing info:
14:54:49 INFO: Creation start: 14:25:12
14:54:49 INFO: Creation end: 14:54:17
14:54:49 INFO: Duration: 29 minutes, 5.7 seconds
14:54:49 INFO: MyDS: READY
14:54:49 INFO: URI: /em/cloud/jaas/datasourcerequest/QA_app_DS@201
14:54:49 INFO: Cloud resource state: READY
14:54:49 INFO: Timing info:
14:54:49 INFO: Creation start: 14:54:18
14:54:49 INFO: Creation end: 14:54:33
14:54:49 INFO: Duration: 0 minutes, 15.3 seconds
14:54:49 INFO: MyApp: READY
14:54:49 INFO: URI:
/em/cloud/jaas/applicationinstancedeploymentrequest/myApp@181
14:54:49 INFO: Cloud resource state: READY
14:54:49 INFO: Timing info:
14:54:49 INFO: Creation start: 14:41:57
14:54:49 INFO: Creation end: 14:45:16
14:54:49 INFO: Duration: 3 minutes, 18.9 seconds
14:54:49 INFO:
14:54:49 INFO: Timing Summary (seconds):
14:54:49 INFO: Client-side CPU time: 0 minutes, 6.474 seconds
14:54:49 INFO: Elapsed time:
14:54:49 INFO: Processing time: 29 minutes, 58.0 seconds
14:54:49 INFO: Paused time: 0 minutes, 1.9 seconds
14:54:49 INFO: Total elapsed time: 29 minutes, 59.9 seconds
14:54:49 INFO:
14:54:49 INFO: Graphical Report Generation
14:54:49 INFO: -----
14:54:49 INFO:
14:55:37 INFO: Graphical report generated: deployment_report/bp_report.html

C:\Users\myname\Dropbox\Code\blueprints>

```

## 57.7 Blueprint Examples

This section illustrates the use of the blueprint concepts and syntax by guiding the reader through progressively more complex examples of blueprints. If you do not plan to author any blueprints, you can skip this section.

### 57.7.1 Blueprint Structure and Basics

A cloud blueprint specifies a set of desired cloud resources and represents these resources via a text file. Blueprints leverage a standard for easily readable data-structured text called YAML.

YAML is a standard notation, like XML and JSON. As with JSON, YAML is used to represent information via lists, dictionaries, and nesting. These concepts are sufficient to capture all blueprint semantics.

#### 57.7.1.1 Simple Blueprint

A blueprint is a document that you can think of as containing sections. The simplest useful blueprint specifies only the **Resources** section and a single resource. In this example, the resource is a database defined by a template.

```
Resources
 MyDB:
 Type: application/oracle.com.cloud.common.DbPlatformInstance+json
 Container: ... (refers to db template)
 Properties: ... (provides properties of db)
```

The above blueprint defines one blueprint resource named MyDB. The Type entry specifies the media type for 'database' as defined by the Cloud Resource Model API. The Container entry identifies the parent cloud resource to contain the newly created object. (Per [Chapter 46, "Cloud Resource Models"](#), all cloud resources are created by adding them to existing containers). Being a database service instance, it will be created via the database template used to create the service. How to specify the container will be shown later, so we just use ellipses here. Similarly, the data required by that template is specified in the Properties entry and shown later.

Now let us add an 'Inputs' section...

```
Inputs:
 DbZone:
 Type: String
 DefaultValue: Zone1
 Prompt: Zone to use for db
 DbPassword:
 Type: String
 DefaultValue: welcome1
 Prompt: Password to use for db
 Sensitive: True
Resources:
 MyDB:
 Container: ...
 Properties: ...
```

When the user requests deployment of this blueprint, he provides a value for the DbZone parameter or takes the default specified by the blueprint (Zone1). The value of user provided input parameters can be used by other parts of the blueprint, in particular to provide attribute values needed to create resources. More on this later.

#### 57.7.1.2 Simple Resource: Database Service Instance

In a blueprint, one uses blueprint resources to describe the cloud resources to create. For each blueprint resource, the information required by the Cloud Resource Model is provided.

The following blueprint specifies a single resource to create a database service instance:

```
MyDB:
 Type: application/oracle.com.cloud.common.DbPlatformInstance+json
 Container: ...
 Properties:
 zone: ...
```

```

name: jdbName
params:
 username: app_user
 password: change_me

```

Each resource definition in a blueprint specifies a name, a Container into which to add the resource, and Properties used to specify the characteristics of what to create. In this case:

- The **name** of the blueprint resource definition is MyDB. The name is used in the scope of a blueprint, e.g. to inform the user deploying a blueprint about progress for each resource. In more complex cases, we will see that the name can be referenced elsewhere within a blueprint.
- The **Container** entry specifies the URI of the container to which the new resource will be added. To create a database service instance, we identify the service template that corresponds to the kind of database we want. (We'll see how to do that when we introduce the topic of intrinsic functions.)
- The **Properties** entry specifies values needed to create the resource. In this case, the model requires that we specify zone, name, and params properties. These specify the zone in which the instance is to be created, its name, and a list of name/value pairs required by the selected template.

### 57.7.1.3 Intrinsic Functions

To operate on data, blueprints support the use of intrinsic functions. All function names begin with "f\_" and are invoked with a list of arguments.

Continuing the above example, we use two intrinsic functions, to return the URI of the desired container and the desired zone.

Resources:

MyDB:

Type: application/oracle.com.cloud.common.DbPlatformInstance+json

Container:

**f\_getTemplateURI:**

- Small Database Service Template\_automation\_VIMAL\_si
- dbaas

Properties:

zone:

**f\_getZoneURI:** ...

name: jdbName

params:

username: app\_user

password: ...

As you can see, the `f_getTemplateURI` function takes 2 arguments, the name of the template and its service type. The current supported service types are: dbaas, jaas, and iaas (Database-, Java-, and Infrastructure-as-a-Service). The `f_getZoneURI` is analogous to the `f_getTemplateURI` but for zones.

Other intrinsic functions will be introduced below. The full set of functions is described in [Chapter 58, "Cloud Blueprints and Blueprint Reference"](#).

### 57.7.1.4 Simple Resource with Parameter

To the above example blueprint, we now add the use of 2 parameters. By doing so, the user who deploys the blueprint, can specify which zone and password to use.

Inputs:

```
DbZone:
 Type: String
 DefaultValue: Zone1
 Prompt: Zone to use for db
DbPassword:
 Type: String
 DefaultValue: welcome1
 Prompt: Password to use for db
 Sensitive: True
Resources:
 MyDB:
 Type: application/oracle.com.cloud.common.DbPlatformInstance+json
 Container:
 f_getTemplateURI:
 - Simple DB Template
 - dbaas
 Properties:
 zone:
 f_getZoneURI:
 - f_path:
 - "Inputs.DbZone.Value"
 - dbaas
 params:
 username: app_user
 password:
 f_path:
 - 'Inputs.Password.Value'
```

The Inputs section defines the two input parameters and the values of the parameters are accessed via the `f_path` intrinsic function.

The `f_path` function is used to evaluate path expressions to access any data in your blueprint as well as any cloud resource data to which you have access. In our example, the path expression just uses the dot operator to access nested attributes, first access the Inputs attribute (Inputs section) of the blueprint and within that, the UserId attribute, and within that the Value attribute.

#### 57.7.1.5 Data Section (Named Literals)

Suppose your blueprint creates several databases and suppose that you do not want to prompt the user for the username and password. Furthermore, you want to code your blueprint so that it is easy to change the password later.

In a procedural language, you would use a named literal in order to document the intent and so that you can change it once at the top of your code. Within a blueprint, you do this by using the Data section.

```
Data:
QADBCreds:
 user: sysman
 password: sysman
Resources:
 MyDB1:
 Type: application/oracle.com.cloud.common.DbPlatformInstance+json
 Container:
 f_getTemplateURI:
 - Small Database Service Template_automation_VIMAL_si
 - dbaas
 Properties:
 zone:
 f_getZoneURI:
```

```

 - f_path:
 - "Inputs.DbZone.Value"
 - dbaas
 params:
 username:
 f_path:
 - "Data.QADBCreds.user"
 password:
 f_path:
 - "Data.QADBCreds.password"
 name: jbName

MyDB2:
 Container:
 ...

```

In the above case, you can see that the Data section takes a YAML structure, which can be traversed via the 'path' function, in the same way shown for Inputs earlier.

## 57.7.2 Putting It All Together – Multiple Interdependent Resources

In this more elaborate example, we show how one might create a database and an application that uses it. To do so, the blueprint specifies four cloud resources:

- Database service instance
- Java service instance
- Datasource of the Java service instance
- Application of the Java service instance

New constructs are highlighted below

```

Inputs:
 DbZone:
 Type: String
 DefaultValue: Zone1
 Prompt: Zone to use for db
 DbPassword:
 Type: String
 DefaultValue: welcome1
 Prompt: Password to use for db
 Sensitive: True
Macros:
 # Return a name with unique (date-time) suffix
 # The one argument is a 'name' string
 f_myDescriptiveName:
 - 1
 - f_concat:
 - arg_1
 - '_'
 - f_path:
 - f_path:
 - 'Info.time_suffix'
Resources:
 MyDB:
 Type: application/oracle.com.cloud.common.DbPlatformInstance+json
 Container:
 f_getTemplateURI:
 - Small Database Service Template_automation_VIMAL_si
 - dbaas

```

```
Properties:
 zone:
 f_getZoneURI:
 - f_path:
 - "Inputs.DbZone.Value"
 - dbaas
 params:
 username: app_user
 password:
 f_path:
 - "Inputs.DbPassword.Value"
 name: jbName
MyWebServer:
 Container:
 f_getTemplateURI:
 - PS4_LowHeapTemplate
 - jaas
 Properties:
 name:
 f_myDescriptiveName:
 - jb_pf
 zone:
 f_getZoneURI:
 - Zone1
 - jaas
MyDS:
 Type: application/oracle.com.cloud.jaas.DataSource
 Container:
 f_getResourceURI:
 - MyWebServer
 Properties:
 name: QA_app_DS
 jndi_name:
 - jndi_1
 - jndi_2
 jdbc_driver: oracle.jdbc.OracleDriver
 database_type: Oracle
 database_connect_string:
 f_concat:
 - 'jdbc:oracle:thin:@'
 - f_getResourceAttr:
 - MyDB
 - connect_string
 username: app_user
 password:
 f_path:
 - "Inputs.DbPassword.Value"
MyApp:
 Type: application/oracle.com.cloud.jaas.ApplicationInstanceDeployment
 Container:
 f_getResourceURI:
 - MyWebServer
 Properties:
 application_instance_component:
 f_getAppCompURI:
 - jbcomponent
 - SSA_USER1
 -
 name: myApp
Outputs:
```

```

URL:
 Description: URL of the deployed app
 Value:
 f_getResourceAttr:
 - MyApp
 - http_application_invocation_url

```

### 57.7.2.1 Macro Section

If you have a sequence of constructs that you tend to repeat, you can use macro expansion to improve the readability of your blueprint. Macros also enable you to encapsulate logic, for instance, you can modify the logic in one place to affect all code that refers to it.

Our example blueprint defines a macro named `f_myDescriptiveName`. It takes one string parameter and appends “\_” as well as a string representation of the current time.

### 57.7.2.2 Attributes of Created Resources (Dependencies)

The key new feature introduced by this example is the ability to refer to attributes of created resources. For instance, the Cloud Resource Model for Datasource defines a `database_connect_string` attribute whose value is required to create a Datasource. The contents of the string will not be available until after the database is created, so it is clearly not something the blueprint author can know in advance. Instead, he uses an intrinsic function to refer to the needed property of the newly created database. (Each `DatabasePlatformInstance` exposes a ‘connect\_string’ property.)

To do this, the Datasource specifies the value of `JDBCConnectString` via the ‘`f_getResourceAttr`’ intrinsic function:

```

MyDS:
 ...
 Properties:
 ...
 database_connect_string:
 f_concat:
 - 'jdbc:oracle:thin:@'
 - f_getResourceAttr:
 - MyDB
 - connect_string

```

In this case, the `f_getResourceAttr` function waits for the `MyDB` resource to be created and then returns the value of its `connect_string` property.

Similarly, the creation of a Datasource is done by adding it to the `JavaPlatformInstance` that is created first, so we need to refer to the `JavaPlatformInstance`’s URI.

```

MyDS:
 ...
 Container:
 f_getResourceURI:
 - MyWebServer

```

In this case, the `f_getResourceURI` function waits for the `MyWebServer` resource to be created and then returns its URI. (In addition to adding a Datasource to `MyWebServer`, we also must add an `ApplicationInstanceDeployment`, so the same approach is used for both.)

**Note:** Though the `f_path` function can be used to achieve the same effect, the `f_getResourceAttr` knows to wait for the resource creation to succeed and its state be `READY` before attempting to get its attribute.

More generally, blueprint resources can refer to other resources and blueprint orchestration accounts for such dependencies, creating resources in parallel when possible.

### 57.7.3 Visual Depiction of Blueprint Processing

The blueprint processor can also generate an HTML report that includes a graphical representation of the blueprint. This may be used to help understand the overall structure of the blueprint and the relationship of blueprint entities. In addition, the report can include the results of deploying the blueprint.

The following example report is for the example blueprint described in [Section 57.6, "Blueprint Deployment Processing"](#).

The first part of the report summarizes the run:

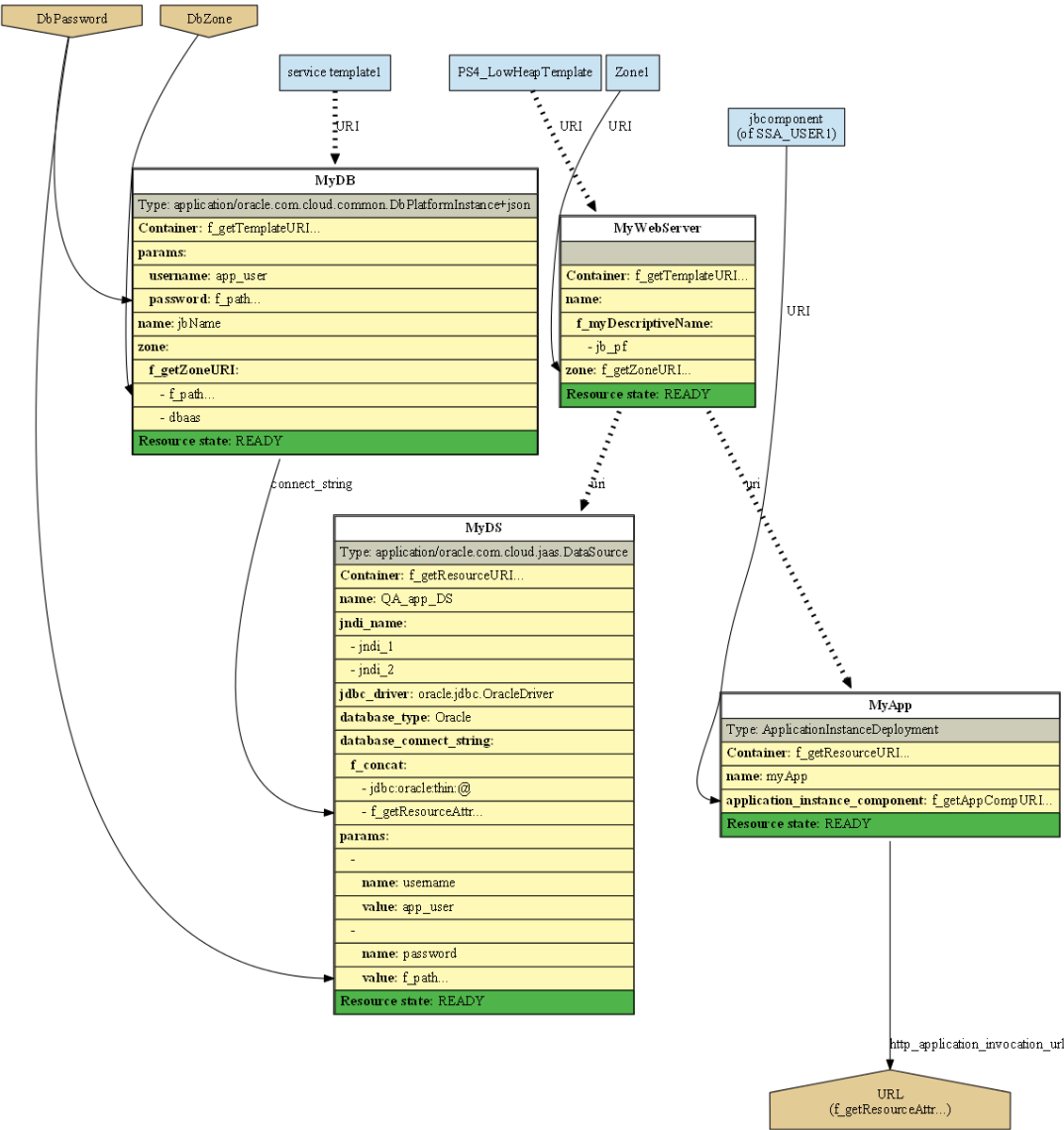
**Figure 57–1** *Blueprint Report Title*



Next is the graphical depiction, in which two types of arcs are used. One depicts containment. For example, the containment of a datasource within a WebLogic server. The other depicts how data is used across the elements of a blueprint. If blueprint deployment is successful, the status of all resources will be Ready (green) and you can click on a resource, which links to another report section where you can view the values of its attributes at the time of creation.

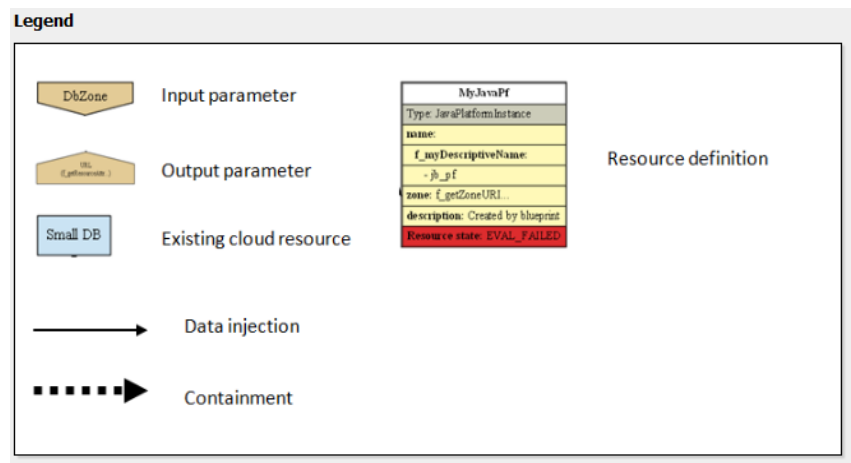


Figure 57-2 Blueprint Graphical Depiction



This is followed by a legend to explain the graphical conventions:

Figure 57–3 *Blueprint Legend*



Finally, each created resource is summarized. (Clicking on a resource definition in the graphical depiction takes you directly to the resource summary for the selected resource.)

Figure 57–4 *Blueprint Created Cloud Resources - I*

**Created Cloud Resources (and their current state)**

**MyApp (Type: ApplicationInstanceDeployment)**

Attribute	Name	Value
	uri	/em/cloud/jaas/applicationinstancedeployment/C03DC24FDC8A36E37BEC9229A88CF08B
	contained_in	{u'status': u'RUNNING', u'media_type': u'application/oracle.com.cloud.jaas.JavaPlatformInstance+json', u'uri': u'/em/cloud/jaas/javaplatforminstance/67A4827A18B5159E2FDEFF4294F28F4F', u'name': u'jb_pf_14_25_1'}
	context_id	C03DC24FDC8A36E37BEC9229A88CF08B
	http_application_invocation_url	{u'ms_1': u'http://slc01rbw.us.oracle.com:21307/derby'}
	https_application_invocation_url	{u'ms_1': u'https://slc01rbw.us.oracle.com:32893/derby'}
	media_type	application/oracle.com.cloud.jaas.ApplicationInstanceDeployment+json
	name	myApp
	resource_state	{u'state': u'READY'}
	service_family_type	jaas
	status	RUNNING

**MyDB (Type: application/oracle.com.cloud.common.DbPlatformInstance+json)**

Attribute	Name	Value
	uri	/em/cloud/dbaas/dbplatforminstance/byrequest/164
	available_space	0.19140625
	based_on	/em/cloud/dbaas/dbplatformtemplate/D0C4E06F54AA4740E040F20A4C1B51A6
	connect_string	(DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP)(HOST=slc01rbw.us.oracle.com)(PORT=1522)))(CONNECT_DATA=(SID=sl54f90d)))
	context_id	164
	created	2012-12-17 11:53:20
	database_type	oracle_database
	db_version	11.2.0.1.0
	destination_zone	/em/cloud/dbaas/zone/A1B44A4EBCC456312SD9D0A3AAE4FD51
	last_backup	null
	load	0.0310767354289456
	master_username	app_user
	media_type	application/oracle.com.cloud.common.DbPlatformInstance+json
	name	[REDACTED]
	resource_state	{u'state': u'READY'}
	status	RUNNING
	total_sessions	31
	total_sga	1019.41796875
	up_time	0





---

## Cloud Blueprints and Blueprint Reference

---

This chapter serves as a reference to the blueprint processing features of Oracle Enterprise Manager Cloud. It presents concepts, describes how to install and run the blueprint processor, and documents the blueprint language. Also included are sections to help in your use of the blueprint processor, such as use of the blueprint debugger, what to do when errors are diagnosed, and frequently asked questions. Before reading this document, you must have read [Chapter 57, "Introduction to Blueprints"](#).

---

**Note:** Click [here](#) to view a visual demonstration on how to automate the creation of cloud resources with Cloud Blueprints.

---

It contains the following sections:

- [Installing the Blueprint Processor](#)
- [Optional Components for Graphical Summary Report](#)
- [Running the Blueprint Processor](#)
- [Blueprint Processing Phases](#)
- [Language Specifics](#)
- [Overview of Blueprint Content](#)
- [Dealing with Errors](#)
- [Simulation Mode](#)
- [Debugging with the Blueprint Processor](#)
- [Tips and Hints](#)

### 58.1 Installing the Blueprint Processor

Installing the blueprint processor consists of two steps:

- Install Python 2.7, if not already present.
- Install the blueprint processor files.

To use the “-g” option and generate graphical depictions of blueprints, additional software must be installed as described in [Section 58.2, "Optional Components for Graphical Summary Report"](#).

Detailed instructions to install the blueprint processor on Linux and Windows is given below.

---

**Note:** Due to schedule constraints, this version of the blueprint processor is not localized and is available only in English.

---

## 58.1.1 Linux (Oracle Linux)

Installing the blueprint processor on Oracle Linux involves the following steps:

- Installing Python
- Installing the Blueprint Processor From Zip File
- Testing the Installation

### 58.1.1.1 Installing Python

- Download a version of Python, version 2.7 or higher (but not 3.x). For instance, use <http://www.python.org/ftp/python/2.7.3/Python-2.7.3.tgz>.
- Untar it, for example by entering the following commands:

```
tar xzf Python-2.7.3.tgz
cd Python-2.7.3
```

- Execute these commands:

```
./configure --prefix=$HOME
make
make install
```

**Note:** During the configure step, you may see output that includes warnings about some modules that could not be created on your platform, but those modules may not be needed; their absence may not adversely affect use of the blueprint processor.

Python build finished, but the necessary bits to build these modules were not found:

```
bsddb185 dl imageop
sunaudiodev
```

To find the necessary bits, look in the `setup.py` in `detect_modules()` for the module's name.

Failed to build these modules:  
sqlite3

- The python interpreter should be installed in your home bin directory. Test it.  
`$HOME/bin/python2.7`
- You should see the Python banner... something like this:

```
Python 2.7.3 (default, May 25 2012, 11:33:27)
[GCC 4.1.2 20080704 (Red Hat 4.1.2-50)] on linux2
Type "help", "copyright", "credits" or "license" for more information.
```

### 58.1.1.2 Installing the Blueprint Processor from Zip File

- Unzip the blueprint distribution file to a directory, e.g. named `bp_installation`
- To run the blueprint processor, you must do the following:

cd to the directory, e.g. bp\_installation

Enter this command: `python bp_processor.py <filename> <options>`

### 58.1.1.3 Testing the Installation

- Navigate to the directory that contains the blueprint processor files.
- Enter this command to confirm you can run the blueprint processor, in this case just to see the help text:

```
$HOME/bin/python2.7 bp_processor.py helloWorld.yml -h
```

- You should see the **help** text, as follows:

#### Usage:

```
bp_processor.py [options] BlueprintFileName
```

#### Example:

```
bp_processor.py myfile.yml -i "name:Joe" -i "count:2" -u jabauer -c
https://...
```

#### Options:

```
-h, --help show this help message and exit
-c CLOUD_URI, --cloud_uri=CLOUD_URI.
 Ex: https://myhost:4473/em/cloud
-u USER, --user=USER user id
-p PASSWORD, --password=PASSWORD
 password If not provided, you'll be prompted.
-t TIMEOUT, --timeout=TIMEOUT
 timeout (seconds)
-i INPUT_VALUE, --input_value=INPUT_VALUE
 <param name>:<param value> e.g. -i "name:Joe Blogs"
-r REFRESH_FREQUENCY, --refresh_frequency=REFRESH_FREQUENCY
 # of seconds between dots in timeline. Zero: no dots
-n INSTANCE_NAME, --instance_name=INSTANCE_NAME
 name of blueprint instance to create
-d, --debug more logging, including http traffic
-E, --pause_error Drop into debugger if error occurs
-I, --pause_input Pause before processing Input section
-R, --pause_resource Pause before processing Resource section
-O, --pause_output Pause before processing Output section
-T, --pause_terminate Pause before termination, but after output processing
 or error
-g GRAPHIC_RESULTS, --graphic_results=GRAPHIC_RESULTS
 Directory for deployed blueprint graphical report
-G GRAPHIC_BLUEPRINT, --graphic_blueprint=GRAPHIC_BLUEPRINT
 Directory for undeployed blueprint graphical report
```

- Enter this command to simulate running a blueprint without having to connect to a cloud environment:

```
$HOME/bin/python2.7 bp_processor.py helloWorld.yml
```

You should see something like this...

```
[jabauer@zzzzzzzz blueprints]$ $HOME/bin/python2.7 bp_processor.py
helloWorld.yml
```

```
Blueprint Processor - Invocation Summary
```

```

```

```
Cloud URI: sim
User: None
Blueprint file: helloWorld.yml
Timeout: 90 minutes, 0 seconds
Ellipses frequency: 15 seconds
Inputs:
Pause points: (none)
Debug logging: False
Instance name: default_instance_name

17:10:31 WARNING: No Resources specified in blueprint. Nothing will be
created

17:10:31 INFO: Output Processing
17:10:31 INFO: -----
17:10:31 INFO:
17:10:31 INFO: Output values specified: 1
17:10:31 INFO: Value of MyMsg: Hello World
17:10:31 INFO:
17:10:31 INFO: Blueprint Processing Summary
17:10:31 INFO: -----
17:10:31 INFO:
17:10:31 INFO: Timing Summary (seconds):
17:10:31 INFO: Client-side CPU time: 0.218
17:10:31 INFO: Elapsed time:
17:10:31 INFO: Processing time: 0.0
17:10:31 INFO: Paused time: 0.0
17:10:31 INFO: Total elapsed time: 0.0
```

## 58.1.2 Windows

Installing the blueprint processor on Windows involves the following steps:

- Installing Python
- Installing the blueprint processor from Zip File
- Testing the Installation

### 58.1.2.1 Installing Python

- Go to <http://www.python.org/download/releases/2.7.3>. You will see that there are several options for installing Python.
- Download the MSI Installer. Run it. Accept the defaults suggested by the installer.
- Note the directory into which Python was installed, typically  
**;c:\python27**
- Add the Python directory to your path, so you can run it from the command line:
  - Windows XP
    - \* Start -> My Computer -> Properties
    - \* Select the **Advanced** tab
    - \* Click **Environment Variables**
    - \* You can update the path for 'Current User' and, if you have sufficient privileges, for 'System'. The latter is required if you want all users to be able to run Python.



- \* Add this to the end of the Path string:  
`;c:\python27`
- Windows 7 (Windows Vista)
  - \* From the **Start** menu, select **My Computer**, then select **Properties**.
  - \* Select the **Advanced System Settings** tab on the left.
  - \* Click **Environment Variables**.
  - \* You can update the path for ‘Current User’ and, if you have sufficient privileges, for ‘System’. The latter is required if you want all users to be able to run Python.
  - \* Add this to the end of the Path string:  
`;c:\python27`
  - \* Click **OK** as needed (i.e. for two dialog boxes)
- Test the Python installation:
  - Open a new command window. (The new environment variable value will not be visible in previously opened command windows.)
  - Type **python**
  - The Python interpreter should start.
  - Type ‘exit()’

### 58.1.2.2 Installing the Blueprint Processor from Zip File

- Unzip the blueprint distribution file to a directory, e.g. named bp\_installation.
- To run the blueprint processor you will...
  - cd to bp\_installation
  - Enter this command: `python bp_processor.py <filename> <options>`
  - Alternatively use: `bp_processor.py <filename> <options>`

### 58.1.2.3 Testing the Installation

- Navigate to the directory that contains the blueprint processor files.
- Enter this command to confirm you can run the blueprint processor, in this case just to see ‘help’ text:  
`python bp_processor.py helloWorld.yml -h`
- Enter this command to simulate running a blueprint without having to connect to a cloud environment:  
`python bp_processor.py helloWorld.yml`
- You should see something like this, in particular the output value “Hello World”:

```
C:\...>python bp_processor.py interactiveTests\helloWorld.yml
```

```
Blueprint Processor - Invocation Summary
```

```

Cloud URI: sim
User: None
Blueprint file: helloWorld.yml
Timeout: 90 minutes, 0 seconds
```

```
Ellipses frequency: 15 seconds
Inputs:
Pause points: (none)
Debug logging: False
Instance name: default_instance_name

17:10:31 WARNING: No Resources specified in blueprint. Nothing will be created

17:10:31 INFO: Output Processing
17:10:31 INFO: -----
17:10:31 INFO:
17:10:31 INFO: Output values specified: 1
17:10:31 INFO: Value of MyMsg: Hello World
17:10:31 INFO:
17:10:31 INFO: Blueprint Processing Summary
17:10:31 INFO: -----
17:10:31 INFO:
17:10:31 INFO: Timing Summary (seconds):
17:10:31 INFO: Client-side CPU time: 0.218
17:10:31 INFO: Elapsed time:
17:10:31 INFO: Processing time: 0.0
17:10:31 INFO: Paused time: 0.0
17:10:31 INFO: Total elapsed time: 0.0
```

## 58.2 Optional Components for Graphical Summary Report

The blueprint processor can generate a summary report that includes a graphical depiction of the blueprint. (To generate such reports, use the `-g` or `-G` option.) For these options to produce reports, the following third party software must be installed.

- **Install GraphViz:** To install GraphViz, see <http://www.graphviz.org>. Download the software for your platform and follow the instructions.
- **Install Pydot:** To install pydot, see <http://code.google.com/p/pydot/>. Download the software (zip or tar file). The blueprint processor was tested using pydot version 1.0.28.

PyDot can be installed using `setuptools`. For example, `sudo easy_install pydot`

You can also use the `setup.py` script in the zip/tar file. From the directory into which you unzipped or untarred the file, run that script: `python setup.py install`

## 58.3 Running the Blueprint Processor

To deploy a blueprint, you run the blueprint processor and provide the name of the blueprint file plus any desired command options. For a full set of command options, use the command's `-h` option:

### Usage:

```
bp_processor.py [options] BlueprintFileName
```

### Example:

```
bp_processor.py myfile.yml -i "name:Joe" -i "count:2" -u jabauer -c
https://...
```

### Options:

```
-h, --help show this help message and exit
-c CLOUD_URI, --cloud_uri=CLOUD_URI.
```

```

 Ex: https://myhost:4473/em/cloud
-u USER, --user=USER user id
-p PASSWORD, --password=PASSWORD
 password If not provided, you'll be prompted.
-t TIMEOUT, --timeout=TIMEOUT
 timeout (seconds)
-i INPUT_VALUE, --input_value=INPUT_VALUE
 <param name>:<param value> e.g. -i "name:Joe Blogs"
-r REFRESH_FREQUENCY, --refresh_frequency=REFRESH_FREQUENCY
 # of seconds between dots in timeline. Zero: no dots
-n INSTANCE_NAME, --instance_name=INSTANCE_NAME
 name of blueprint instance to create
-d, --debug more logging, including http traffic
-E, --pause_error Drop into debugger if error occurs
-I, --pause_input Pause before processing Input section
-R, --pause_resource Pause before processing Resource section
-O, --pause_output Pause before processing Output section
-T, --pause_terminate Pause before termination, but after output processing
 or error
-g GRAPHIC_RESULTS, --graphic_results=GRAPHIC_RESULTS
 Directory for deployed blueprint graphical report
-G GRAPHIC_BLUEPRINT, --graphic_blueprint=GRAPHIC_BLUEPRINT
 Directory for undeployed blueprint graphical report

```

Options that are not self explanatory are described below:

- **Input\_value:** For each input parameter, you can provide a `-i` or `-input_value` string of the form `<param name>:<value>`. You should use quotation marks around each input parameter specification, e.g. `-i "name:Joe Blogs"`. To provide values for more than one input parameter, use the `-i` command line option more than once. For example, `bp_processor.py _processor.py myfile.yml -i "DbZone:Zone1" -i "DbPassword:myPw"7`
- If an input parameter defined in the blueprint is not provided on the command line, you will be prompted as follows:
 

`pause_*`: Pause (enter the blueprint debugger), just prior to beginning the Input/Resource/Output processing phases.

In the case of `pause_error`, the debugger is entered in the event of an error. In the case of `pause_terminate`, the debugger is entered prior to terminating the blueprint processor. Use of the debugger commands is described in [Section 58.9, "Debugging with the Blueprint Processor"](#). If no `CLOUD_URI` is specified, the blueprint processing is simulated. See the section titled [Section 58.8, "Simulation Mode"](#).
- **Timeout:** The number of seconds after which the blueprint process must be terminated. (If the processor is waiting for completion of a cloud request, e.g. a POST request, termination occurs when that request completes.)

## 58.4 Blueprint Processing Phases

Blueprint processing is done in phases. Describing the phases, will help you:

- Understand how blueprints are evaluated and resources created.
- Set pause points at phase transitions. (This can help with cloud browsing and debugging as explained in [Section 58.9.2, "Pause Points"](#)).
- Connect to the designated Cloud resource.

- Monitor the process. If creation succeeds, other resources may then become unblocked for creation. If creation fails, terminate the resource creation phase.

The phases are:

- **Initialization:** Parse the blueprint.
- **Input Processing:** If the blueprint defines input parameters and if some were not provided on the command line, the user is prompted for the parameter values.
- **Resource Creation:** For each resource defined in the blueprint, verify if the resource has no dependencies on other resources that have not been created yet, initiate creation.
- **Output Processing:** Evaluate and display any output values. (If the resource creation phase was terminated due to errors, some output values may not be available.)

A detailed description of each phase is given below.

### 58.4.1 Initialization

The blueprint file is read and parsed and a connection to the designated Cloud resource is made. The parsed blueprint content is captured in memory and then augmented. A member named Cloud is added, whose value is the Cloud resource as documented in [Chapter 46, "Cloud Resource Models"](#). Another member named Info, which provides environmental information, is also added. Its value is a set of name/value pairs such as time and a string like '13:02:45' representing the time when processing began. Oracle-provided macros are loaded into the Macros section of the blueprint (except for any whose name conflicts with a blueprint-defined macro).

### 58.4.2 Input Parameter Evaluation

Input parameter processing is then done and the input parameters set. Any parameters specified in the blueprint that were not provided on the command line are prompted for.

Each input parameter value is stored in the Value attribute of the input parameter in the blueprint. The values can be accessed with this path expression: Inputs.<parameterName>.Value. (See [Section 58.6.7.1, "Evaluation Intrinsics"](#) for details.)

### 58.4.3 Resource Creation

To process the Resources section, each resource is effectively processed in parallel. The following is done for each resource:

First, the expression specified for the Container section is evaluated. When successful and when the cloud resource it identifies is in the READY state, all expressions of the resource's Properties subsection are evaluated. (When evaluation of a resource's Properties or Container section cannot be completed and must wait, the resource is marked and the blueprint processor proceeds to process other resources. Periodically, it reattempts to evaluate this and any other marked resources.)

Once all evaluation for a resource definition is complete, the document derived from the Properties section is used to request creation of the cloud resource (i.e. it is POSTed to the container URI). If successful, the URI of the newly created cloud resource is stored in the '\_uri' attribute of the blueprint's resource definition. At this point, that URI represents the resource that is being created.

The blueprint processor then polls the resource being created to track its status. From a state of CREATING, the resource should eventually transition to a success or failure state. If it transitions to a failure state, the blueprint processor diagnoses the situation and terminates. If creation succeeds and the resource enters the READY state, this may enable evaluation of other resource definitions to proceed.

If the timeout value specified on the command line is exceeded, the blueprint processor is terminated. Any cloud resources whose creation was initiated may continue in the 'creating' state for some time before succeeding or failing.

In addition to timing out, other failures may occur such as an error evaluating an expression or an error code returned from the cloud, e.g. in response to a creation request. In all such cases, the blueprint processor diagnoses the situation and terminates.

#### 58.4.4 Outputs

After all resources have been successfully evaluated, the Outputs section is processed, at which time each named output expression is evaluated and their values printed. Then a graphical report that depicts the blueprint and what got created is generated, if it was requested and a summary of blueprint processing is displayed to the user.

### 58.5 Language Specifics

A blueprint is a text file that represents a set of cloud resources that are to be created. The text is formatted in YAML or JSON. Both YAML and JSON are notations for representing data structures of lists and name/value pairs, which can be nested. A blueprint is such a structure. (See [YAML] and [JSON] for concise descriptions.)

You can use JSON or YAML notation for your blueprints, but we recommend using YAML. With YAML you can write blueprints that are more concise and somewhat easier to read. YAML also offers useful capabilities not present in JSON, such as the ability to include comments. For these reasons, we have chosen to use YAML in the examples that follow. (Incidentally, YAML allows the inclusion of JSON notation in YAML documents, i.e. YAML is a superset of JSON.)

### 58.6 Overview of Blueprint Content

At the top level, a blueprint may contain any of the following name/value pairs, which can be viewed as blueprint section types:

- Inputs
- Data
- Macros
- Resources
- Outputs

Order of appearance in the blueprint is not significant. No other sections are allowed and each section can appear only once.

No section is truly required in a blueprint, but you must include a Resources section with at least one resource definition if you intend to create a cloud resource via the blueprint. A section may only appear once in a blueprint.

## 58.6.1 Inputs Section

The Inputs section is used to describe input parameters. Each parameter has a unique name and has the following attributes:

- Type: "String" or "Number". If "Number" is specified, the input value must be numeric. (Default: "String".)
- Prompt: A string to be used when prompting. (Default: The parameter name.)
- DefaultValue: The value to use if the user responds to the prompt by simply pressing Enter. (Default: "").
- Order: The sequence in which the values need to be entered. If not specified, ordering is arbitrary.
- Sensitive: "True" or "False". If "True", what the user enters interactively will not be echoed. (Default: "False".)
- Value: Set at runtime, using the value provided by the user (or the default value)

Processing input parameters starts with those input parameter values provided on the command line. For any not provided, the user is prompted.

### 58.6.1.1 Example 1

```
Inputs:
 UserId:
 DefaultValue: qa_user
 Prompt: User id
 Order: 1
 Password:
 Sensitive: True
 Order: 2
...
```

In this blueprint snippet, the author has defined 2 input parameters. Both are of type String. A default user id is specified but the user must provide a password. If neither is provided on the command line, the use of Order assures that UserId is requested first.

### 58.6.1.2 Example 2

In this interaction

```
C:\work>bp_processor.py test2.yml -c https://... -u jon -p myPW -t 665
```

```
Blueprint Processor - Invocation Summary
```

```

Cloud URI: https://xyxy.example.com:15430/em/cloud
User: ssa_user1
Blueprint file: xyzApp.yml
Timeout: 90 minutes, 0 seconds
Refresh frequency: 15 seconds
Inputs:
Pause points: Inputs
Debug logging: False
Instance name: default_instance_name
Graphical report dir: deployment_report
Versions:
 Blueprint processor: 12.1.0.5, 10-Oct-2012
 Cloud protocol: 10001
```

```
16:19:18 INFO: Connecting to cloud: https://...
User id (qa_user):
Password:
...
```

The user provided no input parameters as part of the command line, so he is prompted for the two values. He pressed **Enter** for the user id, accepting the default of **qa\_user**. And he entered a password, which was not echoed.

### 58.6.1.3 Example 3

The following interaction is almost the same, except that the user id is provided on the command line:

```
C:\work>bp_processor.py test2.yml -c https://... -u jon -p myPW -t 665 -i
"UserId:joe"
```

```
Blueprint Processor - Invocation Summary
```

```

Cloud URI: https://xyxy.example.com:15430/em/cloud
User: ssa_user1
Blueprint file: xyzApp.yml
Timeout: 90 minutes, 0 seconds
Refresh frequency: 15 seconds
Inputs:
Pause points: Inputs
Debug logging: False
Instance name: default_instance_name
Graphical report dir: deployment_report
Versions:
Blueprint processor: 12.1.0.5, 10-Oct-2012
Cloud protocol: 10001
```

```
16:19:18 INFO: Connecting to cloud: https://...
16:19:19 WARNING: No Resources specified in blueprint. Nothing will be created
16:19:19 INFO: Creating blueprint instance named default_instance_name
Password:
...
```

In this case, the user is only prompted for a password.

Another example can be found at [Section 58.6.7.1.4, "Example 3 - Default Input Parameter Value via Cloud Lookup"](#) which uses an intrinsic function to perform a runtime lookup for the default value.

## 58.6.2 Resources Section

The Resources section is used to describe the cloud resources you wish to create. Each resource description has a unique name and has the following attributes:

- **Container:** The URI of the parent cloud resource.
- **Type:** The media type of the resource, as defined by the Cloud Resource Model. (see [Chapter 46, "Cloud Resource Models"](#)). (If the specified Container is a resource that is a subtype of ServiceTemplate, this value is optional and the default type of the ServiceTemplate is assumed.)
- **Properties:** A set of name/value pairs used to specify values required per the Cloud Resource Model.

For each resource you wish to create, you must know its type, its parent, and the properties you must provide to specify its characteristics. For more details, see the [Chapter 46, "Cloud Resource Models"](#).

For instance, a `JavaPlatformInstance` must specify:

- A container resource, using the URI of a `JavaPlatformTemplate`. (You choose a template by selecting one that creates an instance most suited to your needs.)
- The properties required by the Cloud Resource Model. For `JavaPlatformInstance`, these are:
  - Name
  - Zone (the URI of a zone)

### Example

In a blueprint, the Resource description of a `JavaPlatformInstance` might look like this:

```
MyJavaServer1:
 Container:
 f_getTemplateURI:
 - Small WLS
 - jaas
 Properties:
 name: Foo
 zone:
 f_getZoneURI:
 - Zone1
 - jaas
```

The above example does not specify **Type** because, this is optional when the container is a subtype of `ServiceTemplate`. Had we wanted to explicitly specify the media type, we could have written:

```
MyJavaServer1:
 Type: application/oracle.com.cloud.jaas.JavaPlatformInstance
 Container:
 ...
```

Our example uses the `f_getTemplateURI` and `f_getZoneURI` intrinsic functions to look up the required URI's. Resource definitions have access to numerous such functions as described in [Section 58.6.7, "Intrinsic Functions"](#). Resource definitions can also use user-defined macros, as described in [Section 58.6.5, "Macros Section"](#).

## 58.6.3 Outputs Section

The Outputs section is used to describe the set of "outputs" of a blueprint. In this release, outputs are just used by the blueprint author to specify information to display at the end of a successful deployment. For instance, he may define an output that displays the URL of an application deployed to a `JavaPlatformInstance`.

Each output description has a unique name and one required attribute named "Value". That attribute generally specifies a blueprint expression whose value would be of interest to the user who instantiates a blueprint. (One may also include a "Description" attribute for each output definition.)

### Example

The following Outputs section specifies one output to display:



```

Outputs:
 Application_URL:
 Description: URL of the deployed app
 Value:
 f_getResourceAttr:
 - MyApp
 - http_application_invocation_url

```

In this example, the output definition uses the `f_getResourceAttr` intrinsic function to retrieve the `http_application_invocation_url` attribute of a newly created `ApplicationInstanceDeployment`. (See [Chapter 46, "Cloud Resource Models"](#) for more information on that attribute.)

## 58.6.4 Data Section

The Data section contains arbitrary YAML text. The data defined in this section can be accessed through intrinsic functions and can be used in various ways during blueprint deployment. For instance, the author of a blueprint may wish to use the concept of named literals to improve the readability and maintainability of a blueprint. He may want to use short descriptive names instead of long literal values such as cryptic URI's. He may also anticipate needing to change a value used by a blueprint, in which case it can be specified once in the Data section and referenced throughout the blueprint.

### Example

The following blueprint excerpts show a Data section that contains an item named `db_conn_str`, a long JDBC connect string that is referenced later in the a `DataSource` resource definition.

```

Data:
 db_conn_str: 'jdbc:oracle:thin:sysman/sysman@hostname.zzz.com:15044:smay16'
Resources:
 ...
 MyDataSource:
 Type: application/oracle.com.cloud.jaas.DataSource
 ...
 Properties:
 name: jbTest
 jdbc_driver: oracle.jdbc.OracleDriver
 database_type: Oracle
 database_connect_string:
 f_path:
 - Data.db_conn_str
 ...

```

## 58.6.5 Macros Section

The notation used in blueprints can be verbose. If you have a sequence of constructs that you tend to repeat, you can use macro expansion to improve the readability of your blueprint. Macros also enable you to encapsulate logic so that changes made one in section get reflected throughout the document.

The Macros section is used to define macros that can be invoked/expanded from elsewhere in the blueprint. A macro invocation may occur wherever a function invocation is allowed, indeed, the notation is identical and one cannot tell from the invocation whether it is an intrinsic function or a macro that is being invoked. (In this way, a macro can be used to override an intrinsic function. Also, some Oracle-provided intrinsic functions are implemented as macros.)

Each macro definition has a unique name and its definition specifies two values:

- The number of arguments it uses.
- The textual representation of the macro expansion.

When a macro is invoked, its textual representation replaces the invocation. Wherever the textual representation specifies a value of `arg_<integer>`, the value of that argument is used instead.

### Example

Consider this somewhat contrived blueprint:

```
Macros:
Return a string that describes a resource being created
The one argument is a 'name' string
f_myDescriptiveName:
- 1
- f_concat:
- "Resource "
- arg_1
- " created for blueprint instance "
- f_path:
- "Info.instance_name"
- " on "
- f_path:
- "Info.date"

Resources:
MyJavaServer:
Container:
f_getTemplateURI:
- Small WLS
- jaas
Properties:
name:
f_myDescriptiveName:
- MyFirstJavaServer
zone:
f_getZoneURI:
- Zone1
- jaas

Outputs:
NameOfServer:
Value:
f_path:
- "Resources.MyJavaServer.Properties.name"
```

The Macros section defines one macro named `f_myDescriptiveName`, which takes one string argument and constructs a larger string adding descriptive information.

The macro is then invoked as part of the `MyJavaServer` resource definition. It is invoked with a value of `"MyFirstJavaServer"` and the resource will be created with a 'name' property whose value is `"Resource MyFirstJavaServer created for blueprint instance myQAInstance on 5/9/2012"`.

Blueprint Processor - Invocation Summary

```

Cloud URI: https://...
User: sysman
...
13:32:22 INFO:
```

```
13:32:22 INFO: Output values specified: 1
13:32:22 INFO: Value of NameOfServer: Resource MyFirstJavaServer created for
 blueprint instance myQAInstance on 5/9/2012
...
```

## 58.6.6 Expressions

A blueprint uses ‘expressions’ to compute values at deployment time. In many cases, the expressions are simple literal string values such as a `user_name` attribute whose value is `app_user`. In other cases, values are constructed via user-defined macros (see [Section 58.6.5, "Macros Section"](#)) and intrinsic functions (see [Section 58.6.7, "Intrinsic Functions"](#)).

Two intrinsic functions, `f_path` and `f_eval`, are provided to evaluate the two types of expression string:

- Path expression
- Eval (or Blueprint) expression

These expression types are described below. They can be used not only in calls to `f_path` and `f_eval` but also in the blueprint debugger.

### 58.6.6.1 Path Expressions

Path expressions are similar to JSONPath [JSONpath] and XPath expressions and are used to extract values from blueprints and cloud resources as well as to traverse URI’s that link you to other resources.

The starting point for evaluating a path expression is generally the in-memory blueprint. Recall that it contains all the information from your blueprint plus these attributes:

- Cloud: the cloud resource, which is defined in [Chapter 46, "Cloud Resource Models"](#) and has attributes that describe the overall cloud as well as those that enable you to traverse to all other cloud resources (to which you have access).
- Info: a section that contains runtime information you may wish to refer to such as the instance name specified when blueprint processing was initiated, the current date, etc.
- Other blueprint-processor-computed values such as the input parameters provided by the end-user and the URI’s of resources once they have been created.

All this information can be accessed via path expressions. The rest of this section summarizes syntax and semantics and provides examples. As you have seen in earlier sections, the `f_path` intrinsic function provides one way to evaluate path expressions. In the examples that follow, we use another mechanism, the blueprint debugger, described further in [Section 58.9, "Debugging with the Blueprint Processor"](#). As you will see, you can use this not only to explore the contents of your blueprint runtime data but also to explore the contents of the cloud.

In the following descriptions, `<doc>` refers to the YAML data structure on which the operator acts.

In the example: `Cloud.zones.elements[0]`

The value of the runtime blueprint’s `Cloud` attribute is the first `<doc>`. The dot-operator in `‘.zones’` is applied to that `<doc>`, yielding a new `<doc>` whose value is that of the `zones` attribute of the first `<doc>`. Numerous examples are provided to illustrate the use of the operators.

### 58.6.6.2 Operator Summary

- **Dot Operator (“Member of”):** `<doc>.<name>`: As seen in previous examples, the dot operator selects a value from a document. If `<doc>` has an attribute named `<name>`, the value of `<name>` is returned. Otherwise, expression evaluation fails.
- **Square Bracket (“List Indexing”):** `<doc>[<integer>]`: If `<doc>` is a list of values, the value of the `<integer>`th element is returned. Otherwise, expression evaluation fails. Indexing is zero-based, i.e. the first element is specified as `“<doc>[0]”`.
- **Dollar Sign (“Literal string prefix”):** `<doc> $ <string>`: To begin a path expression with a string literal, use the `‘$’` prefix, for instance:

```
$"/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51" ->
```

In the above example, you know the URI of a specific resource and use the arrow operator to view its contents.

This syntax is only useful at the beginning of a path expression, but for consistency with the overall path notation, one can place the `$` operator anywhere in a path expression. Other path expression operators operate on the `<doc>` to the left. The `$` operator simply replaces the left value with the value of the literal string to the right.

In short, the `$` operator returns the literal string value. If the right operand is not a literal string, expression evaluation fails.

- **Arrow (“URI Traversal”):** `<doc> ->`: If `<doc>` is a URI, traverse to the identified resource and return its document. In other words, perform a GET on the URI specified by `<doc>`. If `<doc>` is not a URI or the GET fails, expression evaluation fails.

For instance, in this path expression...

```
Cloud.zones.elements[0].uri->
```

the expression to the left of the arrow operator returns the URI of a zone. The arrow operator is used to traverse to the zone, i.e. it performs a GET on the URI and displays the contents:

```
context_id: A1B44A4EBCC4563125D9D0A3AAE4FD51
description: Zone for Physical Pool
media_type: application/oracle.com.cloud.jaas.Zone+json
name: Zone1
resource_state:
 state: READY
service_family_type: jaas
service_instances:
 elements: []
 media_type: application/oracle.com.cloud.common.ServiceInstance+json
 total: '0'
uri: /em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51
```

In most cases the traversal operator is sufficient, but you can also specify traversal qualifiers. In particular, you can specify a media type and request parameters. These are optional and enclosed in square brackets. Multiple qualifiers can be specified, separated by commas.

To specify a media type, use a string (enclosed in quotes or double quotes).

- To specify a request parameter there are two styles:
  - Identifier

- Identifier = quotedValue
- Overall, there are 3 forms of traversal qualifiers
- *quotedValue*:  
media type
  - *Identifier*:  
a request parameter that has no value
  - *Identifier = quotedValue*  
a request parameter that has a value

For instance, the following path expression traverses to the cloud URI and specifies three qualifiers (a media type and two request parameters).

```
Cloud.uri->
["application/oracle.com.cloud.common.ServiceTemplateFinds+json",
filters='{ "filters": { "service_family_type": "jaas"}', name]
```

The first parameter is the media type to be used to request that the cloud process a filter/query as described in [Chapter 46, "Cloud Resource Models"](#). The remaining two are request parameters, also described in [Chapter 46, "Cloud Resource Models"](#). The second is named 'filters' with a value that specifies the filtering to perform (expressed as a JSON string). The last is named 'name' and has no value. This specifies that the name attribute is to be returned.

### 58.6.6.3 Example: Viewing all values of Info

As noted above, the Info section contains environmental information that may be of use when constructing your blueprint. This example shows how to see those values that are currently available in the Info section.

Suppose you are looking for a value you can use to construct a unique name. You run the blueprint processor and enter debug mode. (You can do this by specifying "-I" on the command line.

```
C:\Users\jabauer\Dropbox\Code\blueprints>bp_processor.py helloWorld.yml
-c https://xyxy.example.com:15430/em/cloud -u sysman -p sysman -I
```

...

```
Blueprint Processor - Invocation Summary
```

```

Cloud URI: https://xyxy.example.com:15430/em/cloud
User: sysman
Blueprint file: helloWorld.yml
...
```

```
...Pause point, prior to Input processing...
For command info, enter (h)elp
```

```
Paused: Info
date: 1/11/2013
date_suffix: '1_11_2013'
instance_name: default_instance_name
time: '16:47:7'
time_suffix: '16_47_7'
uuid: 81dcaf6895fa4fb881e82d1c16ef7025
```

Here, you see that there are 6 values stored in the Info section. There is one named `uuid` that is a universally unique hexadecimal string. You may prefer to go with `time_suffix`, as being sufficiently unique and more readable.

More values may be added between the time of writing this document and when the blueprint processor ships, so you can use this technique to see what's available in the version you are using.

#### 58.6.6.4 Examples: Viewing Blueprint Values

Suppose you have a blueprint that begins with...

```
Inputs:
 DbPassword:
 Type: String
 DefaultValue: welcome1
 Prompt: Password to use for db
 Sensitive: True
```

Say you run the blueprint processor and specify command line options to pause just before processing the Inputs and Resources section, e.g. you specify `"-RI"`.

```
...Pause point, prior to Input processing...
For command info, enter (h)elp
```

```
Paused: Inputs.DbPassword
DefaultValue: welcome1
Prompt: Password to use for db
Sensitive: true
Type: String
```

At the first pause point above, you enter the expression `'Inputs.DbPassword'` and see that it has the attributes you specified in your blueprint. That includes `DefaultValue`, `Prompt`, and `Sensitive`. Note that it does not have an attribute named `Value` because input processing has not been performed yet.

```
Paused: c
...continuing...
```

```
Input Parameter Value Entry

 Password to use for db (welcome1):
```

```
...Pause point, prior to processing Resources section...
For command info, enter (h)elp
```

```
Paused: Inputs.DbPassword.Value
welcome1
```

```
Paused: Inputs.DbPassword
DefaultValue: welcome1
Prompt: Password to use for db
Sensitive: true
Type: String
Value: welcome1
```

You then enter `c` to continue and are prompted for a password. You enter one, which is not echoed because you specified that it was **Sensitive**.

Then the second (prior to processing the Resources section) pause point is reached. You enter `"Inputs.DbPassword.Value"` to see the value of your password and then

enter **"Inputs.DbPassword"** to see the value of all attributes for the DbPassword input parameter.

### 58.6.6.5 Examples: Browsing Your Cloud

Path expressions also offer an easy way to explore the resources in the cloud and their attributes. That is because, at the beginning of blueprint processing, the cloud resource (as defined in [Chapter 46, "Cloud Resource Models"](#)) is read and placed into the in-memory blueprint structure. By starting your path expression with **Cloud**, you can browse attributes of the Cloud resource and navigate via URI's to any other resource to which you have access.

To start, we look at the **description** of the cloud to which you connected:

Paused: **Cloud.description**

This represents the Cloud resource of the Oracle Enterprise Manager Cloud Management solution  
Paused

Now let us do something more useful, for example, look at the cloud's zones attribute:

Paused: **Cloud.zones**

elements:

```
- media_type: application/oracle.com.cloud.jaas.Zone+json
 name: Zone1
 service_family_type: jaas
 uri: /em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51
- description: Zone for Physical Pool
 media_type: application/oracle.com.cloud.common.DbZone+json
 name: Zone1
 type: self_service_zone
 uri: /em/cloud/dbaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51
- media_type: application/oracle.com.cloud.opc.OpcZone+json
 name: OPC Zone
 service_family_type: opc
 type: opc
 uri: /em/cloud/opc/opczone
media_type: application/oracle.com.cloud.common.Zone+json
total: '3'
```

Here, we see that the 'zones' attribute contains three attributes, elements, media\_type, and total. Their meanings are described in [Chapter 46, "Cloud Resource Models"](#).

We wish to focus on the first zone listed, so we use the square bracket (list indexing) syntax:

Paused: **Cloud.zones.elements[0]**

media\_type: application/oracle.com.cloud.jaas.Zone+json  
name: Zone1  
service\_family\_type: jaas  
uri: /em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51

We can further specify that we wish to focus on the 'uri' attribute by adding another dot-operator:

Paused: **Cloud.zones.elements[0].uri**

/em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51

To view the resource to which that URI refers, we add the arrow (traversal) operator:

Paused: **Cloud.zones.elements[0].uri->**

context\_id: A1B44A4EBCC4563125D9D0A3AAE4FD51

```
description: Zone for Physical Pool
media_type: application/oracle.com.cloud.jaas.Zone+json
name: Zone1
resource_state:
 state: READY
service_family_type: jaas
service_instances:
 elements: []
 media_type: application/oracle.com.cloud.common.ServiceInstance+json
 total: '0'
uri: /em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51
```

As you would expect, you can continue to add to your path expressions, for instance you can write "multi-hop" expressions that traverse multiple URIs, e.g. ...

```
Paused: Cloud.service_templates.elements[0].uri->zones.elements[0].name
Zone1
```

```
Paused: Cloud.service_templates.elements[0].uri->zones.elements[0].uri->
context_id: A1B44A4EBCC4563125D9D0A3AAE4FD51
description: Zone for Physical Pool
media_type: application/oracle.com.cloud.jaas.Zone+json
name: Zone1
resource_state:
 state: READY
service_family_type: jaas
service_instances:
 elements: []
 media_type: application/oracle.com.cloud.common.ServiceInstance+json
 total: '0'
uri: /em/cloud/jaas/zone/A1B44A4EBCC4563125D9D0A3AAE4FD51
```

Paused:

In the above example, the `service_templates` attribute of the Cloud is used to identify the first service template. We then traverse its URI to get to the template, where we identify the first zone in its list of supported zones. We then traverse its URI to get to the full definition of the zone.

In most cases the traversal operator is sufficient, but if there is no default media-type defined for the URI, you may need to specify the media-type to be retrieved, as specified in [Chapter 46, "Cloud Resource Models"](#). In the following example, we provide a media type even though it wasn't needed.

```
Paused: Cloud.service_templates.elements[0].uri->
["application/oracle.com.cloud.jaas.JavaPlatformTemplate"]

context_id: D2520A0CFFE348BCE040F20A4C1B2D8F
created: '2013-01-02 09:35:52.0'
default_instance_media_type:
application/oracle.com.cloud.jaas.JavaPlatformInstance+json
...
```

Similarly, you can use the traversal qualifier syntax to specify request parameters as defined in [Chapter 46, "Cloud Resource Models"](#). For example:

```
Paused: Cloud.service_templates.elements[0].uri->[created, resource_state]
created: '2013-01-02 09:35:52.0'
resource_state:
 state: READY
```



### 58.6.6.6 Eval or Blueprint Expressions

An 'eval' (aka 'blueprint') expression is any expression you can include in your blueprint.

#### Example: Simple Intrinsic Function Evaluation

Eval expressions can be evaluated in the debugger via the 'e' or 'eval' command. After entering the command, you enter the lines that comprise the expression followed by an empty line. Suppose you want to experiment with the `f_concat` intrinsic:

```
Paused: e
 Eval: f_concat:
 Eval: - xxx
 Eval: - yyy
 Eval:
xxxxyy
Paused:
```

You enter the call to `f_concat` (in 3 lines) and the value is printed after you terminate the expression with an empty line.

This time you nest another call:

```
Paused: e
 Eval: f_concat:
 Eval: - xxx
 Eval: - f_path:
 Eval: - 'Inputs.DbPassword.Value'
 Eval: - yyy
 Eval:
xxxmySecretyyy
Paused:
```

As you can see, this provides a way to experiment with snippets of blueprint.

#### Example: Lookup Intrinsic Function

In this example, suppose your blueprint includes the use of `f_getTemplateURI` to look up a template URI:

```
Resources:
 MyDB:
 Container:
 f_getTemplateURI:
 - Small DB
 - dbaas
```

If you think the wrong URI is being returned, you can check like this...

```
Paused: e
 Eval: f_getTemplateURI:
 Eval: - template1
 Eval: - jaas
 Eval:
/em/cloud/jaas/javaplatformtemplate/BFAB458D36BDA87EE040E50A038F6D45
Paused:
```

This shows the URI value returned by `f_getTemplateURI` with the arguments you entered.

## 58.6.7 Intrinsic Functions

Intrinsic functions are functions that blueprints can use to compute/return desired information. For instance, the `f_concat` function returns the concatenation of its string arguments and the `f_getZoneURI` function looks up and returns the URI of a zone. The normal usage of intrinsic functions is to provide values needed as part of the Resources and Outputs sections, but an intrinsic function can be placed wherever a literal value is allowed. For instance, one can use an intrinsic to derive the `DefaultValue` used for an Input parameter.

This section describes the currently available intrinsic functions.

### 58.6.7.1 Evaluation Intrinsics

These two intrinsics are used to evaluate expressions (of different types) and return a single value.

#### 58.6.7.1.1 `f_path(pathExpr)`

Apply the `pathExpr` string to the blueprint document, returning the specified value.

##### Parameters

- **pathExpr:** e.g. "member.subMember..."  
A path expression that describes how to traverse and extract information from the document. See [Section 58.6.6.1, "Path Expressions"](#).

#### 58.6.7.1.2 Example - Value from Data Section

To specify a resource's property value using a literal value defined in the Data section of your blueprint ...

```
...
 params:
 MasterUser:
 f_deref:
 - "Data.QADBCreds.user"
 ...
```

#### 58.6.7.1.3 Example 2 - Value from Inputs Section

To do the same as above, only using an input parameter value ...

```
...
 params:
 MasterUser:
 f_deref:
 - "Inputs.my_param.value"
 ...
```

#### 58.6.7.1.4 Example 3 - Default Input Parameter Value via Cloud Lookup

Intrinsic functions can appear in sections other than the Resources section. For instance, this blueprint shows the use of `f_path` in the Inputs section.

```
Inputs:
 JavaSvcZone:
 DefaultValue:
 f_path:
 - 'Cloud.zones.elements[0].name'
 Type: String
 Prompt: Enter the name of a jaas zone
```

...

The blueprint author here wants to provide an arbitrary default zone name, so the path expression selects the first zone that appears in the 'zones' attribute of the cloud.

The default value (shown in the prompt) is computed at runtime:

```
Input Parameter Value Entry

Enter the name of a jaas zone (east_coast_zone):
```

#### 58.6.7.1.5 f\_eval(blueprintExpr)

Evaluate `blueprintExpr`, returning the specified value. See [Section 58.6.6.6, "Eval or Blueprint Expressions"](#) for information on blueprint expressions.

#### Parameters

**blueprintExpr:** YAML text to be evaluated as if it appeared in a blueprint.

#### 58.6.7.1.6 Example (Contrived)

The `f_eval` intrinsic is used internally by the blueprint processor, and it's unlikely you will need to use it. (You just use the blueprint expression directly.) One reason you might want to use this function is if you have a variable whose value is a blueprint expression in the form of a YAML string.

```
Data:
 demoOfYamlMultilineText: |
 This is a multi-
 line text string which is
 carefully indented. :-)
 myBlueprintExpressionText: |
 f_concat:
 - 'Mister '
 - 'Mxyzptlk'
Outputs:
 demoOfYamlMultilineText:
 Value:
 f_path:
 - 'Data.demoOfYamlMultilineText'
 myBlueprintExpressionText:
 Value:
 f_path:
 - 'Data.myBlueprintExpressionText'
 useOfEvalonExpressionText:
 Value:
 f_eval:
 - f_path:
 - 'Data.myBlueprintExpressionText'
```

Which results in this output:

```
18:49:58 INFO: Output Processing
18:49:58 INFO: -----
18:49:58 INFO:
18:49:58 INFO: Output values specified: 3
18:49:58 INFO: Value of demoOfYamlMultilineText: This is a multi-
line text string which is
carefully indented. :-)
18:49:58 INFO: Value of myBlueprintExpressionText: f_concat:
- 'Mister '
```

```
- 'Mxyzptlk'
18:49:58 INFO: Value of useOfEvalonExpressionText: Mister Mxyzptlk
```

### 58.6.7.2 Resource Access Intrinsics

These intrinsics are used to access resource attributes. As part of their operation, unlike `f_path`, they assure that the resource is in the READY state, waiting if needed.

#### 58.6.7.2.1 `f_getResourceAttr(bpResName, pathExpr)`

Get the value of a cloud resource attribute after it is READY.

##### Parameters

- **bpResName:** Resource name (specified in blueprint)
- **pathExpr:** Same semantics as used in `f_deref`, only against the document of the cloud resource identified by `bpResName`.
- **Returns:** result of evaluating `pathExpr` of the resource, once it is created and its `resource_state` is READY.

##### Example 1

To add an application to a MW platform, an Application resource can use this Container clause...

```
Container:
 f_getResourceAttr:
 - myJavaPlatform
 - uri
```

##### Example 2

To access the name of the zone in which your MW platform was created, you can write...

```
f_getResourceAttr:
 - myPlatform
 - zone.name
```

#### 58.6.7.2.2 `f_getResourceURI(bpResName)`

Get the URI for a blueprint-defined resource. This is just a shorthand for using `f_getResourceAttr` with the specified attribute being 'uri'.

##### Parameters

- **bpResName:** Name used in the blueprint resource definition.
- **Returns:** URI

##### Example

To define a Datasource resource that is to be contained in a JavaPlatformInstance resource created elsewhere in your blueprint...

```
MyDatasource:
 Type: Datasource
 Container:
 f_getResourceURI:
 - MyJavaServer
```

### 58.6.7.3 Lookup Intrinsic

These intrinsic search for a template, zone, or application component, returning its URI.

#### 58.6.7.3.1 `f_getTemplateURI(name, type)`

Get the URI for a template, based on its name and type.

##### Parameters

- **name:** Template name
- **type:** A service type name. The current list of allowed values is iaas, jaas, and dbaas
- **Returns:** URI

##### Example

A blueprint resource to create a database using template simpleDb, could be written...

```
Container:
 f_getTemplateURI:
 - simpleDb
 - dbaas
```

#### 58.6.7.3.2 `f_getZoneURI(name, type)`

Get the URI for a zone, based on its name and type.

##### Parameters

- **name:** Zone name
- **type:** A service type name. The current list of allowed values is iaas, jaas, and dbaas
- **Returns:** URI

##### Example

To get the URI of zone EMEA\_db\_zone...

```
f_getZoneURI:
 - EMEA_db_zone
 - dbaas
```

#### 58.6.7.3.3 `f_getAppCompURI(name, owner, version) ...`

Get the URI for an application component, based on its name, owner, and version.

##### Parameters

- **name:** Application component name
- **owner:** Owner of application component
- **version:** Version of application component. If blank, the latest version is used.
- **Returns:** URI

##### Example

To get the URI of the most recent version of the application component jbscomponent, owned by SSA\_USER1 ...

```
f_getAppCompURI:
 - jbscomponent
```

```
- SSA_USER1
-
```

Note that the third argument is required.

#### 58.6.7.4 Debugging Intrinsic

These intrinsic functions are used to establish breakpoints or printpoints.

##### 58.6.7.4.1 `f_break(expression, [breakpointMessage])`

Pause evaluation of the blueprint, print optional message, and enter blueprint debugger.

###### Parameters

- **expression:** any blueprint expression
- **breakpointMessage:** Message to be printed when the intrinsic function is invoked, just prior to entering the debugger.
- **Returns:** Value of expression. This is computed when the 'continue' command is entered.

**Note:** See [Section 58.9, "Debugging with the Blueprint Processor"](#) for examples and other information on how to use breakpoints to help debug your blueprints.

##### 58.6.7.4.2 `f_print(expression, [printpointMessage])`

Print a line that displays the value of expression. Pause evaluation of the blueprint, print optional message, and enter blueprint debugger.

###### Parameters

- **expression:** any blueprint expression
- **printpointMessage:** Message to be printed when the intrinsic function is invoked, just prior to entering the debugger.
- **Returns:** Value of expression.

**Note:** The line printed looks like this:

```
>>> Printpoint [<printpoint message>]:
```

```
Value = <expression>
```

See [Section 58.9, "Debugging with the Blueprint Processor"](#) for examples and other information on how to use breakpoints to help debug your blueprints.

#### 58.6.7.5 Other Intrinsic

`f_concat(string1, ... stringN):`

Returns the concatenation of the string arguments.

###### Parameters

**string\*:** A string to be concatenated with the other string arguments

###### Example

To set the description of a `JavaPlatformInstance` to "Created by blueprint FOO on <current date>" ...

Resources:

MyJavaServer:

```

...
Properties:
 description:
 f_concat:
 - "Created by blueprint FOO on "
 - f_path:
 - "Info.date"
...

```

## 58.7 Dealing with Errors

This section illustrates various types of errors you may encounter and, by example, how to interpret/resolve the issues.

### 58.7.1 YAML Syntax Errors

Any syntax errors encountered by the YAML parser are diagnosed by the parser. Consider this blueprint snippet...

```

Example of YAML syntax error
Data:
 userId: Lex
 password: changeMe
...

```

In the above example, the YAML parser would detect an indentation error and diagnose it like this:

```

18:55:59 ERROR: Error loading blueprint YAML:
while parsing a block mapping
 in "<string>", line 2, column 1:
 Data:
 ^
expected <block end>, but found '<block mapping start>'
 in "<string>", line 4, column 3:
 password: changeMe
 ^

```

The second half of the diagnostic, the “expected” part, is usually the most helpful. In this case, it tells you the error was detected at the token ‘password’, what it was expecting, and what it found.

One common error to avoid is the use of tabs in the YAML file. YAML does not allow tab characters.

### 58.7.2 Protocol Version Mismatch

A diagnostic like this...

```

Blueprint Processor - Invocation Summary

Cloud URI: http://xyxy.example.com:4473/em
User: sysman
Blueprint file: examples/evalintrinsic.yml
Timeout: 90 minutes, 0 seconds
Refresh frequency: 15 seconds
Inputs:
Pause points: Inputs, Termination
Debug logging: False
Instance name: default_instance_name

```

```

Versions:
 Blueprint processor: 12.1.0.4 May 25
 Cloud protocol: 10001

```

```

19:05:06 INFO: Connecting to cloud: http://xyxy.example.com:4473/em
19:05:07 ERROR: Cloud protocol version mismatch. Expected 10001. Found None.

```

The diagnostic in bold, indicates that the blueprint processor was able to connect to the site but did not get the expected response. In particular, the site returned no x-specification-version value as part of the HTTP response.

This can happen if you specified an incorrect cloud URI. For instance, in the above example, the URI was not of the form

```
https://host:port/em/cloud
```

A common mistake is to omit the `"/cloud"`. Also, do not forget to use *https*, not *http*.

If the diagnostic indicates it found a protocol version that is lower than the one expected, that may indicate that you are using a version of the blueprint processor that requires a more recent version of Enterprise Manager.

### 58.7.3 Expression Evaluation Error

As part of blueprint processing, an attempt to evaluate an expression may result in an error. Examples of errors include:

- Passing the wrong number of parameters to an intrinsic function
- Referring to a non-existent intrinsic function
- Referring to a non-existent cloud resource such as a zone or template

When an expression evaluation error occurs, the issue is diagnosed and the expression is displayed. For instance, consider this contrived blueprint:

```

Outputs:
 ExampleValue:
 Value:
 f_concat:
 - MyApp

```

To keep the example short, the blueprint only has an Outputs section and one expression, which is a call to `f_concat`. Notice that `f_concat` requires at least two parameters, but only one is provided. When the blueprint processor is run for this blueprint, this is displayed:

```

15:26:25 INFO: Output Processing
15:26:25 INFO: -----
15:26:25 INFO:
15:26:25 INFO: Output values specified: 1
15:26:25 ERROR: Value of ExampleValue: Expression could not be evaluated.
Error is...
15:26:25 ERROR: Function/macro concat requires parameter count between 2 and 99,
not 1
15:26:25 ERROR: Expression being evaluated at the time:
15:26:25 ERROR: {'f_concat': ['MyApp']}
15:26:25 INFO:

```

The blueprint processor attempts to print the value of `'ExampleError'` when the error occurs. After displaying the diagnostic, the expression being evaluated at the time of the error is displayed (in JSON notation).



Expressions are generally nested, and the error may occur within a subexpression. In that case, the diagnostic includes an expression stack, so that you can see the specific expression in error as well as the outer context. For instance, consider this contrived blueprint:

```
Outputs:
 ExampleValue:
 Value:
 f_concat:
 - aaa
 - bbb
 - f_concat:
 - ccc
```

Notice that the expression involves two uses of `f_concat`. The outer use is correct, but there is an error with the inner use. When the blueprint processor is run for this blueprint, this is displayed:

```
15:42:50 INFO: Output Processing
15:42:50 INFO: -----
15:42:50 INFO:
15:42:50 INFO: Output values specified: 1
15:42:50 ERROR: Value of ExampleValue: Expression could not be evaluated.
Error is...
15:42:50 ERROR: Function/macro concat requires parameter count between 2 and 99,
not 1
15:42:50 ERROR: Expression evaluation stack follows (with failed expression at
bottom) ...
15:42:50 ERROR: -----
15:42:50 ERROR: | Expr: {'f_concat': ['aaa', 'bbb', {'f_concat': ['ccc']}]}
15:42:50 ERROR: | Expr: {'f_concat': ['ccc']}
15:42:50 ERROR: -----
15:42:50 INFO:
```

The expression evaluation stack shows the outer expression at the top and the expression with the error at the bottom. This stack only has two levels but in general there are many levels and each level of evaluation is shown. (The next example illustrates a multi-level expression evaluation stack.)

When a macro is evaluated, its definition is expanded and this expansion is shown in the expression evaluation stack. For instance, consider this contrived blueprint:

```
Outputs:
 ExampleValue:
 Value:
 f_getZoneURI:
 - myZone
 - jaas
```

In this case, the expression is a call to `f_getZoneURI` and the error is that the zone 'myZone' does not exist. When the blueprint processor is run for this blueprint, this is displayed:

```
15:57:17 INFO: Output Processing
15:57:17 INFO: -----
15:57:17 INFO:
15:57:17 INFO: Output values specified: 1
15:57:18 ERROR: Value of ExampleValue: Expression could not be evaluated.
Error is...
15:57:18 ERROR: Name not found: myZone
15:57:18 ERROR: find_one for predicate {'f_EQ': [{'f_pathc': ['name']], 'myZone'}}
```

```

failed
15:57:18 ERROR: Expression evaluation stack follows (with failed expression at
bottom) ...
15:57:18 ERROR: -----
15:57:18 ERROR: | Expr: {'f_getZoneURI': ['myZone', 'jaas']}
15:57:18 ERROR: | Expr: {'f_pathc': [{'f_findByName': [{'f_pathc': [{'f
f_findByName': [{'f_path': ['Cloud.service_family_types.elements']], 'jaas']],
'.uri-.zones.elements']], 'myZone']], '.uri'}}
15:57:18 ERROR: | Expr: {'f_findByName': [{'f_pathc': [{'f_findByName': [{'f
f_path': ['Cloud.service_family_types.elements']], 'jaas']],
'.uri->.zones.elements']], 'myZone'}}
15:57:18 ERROR: | Expr: {'f_findOne': [{'f_pathc': [{'f_findByName': [{'f_path':
['Cloud.service_family_types.elements']], 'jaas']], '.uri->.zones.elements']],
{'f_EQ': [{'f_pathc': ['name']], 'myZone']], {'f_concat': ['Name not found: ',
'myZone']}]}}
15:57:18 ERROR: -----
15:57:18 INFO:

```

When the error is detected, a diagnostic is displayed: “Name not found: myZone”. In this case, the error should be clear and you need not bother reading further.

But to illustrate how macro expansion and multi-level nested expressions are shown in the expression evaluation stack, we continue walking through the example. The top line of the stack shows the outer expression, which is what was specified in the blueprint as the expression for ‘Value:’. Because the `f_getZoneURI` intrinsic is implemented as a macro, line 2 of the expression evaluation stack shows the expression after macro expansion. (It is long, so line wrapping is needed.)

Line 3 shows the subset of line 2 that was being evaluated when the error occurred and line 4 shows the same expression after the `f_findByName` macro was expanded.

---

**Note:** Intrinsic macros use some internal functions, which is why you see names like `f_pathc`.

---

## 58.7.4 Cloud Resource Creation Error

In the previous example, the failure to create a resource was detected some time after the request was accepted. In some cases, the request to create may fail immediately.

If an error occurs while attempting to create a resource, you will see a diagnostic that identifies the resource, the error code, and some diagnostic text. In the following example, the attempt to create a resource name `MyJavaPf` failed with an HTTP code of 500. Reading further, you can see diagnostic text like, “cannot process request for ...”, “Unable to start the Instance deployment”, and “stack\_trace\_cause”: “java.lang.IllegalArgumentException: Unable to service executable from service template...”

```

14:43:37 INFO: MyJavaPf
14:43:37 INFO: /
14:43:37 INFO: / MyDatasource
14:43:37 INFO: / /
14:43:37 INFO: -----
14:43:37 INFO: | e | |
14:43:38 INFO: | es | |
14:43:42 ERROR: Failure creating resource MyJavaPf: 500
{
 "messages" :
 [
 {

```

```

 "date" : "2012-05-22T18:43:42+0000" ,
 "text" : "cannot process request for
oracle.sysman.emInternalSDK.ssa.cloudapi.ResourceInteraction@767d6a37 on
/em/cloud/jaas/
javaplatformtemplate/C086733BCCF2A4F3E040F10A716049A8" ,
 "hint" : " Unable to start the Instance deployment" ,
 "stack_trace_cause" : "java.lang.IllegalArgumentException: Unable to
service executable from service template : C086733BCCF2A
4F3E040F10A716049A8\n\tat
oracle.sysman.ssa.mwaas.model.util.remoteop.DPSubmissionHelper.
_createRequestMWaaSSetup(DPSubmissionHelper.
java:359)\n\tat oracle.sysman.ssa.mwaas.model.util.remoteop.DPSubmissionHelper.
_submitMWaaSSetupServiceRequest(DPSubmissionHelper.
java:616)\n\tat
oracle.sysman.ssa.mwaas.model.util.remoteop.DPSubmissionHelper.submitMWaaSSetupSe
rviceRequest(DPSubmissionHelper.
java:712)\n\tat
oracle.sysman.ssa.cloudapi.jaas.JavaPlatformInstance.GenerateJavaPlatformInstance
(JavaPlatformInstance.java:369)\n\tat
oracle.sysman.ssa.cloudapi.jaas.JavaPlatformTemplate.processRequest(JavaPlatformTe
mplate.java:128)\n\tat oracle.sysman.ssa.cloudapi.jaas.J
aaSServiceProvider.processRequest(JaaSServiceProvider.java:520)\n\tat
oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.perform
(EMCloudServlet.java:226)\n\tat
oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.performPost
(EMCloudServlet.j" ,
 "stack_trace" :
 "oracle.sysman.emInternalSDK.ssa.cloudapi.CloudServiceException: Unable to start
the Instance deployment\n\t
at
oracle.sysman.ssa.cloudapi.jaas.JavaPlatformInstance.GenerateJavaPlatformInstance
(JavaPlatformInstance.java:373)\n\tat oracle.sysm
an.ssa.cloudapi.jaas.JavaPlatformTemplate.processRequest(JavaPlatformTemplate.
java:128)\n\tat oracle.sysman.ssa.cloudapi.jaas.JaaSer
viceProvider.processRequest(JaaSServiceProvider.java:520)\n\tat
oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.
perform(EMCloudServlet.java:226)\n\tat
oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.performPost
EMCloudServlet.java:363)\n\tat oracle.
sysman.emInternalSDK.ssa.cloudapi.rest.AbstractRestServlet.doPost(AbstractRestServ
let.java:134)\n\tat
javax.servlet.http.HttpServlet.service(HttpServlet.java:727)\n\tat
javax.servlet.http.HttpServlet.service(HttpServlet.java:820)\n\tat
weblogic.servlet.internal.
StubSecurityHelper$ServletServiceAction.run(StubSecurityHelper.java:227)\n\tat
weblogic.servlet.internal.StubSecurityHe
 }
]
}

14:43:42 INFO: | CF | |
14:43:42 INFO: -----
14:43:42 INFO:
14:43:42 ERROR: Create of resource MyJavaPf failed

```

In this example, the HTTP code is 500. Any code that begins with a 5 indicates that the cloud server encountered an unexpected exception. This could be due to an environment issue or even a bug in the server software. Since a 5xx code reflects a server error, you should contact the self service administrator.

In other cases, you may see a 4xx error code, which is returned when the client seems to have erred. In such cases, you should check the 'hint' and 'message' information for clues as to what went wrong, because you may be able to correct an error you made.

The blueprint processor lists the diagnostic information it receives, but for security reasons, the cloud server may not provide sufficient information to diagnose the issue. In this case, you should contact the self service administrator, who in turn can often diagnose the issue by reviewing the log files for the cloud request.

## 58.8 Simulation Mode

The blueprint processor simulation mode can be used to aid in developing and testing blueprints. In this mode, the requests normally sent to the cloud server are simulated as well as the results returned by the server. Otherwise the blueprint processing logic is the same. To run the blueprint processor in this mode, you simply do not specify a cloud URI, i.e. do not use the -c option on the command line.

One benefit of simulation mode is the speed with which you can run a blueprint and try variations. Normal running of blueprints involves cloud requests for which the processing may be quite time consuming. When in simulation mode, the default behavior is that requests to create each resource consume 2 seconds and then succeed.

Another benefit is the ability to test various possibilities. For each resource, you can specify the simulated processing time as well as whether the request succeeds or fails. To do this for a given resource, use the Simulation attribute when defining a resource. For example:

```
MyJavaServer1:
 Container:
 f_getTemplateURI:
 - Small WLS
 - jaas
 Properties:
 destination_zone:
 f_getZoneURI:
 - MyZone
 - jaas
 params:
 user: app_user
 password: pw_you_should_change
 Simulation:
 delay: 3
 result: f
```

In the above example, creation of MyJavaServer1 will fail after 3 seconds.

## 58.9 Debugging with the Blueprint Processor

In addition to running the blueprint processor such that it deploys the blueprint and runs to completion, there are mechanisms you can use to debug blueprints. These are akin to mechanisms you may have used for debugging other applications, like print statements and the use of a debugger to interactively display values used by your application.

To enter the debugger at a particular point of execution, you can use either of two mechanisms. The simpler approach, which will usually be sufficient, is to use command line options that cause execution to pause between processing phases. These are called "pause points" and are described below. The alternative approach

enables you to break at a more specific point, such as just prior to evaluating an expression for a specific resource's property. To do this, you edit the blueprint to include a breakpoint.

When either a pause point or breakpoint is reached, control is transferred to the “debugger”. In the debugger, you enter various commands to display contents of the blueprint as well as that of the cloud to which you are connected.

### 58.9.1 Printing Intermediate Results

The essence of blueprint processing is to evaluate expressions and create resources once all required expressions have been evaluated. At any point during evaluation of an expression, you may wish to see some intermediate results to confirm the value is what you expected. To do so, you use the intrinsic function `f_print`.

Wherever an expression can appear in a blueprint, you simply nest it in a call to `print`. Optionally, you can include a second text message argument. When `print` is encountered, the text message and expression value are printed.

#### Examples

This (contrived) example shows how you plan to use a lookup table to access a template name for use in a call to `f_getTemplateURI`.

```
Data:
 MyTemplates:
 - {name: DbTemplate, type: dbaas}
 - {name: MWTemplate, type: jaas}
 ...
Resources:
 MyDB:
 Container:
 f_getTemplateURI:
 - f_path:
 - 'Data.MyTemplates[0].name'
 - dbaas
 Properties:
 ...
```

Suppose the code is not behaving as you intend, and you want to view the intermediate results before passing the name to `f_getTemplateURI`. Wrap the expression in a call to `f_print` like this:

```
Data:
 MyTemplates:
 - {name: DbTemplate, type: dbaas}
 - {name: MWTemplate, type: jaas}
 ...
Resources:
 MyDB:
 Container:
 f_getTemplateURI:
 - f_print:
 - f_path:
 - 'Data.MyTemplates[0].name'
 - dbaas
 Properties:
 ...
```

At runtime, the value of the expression is printed:  
16:52:05 INFO:

```

16:52:05 INFO: Resource State Timeline
16:52:05 INFO: -----
...
16:52:05 INFO:
16:52:05 INFO: MyDB
16:52:05 INFO: /
16:52:05 INFO: -----
16:52:05 INFO: | e |
>>> Print-point:
 Value = DbTemplate
...

```

A print point message can also be provided, which is useful when you have multiple print points in your blueprint:

```

Data:
 MyTemplates:
 - {name: DbTemplate, type: dbaas}
 - {name: MWTemplate, type: jaas}
...
Resources:
 MyDB:
 Container:
 f_getTemplateURI:
 - f_print:
 - f_path:
 - 'Data.MyTemplates[0].name'
 - My printpoint for template name
 - dbaas
 Properties:
...

```

At runtime, the value of the expression is printed:

```

16:52:05 INFO:
16:52:05 INFO: Resource State Timeline
16:52:05 INFO: -----
...
16:52:05 INFO:
16:52:05 INFO: MyDB
16:52:05 INFO: /
16:52:05 INFO: -----
16:52:05 INFO: | e |
>>> Print-point: My printpoint for template name
 Value = DbTemplate
...

```

## 58.9.2 Pause Points

The easiest way to specify points at which to enter the debugger by using **pause points**. These are specified via command line options as described in [Section 58.3, "Running the Blueprint Processor"](#). You can specify that the blueprint processor pause and the debugger entered at any of these points:

- Prior to evaluating the Input section and prompting for Input parameters
- Prior to evaluating the Resources section
- Prior to evaluating the Output section
- Prior to termination, but after output processing or detecting an error that will terminate processing

- When an error is encountered, just prior to termination

Once the debugger is entered, you can use the commands described in [Section 58.9.4, "Debugger Commands"](#) below. To continue blueprint execution, enter the **continue** command.

#### Example 1

Suppose you just want to browse the cloud resources at your server. Specify the **-I** option, which drops you into the debugger before attempting any blueprint processing

#### Example 2

It is often useful to specify the **'-E'** (or **'—error\_debug'**) option, which drops you in the debugger if an error is encountered. (Otherwise, execution simply terminates.)

### 58.9.3 Breakpoints

Breakpoints are defined via the `f_breakpoint` intrinsic function as described in [Section 58.6.7.4, "Debugging Intrinsics"](#). Whenever evaluation encounters an `f_breakpoint` invocation, the optional text string parameter value is printed and the debugger entered.

### 58.9.4 Debugger Commands

When you enter the debugger, you will see a prompt of **"Paused:"**. At this prompt, there are several commands you can use including **"help"** or **"h"**. For example:

```
Paused: h
Commands are...
 p[ath] <path expression>: evaluate path expr
 e[val]: read & evaluate blueprint expression
 c[ontinue]: continue blueprint instantiation
 x[it]: exit blueprint processor
 h[elp]: (this command)
If first token isn't a command, the line is treated as a path expression
Paused:
```

#### 58.9.4.1 Path Command

The **path** command is used to evaluate arbitrary path expressions as described earlier in [Section 58.6.6.1, "Path Expressions"](#). (Unlike other debugger commands, the **"p"** or **"path"** keyword is not required.)

#### Example: Viewing values in blueprint

You can view values in your blueprint such as the value of an input parameter:

```
C:\bp> bp_processor.py -c https://...:15430/em/cloud -u sysman -p sysman -R
xyzApp.yml
...
```

#### Blueprint Processor - Invocation Summary

```

Cloud URI: https://xyxy.example.com:15430/em/cloud
User: sysman
Blueprint file: xyzApp.yml
Timeout: 90 minutes, 0 seconds
Refresh frequency: 15 seconds
Inputs:
Pause points: Resources
Debug logging: False
```

```
Instance name: default_instance_name
Graphical report dir:
Versions:
 Blueprint processor: 12.1.0.5, 10-Oct-2012
 Cloud protocol: 10001

18:28:14 INFO: Connecting to cloud: https://xyxy.example.com:15430/em/cloud

Input Parameter Value Entry

 Zone to use for db (Zone1):
 Password to use for db (welcome1):

...Pause point, prior to processing Resources section...
For command info, enter (h)elp

Paused: path Inputs
DbPassword:
 DefaultValue: welcome1
 Prompt: Password to use for db
 Sensitive: true
 Type: String
 Value: mySecret
DbZone:
 DefaultValue: Zone1
 Prompt: Zone to use for db
 Type: String
 Value: Zone1

Paused: Inputs.DbPassword.Value
mySecret

Paused:
```

In the above example, the simple test blueprint specifies two input parameters, DbZone and DbPassword.

- When prompted, you accepted the default, for the first parameter by pressing **Enter**. For the second, you entered your password.
- Notice that your command line options included “-R”, which tells the blueprint processor to pause just prior to evaluating the Resources section of your blueprint. The **Paused** prompt appears, and you enter the **path** command with the path expression **Inputs**. The value of the Inputs section of the blueprint is then printed, namely the 2 input parameters and their values. The values include both those provided by the blueprint and the current runtime values, in this case **Zone1** and **mySecret**.
- You then simply entered a path expression. The **path** command is assumed if no explicit command is entered.

#### 58.9.4.2 Continue Command

The continue command is used to resume blueprint processing.

Example

Continuing the previous example...

```
Paused: Inputs.MyNum
{Sensitive: true, Type: Number, Value: '123'}
```



Paused: **continue**

### 58.9.4.3 Exit Command

The **exit** command terminates the blueprint processor.

### 58.9.4.4 Eval Command

The **eval** command is used to evaluate any expression you can include in your blueprint.

Example

Suppose you are debugging your blueprint and it appears to be failing when looking up a template by name. You can use the **eval** command to evaluate expressions that appear in your blueprint.

First you try executing the expression of interest as it appears in your blueprint:

```
Paused: e
 Eval: f_getTemplateURI:
 Eval: - JaaS Template
 Eval: - jaas
 Eval:
18:05:01 ERROR: Name not found: JaaS Template
Expression evaluation stack follows (with failed expression & diagnostic at
bottom) ...

| Expr: {'f_getTemplateURI': ['JaaS Template', 'jaas']}
| Expr: {'f_path': [{'f_findByName': [{'f_path': [{'f_findByName': [{'f_path':
['Cloud.service_types.elements']}, 'jaas']}, '.uri->
.service_templates.elements']}, 'JaaS Template']}, '.uri']}
| Expr: {'f_findByName': [{'f_path': [{'f_findByName': [{'f_path':
['Cloud.service_types.elements']}, 'jaas']}, '.uri->.service
_templates.elements']}, 'JaaS Template']}
| Expr: {'f_findOne': [{'f_path': [{'f_findByName': [{'f_path': ['Cloud.service
types.elements']}, 'jaas']}, '.uri->.service
_templates.elements']}, {'f_EQ': [{'f_path': ['name']}, 'JaaS Template']},
{'f_concat': ['Name not found: ', 'JaaS Template']}]}}
| End of stack for error message: Name not found: JaaS Template

Paused:
```

In the above example, you first enter the **eval** or **e** command. Then you enter the expression. Note that indentation is significant, as it always is in YAML.

You see the same diagnostic you got when processing your blueprint, but now you can experiment with other values. Eventually, you realize that the template was created with two spaces in the name. You try with that name. It works, and the result of the expression evaluation, in this case a URI, is displayed.

```
Paused: e
 Eval: f_getTemplateURI:
 Eval: - JaaS Template
 Eval: - jaas
 Eval:
/em/cloud/jaas/javaplatformtemplate/C086733BCCF2A4F3E040F10A716049A8
Paused:
```

## 58.10 Tips and Hints

This section lists a few tips and hints that may be useful while working with blueprints

### 58.10.1 Editing YAML - Notepad ++ Example

YAML documents use indentation to denote containment semantics. This may affect your choice of editor or editing options. For instance, YAML does not allow tabs, so you should disable any editor options that cause automatic tab insertion.

As an example, suppose you use Notepad++ (<http://notepad-plus-plus.org>). You would set the "replace by spaces" setting in Preferences -> Language Menu/Tab Settings. Better still, if your file has a suffix of ".yaml", Notepad++ sets options to be suitable for YAML. For instance, it colorizes the text based on YAML syntax. If you do not use ".yaml", you can manually set the language to YAML. (Settings -> Preferences -> Language Menu -> ...)

### 58.10.2 YAML Duplicate and Name / Value Pairs

YAML requires that name/value pairs at the same level use unique names. Any duplicates override earlier occurrences.

For instance, these two blueprints are equivalent:

```
Data:
 Password: doNotChangeMe
 UserId: QA_user
 Password: changeMe
Resources:
 ...

Data:
 UserId: QA_user
 Password: changeMe
Resources
 ...
```

### 58.10.3 Explicit Dependencies

Suppose your blueprint defines two resources X and Y. If creation of X depends on the successful creation of Y, there will usually be a data-dependency between the two. However, if that's not the case, you can include anywhere in the definition of ResourceX an expression like ...

```
f_getResourceAttr:
- ResourceY
- uri
```

### 58.10.4 Hint: Use '-T' Option

While developing and testing your blueprint, it's a good idea to use the -T command line option. This tells the blueprint processor to drop you into the debugger prior to terminating for any reason. Should any results be unexpected, whether an outright error or just unexpected output, you can use the debugger to investigate.

## 58.10.5 Help Forums

Other questions? Post them at  
<https://forums.oracle.com/forums/forum.jspa?forumID=220>.



---

## Infrastructure as a Service REST APIs

This chapter describes the resource models for Infrastructure as a Service (IaaS) REST APIs and their responses. The following sections are covered in this chapter. The first section provides a summary of all the REST APIs covered in this chapter whereas the following sections provide the IaaS resource models and other details.

- [Summary of Infrastructure as a Service REST APIs](#)
- [Infrastructure as a Service Resource Model](#)
  - [Changes for Infrastructure as a Service](#)
  - [IaaS Zone \[application/oracle.com.cloud.iaas.Zone\]](#)
  - [AssemblyInstance \[application/oracle.com.cloud.common.AssemblyInstance+json\]](#)
  - [Scalability Group \[application/oracle.com.cloud.common.ScalabilityGroup+json\]](#)
  - [VM \[application/oracle.com.cloud.common.VM+json\]](#)
  - [VNet \[application/oracle.com.cloud.common.VNet+json\]](#)
  - [NetworkInterface \[application/oracle.com.cloud.common.NetworkInterface+json\]](#)
  - [VMTemplate \[application/oracle.com.cloud.common.VMTemplate+json\]](#)
  - [AssemblyTemplate \[application/oracle.com.cloud.common.AssemblyTemplate+json\]](#)
  - [IaaSServiceFamilyType \[application/oracle.com.cloud.iaas.IaaSServiceFamilyType+json\]](#)
  - [IaaS Quota Definition \[application/oracle.com.cloud.iaas.Quota+json\]](#)
- [Infrastructure as a Service REST API Examples](#)
- [Support for Version 1000](#)

### 59.1 Summary of Infrastructure as a Service REST APIs

The table below shows a summary of all the IaaS REST APIs covered in this chapter.

**Table 59–1 Summary of IaaS REST APIs**

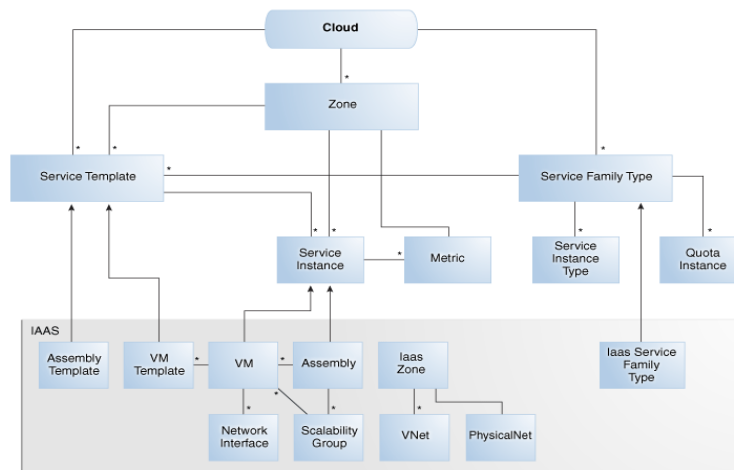
Resource	Data Model	GET	POST	PUT	DELETE
Service Instance - VM	Table 59–6	Section 59.3.1.2	Section 59.3.1.1	Section 59.3.2	Section 59.3.3
Service Instance - Assembly Instance	Table 59–4	Section 59.3.1.3	Section 59.3.1.3	Supported	Supported
Support for version 10000	Not applicable	Section 59.4	Supported	Supported	Supported
Service Templates	<ul style="list-style-type: none"> <li>■ Table 59–9</li> <li>■ Table 59–10</li> </ul>	Table 59.3.5	Table 59.3.5	Supported	Supported

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## 59.2 Infrastructure as a Service Resource Model

Infrastructure as a Service supports the compute, network, and storage resources that form the basics of IT components. The IaaS resource model supports common cloud interactions on these resources.

The following diagram illustrates the high level resource relationships and how they are related to the common resources:

**Figure 59–1 IaaS Resource Model**

The following describes the resource models that are supported by the IaaS family type.

### 59.2.1 Changes for Infrastructure as a Service

The following describes the high level updates to the resources for Infrastructure as a Service:

**Table 59–2 Cloud Service Portal 12.1.0.5**

Abstract	Description
Supports VMTemplate and AssemblyTemplate in ServiceTemplateFinds	Infrastructure as a service provides implementation for the filtering and searching of VMTemplate and AssemblyTemplate resources.
Supports cloning a VM	An VM resource can be created from another VM directly.
Supports saving a VM as a template	An VMTemplate resource can be created from a VM resource.
Supports Infrastructure Quota	Provides quota information and quota usage for Infrastructure as a service resources.

### 59.2.2 IaaS Zone [application/oracle.com.cloud.iaas.Zone]

This extends application/oracle.com.cloud.common.Zone. This resource represents the view of an IaaS Zone that supports IaaS resources.

**Table 59–3 IaaS Zone Data Model**

Field	Type	Description	Occurs	Support ed since release
uri	URI	A GET against this URI refreshes the client representation of the Zone definition to this user.	1	12.1.0.4
name	String	Name of the Zone. SHALL be a UNICODE string to support different languages	1	12.1.0.4
description	String	Human readable description of the Zone. SHALL be a UNICODE string to support different languages.  The media type of the resource. "application/oracle.com.cloud.iaas.Zone"	0..1	12.1.0.4
resource_state	ResourceState	The resource state of the resource.	0..1	12.1.0.4
service_family_type	String	The name of the service family type that this zone is associated with.  It is "iaas" for this.	0..1	12.1.0.4
service_templates	Collection <ServiceTemplate>	Collection of the service templates that this zone supports and can be deployed into. Currently, VMTemplate and AssemblyTemplate are types of the members.	0..1	12.1.0.4
service_instances	Collection <ServiceInstance>	Collection of the service instances that are in this zone.	0..1	12.1.0.4
vnets	Collection <VNet>	Collection of the virtual networks that are associated with this zone.	0..1	12.1.0.4
backends	Collection <PhysicalNet>	Physical network available for the users that are associated with this zone.	0..1	12.1.0.6
media_type	String	The media type of the resource. "application/oracle.com.cloud.iaas.Zone"	1	12.1.0.4

### 59.2.3 AssemblyInstance

[application/oracle.com.cloud.common.AssemblyInstance+json]

Extends: application/oracle.com.cloud.common.ServiceInstance

An AssemblyInstance is a logical grouping of resources from a deployment request of an Assembly template. The lifecycle of the resources in an AssemblyInstance can be managed centrally through the assembly instance.

---

**Note:** A service template of Assembly type is deployed into an AssemblyInstance.

---

The following table describes the AssemblyInstance Data Model.

**Table 59–4 AssemblyInstance Data Model**

Field	Type	Description	Occurs	Support ed since release
uri	URI	GET against this URI refreshes the client representation of the Assembly Instance definition.	1	12.1.0.2
name	String	Name of the Assembly Instance as given by the user. It is a UNICODE string to support different languages.	1	12.1.0.2
description	String	Human readable description of the Assembly Instance given by the user. It is a UNICODE string to support different languages.	0..1	12.1.0.2
based_on	URI	URI of the service template of which this AssemblyInstance is based on.	0..1	12.1.0.2
scalability_groups	Collection< Scalability Group>	List of scalability groups that are included in this Assembly Instance.	0..1	12.1.0.2
servers	Collection< VM>	List of VMs that are directly included in this Assembly Instance.	0..1	12.1.0.2
status	String	Indicates the status of the Assembly Instance. This field contains the semantics that the service provider implements. For example, a service provider may implement an ONLINE status to indicate that all the entities, recursively, are in an ONLINE status. Or a service provider may implement an ONLINE status to indicate that critical entities are in an ONLINE status.	0..1	12.1.0.2
resource_state	ResourceState	Validity of the other Assembly Instance fields on a GET should be guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	1	12.1.0.1
created	Timestamp	Date and time, in ISO 8601 format, when the Assembly Instance was created.	0..1	12.1.0.2



**Table 59–4 (Cont.) AssemblyInstance Data Model**

Field	Type	Description	Occurs	Support ed since release
expiry	Timestamp	Date and time, in ISO 8601 format, when the Assembly Instance should expire. If not specified, the Assembly Instance never expires.	0..1	12.1.0.2
params	{}	Vendor specific configuration parameters for this deployment.	0..1	12.1.0.2
deployment_plan	String	Vendor specific configuration parameters for this deployment in the prescribed XML format from the corresponding AssemblyTemplate that this AssemblyInstance is based on. When this is specified in the POST request, the content of this attribute will be processed to substitute the parameters for deploying an AssemblyInstance.	0..1	12.1.0.2
media_type	String	The media type of the resource.	1	12.1.0.4

## 59.2.4 Scalability Group [application/oracle.com.cloud.common.ScalabilityGroup+json]

Extends: application/oracle.com.cloud.common.ServiceInstance

The Scalability Group is a collection of servers and corresponding virtual networks. Scalability Group contains a collection of homogenous entities. The cloud service provider should enforce the semantics of “sameness”. Operations such as scale\_out and scale\_in of the scalability group may be supported by the provider in the homogenous scalability group.

The following table describes the ScalabilityGroup Data Model.

**Table 59–5 ScalabilityGroup Data Model**

Field	Type	Description	Occurs	Support ed since release
uri	URI	GET against this URI refreshes the client representation of the scalability group definition.	1	12.1.0.2
name	String	Name of the scalability group as given by the user. It is a UNICODE string to support different languages.	1	12.1.0.2
description	String	Human readable description of the scalability group given by the user. It is a UNICODE string to support different languages.	0..1	12.1.0.2
nodes	Collection <URI>	List of URIs that represent the entities making up this scalability group.	1	12.1.0.2
count	Integer	Count of the nodes that are in the scalability group.	1	12.1.0.2

**Table 59–5 (Cont.) ScalabilityGroup Data Model**

Field	Type	Description	Occurs	Support ed since release
status	String	Indicates the status of the scalability group. This field contains the vendor dependent semantics that the service provider implements. For example, a service provider may implement an ONLINE status to indicate that all the entities, recursively, are in an ONLINE status. Or a service provider may implement an ONLINE status to indicate that at least one entity is in an ONLINE status.	0..1	12.1.0.2
resource_state	ResourceState	Validity of the other scalability group fields is guaranteed only when the resource state is READY.  Otherwise, the client shall not assume the validity of the fields.	1	12.1.0.2
created	Timestamp	Date and time, in ISO 8601 format, when the scalability group is created.	1	12.1.0.2
max	Signed Integer	Maximum number of nodes this scalability group can hold. If not provided, the client should assume it is unlimited, which is the specified with as the value "-1".	0..1	12.1.0.2
min	Integer	Minimal number of nodes this scalability group should hold to be considered a functional scalability group. If not specified, the client should assume it is 1.	0..1	12.1.0.2
homogenous	Boolean	TRUE when the scalability group contains homogenous entities and FALSE otherwise.	1	12.1.0.2

### 59.2.5 VM [application/oracle.com.cloud.common.VM+json]

Extends: application/oracle.com.cloud.common.ServiceInstance

A VM is a computing container providing a complete system platform that supports the execution of a complete OS stack. The following table describes the VM Data Model.

**Table 59–6 VM Data Model**

Field	Type	Description	Occurs	Support ed since release
uri	URI	GET against this URI refreshes the client representation of the VM definition.	1	12.1.0.1
name	String	Name of the VM as given by the user or generated by the platform.	1	12.1.0.1
description	String	Human readable description of the Server given by the user or generated by the platform. It is a UNICODE string to support different languages.	0..1	12.1.0.1

**Table 59–6 (Cont.) VM Data Model**

Field	Type	Description	Occurs	Support ed since release
status	String	Current running status of this Server. The service provider can overwrite the valid values for this field and may implement status operations.	1	12.1.0.1
based_on	URI	URI of the service template on which this Server is based.	0..1	12.1.0.1
hostname	String	Qualified host name of this Server when available.	0..1	12.1.0.2
cpu	[Number, Number]	Numeric sizing of the CPU where the first number indicates the count of the CPU cores and the second number indicates the CPU speed in MHz per core.	1	12.1.0.1
memory	Number	Numeric sizing of the RAM in MByte.	1	12.1.0.1
disks	{String, Number}[]	Name and size in GB of local disks.	0..1	12.1.0.2
interfaces	Collection <NetworkInterface>	Network interfaces associated with this Server.	1	12.1.0.2
params	{ }	Vendor specific configuration parameters for this Server.	0..1	12.1.0.1
resource_state	ResourceState	Validity of the other Server fields is guaranteed only when the resource state is READY.  Otherwise, the client should not assume the validity of the fields.	1	12.1.0.1
created	Timestamp	Date and time, in ISO 8601 format, when the Server was created.	1	12.1.0.1
type	String	Type of server that represents this computational container (PHYSICAL, VIRTUAL).	1	12.1.0.1
os	String	OS information of the Server where appropriate.	0..1	12.1.0.1
media_type	String	The media type of the resource.	1	12.1.0.4
saved_templates	Collection <VMTemplate>	The collection of VMTemplate that were created based on this VM resource.	0..1	12.1.0.5

The status field of the VM Data Model should contain the running status of the VM. It is expected that the service provider implements at least the following valid values:

- STOPPED
- STOPPING
- STARTING
- STARTED
- SUSPENDED

- SUSPENDING
- RESUMING
- RESTARTING
- DELETED

### 59.2.6 VNet [application/oracle.com.cloud.common.VNet+json]

A VNet is a service that is capable of providing network addresses, routing rules, security constraints, and access limits.

The following table describes the VNet Data Model.

**Table 59–7 VNet Data Model**

Field	Type	Description	Occurs	Supported since release
uri	URI	GET against this URI refreshes the client representation of the VNet definition.	1	12.1.0.2
name	String	Name of the VNet as given by the user or generated by the platform. It is a UNICODE string to support different languages.	1	12.1.0.2
description	String	Human readable description of the VNet given by the user or generated by the platform. It is a UNICODE string to support different languages.	0..1	12.1.0.2
created	Timestamp	Date and time, in ISO 8601 format, when this VNet was created.	1	12.1.0.2
interfaces	Collection<NetworkInterface>	List of NetworkInterface resources that are part of the VNet.	0..1	12.1.0.2

### 59.2.7 NetworkInterface [application/oracle.com.cloud.common.NetworkInterface+json]

An instance of the network interface is identified by a network end point and consists of a complete address that can be interpreted by the underlying network infrastructure.

The following table describes the NetworkInterface Data Model.

**Table 59–8 NetworkInterface Data Model**

Field	Type	Description	Occurs	Supported since release
uri	URI	GET against this URI refreshes the client representation of the NetworkInterface definition.	1	12.1.0.2
name	String	Name of the NetworkInterface as given by the user or generated by the platform. It is a UNICODE string to support different languages.	1	12.1.0.2

**Table 59–8 (Cont.) NetworkInterface Data Model**

Field	Type	Description	Occurs	Supported since release
description	String	Human readable description of the NetworkInterface given by the user or generated by the platform. It is a UNICODE string to support different languages.	0..1	12.1.0.2
address	String	Address of this interface. If an IP based protocol, specified as a dotted notation IPv4 or IPv6 address.	1	12.1.0.2
resource_state	ResourceState	The validity of the other NetworkInterface fields is guaranteed only when the resource state is READY. Otherwise, the client should not assume the validity of the fields.	0..1	12.1.0.2
mac	String	The MAC address of the network interface where appropriate.	0..1	12.1.0.2

### 59.2.8 VMTemplate [application/oracle.com.cloud.common.VMTemplate+json]

Extends: application/oracle.com.cloud.common.ServiceTemplate

VMTemplate is a class of ServiceTemplate. It is permissible to accept the ServiceTemplate media type on an instance of VMTemplate. VMTemplate is a preconfigured deployable entity that realizes a VM resource. The following table describes the VMTemplate Data Model.

**Table 59–9 VMTemplate Data Model**

Field	Type	Description	Occurs	Supported since release
uri	URI	A GET against this URI refreshes the client representation of the VMTemplate definition to this user.	1	12.1.0.1
name	String	A human readable name, given to the VMTemplate.	1	12.1.0.1
description	String	A brief description, given to the ServiceTemplate. SHALL be a UNICODE string to support different languages.	0..1	12.1.0.1
type	String	The String that describes the type of the VM Template. This has value "Template".	1	12.1.0.1
created	Timestamp	Date and time, in ISO 8601 format, when the VMTemplate was created.	1	12.1.0.1
service_family_type	String	The name of the service family type that this service template is categorized under. This has value "iaas".	0..1	12.1.0.4

**Table 59–9 (Cont.) VMTemplate Data Model**

Field	Type	Description	Occurs	Supported since release
default_instance_media_type	String	The default media type of the service instance that can be created using this template.  This has value "application/oracle.com.cloud.common.VM".	0..1	12.1.0.4
resource_state	ResourceState	Only a service template with READY state can be deployed.	0..1	12.1.0.1
deployment_params	List of Deployment Parameters	Contains the list of data structure of Deployment Parameters to indicate the parameters that may be specified during the service instance deployment using this template.	0..1	12.1.0.4
zones	List of Zones	Contains the list of Zone resources that this service template can be used to create service instances with.	0..1	12.1.0.2
service_instances	Collection <?>	Contains the list of service instances that are created with this template.	0..1	12.1.0.4

## 59.2.9 AssemblyTemplate

### [application/oracle.com.cloud.common.AssemblyTemplate+json]

Extends: application/oracle.com.cloud.common.ServiceTemplate+json

AssemblyTemplate is a class of ServiceTemplate. It is permissible to accept the ServiceTemplate media type on an instance of AssemblyTemplate.

AssemblyTemplate is a deployable entity that realizes an AssemblyInstance resource that may contain multiple resources that are interconnected. The following table describes the AssemblyTemplate Data Model.

**Table 59–10 AssemblyTemplate Data Model**

Field	Type	Description	Occurs	Supported since release
uri	URI	A GET against this URI refreshes the client representation of the AssemblyTemplate definition to this user.	1	12.1.0.2
name	String	A human readable name, given to the AssemblyTemplate.	1	12.1.0.2
description	String	A brief description, given to the AssemblyTemplate. SHALL be a UNICODE string to support different languages.	0..1	12.1.0.2
type	String	The String that describes the type of the Assembly Template.  This has value "Assembly".	1	12.1.0.2
created	Timestamp	Date and time, in ISO 8601 format, when the AssemblyTemplate was created.	1	12.1.0.2

**Table 59–10 (Cont.) AssemblyTemplate Data Model**

Field	Type	Description	Occurs	Supported since release
service_family_type	String	The name of the service family type that this service template is categorized under. This has value "iaas".	0..1	12.1.0.4
default_instance_media_type	String	The default media type of the service instance that can be created using this template. This has value "application/oracle.com.cloud.common.AssemblyInstance".	0..1	12.1.0.4
resource_state	ResourceState	Only a service template with READY state can be deployed.	0..1	12.1.0.1
deployment_params	List of Deployment Parameters	Contains the list of data structure of Deployment Parameters to indicate the parameters that may be specified during the service instance deployment using this template.	0..1	12.1.0.4
zones	List of Zones	Contains the list of Zone resources that this service template can be used to create service instances with.	0..1	12.1.0.2
service_instances	Collection <?>	Contains the list of service instances that are created with this template.	0..1	12.1.0.4
definition	String	Contains the definition of the assembly template. This would be the OVF xml metadata representing the assembly template.	0..1	12.1.0.1
ovfdescriptor	String	Same as definition.	0..1	12.1.0.1
deploy_plans	List of Deployment Plans	Contains the list of Deployment Plans that are associated with the assembly instance. The deployment plans are pre-filled configuration metadata.	0..1	12.1.0.2

The following table describes the structure of the Deployment Plan.

**Table 59–11 Deployment Plan Structure**

Field	Type	Description	Occurs
name	String	The name of the deployment plan.	1
description	String	The description of the deployment plan.	0..1
xml	String	The deployment plan XML.	1

### 59.2.10 IaasServiceFamilyType

[application/oracle.com.cloud.iaas.IaasServiceFamilyType+json]

Extends: application/oracle.com.cloud.common.ServiceFamilyType+json

The Infrastructure service family type describes the common service family type attributes and also the infrastructure specific attributes. The following table describes the IaaS Service Family Type Data Model.

**Table 59–12 AssemblyTemplate Data Model**

Field	Type	Description	Occurs	Supported since release
uri	URI	A GET against this URI refreshes the client representation of the ServiceFamilyType definition to this user.	1	12.1.0.4
name	String	A human readable name, given to the ServiceFamilyType.	1	12.1.0.4
description	String	A human readable description of the Service Family Type. SHALL be a UNICODE string to support different languages.	0..1	12.1.0.4
resource_state	ResourceState	The resource state of the resource.	0..1	12.1.0.4
media_type	String	The media type of the resource.	1	12.1.0.4
service_templates	Collection <ServiceTemplate>	The collection of service templates that are of this service family type.	0..1	12.1.0.4
zones	Collection <Zone>	The collection of zones that support service instances of this service family type.	0..1	12.1.0.4
instance_types	Collection <InstanceType>	The collection of instance types that are supported by this service family type.	0..1	12.1.0.4
quota_usages	Collection <QuotaUsage>	The collection of quota usages of the perspective family type of the authenticated user.	0..1	12.1.0.5
quota_def	Json Object	The family type specific quota metadata information, this may include some permission information.  The structure of this object would be documented in the perspective family type resource model.	0..1	12.1.0.5
instance_options	List of VM Size Options	The list of VM size options that may be available to the authenticated user.	0..1	12.1.0.4

The following table describes the structure of the VM Size option:

**Table 59–13 VM Size Option Structure**

Field	Type	Description	Occurs	Supported since release
name	String	The name of the VM Size. This may be used as the parameter for VM resource creations.	1	12.1.0.4
id	String	The ID of the VM Size.	1	12.1.0.4
cpu	Number	The amount of CPU.	1	12.1.0.4
memory	Number	The amount of Memory in MB.	1	12.1.0.4



**Table 59–13 (Cont.) VM Size Option Structure**

Field	Type	Description	Occurs	Supported since release
local_storage	Number	The amount of local storage in GB.	1	12.1.0.4

The IaaS supports the following Quota Usage.

**Table 59–14 Quota Usage for IaaS**

Quota	Description	Supported since release
CPU	The number of CPUs in discrete units.	12.1.0.5
RAM	Memory size in MB.	12.1.0.5
Local Storage	The amount of storage local to the server in GB.	12.1.0.5
Extra Storage	The amount of storage external to the server in GB.	12.1.0.5
SWLIB Storage	The amount of storage in the Enterprise Manager Software Library.	12.1.0.5
Server	The number of servers in discrete units.	12.1.0.5

The IaaS Quota definition is described in the media type `application/oracle.com.cloud.iaas.Quota`.

### 59.2.11 IaaS Quota Definition [application/oracle.com.cloud.iaas.Quota+json]

This resource describes the definition for the IaaS quota. The following table describes the IaaS Quota Definition Data Model

**Table 59–15 IaaS Quota Definition Data Model**

Field	Type	Description	Occurs	Supported since release
uri	URI	A GET against this URI refreshes the client representation of the IaaS Quota definition to this user.	1	12.1.0.5
allowedSaveAsTemplate	Boolean	Indicates whether the authenticated user has permission to save a VM as a template.	1	12.1.0.5
allowedSaveToSwlib	Boolean	Indicates whether the authenticated user has permission to save entities to the Enterprise Manager software library.	1	12.1.0.5
allowedSaveToSwlibOnExpiry	Boolean	Indicates whether the authenticated user has permission to save VM as a template into the Enterprise Manager software library when the VM expires.	1	12.1.0.5
resourceQuotas	Collection <Resource Quota>	The quotas of resources defined for the authenticated user.	1	12.1.0.5

The following describes the structure of the Resource Quota

**Table 59–16 Structure of the Resource Quota**

Field	Type	Description	Occurs	Supported since release
name	String	The name of the resource.	1	12.1.0.5
description	String	The description of the resource.	0..1	12.1.0.5
maxAllowed	Number	The maximum number of units that the authenticated resource is allocated. If this value is negative or not defined, the user does not have any limit on the amount that can be used.	0..1	12.1.0.5
unit	String	The measurement unit of the resource.	1	12.1.0.5

## 59.3 Infrastructure as a Service REST API Examples

The following sections provide examples of the different operations supported by the IaaS REST APIs:

- [Creating a Service Instance](#)
  - [Creating a VM](#)
    - \* [POST to the IaaS Zone on which the VM is to reside](#)
    - \* [POST to the VM Template on Which the VM is to be Based on](#)
  - [Viewing Details of the VM Creation Status](#)
  - [Creating an Assembly Instance](#)
- [Updating a VM Service Instance](#)
  - [Changing the VM Status](#)
  - [Changing the VM Size](#)
  - [Adding a VM Disk](#)
- [Deleting a Service Instance](#)
- [Listing Service Instances](#)
- [Searching Service Templates](#)

### 59.3.1 Creating a Service Instance

This section describes how to create a service instance using the Cloud resources.

#### 59.3.1.1 Creating a VM

As VM is a service instance in the service family type "iaas", you need to identify the zone of the same family type in which to create the VM. There are two approaches to creating a VM:

1. [POST to the IaaS Zone on which the VM is to reside](#)
2. [POST to the VM Template on Which the VM is to be Based on](#)

Note the attributes in the submitted body for the POST. The pattern is the same for other service instance creations. Because the intention is clear, the "zone" attribute is not required while POSTing to the "iaas" Zone. Similarly, the "based\_on" attribute is not needed when POSTing to the VMTemplate.

#### 59.3.1.1.1 POST to the IaaS Zone on which the VM is to reside

The following shows the configuration for POSTing to IaaS Zone:

**Table 59–17 POST Request Configuration for Creating a VM by Passing a Request on the IaaS Zone**

Feature	Description
URI	/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "based_on": "/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1", "cpu" : [2,0], "memory" : "512", "params":{ "server_prefix":"ZONEPOST", "vnc_password":"welcome1", "root_password":"welcome1" } }
Request method	POST
Supported since release	12.1.0.1 Cloud Service Portal plug-in

A sample of the response received from the above interaction is shown below.

```
{
 "uri" : "/em/cloud/iaas/server/byrequest/102" ,
 "name" : "VDOSI VM Creation 1345392541850" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "The Request with ID '102' is scheduled with Job Id 'C79997609390CB9BE040578CDA817D96'" ,
 "date" : "2012-08-19T16:09:02+0000"
 }
]
 } ,
 "context_id" : "102" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "service_family_type" : "iaas" ,
 "created" : "2012-08-19T16:09:02+0000"
}
```

**59.3.1.1.2 POST to the VM Template on Which the VM is to be Based on**

The following describes the configurations for POSTing to the VMTemplate:

**Table 59–18 POST Request Configuration for Creating a VM by Passing a Request on the VM Template**

Feature	Description
URI	/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "zone": "/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D", "cpu" : [2,0], "memory" : "512", "params":{ "server_prefix":"STPOST", "vnc_password":"welcome1", "root_password":"welcome1" } }
Request method	POST
Supported since release	12.1.0.4 Cloud Service Portal plug-in

A sample of the response received from the above interaction is shown below.

```
{
 "uri" : "/em/cloud/iaas/server/byrequest/101" ,
 "name" : "VDOSI VM Creation 1345391921407" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "The Request with ID '101' is scheduled with Job Id
'C7999760937CCB9BE040578CDA817D96'" ,
 "date" : "2012-08-19T15:58:47+0000"
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "service_family_type" : "iaas" ,
 "created" : "2012-08-19T15:58:42+0000"
}
```

This response is the same as the previous version.

If the zone is not specified, then it is not possible for the Web service to determine where the VM should be deployed. The following interaction illustrates this:

**Table 59–19 POST Request Configuration for Creating a VM by Passing a Request on the VM Template without mentioning the Zone**

Feature	Description
URL	<code>https://example.com/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1</code>
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	<pre>{   "cpu" : [2,0],   "memory" : "512",   "params":{     "server_prefix":"STPOST",     "vnc_password":"welcome1",     "root_password":"welcome1"   } }</pre>
Request method	POST

The following is the response from the Web service:

```
{
 "messages" :
 [
 {
 "hint" : "'zone' attribute needs to be specified to complete 'POST' request for 'application/oracle.com.cloud.common.VM' resource" ,
 "stack_trace" :
 "oracle.sysman.emInternalSDK.ssa.cloudapi.rest.RestControllerException: 'zone' attribute needs to be specified to complete 'POST' request for 'application/oracle.com.cloud.common.VM' resource\n\tat oracle.sysman.ssa.cloudapi.iaas.VMRequest.GenerateVMFromDeployment (VMRequest.java:149)\n\tat oracle.sysman.ssa.cloudapi.iaas.VMTemplate.processRequest (VMTemplate.java:93)\n\tat oracle.sysman.ssa.cloudapi.iaas.IaasServiceProvider.processRequest (IaasServiceProvider.java:582)\n\tat oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.perform (EMCloudServlet.java:236)\n\tat oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.performPost (EMCloudServlet.java:385)\n\tat oracle.sysman.emInternalSDK.ssa.cloudapi.rest.AbstractRestController.doPost (AbstractRestController.java:137)\n\tat javax.servlet.http.HttpServlet.service (HttpServlet.java:727)\n\tat javax.servlet.http.HttpServlet.service (HttpServlet.java:820)\n\tat weblogic.servlet.internal.StubSecurityHelper$ServletServiceAction.run (StubSecurityHelper.java:227)\n\tat weblogic ,
 "text" : "Did not successfully execute 'POST' resource operation on 'application/oracle.com.cloud.common.Cloud' identified by '/em/cloud/iaas/servicetemplate/vm/oracle:defaultService:em:provisioning:1:cmp:Virtualization:Template:C76CEB5563EA5E13E040578CDA817FAF:0.1' " ,
 "date" : "2012-08-19T16:02:51+0000"
 }
]
}
```

### 59.3.1.2 Viewing Details of the VM Creation Status

After passing the POST request to create the VM, you can issue the GET request on the resource identified by the return URI to keep track of the VM creation status. See the table below for a sample GET request configuration for viewing the VM creation details.

**Table 59–20 GET Request Configuration for Viewing Details of the VM Creation Status**

Feature	Description
URI	/em/cloud/iaas/server/byrequest/101
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Method	GET

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/iaas/server/byrequest/101" ,
 "name" : "VDOSI VM Creation 1345391921407" ,
 "resource_state" : {
 "state" : "CREATING" ,
 "messages" :
 [
 {
 "text" : "The Request with ID '101' is being processed, and has Job Id
'7999760937CCB9BE040578CDA817D96'" ,
 "date" : "2012-08-19T16:14:11+0000"
 }
]
 } ,
 "context_id" : "101" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "service_family_type" : "iaas" ,
 "created" : "2012-08-19T15:58:42+0000"
}
```

Note that the `resource_state` attribute is showing `CREATING` state to indicate the VM is still being created. Once the VM is created, the same GET will return the VM resource with `"READY"` state, as shown below:

```
{
 "uri" : "/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095" ,
 "name" : "STPOST" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "C5CA59AF9386975E8AEA45B0F040F095" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "metrics" : {
 "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
 "total" : "4" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/metric/iaas%3Avm%3ACPU_
Utilization%3AC5CA59AF9386975E8AEA45B0F040F095" ,
 "name" : "CPU_Utilization" ,
```

```

 "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
 "type" : "NUMBER" ,
 "current_value" : "" ,
 "current_time" : "2012-08-19T16:17:02+0000"
 } ,
 {
 "uri" : "/em/cloud/metric/iaas%3Avm%3ATotal_Network_Throughput%3AC5CA59AF9386975E8AEA45B0F040F095" ,
 "name" : "Total_Network_Throughput" ,
 "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
 "type" : "NUMBER" ,
 "current_value" : "" ,
 "current_time" : "2012-08-19T16:17:02+0000"
 } ,
 {
 "uri" : "/em/cloud/metric/iaas%3Avm%3ATotal_Disk_Throughput%3AC5CA59AF9386975E8AEA45B0F040F095" ,
 "name" : "Total_Disk_Throughput" ,
 "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
 "type" : "NUMBER" ,
 "current_value" : "" ,
 "current_time" : "2012-08-19T16:17:02+0000"
 } ,
 {
 "uri" : "/em/cloud/metric/iaas%3Avm%3AFilesystem_Total_Used%3AC5CA59AF9386975E8AEA45B0F040F095" ,
 "name" : "Filesystem_Total_Used" ,
 "media_type" : "application/oracle.com.cloud.common.Metric+json" ,
 "type" : "NUMBER" ,
 "current_value" : "" ,
 "current_time" : "2012-08-19T16:17:02+0000"
 }
]
} ,
"service_family_type" : "iaas" ,
"status" : "STARTED" ,
"created" : "2012-08-19T16:15:21+0000" ,
"hostname" : "dadvm0052.xyxy.example.com" ,
"cpu" :
[
 "2" ,
 "0"
] ,
"memory" : "512" ,
"disks" :
[
 [
 "default_disk" ,
 "10240"
] ,
 [
 "7e8a5d25-7995-40c9-9b16-9274cc2d64f3.img (2)" ,
 "6918"
] ,
 [
 "fc377c-ed3e-4823-a9b3-6b4d2289e215.img (2)" ,
 "192"
] ,
 [
 "f5dba62c-eb49-40c6-af0b-06187b2b9856.img (2)" ,

```

```

 "5120"
]
 },
 "interfaces" : {
 "media_type" : "application/oracle.com.cloud.common.NetworkInterface+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "name" : "cloud_network" ,
 "address" : "10.229.136.185" ,
 "mac" : "00:21:f6:5f:73:33"
 }
]
 },
 "os" : "None" ,
 "type" : "VIRTUAL"
}

```

### 59.3.1.3 Creating an Assembly Instance

Similar to VM creation, assembly instance creation can also be POSTed to both a Zone and an AssemblyTemplate.

The GET request configuration to view the Assembly instance resource details is shown below.

**Table 59–21** *GET Request Configuration for Viewing Details of the Assembly Instance Resource*

Feature	Description
URI	/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E88B04D7FEDEDE040578CDA810E49%3A0.1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET
Supported since release	12.1.0.4 Cloud Service Portal plug-in

A sample of the response received is shown below.

```

{
 "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E88B04D7FEDEDE040578CDA810E49%3A0.1"
,
 "name" : "sidb_assembly" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" :
"oracle:defaultService:em:provisioning:1:cmp:Virtualization:Assembly:C75E88B04D7FEDEDE040578CDA810E49:0.1" ,
 "media_type" : "application/oracle.com.cloud.common.AssemblyTemplate+json" ,
 "type" : "Assembly" ,

```



```

 "created" : "2012-08-16T11:02:38+0000" ,
 "default_instance_media_type" :
"application/oracle.com.cloud.common.AssemblyInstance+json" ,
 "zones" : {
 "media_type" : "application/oracle.com.cloud.iaas.Zone+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D" ,
 "name" : "cloud_zone" ,
 "media_type" : "application/oracle.com.cloud.iaas.Zone+json" ,
 "service_family_type" : "iaas" ,
 "type" : "VM_ZONE"
 }
]
 } ,
 "service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 } ,
 "deployment_params" :
 [
 {
 "name" : "zone" ,
 "description" : "'zone' attribute is the URI of the zone that the
'application/oracle.com.cloud.common.AssemblyInstance' resource is to be created
in" ,
 "type" : "STRING" ,
 "require" : "false" ,
 "sensitive" : "false"
 } ,
 {
 "name" : "based_on" ,
 "description" : "'based_on' attribute is the URI of the service template
or format String of the originated source which the deployed
'application/oracle.com.cloud.common.AssemblyInstance' resource is to be followed"
,
 "type" : "STRING" ,
 "require" : "false" ,
 "sensitive" : "false"
 } ,
 {
 "name" : "deployment_plan" ,
 "description" : "'deployment_plan' attribute describes the configuration
of which the deployed 'application/oracle.com.cloud.common.AssemblyInstance'
resource is to be used in the XML deployment plan format" ,
 "type" : "STRING" ,
 "require" : "false" ,
 "sensitive" : "false"
 }
] ,
 "directory" : "COMP_Components" ,
 "updated" : "2012-08-16T11:02:38+0000" ,
 "creator" : "DMBHAT1" ,
 "last_modified_by" : "DMBHAT1" ,
 "componenttype" : "Virtualization" ,
 "oracle_owned" : "false" ,

```

```

 "deploy_plans" :
 [
 {
 "name" : "cloud_zone" ,
 "description" : "Default Assembly Deployment Plan for Service Template
'sidb_assembly' on Zone 'cloud_zone' " ,
 "context_id" : "D73AF0D42C8459E11419862797D1F37D" ,
 "xml" : "<?xml version='1.0' encoding='UTF-8'
standalone='yes'>\n<ns2:ConfigurationData
xmlns:ns2='http://www.oracle.com/sysman/vt/RequestConfigData'>\n
<AssemblyDeployment assemblyInstanceName='DEFAULT_PLEASE_CHANGE'>\n
<SourceBinary type='TYPE_SWLIB'
name='oracle:defaultService:em:provisioning:1:cmp:Virtualization:Assembly:C75E88B
04D7FEDEDE040578CDA810E49:0.1'>\n
<DeploymentTarget type='oracle_vm_zone'
name='D73AF0D42C8459E11419862797D1F37D'>\n
<AcceptedAllEULAs>false</AcceptedAllEULAs>\n
<InstallEMAgent>false</InstallEMAgent>\n
<DisableCleanup>false</DisableCleanup>\n
<EMAgentConfig installUserPassword=' ' installUserName='oracle'>\n
<AssemblyNetworkConfig>\n
<AssemblyNetwork name='network-1'>\n
</AssemblyNetworkConfig>\n
<VirtualSystemCollectionConfig id='sidbasmA_linuxx64_11203psu1'>\n
<ProductConfiguration>\n
<Product>\n
<Properties/>\n
<EMAgent>false</EMAgent>\n<
/Product>\n
</ProductConfiguration>\n
<VirtualSystemConfig
agentPushInstallationEnabled='true' agentInstallationType='Push Agent
Installation' vmInstance='true' targetName='sidbasmA_linuxx64_
11203psu1/sidbasm:%assembly_instance_name%' id='sidbasmA_linuxx64_
11203psu1/sidbasm'>\n
<ProductConfiguration>\n
<Product>\n
<Properties>\n
<Property
id='ocm.runConfiguration'>\n<Name>ocm.runConfiguration</Name>\n<Required>false</
Required>\n<Value>false</Value>\n<Secret>false</Secret>\n
</Property>\n
<Property
id='ocm.metalinkCsiRegistration.CSI'>\n<Name>ocm.metalinkCsiRegistration.CSI</Na
me>\n<Required>false</Required>\n<Value></Value>\n<Secret>false</Secret>\n
</Property>\n
<Property
id='ocm.metalinkCsiRegistration.metalinkId'>\n<Name>ocm.metalinkCsiRegistration.
metalinkId</Name>\n<Required>false</Required>\n<Value></Value>\n<Secret>false</Sec
ret>\n
</Property>\n<
Property
id='ocm.proxyPassword'>\n<Name>ocm.proxyPassword</Name>\n<Required>false</Requir
ed>\n<Value> </Value>\n<Secret>true</Secret>\n
</Property>\n <Property
id='ocm.metalinkCsiRegistration.countryCode'>\n<Name>ocm.metalinkCsiRegistration
.countryCode</Name>\n<Required>false</Required>\n<Value></Value>\n<Secret>false</S
ecret>\n
</Property>\n
<Property id='system-fileset|db_asm_
disk_7|size-units'>\n<Name>system-fileset|db_asm_disk_
7|size-units</Name>\n<Required>false</Required>\n<Value>MB</Value>\n<Secret>false<

```

```

/Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_1|size-units\">\n<Name>system-fileset|db_asm_disk_
1|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_3|size-units\">\n<Name>system-fileset|db_asm_disk_
3|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_0|size\">\n<Name>system-fileset|db_asm_disk_
0|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_1|size\">\n<Name>system-fileset|db_asm_disk_
1|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property
id=\"asm-password\">\n<Name>asm-password</Name>\n<Required>>true</Required>\n<Value
> </Value>\n<Secret>true</Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_7|size\">\n<Name>system-fileset|db_asm_disk_
7|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property
id=\"ocm.metalinkEmailRegistration.metalinkEmailId\">\n<Name>ocm.metalinkEmailRegi
stration.metalinkEmailId</Name>\n<Required>>false</Required>\n<Value></Value>\n<Sec
ret>>false</Secret>\n
</Property>\n <Property
id=\"input|listener-1|global-db-name\">\n<Name>input|listener-1|global-db-name</Na
me>\n<Required>>false</Required>\n<Value>orcl.us.example.com</Value>\n<Secret>>false
</Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_4|size-units\">\n<Name>system-fileset|db_asm_disk_
4|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n <Property
id=\"ocm.proxyHost\">\n<Name>ocm.proxyHost</Name>\n<Required>>false</Required>\n<Va
lue></Value>\n<Secret>>false</Secret>\n
</Property>\n <Property
id=\"ocm.repeaterURI\">\n<Name>ocm.repeaterURI</Name>\n<Required>>false</Required>\n
<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_2|size-units\">\n<Name>system-fileset|db_asm_disk_
2|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n <Property
id=\"input|listener-1|port\">\n<Name>input|listener-1|port</Name>\n<Required>>false
</Required>\n<Value>1521</Value>\n<Secret>>false</Secret>\n
</Property>\n <Property
id=\"ocm.anonymousEmailRegistration.emailId\">\n<Name>ocm.anonymousEmailRegistrati
on.emailId</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property
id=\"db-account-password\">\n<Name>db-account-password</Name>\n<Required>true</Req
uired>\n<Value> </Value>\n<Secret>true</Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_3|size\">\n<Name>system-fileset|db_asm_disk_
3|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n

```

```

</Property>\n <Property id=\"system-fileset|db_asm_
disk_2|size\">\n<Name>system-fileset|db_asm_disk_
2|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property
id=\"ocm.proxyPort\">\n<Name>ocm.proxyPort</Name>\n<Required>>false</Required>\n<Va
lue></Value>\n<Secret>>false</Secret>\n
</Property>\n <Property
id=\"ocm.proxyUsername\">\n<Name>ocm.proxyUsername</Name>\n<Required>>false</Requir
ed>\n<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_6|size\">\n<Name>system-fileset|db_asm_disk_
6|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_5|size\">\n<Name>system-fileset|db_asm_disk_
5|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_4|size\">\n<Name>system-fileset|db_asm_disk_
4|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n
</Property>\n <Property
id=\"ocm.metalinkEmailRegistration.metalinkPassword\">\n<Name>ocm.metalinkEmailReg
istration.metalinkPassword</Name>\n<Required>>false</Required>\n<Value>
</Value>\n<Secret>>true</Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_6|size-units\">\n<Name>system-fileset|db_asm_disk_
6|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_5|size-units\">\n<Name>system-fileset|db_asm_disk_
5|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n <Property id=\"system-fileset|db_asm_
disk_0|size-units\">\n<Name>system-fileset|db_asm_disk_
0|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n
</Properties>\n <EMAgent>>false</EMAgent>\n
</Product>\n </ProductConfiguration>\n
<HardwareConfiguration>\n
<Memory>2048</Memory>\n
<VCPUs>1</VCPUs>\n
<HaEnabled>>false</HaEnabled>\n
<StartAfterCreation>>true</StartAfterCreation>\n
<CPUSchedulingPriority>50</CPUSchedulingPriority>\n
<CPUCap>100</CPUCap>\n <LocalDisks>\n
<disk fromDefinition=\"true\" name=\"2xZNmSH5oZYW_System\">\n
<Size>5122</Size>\n
<Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n
</disk>\n <disk fromDefinition=\"true\" name=\"AB\">\n
<Size>0</Size>\n <Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n </disk>\n
<disk fromDefinition=\"true\" name=\"2xZNmSH5oZYW_sys-asm_base\">\n
<Size>502</Size>\n <Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n </disk>\n
<disk fromDefinition=\"true\" name=\"2xZNmSH5oZYW_sys-asm_home\">\n
<Size>10307</Size>\n <Mode>Read-Write</Mode>\n

```

```

<CreatedByVmSize>>false</CreatedByVmSize>\n </disk>\n
<disk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_sys-db_base\">\n
<Size>502</Size>\n <Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n </disk>\n
<disk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_sys-db_home\">\n
<Size>9068</Size>\n <Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n </disk>\n
</LocalDisks>\n <SharedDisks>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_0\"/>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_1\"/>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_2\"/>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_3\"/>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_4\"/>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_5\"/>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_6\"/>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_7\"/>\n
</SharedDisks>\n <Nics>\n
<NetworkInterface fromDefinition=\"true\" name=\"eth0\">\n
<IPAssignmentMode>Dhcp</IPAssignmentMode>\n
<QoS>Any_Network_QoS_Type</QoS>\n
<AssemblyNetwork name=\"network-1\"/>\n
</NetworkInterface>\n </Nics>\n
<RootPassword> </RootPassword>\n
<LogLocation>/assemblybuilder/logs</LogLocation>\n
<VmSize>Custom</VmSize>\n
<NetworkConfigurationTimeout>60</NetworkConfigurationTimeout>\n
<ProductConfigurationTimeout>60</ProductConfigurationTimeout>\n
</HardwareConfiguration>\n </VirtualSystemConfig>\n
</VirtualSystemCollectionConfig>\n
</AssemblyDeployment>\n</ns2:ConfigurationData>\n"
 } ,
 {
 "uri" :
"/em/cloud/iaas/servicetemplate/deploymentplan/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ADeployment+Plan%3AC7790791F0831736E040578CDA815673%3A0.1" ,
 "name" : "sidb_deployplan" ,
 "media_type" : "application/oracle.com.cloud.iaas.DeploymentPlan+json" ,
 "type" : "Deployment Plan"
 }
]
}

```

The "deploy\_plans" attribute contains both the default deployment plan for each zone and the preconfigured deployment plans that are accessible by the user for this service template. To create an assembly instance, the deployment plan should be used.

The configuration specified in the "params" is the primary configuration. In addition, deployment plans can be used to describe detailed product and resource configurations. There are some product configurations where "<Required>true</Required>", and they should also be updated to capture the product configuration values.

The following table shows an example of a POST request to create an assembly instance:

**Table 59–22** *POST Request Configuration for Creating an Assembly Instance*

Feature	Description
URL	/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E88B04D7FEDEDE040578CDA810E49%3A0.1
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.AssemblyInstance+json

**Table 59–22 (Cont.) POST Request Configuration for Creating an Assembly Instance**

Feature	Description
Body	<pre> {   "zone": "/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D",   "params": {     "vnc_password": "welcome1",     "root_password": "welcome1",     "assembly_instance_name": "AITEST"   },   "deployment_plan": "&lt;?xml version='1.0' encoding='UTF-8' standalone='yes'?&gt;\n&lt;ns2:ConfigurationData xmlns:ns2='http://www.oracle.com/sysman/vt/RequestConfigData'&gt;\n &lt;AssemblyDeployment assemblyInstanceName='DEFAULT_PLEASE_ CHANGE'&gt;\n &lt;SourceBinary type='TYPE_SWLIB' name='oracle:defaultService:em:provisioning:1:cmp:Virtualization: Assembly:C75E88B04D7FEDEDE040578CDA810E49:0.1' /&gt;\n &lt;DeploymentTarget type='oracle_vm_zone' name='D73AF0D42C8459E11419862797D1F37D' /&gt;\n &lt;AcceptedAllEULAs&gt;false&lt;/AcceptedAllEULAs&gt;\n &lt;InstallEMAgent&gt;false&lt;/InstallEMAgent&gt;\n &lt;DisableCleanup&gt;false&lt;/DisableCleanup&gt;\n &lt;EMAgentConfig installUserPassword=' ' installUserName='oracle' /&gt;\n &lt;AssemblyNetworkConfig&gt;\n &lt;AssemblyNetwork name='network-1' /&gt;\n &lt;/AssemblyNetworkConfig&gt;\n &lt;VirtualSystemCollectionConfig id='sidbasmA_linuxx64_ 11203psu1'&gt;\n &lt;ProductConfiguration&gt;\n &lt;Product&gt;\n &lt;Properties/&gt;\n &lt;EMAgent&gt;false&lt;/EMAgent&gt;\n &lt;/Product&gt;\n &lt;/ProductConfiguration&gt;\n &lt;VirtualSystemConfig agentPushInstallationEnabled='true' agentInstallationType='Push Agent Installation' vmInstance='true' targetName='sidbasmA_linuxx64_ 11203psu1/sidbasm:%assembly_instance_name%' id='sidbasmA_ linuxx64_11203psu1/sidbasm'&gt;\n &lt;ProductConfiguration&gt;\n &lt;Product&gt;\n &lt;Properties&gt;\n &lt;Property id='ocm.runConfiguration'&gt;\n&lt;Name&gt;ocm.runConfiguration&lt;/Name&gt;\n&lt; Required&gt;false&lt;/Required&gt;\n&lt;Value&gt;false&lt;/Value&gt;\n&lt;Secret&gt;false&lt;/Se cret&gt;\n      &lt;/Property&gt;\n &lt;Property id='ocm.metalinkCsiRegistration.CSI'&gt;\n&lt;Name&gt;ocm.metalinkCsiRegi stration.CSI&lt;/Name&gt;\n&lt;Required&gt;false&lt;/Required&gt;\n&lt;Value&gt;&lt;/Value&gt;\n &lt;Secret&gt;false&lt;/Secret&gt;\n &lt;/Property&gt;\n &lt;Property id='ocm.metalinkCsiRegistration.metalinkId'&gt;\n&lt;Name&gt;ocm.metalink CsiRegistration.metalinkId&lt;/Name&gt;\n&lt;Required&gt;false&lt;/Required&gt;\n&lt;Va lue&gt;&lt;/Value&gt;\n&lt;Secret&gt;false&lt;/Secret&gt;\n &lt;/Property&gt;\n &lt;Property id='ocm.proxyPassword'&gt;\n&lt;Name&gt;ocm.proxyPassword&lt;/Name&gt;\n&lt;Requir ed&gt;false&lt;/Required&gt;\n&lt;Value&gt; &lt;/Value&gt;\n&lt;Secret&gt;true&lt;/Secret&gt;\n &lt;/Property&gt;\n &lt;Property id='ocm.metalinkCsiRegistration.countryCode'&gt;\n&lt;Name&gt;ocm.metalin kCsiRegistration.countryCode&lt;/Name&gt;\n&lt;Required&gt;false&lt;/Required&gt;\n&lt; </pre>

**Table 59–22 (Cont.) POST Request Configuration for Creating an Assembly Instance**

Feature	Description
Request method	POST

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/iaas/assemblyrequest/223" ,
 "name" : "VDOSI Assembly Creation 1345575147280" ,
 "resource_state" : {
 "state" : "INITIATED" ,
 "messages" :
 [
 {
 "text" : "The Request with ID '223' is scheduled with Job Id
'C7CB0EBE83C22D70E040578CDA812E66'" ,
 "date" : "2012-08-21T18:52:31+0000"
 }
]
 } ,
 "context_id" : "223" ,
 "media_type" : "application/oracle.com.cloud.common.AssemblyInstance+json" ,
 "service_family_type" : "iaas" ,
 "status" : "SCHEDULED" ,
 "created" : "2012-08-21T18:52:28+0000"
}
```

To track the status of the Assembly Instance creation issue a GET request on the returned URI. See the table below for details.

**Table 59–23 GET Request Configuration for Viewing Details of the Assembly Instance Creation Status**

Feature	Description
URL	/em/cloud/iaas/assemblyrequest/223
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET
Supported since release	12.1.0.4 Cloud Service Portal plug-in

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/iaas/assemblyrequest/223" ,
 "name" : "VDOSI Assembly Creation 1345575147280" ,
 "resource_state" : {
 "state" : "CREATING" ,
 "messages" :
 [
 {
 "text" : "The Request with ID '223' is being processed, and has Job Id
'C7CB0EBE83C22D70E040578CDA812E66'" ,
 "date" : "2012-08-21T18:54:25+0000"
 }
]
 }
}
```



```

]
 } ,
 "context_id" : "223" ,
 "media_type" : "application/oracle.com.cloud.common.AssemblyInstance+json" ,
 "service_family_type" : "iaas" ,
 "status" : "EXECUTING" ,
 "created" : "2012-08-21T18:52:28+0000"
}

```

The status indicates that the process is being executed. After the assembly instance is created successfully, the response received is similar to what is shown below.

```

{
 "uri" : "/em/cloud/iaas/assembly/C0AACCD8234BBAFBA7AF6CD3865B1FD3" ,
 "name" : "AITEST" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "223" ,
 "media_type" : "application/oracle.com.cloud.common.AssemblyInstance+json" ,
 "service_family_type" : "iaas" ,
 "based_on" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3AAssembly%3AC75E88B04D7FEDEDE040578CDA810E49%3A0.1"
,
 "reference" : {
 "ovf:id" : "sidbasmA_linuxx64_11203psu1"
 } ,
 "scalability_groups" : {
 "media_type" : "application/oracle.com.cloud.common.ScalabilityGroup+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 } ,
 "servers" : {
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/iaas/server/vm/B28680F24303A42D6909FFC0F79F306C" ,
 "name" : "sidbasmA_linuxx64_11203psu1/sidbasmA:DEPPLAN_1345575147280" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "status" : "STARTED"
 }
]
 } ,
 "deployment_plan" : "<?xml version='1.0' encoding='UTF-8' standalone='yes'>\n<ns2:ConfigurationData xmlns:ns2='http://www.oracle.com/sysman/vt/RequestConfigData'>\n<AssemblyDeployment assemblyInstanceName='AITEST'>\n <SourceBinary type='TYPE_SWLIB' name='oracle:defaultService:em:provisioning:1:cmp:Virtualization:Assembly:C75E88B04D7FEDEDE040578CDA810E49:0.1'>\n <DeploymentTarget type='oracle_vm_zone' name='D73AF0D42C8459E11419862797D1F37D'>\n <AcceptedAllEULAs>false</AcceptedAllEULAs>\n <InstallEMAgent>false</InstallEMAgent>\n <DisableCleanup>false</DisableCleanup>\n <EMAgentConfig installUserPassword=' ' installUserName='oracle'>\n <AssemblyNetworkConfig>\n <AssemblyNetwork name='network-1'>\n </AssemblyNetworkConfig>\n <VirtualSystemCollectionConfig id='sidbasmA_

```

```

linuxx64_11203psu1\">\n <ProductConfiguration>\n
<Product>\n <Properties/>\n
<EMAgent>false</EMAgent>\n </Product>\n
</ProductConfiguration>\n <VirtualSystemConfig
agentPushInstallationEnabled=\"true\" agentInstallationType=\"Push Agent
Installation\" vmInstance=\"true\" targetName=\"sidbasmA_linuxx64_
11203psu1/sidbasm:%assembly_instance_name%\" id=\"sidbasmA_linuxx64_
11203psu1/sidbasm\">\n <ProductConfiguration>\n
<Product>\n <Properties>\n
<Property
id=\"ocm.runConfiguration\">\n<Name>ocm.runConfiguration</Name>\n<Required>>false</
Required>\n<Value>>false</Value>\n<Secret>>false</Secret>\n
</Property>\n <Property
id=\"ocm.metalinkCsiRegistration.CSI\">\n<Name>ocm.metalinkCsiRegistration.CSI</Na
me>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n <Property
id=\"ocm.metalinkCsiRegistration.metalinkId\">\n<Name>ocm.metalinkCsiRegistration.
metalinkId</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Sec
ret>\n </Property>\n
<Property
id=\"ocm.proxyPassword\">\n<Name>ocm.proxyPassword</Name>\n<Required>>false</Requir
ed>\n<Value> </Value>\n<Secret>>true</Secret>\n
</Property>\n <Property
id=\"ocm.metalinkCsiRegistration.countryCode\">\n<Name>ocm.metalinkCsiRegistration
.countryCode</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</S
ecret>\n </Property>\n
<Property id=\"system-files|db_asm_disk_
7|size-units\">\n<Name>system-files|db_asm_disk_
7|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n </Property>\n
<Property id=\"system-files|db_asm_disk_
1|size-units\">\n<Name>system-files|db_asm_disk_
1|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n </Property>\n
<Property id=\"system-files|db_asm_disk_
3|size-units\">\n<Name>system-files|db_asm_disk_
3|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n </Property>\n
<Property id=\"system-files|db_asm_disk_0|size\">\n<Name>system-files|db_asm_
disk_
0|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n </Property>\n
<Property id=\"system-files|db_asm_disk_1|size\">\n<Name>system-files|db_asm_
disk_
1|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n </Property>\n
<Property
id=\"asm-password\">\n<Name>asm-password</Name>\n<Required>>true</Required>\n<Value
>
</Value>\n<ValueGuid>C7CC61AC07DC6E58E040578CDA8145F9</ValueGuid>\n<Secret>>true</S
ecret>\n </Property>\n
<Property id=\"system-files|db_asm_disk_7|size\">\n<Name>system-files|db_asm_
disk_
7|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Sec
ret>\n </Property>\n
<Property
id=\"ocm.metalinkEmailRegistration.metalinkEmailId\">\n<Name>ocm.metalinkEmailRegi
stration.metalinkEmailId</Name>\n<Required>>false</Required>\n<Value></Value>\n<Sec
ret>>false</Secret>\n </Property>\n
<Property

```

```

id="\input|listener-1|global-db-name\">\n<Name>input|listener-1|global-db-name</Name>\n<Required>>false</Required>\n<Value>orcl.us.example.com</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_4|size-units\">\n<Name>system-fileset|db_asm_disk_4|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"ocm.proxyHost\">\n<Name>ocm.proxyHost</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"ocm.repeaterURI\">\n<Name>ocm.repeaterURI</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_2|size-units\">\n<Name>system-fileset|db_asm_disk_2|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"input|listener-1|port\">\n<Name>input|listener-1|port</Name>\n<Required>>false</Required>\n<Value>1521</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"ocm.anonymousEmailRegistration.emailId\">\n<Name>ocm.anonymousEmailRegistration.emailId</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"db-account-password\">\n<Name>db-account-password</Name>\n<Required>>true</Required>\n<Value>
</Value>\n<ValueGuid>C7CC61AC07DF6E58E040578CDA8145F9</ValueGuid>\n<Secret>>true</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_3|size\">\n<Name>system-fileset|db_asm_disk_3|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_2|size\">\n<Name>system-fileset|db_asm_disk_2|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"ocm.proxyPort\">\n<Name>ocm.proxyPort</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"ocm.proxyUsername\">\n<Name>ocm.proxyUsername</Name>\n<Required>>false</Required>\n<Value></Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_6|size\">\n<Name>system-fileset|db_asm_disk_6|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_5|size\">\n<Name>system-fileset|db_asm_disk_5|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_4|size\">\n<Name>system-fileset|db_asm_disk_4|size</Name>\n<Required>>false</Required>\n<Value>2836</Value>\n<Secret>>false</Secret>\n
</Property>\n
<Property
id=\"ocm.metalinkEmailRegistration.metalinkPassword\">\n<Name>ocm.metalinkEmailRegistration.metalinkPassword</Name>\n<Required>>false</Required>\n<Value>
</Value>\n<Secret>>true</Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_

```

```

6|size-units\">\n<Name>system-fileset|db_asm_disk_
6|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_
5|size-units\">\n<Name>system-fileset|db_asm_disk_
5|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n
<Property id=\"system-fileset|db_asm_disk_
0|size-units\">\n<Name>system-fileset|db_asm_disk_
0|size-units</Name>\n<Required>>false</Required>\n<Value>MB</Value>\n<Secret>>false<
/Secret>\n
</Property>\n
</Properties>\n
<EMAgent>>false</EMAgent>\n
</Product>\n
</ProductConfiguration>\n
<HardwareConfiguration>\n
<Memory>2048</Memory>\n
<VCPU>1</VCPU>\n
<HaEnabled>>false</HaEnabled>\n
<StartAfterCreation>>true</StartAfterCreation>\n
<CPUSchedulingPriority>50</CPUSchedulingPriority>\n
<CPUCap>100</CPUCap>\n
<LocalDisks>\n
<disk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_System\">\n
<Size>5122</Size>\n
<Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n
</disk>\n
<disk fromDefinition=\"true\" name=\"AB\">\n
<Size>0</Size>\n
<Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n
</disk>\n
<disk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_sys-asm_base\">\n
<Size>502</Size>\n
<Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n
</disk>\n
<disk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_sys-asm_home\">\n
<Size>10307</Size>\n
<Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n
</disk>\n
<disk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_sys-db_base\">\n
<Size>502</Size>\n
<Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n
</disk>\n
<disk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_sys-db_home\">\n
<Size>9068</Size>\n
<Mode>Read-Write</Mode>\n
<CreatedByVmSize>>false</CreatedByVmSize>\n
</disk>\n
</LocalDisks>\n
<SharedDisks>\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_0\">\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_1\">\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_2\">\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_3\">\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_4\">\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_5\">\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_6\">\n
<SharedDisk fromDefinition=\"true\" name=\"2xZNMmSH5oZYW_db_asm_disk_7\">\n
</SharedDisks>\n
<Nics>\n
<NetworkInterface fromDefinition=\"true\" name=\"eth0\">\n
<IPAssignmentMode>Dhcp</IPAssignmentMode>\n
<QoS>Any_
Network_QoS_Type</QoS>\n
<AssemblyNetwork
name=\"network-1\">\n
</NetworkInterface>\n
</Nics>\n
<RootPassword>\n
<RootPasswordGuid>C7CC61AC07D96E58E040578CDA8145F9</RootPasswordGuid>\n
<LogLocation>/assemblybuilder/logs</LogLocation>\n
<VmSize>Custom</VmSize>\n
<NetworkConfigurationTimeout>60</NetworkConfigurationTimeout>\n
<ProductConfigurationTimeout>60</ProductConfigurationTimeout>\n
</HardwareConfiguration>\n
</VirtualSystemConfig>\n
</VirtualSystemCollectionConfig>\n
</AssemblyDeployment>\n</ns2:ConfigurationData>\n"

```

```
}
```

## 59.3.2 Updating a VM Service Instance

A service instance may be resized, its status updated, or additional resources added.

The VM resource supports the following changes:

- The "status" can be updated (for example, from STARTED to STOPPED or from STOPPED to STARTED). See, [Section 59.3.2.1, "Changing the VM Status"](#).
- The "cpu" and "memory" can be updated (for example to resize the VM). See, [Section 59.3.2.2, "Changing the VM Size"](#).

---

**Note:** For the 12.1.0.4 Cloud Self Service Portal release, VM is no longer required to be STOPPED before modifying the "cpu" and "memory".

---

- Additional resources, for example a VM disk can be added. See, [Section 59.3.2.3, "Adding a VM Disk"](#).
- Any updates supported on the VM resource from 10000 version are also supported on the 10001 version of the resource.

### 59.3.2.1 Changing the VM Status

The following shows the GET of the VM's status:

**Table 59–24** *GET Request Configuration for Viewing the Current Status of the VM*

Feature	Description
URI	/em/cloud/iaas/server/byrequest/101?status,uri
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET
Supported since release	12.1.0.1 Cloud Service Portal plug-in

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095" ,
 "status" : "STARTED"
}
```

To update the status, use the PUT method to the resource "uri". Note that the "uri" attribute is the one that directly references to the resource.

**Table 59–25** *PUT Request Configuration for Stopping the VM*

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095

**Table 59–25 (Cont.) PUT Request Configuration for Stopping the VM**

Feature	Description
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "status" : "STOPPED" }
Request method	PUT
Supported since release	12.1.0.1 Cloud Service Portal plug-in

The Web service response displays the 200 response code, along with the current VM attributes.

To confirm the status of the VM issue the following GET request on the VM:

**Table 59–26 GET Request Configuration for Confirming the Status Change of the VM**

Feature	Description
URI	/em/cloud/iaas/server/byrequest/101?status,uri
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET
Supported since release	12.1.0.1 Cloud Service Portal plug-in

The Web service returns the following:

```
{
 "uri" : "/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095" ,
 "status" : "STOPPED"
}
```

Attempting to submit a PUT transient status value would result in the following:

**Table 59–27 PUT Request Configuration for Attempting a Transient Status Value**

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095
Request header	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "status" : "STOPPING" }
Request method	PUT
Supported since release	12.1.0.1 Cloud Service Portal plug-in

The following shows the Web service response:

```
{
 "messages" :
 [
 {
 "date" : "2012-08-19T17:22:04+0000" ,
 "stack_trace" :
 "oracle.sysman.emInternalSDK.ssa.cloudapi.rest.RestControllerException: Status
 'STOPPING' specified by the PUT request is transient, and is not a valid
 status\n\tat
 oracle.sysman.ssa.cloudapi.iaas.VM.processVMStatusChange(VM.java:331)\n\tat
 oracle.sysman.ssa.cloudapi.iaas.VM.processVMChanges(VM.java:253)\n\tat
 oracle.sysman.ssa.cloudapi.iaas.VM.processRequest(VM.java:227)\n\tat
 oracle.sysman.ssa.cloudapi.iaas.IaasServiceProvider.processRequest(IaasServiceProv
 ider.java:582)\n\tat
 oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.perform(EMCloudServlet.jav
 a:236)\n\tat
 oracle.sysman.emInternalSDK.ssa.cloudapi.EMCloudServlet.performPut(EMCloudServlet.
 java:351)\n\tat
 oracle.sysman.emInternalSDK.ssa.cloudapi.rest.AbstractRestController.doPut(AbstractRe
 stServlet.java:163)\n\tat
 javax.servlet.http.HttpServlet.service(HttpServlet.java:730)\n\tat
 javax.servlet.http.HttpServlet.service(HttpServlet.java:820)\n\tat
 weblogic.servlet.internal.StubSecurityHelper$ServletServiceAction.run(StubSecurity
 Helper.java:227)\n\tat we" ,
 "hint" : "Status 'STOPPING' specified by the PUT request is transient, and
 is not a valid status" ,
 "text" : "Did not successfully execute 'PUT' resource operation on
 'application/oracle.com.cloud.common.Cloud' identified by
 '/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095'"
 }
]
}
```

Attempting to submit the existing status to the VM will result in the following interaction:

**Table 59–28 PUT Request Configuration for Changing the VM Status to the Current Status**

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095?resource_state
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "status" : "STOPPED" }
Request method	PUT
Supported since release	12.1.0.1 Cloud Service Portal plug-in

The web service responds with the following:

```
{
```

```

 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "date" : "2012-08-19T17:23:49+0000" ,
 "text" : "Current Virtual Machine Status 'STOPPED' is the same as the
requested status. Status change is not needed"
 }
]
 }
 }
}

```

When modifying a service instance, the messages communicated will be encapsulated in the resource\_state attribute. For example, to START the VM again, the following PUT request can be issued:

**Table 59–29 PUT Request Configuration for Starting the VM**

Feature	Description
URL	https://example.com/em/cloud/iaas/server/vm/C5CA59AF9386975E8AE A45B0F040F095?resource_state
Headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "status" : "STARTED" }
Method	PUT
Supported since release	12.1.0.1 Cloud Service Portal plug-in

The web service will respond with the following:

```

{
 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "date" : "2012-08-19T17:25:29+0000" ,
 "text" : "'START' resource operation on
'application/oracle.com.cloud.common.VM' identified by
'C5CA59AF9386975E8AEA45B0F040F095' is successfully submitted with reference
'C7A2713B9A4D29C1E040578CDA817561'"
 }
]
 }
}

```

### 59.3.2.2 Changing the VM Size

The CPU and Memory of a VM can be adjusted to increase or decrease the capacity. For example, to adjust the VM's CPU to 1 vCPU and increase the memory from 512 to 1024, the following PUT request can be issued:



**Table 59–30 PUT Request Configuration for Changing the Size of the VM**

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095?resource_state
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "cpu": [1,0], "memory": "1024" }
Request method	PUT
Supported since release	12.1.0.1 Cloud Service Portal plug-in

A sample of the response received is shown below.

```
{
 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "text" : "'PUT' resource operation on
'application/oracle.com.cloud.common.VM' identified by
'C5CA59AF9386975E8AEA45B0F040F095' is successfully submitted with reference '106'"
 ,
 "date" : "2012-08-20T01:15:28+0000"
 }
]
 }
}
```

After some time, the new capacity is reflected in the VM resource through the GET request:

**Table 59–31 GET Request Configuration for Viewing the Current Size of the VM**

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095?resource_state,cpu,memory,status
Request header	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "resource_state" : {
 "state" : "READY"
 } ,
}
```

```
"status" : "STARTED" ,
"cpu" :
[
 "1" ,
 "0"
] ,
"memory" : "1024"
}
```

59.3.2.3 Adding a VM Disk

An additional disk may be added to the VM resource. For example, to add two additional disks, the following PUT request can be issued:

Table 59–32 PUT Request Configuration for Adding a VM Disk

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095?resource_state
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.VM+json
Body	{ "disks": [ ["additional_1", "5120"], ["additional_2", "10240"] ] }
Parameters/Constraints	If an entry in the "disks" attribute is new, then a new disk would be added. If an entry in the "disks" attribute exists already, then, it would be ignored.
Request method	PUT
Supported since release	12.1.0.5 Cloud Service Portal plug-in

A sample of the response received is shown below.

```
"resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "text" : "'PUT' resource operation on
'application/oracle.com.cloud.common.VM' identified by '
C5CA59AF9386975E8AEA45B0F040F095' is successfully submitted with reference '2'" ,
 "date" : "2013-02-26T19:53:15+0000"
 }
]
}
```

After some time, the new disks are reflected in the VM resource using the GET request.

**Table 59–33** *GET Request Configuration for Verifying Addition of New Disks in the VM Resource*

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095?resource_state,disks
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the Web service response is shown below.

```
{
 "resource_state" : {
 "state" : "READY"
 } ,
 "disks" :
 [
 [
 "system.img (2)" ,
 "1400"
] ,
 [
 "default_disk" ,
 "10240"
] ,
 [
 "additional_1" ,
 "5120"
] ,
 [
 "additional_2" ,
 "10240"
]
]
}
```

### 59.3.3 Deleting a Service Instance

The DELETE request on the URI of the resource can be issued to delete a Service Instance. For example, the following DELETE request is issued:

**Table 59–34** *Delete Request Configuration for Deleting a Service Instance*

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	DELETE
Supported since release	12.1.0.1 Cloud Service Portal plug-in

A sample of the response received is shown below.

```
{
 "uri" : "/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095" ,
 "resource_state" : {
 "state" : "READY" ,
 "messages" :
 [
 {
 "text" : "'DELETE' resource operation on
'application/oracle.com.cloud.common.VM' identified by
'C5CA59AF9386975E8AEA45B0F040F095' is successfully submitted with reference
'C7A83335CB63DA7BE040578CDA814DDC'" ,
 "date" : "2012-08-20T01:24:38+0000"
 }
]
 } ,
 "context_id" : "C5CA59AF9386975E8AEA45B0F040F095" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "service_family_type" : "iaas"
}
```

After some time, the GET request on the VM URI will result in the following interaction:

**Table 59–35** *GET Request Configuration for Verifying the Status of the VM*

Feature	Description
URI	/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET

A sample of the web service returned response is shown below.

```
{
 "uri" : "/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "context_id" : "C5CA59AF9386975E8AEA45B0F040F095" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "service_family_type" : "iaas" ,
 "status" : "DELETED"
}
```

Note the "status" of the VM has the "DELETED" value.

### 59.3.4 Listing Service Instances

There are various references to service instances in the resource model, and they are all in context of the resource themselves. For example, "service\_instances" in the Zone resource would list the elements that are in that Zone, while "service\_instances" in the ServiceTemplate resource would list the elements that are based on that service template.

For example, the following list the service instances in a zone.

**Table 59–36 GET Request Configuration for Viewing Service Instances in a Zone**

Feature	Description
URI	/em/cloud/iaas/zone/D73AF0D42C8459E11419862797D1F37D?service_instances
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Request method	GET
Supported since release	12.1.0.4 Cloud Service Portal plug-in

The following response is received:

```
{
 "service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
 "total" : "2" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/iaas/server/vm/523CAE80A305928C9C5BE8A67A4181FD" ,
 "name" : "ZONEPOST" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "status" : "STARTED"
 } ,
 {
 "uri" : "/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095" ,
 "name" : "STPOST" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "status" : "STARTED"
 }
]
 }
}
```

Similarly, you can list the service instances from the service templates:

**Table 59–37 GET Request Configuration for Viewing Service Instances Under a Service Template**

Feature	Description
URL	/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3AVirtualization%3ATemplate%3AC76CEB5563EA5E13E040578CDA817FAF%3A0.1?service_instances
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET
Supported since release	12.1.0.4 Cloud Service Portal plug-in

A sample of the response received is shown below.

```
{
```

```

"service_instances" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceInstance+json" ,
 "total" : "2" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/iaas/server/vm/C5CA59AF9386975E8AEA45B0F040F095" ,
 "name" : "STPOST" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "status" : "STARTED"
 } ,
 {
 "uri" : "/em/cloud/iaas/server/vm/523CAE80A305928C9C5BE8A67A4181FD" ,
 "name" : "ZONEPOST" ,
 "media_type" : "application/oracle.com.cloud.common.VM+json" ,
 "status" : "STARTED"
 }
]
}
}

```

### 59.3.5 Searching Service Templates

Searching for a service template through cloud can be performed by constructing ServiceTemplateFinds resource. ServiceTemplateFinds is synonymous to a "report" that contains elements satisfying the condition specified.

For example, the following will return service template with the name OEL in it

**Table 59–38 POST Request Configuration for Filtering Service Templates**

Feature	Description
URI	/em/cloud
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.ServiceTemplateFinds+json Accept : application/oracle.com.cloud.common.ServiceTemplateFinds+json
Body	{ "filters":{ "name":"OEL" } }
Request method	POST
Supported since release	12.1.0.5 Cloud Service Portal plug-in

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/finds/service_
template/bWVkaWFfdHlwZSUyNTNEYXBwbGljYXRpb241MjUyRm9yYWNSZS5jb20uY2xvdWQuY29tbW9uL
lNl%0AcnZpY2VUZWlwbGF0ZSUyRm5hbWU1MjUzRE9FTA%3D%3D" ,
 "name" : "Service Template Finds" ,
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplateFinds+json" ,
 "description" : "This is a Resource Finds for 'Service Template Finds' with
media type 'application/oracle.com.cloud.common.ServiceTemplateFinds+json' " ,
 "resource_state" : {

```

```

 "state" : "READY"
 } ,
 "filters" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "name" : "OEL"
 } ,
 "finds" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/iaas/servicetemplate/vm/oracle%3AdefaultService%3Aem%3Aprovisioning%3A1%3Acmp%3Avirtualization%3Atemplate%3AD6A66B2DCAEAE177E040F20AB0527449%3A0.1" ,
 "name" : "OEL4.0 For Testing" ,
 "media_type" : "application/oracle.com.cloud.common.VMTemplate+json" ,
 "type" : "Template"
 }
]
 }
}

```

Currently, the following attributes are supported by the "filters":

**Table 59–39 Filters**

Attributes	Description	Since
media_type	The specific service template media to search for. This would be an exact match of the media type.	12.1.0.5 Cloud Service Portal Plugin (IaaS service family type only)
name	A service template would be returned if the name contains the specified string, case insensitive (so, OEL and oel in the example above would return the same result).	12.1.0.5 Cloud Service Portal Plugin (IaaS service family type only)

If an attribute specified is not recognized by the system, it will be ignored. For example, the following will return service templates containing the name DUMMY:

**Table 59–40 POST Request Configuration for an Unrecognized Attribute**

Feature	Description
URI	/em/cloud
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= Content-Type: application/oracle.com.cloud.common.ServiceTemplateFinds+json Accept : application/oracle.com.cloud.common.ServiceTemplateFinds+json
Body	{       "filters":{         "name": "DUMMY"       }     }
Request method	POST

**Table 59–40 (Cont.) POST Request Configuration for an Unrecognized Attribute**

Feature	Description
Supported since release	12.1.0.5 Cloud Service Portal plug-in

The response received is shown below.

```
{
 "uri" : "/em/cloud/finds/service_
template/bWVkaWFfdHlwZSUyNTNEYXBwbGljYXRpb24lMjUyRm9yYWNSZS5jb20uY2xvdWQuY29tbW9uL
lNl%0AcnZpY2VUZWlwbGF0ZSUyRm5hbWUlmjUzRERVTU1Z" ,
 "name" : "Service Template Finds" ,
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplateFinds+json" ,
 "description" : "This is a Resource Finds for 'Service Template Finds' with
media type 'application/oracle.com.cloud.common.ServiceTemplateFinds+json'" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "filters" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "name" : "DUMMY"
 } ,
 "finds" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "total" : "0" ,
 "elements" :
 [
]
 }
}
```

Since there were no service templates with "DUMMY" as part of its name, no service templates are returned.

Please note, once the resource ServiceTemplateFinds is created, its URI can be used for performing the same query by issuing a GET request. If new templates were added that also satisfy the conditions, it would be returned as well.

For example, let's use the DUMMY example's URI, and this time, a service template with "DUMMY" in its name was created.

**Table 59–41 GET Request Configuration for Filtering Service Templates Using the URI of a Preset POST Filter**

Feature	Description
URI	/em/cloud/finds/service_ template/bWVkaWFfdHlwZSUyNTNEYXBwbGljYXRpb24lMjUyRm9yYW NsZS5jb20uY2xvdWQuY29tbW9uLlNl%0AcnZpY2VUZWlwbGF0ZSUyRm5 hbWUlmjUzRERVTU1Z
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI=
Body	None
Request method	GET
Supported since release	12.1.0.5 Cloud Service Portal plug-in

Shown below is the response of the GET request after the service template was created and published by the administrator:



```

{
 "uri" : "/em/cloud/finds/service_
template/bWVkaWFfdHlwZSUyNTNEYXBwbGljYXRpb241MjUyRm9yYWNSZS5jb20uY2xvdWQuY29tbW9uL
lNl%0AcnZpY2VUZWlwbGF0ZSUyRm5hbWU1MjUzRERVTU1Z" ,
 "name" : "Service Template Finds" ,
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplateFinds+json" ,
 "description" : "This is a Resource Finds for 'Service Template Finds' with
media type 'application/oracle.com.cloud.common.ServiceTemplateFinds+json'" ,
 "resource_state" : {
 "state" : "READY"
 } ,
 "filters" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "name" : "DUMMY"
 } ,
 "finds" : {
 "media_type" : "application/oracle.com.cloud.common.ServiceTemplate" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/iaas/servicetemplate/assembly/oracle%3AdefaultService%3Aem%3Aprovisioni
ng%3A1%3Acmp%3AVirtualization%3AAssembly%3AD6A7D3D84B605D11E040F20AB0524E1C%3A0.1"
,
 "name" : "Dummy OEL Assembly" ,
 "media_type" :
"application/oracle.com.cloud.common.AssemblyTemplate+json" ,
 "type" : "Assembly"
 }
]
 }
}

```

## 59.4 Support for Version 1000

As the document previous noted, this 12.1.0.4 Cloud Service Portal Plugin supports the specification version 10000. To start, issue the following HTTP request on the Enterprise Manager:

**Table 59–42 GET Request Configuration for Viewing Details of the Cloud Resource for Version 10000**

Feature	Description
URI	/em/cloud
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= X-Specification-Version: 10000 Accept: application/oracle.com.cloud.common.Cloud+json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud" ,
 "name" : "Infrastructure Cloud" ,

```

```

 "description" : "Infrastructure Cloud with Self Service Portal and
Virtualization Managements" , "service_templates" : {
 "uri" : "/em/cloud/collection/servicetemplates" ,
 "type" : "application/oracle.com.cloud.common.ServiceTemplate+json" ,
 "total" : "7" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/servicetemplate/oracle:defaultService:em:provisioning:1:cmp:Virtualizat
ion:Assembly:C75E88B04D7FEDEDE040578CDA810E49:0.1" ,
 "name" : "sidb_assembly" ,
 "type" : "Assembly" ,
 "version" : "0.1"
 } ,
 {
 "uri" :
"/em/cloud/servicetemplate/oracle:defaultService:em:provisioning:1:cmp:Virtualizat
ion:Assembly:C769B1F361529309E040578CDA813D57:0.1" ,
 "name" : "wls_assembly" ,
 "type" : "Assembly" ,
 "version" : "0.1"
 } ,
 {
 "uri" :
"/em/cloud/servicetemplate/oracle:defaultService:em:provisioning:1:cmp:Virtualizat
ion:Template:C76CEB5563EA5E13E040578CDA817FAF:0.1" ,
 "name" : "template_sanity" ,
 "type" : "Template" ,
 "version" : "0.1"
 } ,
 {
 "uri" :
"/em/cloud/servicetemplate/oracle:defaultService:em:provisioning:1:cmp:Virtualizat
ion:Assembly:C76F733BC7A41AF7E040578CDA812CDC:0.1" ,
 "name" : "fmw_venkat" ,
 "type" : "Assembly" ,
 "version" : "0.1"
 } ,
 {
 "uri" :
"/em/cloud/servicetemplate/oracle:defaultService:em:provisioning:1:cmp:Virtualizat
ion:Assembly:C76C144A4A245B62E040578CDA8163B9:0.1" ,
 "name" : "fmw_abby" ,
 "type" : "Assembly" ,
 "version" : "0.1"
 } ,
 {
 "uri" :
"/em/cloud/servicetemplate/oracle:defaultService:em:provisioning:1:cmp:Virtualizat
ion:Assembly:C77122B0A916D95CE040578CDA814854:0.1" ,
 "name" : "sidbasmA_abby" ,
 "type" : "Assembly" ,
 "version" : "0.1"
 } ,
 {
 "uri" :
"/em/cloud/servicetemplate/oracle:defaultService:em:provisioning:1:cmp:Virtualizat
ion:Assembly:C76C8792DE2A0937E040578CDA81795E:0.1" ,
 "name" : "WLS_abby" ,

```

```

 "type" : "Assembly" ,
 "version" : "0.1"
 }
} ,
"zones" : {
 "uri" : "/em/cloud/collection/zones" ,
 "type" : "application/oracle.com.cloud.common.Zone+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/zone/D73AF0D42C8459E11419862797D1F37D" ,
 "name" : "cloud_zone" ,
 "type" : "oracle_vm_zone"
 }
]
} ,
"vdcs" : {
 "uri" : "/em/cloud/collection/vdcs" ,
 "type" : "application/oracle.com.cloud.common.VDC+json" ,
 "total" : "1" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "name" : "Oracle Enterprise Manager Virtual Data Center on Zone
cloud_zone"
 }
]
} ,
"instance_options" : {
 "uri" : "/em/cloud/collection/instanceoptions" ,
 "type" : "application/oracle.com.cloud.common.InstanceOption+json" ,
 "total" : "3" ,
 "elements" :
 [
 {
 "uri" : "/em/cloud/instanceoption/virtual_machine_size/2" ,
 "name" : "Medium" ,
 "type" : "virtual_machine_size" ,
 "memory" : "8192" ,
 "cpu" : "4" ,
 "local_storage" : "512000"
 } ,
 {
 "uri" : "/em/cloud/instanceoption/virtual_machine_size/3" ,
 "name" : "Large" ,
 "type" : "virtual_machine_size" ,
 "memory" : "15360" ,
 "cpu" : "8" ,
 "local_storage" : "1024000"
 } ,
 {
 "uri" : "/em/cloud/instanceoption/virtual_machine_size/1" ,
 "name" : "Small" ,
 "type" : "virtual_machine_size" ,
 "memory" : "4096" ,
 "cpu" : "2" ,
 "local_storage" : "256000"
 }
]
}

```

```

 }
]
},
"resource_state" : {
 "state" : "READY"
}
}

```

Similarly, to return the list of resources in the VDC, the following can be issued (note that X-specification-version must be included in the header whenever working with 10000 version resources):

**Table 59–43 GET Request Configuration for Viewing Details of the VDC Resources**

Feature	Description
URI	/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D
Request headers	Authorization: basic ZGVtb3VzZXI6ZGVtb3VzZXI= X-Specification-Version: 10000 Accept: application/oracle.com.cloud.common.VDC+json
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
 "uri" : "/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "name" : "Oracle Enterprise Manager Virtual Data Center on Zone cloud_zone" ,
 "description" : "Virtual Data Center is a logical grouping of virtualized assets
in a particular zone" ,
 "scalability_groups" : {
 "uri" : "/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D?scalability_
groups" ,
 "type" : "application/oracle.com.cloud.common.ScalabilityGroup+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 } ,
 "servers" : {
 "uri" : "/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D?servers" ,
 "type" : "application/oracle.com.cloud.common.Server+json" ,
 "total" : "0" ,
 "elements" :
 [
]
 } ,
 "vnets" : {
 "uri" : "/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D?vnets" ,
 "type" : "application/oracle.com.cloud.common.VNet+json" ,
 "total" : "3" ,
 "elements" :
 [
 {
 "uri" :
"/em/cloud/vnet/D73AF0D42C8459E11419862797D1F37D/oracle:defaultService:em:provisio
ning:1:netConfig:C76CEADBBBE6B23FE040578CDA817FB1" ,
 "name" : "venkat_profile" ,
 "id" :
"oracle:defaultService:em:provisioning:1:netConfig:C76CEADBBBE6B23FE040578CDA817FB

```

```

1"
 },
 {
 "uri" :
"/em/cloud/vnet/D73AF0D42C8459E11419862797D1F37D/oracle:defaultService:em:provisio
ning:1:netConfig:C77076C8FDEC6BD7E040578CDA813B2B" ,
 "name" : "nwprofile_abby" ,
 "id" :
"/oracle:defaultService:em:provisioning:1:netConfig:C77076C8FDEC6BD7E040578CDA813B2
B"
 } ,
 {
 "uri" :
"/em/cloud/vnet/D73AF0D42C8459E11419862797D1F37D/oracle:defaultService:em:provisio
ning:1:netConfig:C76F741AFD7EB760E040578CDA812CD8" ,
 "name" : "bmp_profile" ,
 "id" :
"/oracle:defaultService:em:provisioning:1:netConfig:C76F741AFD7EB760E040578CDA812CD
8"
 }
]
},
"zone" : "/em/cloud/zone/D73AF0D42C8459E11419862797D1F37D" ,
"resource_state" : {
 "state" : "READY"
} ,
"assembly_instances" : {
 "uri" : "/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D?assemblies"
,
 "type" : "application/oracle.com.cloud.common.AssemblyInstance+json" ,
 "total" : "11" ,
 "elements" :
[
 {
 "uri" : "/em/cloud/assembly/byrequest/64" ,
 "name" : "WLS_abby" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "FD4F3945CDD6BD6EEEFAB064735ECDD"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/81" ,
 "name" : "WLS_abby_0" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "79006B5C36F6ED90FC82EB58BB9580F2"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/82" ,
 "name" : "fmw_abby" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "C7852B2D7740F4FAE040578CDA811EF3"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/26" ,
 "name" : "latest_attempt_wls_withagent_dinesh" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "4DE0D2D8C81D0C09E665484BA9DBE668"
 }
]
}

```

```

 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/61" ,
 "name" : "sidb_assembly" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "235D95A93ABA2B50AFF5486540F48690"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/62" ,
 "name" : "sidb_assembly_0" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "BFA65EC9A5FB97AD2B971EE8FB5E91AC"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/27" ,
 "name" : "venkat_fmww" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "3DBE707B981DEDA5380ED6DBD8BF399C"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/23" ,
 "name" : "venkat_nw_profile" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "05C1F96EE6FBD049BFE1D57AA89CB0D0"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/1" ,
 "name" : "venkat_sidb" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "3A5C3917D18E276BDC7D08949F1851D1"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/22" ,
 "name" : "wls_dinesh_32bit_agent" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "896B27C0963AF3B5C5C69D62614D63ED"
 } ,
 {
 "uri" : "/em/cloud/assembly/byrequest/21" ,
 "name" : "wls_vt_dinesh" ,
 "contained_in" :
"/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D" ,
 "guid" : "E54B51C4FCFF6C56AE393C3B1EEA8464"
 }
]
} ,
"dbplatform_instances" : {
 "uri" : "/em/cloud/vdc/default/D73AF0D42C8459E11419862797D1F37D?dbplatform_
instances" ,
 "type" : "application/oracle.com.cloud.common.DbPlatformInstance+json" ,
 "total" : "0" ,
 "elements" :
[
]
}

```

```
}
```

If the X-Specification-Version header was not specified, the response received would be similar to the following:

```
{
 "messages" :
 [
 {
 "text" : "Media Type 'application/oracle.com.cloud.common.VDC' specified
in the request cannot be supported by the Cloud Resource. Cloud Resource supports
Media Type 'application/oracle.com.cloud.common.Cloud+json' " ,
 "date" : "2012-08-19T15:17:08+0000"
 }
]
}
```

---

---

**Note:** Only Infrastructure Service resources are supported on 10000 version. Features supported are the same as the previous version.

---

---





---

## Testing as a Service REST APIs

This chapter describes the resource models for Testing as a Service (TaaS) REST API and the REST request/response interactions.

This chapter contains the sections listed below. The first section provides a summary of all the REST APIs covered in this chapter, whereas the following sections provide an introduction to TaaS, the TaaS resource models and the REST API examples.

- [Summary of Testing as a Service REST APIs](#)
- [Introduction to Testing as a Service REST API](#)
- [Testing as a Service Resource Model](#)
  - [Application Resource](#)
  - [TestDriverType Resource](#)
  - [TestDriver Resource](#)
  - [QuotaUsage Resource](#)
  - [TestAsset](#)
  - [OltScenario](#)
  - [CustomParameters](#)
  - [OFTAssetScript Resource](#)
  - [OftAssetScriptCsvDatabanks](#)
  - [OftPlaybackSettings Resource](#)
  - [OftDatabaseDatabanks](#)
  - [TestEnvironment](#)
  - [Test](#)
  - [Trial](#)
  - [Metric](#)
  - [MetricValue](#)
  - [OltSession](#)
  - [OltCounter](#)
  - [OltCounterValue](#)
  - [OftTrialAssetExecution](#)
  - [TestDriverInstance](#)

- [TestEnvironmentInstance Resource](#)
- [Operation](#)
- [TestType](#)
- [Target](#)
- [OltAgent](#)
- [Testing as a Service REST API Examples](#)

## 60.1 Summary of Testing as a Service REST APIs

The table below shows a summary of all the TaaS REST APIs covered in this chapter.

**Table 60–1 Summary of TaaS REST APIs**

Resource	Data Model	GET	POST	PUT	DELETE
Application Resource	<a href="#">Table 60–2</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.1</a></li> <li>■ <a href="#">Section 60.4.2</a></li> </ul>	Not supported	Not supported	Not supported
Test driver type	<a href="#">Table 60–4</a>	<a href="#">Section 60.4.9</a>	Not supported	Not supported	Not supported
Test driver	<a href="#">Table 60–6</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.7</a></li> <li>■ <a href="#">Section 60.4.9</a></li> </ul>	Not supported	Not supported	Not supported
Quota usage	<a href="#">Table 60–9</a>	Supported	Not supported	Not supported	Not supported
Test asset	<a href="#">Table 60–11</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.3</a></li> <li>■ <a href="#">Section 60.4.4</a></li> </ul>	Not supported	Not supported	Not supported
OLT scenario	<a href="#">Table 60–16</a>	Supported	Not supported	Not supported	Not supported
Custom parameters	<a href="#">Table 60–19</a>	Supported	Not supported	Not supported	Not supported
OFT asset script	<a href="#">Table 60–22</a>	Supported	Not supported	Not supported	Not supported
OFT asset script CSV databanks	<a href="#">Table 60–26</a>	Supported	Not supported	Not supported	Not supported
OFT playback settings	<a href="#">Table 60–29</a>	Supported	Not supported	Not supported	Not supported
OFT database databanks	<a href="#">Table 60–31</a>	Supported	Not supported	Not supported	Not supported
Test environment	<a href="#">Table 60–34</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.5</a></li> <li>■ <a href="#">Section 60.4.6</a></li> </ul>	Not supported	Not supported	Not supported
Test	<a href="#">Table 60–36</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.19</a></li> <li>■ <a href="#">Section 60.4.20</a></li> </ul>	<a href="#">Section 60.4.21</a>	<a href="#">Section 60.4.22</a>	<a href="#">Section 60.4.23</a>
Trial	<a href="#">Table 60–40</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.24</a></li> <li>■ <a href="#">Section 60.4.25</a></li> </ul>	<a href="#">Section 60.4.26</a>	<a href="#">Section 60.4.27</a>	<a href="#">Section 60.4.28</a>
Metric	<a href="#">Table 60–47</a>	Supported	Not supported	Not supported	Not supported
Metric value	<a href="#">Table 60–49</a>	Supported	Not supported	Not supported	Not supported
OLT session	<a href="#">Table 60–51</a>	Supported	Not supported	Not supported	Not supported
OLT counter	<a href="#">Table 60–53</a>	Supported	Not supported	Not supported	Not supported
OLT counter value	<a href="#">Table 60–55</a>	Supported	Not supported	Not supported	Not supported

**Table 60–1 (Cont.) Summary of TaaS REST APIs**

Resource	Data Model	GET	POST	PUT	DELETE
OFT trial asset execution	<a href="#">Table 60–57</a>	Supported	Not supported	Not supported	Not supported
Test driver instance	<a href="#">Table 60–64</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.15</a></li> <li>■ <a href="#">Section 60.4.16</a></li> </ul>	<a href="#">Section 60.4.17</a>	Not supported	<a href="#">Section 60.4.18</a>
Test environment instance	<a href="#">Table 60–66</a>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.10</a></li> <li>■ <a href="#">Section 60.4.11</a></li> </ul>	<ul style="list-style-type: none"> <li>■ <a href="#">Section 60.4.12</a></li> <li>■ <a href="#">Section 60.4.13</a></li> </ul>	Not supported	<a href="#">Section 60.4.14</a>
Operation	<a href="#">Table 60–68</a>	Supported	Supported	Not supported	Not supported
Test type	<a href="#">Table 60–71</a>	Supported	Not supported	Not supported	Not supported
Target	<a href="#">Table 60–73</a>	Supported	Not supported	Not supported	Not supported
OLT agent	<a href="#">Table 60–75</a>	Supported	Not supported	Not supported	Not supported

**Note:** In the table above, “supported” indicates that the operation is supported on the resource. However, there is no example in the chapter for this operation.

## 60.2 Introduction to Testing as a Service REST API

Using the TaaS REST API, you can:

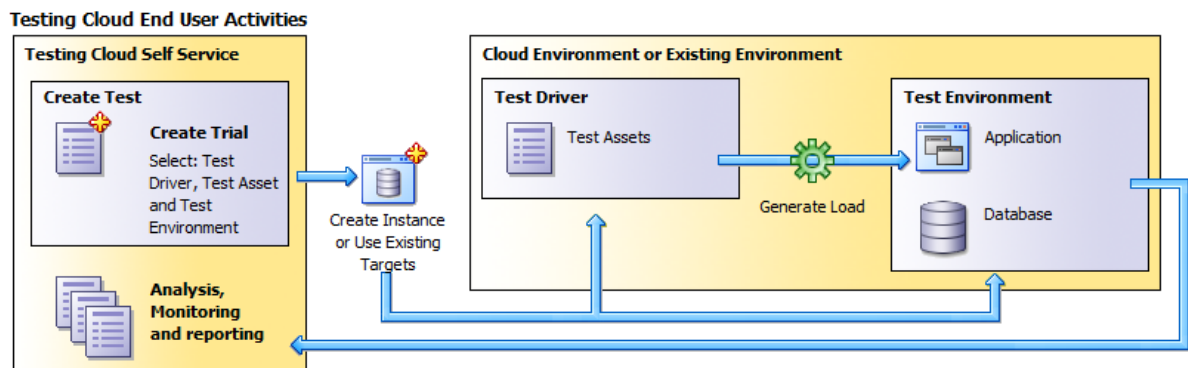
- Interact with the TaaS application without accessing the TaaS user interface.
- Run TaaS functions in script form.
- Easily integrate TaaS with your existing applications and systems.

The TaaS REST API is implemented using the RESTful (Representational State Transfer) Web Service.

A complete explanation about the Cloud REST APIs is available in [Chapter 45, "Introduction to Cloud APIs."](#)

### 60.2.1 How to Use Testing as a Service REST API

The following diagram shows how a Tester uses Testing as a Service:

**Figure 60–1 Testing Cloud End User Activities**

Here are a few tasks and operations you can perform using the TaaS REST API:

- Tests  
List/view/create/update/delete tests and list all trials that belong to a test.
- Quota and Usage  
See overall quota usage of a user.
- Trials  
View/create/update/delete trials of a trial and its operations/details on Trial Home page.
- Test Asset/Test Environment  
List/view test asset and test environments being published to TaaS user.
- Test Driver/Environment Instances  
List/view/create/update/delete/start/stop instances of test driver and test environment.

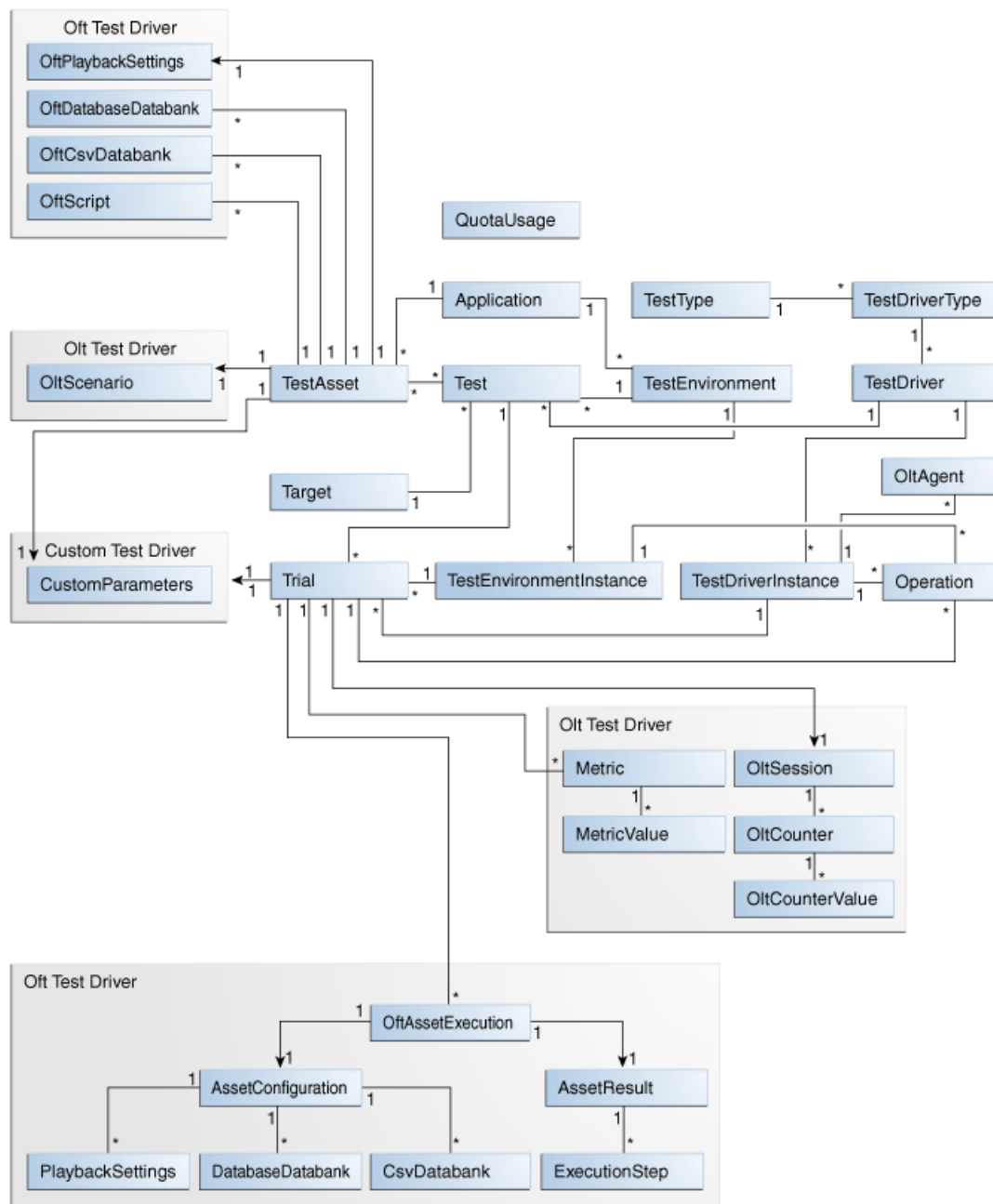
### 60.2.2 How Resource Models Are Used in TaaS

The purpose of using Testing as a Service is to create tests and then run trials using the tests. [Figure 60–2](#) shows the resources used to define tests and the trials.

Simply put:

1. Test driver types are used when defining test assets.
2. Test assets, test environments, targets, and test drivers are used when defining tests.
3. Tests, test environment instances, and test driver instances are used when defining trials.

[Figure 60–2](#) shows these resources and their relationships.

**Figure 60–2 TaaS Resources Relationship Diagram**

## 60.3 Testing as a Service Resource Model

Most resources have common attributes such as `context_id` and `uri`. `context_id` is an identifier which could be a GUID or a unique ID of the corresponding entity in the database table.

Methods GET/POST/PUT/DELETE (corresponding to read/create/update/delete methods) are standard HTTP methods. Usually GET means find/query, POST means create, PUT means update, and DELETE means delete/remove. For example, when a field is marked as '[POST] required', this means that when you create a resource (use the POST method), you must provide this field.

The available resources are:

- [Application Resource](#)
- [TestDriverType Resource](#)
- [TestDriver Resource](#)
- [QuotaUsage Resource](#)
- [TestAsset](#)
- [OltScenario](#)
- [CustomParameters](#)
- [OFTAssetScript Resource](#)
- [OftAssetScriptCsvDatabanks](#)
- [OftPlaybackSettings Resource](#)
- [OftDatabaseDatabanks](#)
- [TestEnvironment](#)
- [Test](#)
- [Trial](#)
- [Metric](#)
- [MetricValue](#)
- [OltSession](#)
- [OltCounter](#)
- [OltCounterValue](#)
- [OftTrialAssetExecution](#)
- [TestDriverInstance](#)
- [TestEnvironmentInstance Resource](#)
- [Operation](#)
- [TestType](#)
- [Target](#)
- [OltAgent](#)

### 60.3.1 Application Resource

Application types are used by Test Designers when creating Test Assets and Test Environments. The application type is metadata used to organize test related activities

The following table describes the Application resource model.

**Table 60–2**    *Application Resource Data Model*

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the application
contextId(id)	Long	Context ID of the application

The following table lists the methods supported in the Application resource.

**Table 60–3 Supported Methods for Application Resource**

Method	Description	Sample URI
LIST (GET without contextId)	Returns a list of applications	/em/websvcs/restful/extws/cloudservices/taas/v1/applications
GET	Returns an application by ID.	/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1

## 60.3.2 TestDriverType Resource

The TestDriverType (Test Driver Type) resource defines the type of Test Driver.

**Table 60–4 TestDriverType Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the custom test driver type
contextId(id)	Long	Context ID of the test driver type
testTypeUri	String	URI of test type (Oracle Load Testing, Oracle Functional Testing, or Custom)
testTypeName	String	Name of test type

The following table lists the methods supported in the TestDriverType resource.

**Table 60–5 Supported Methods for TestDriverType Resource**

Method	Description	Sample URI
LIST (GET without context_id)	Returns a list of a test driver types	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_types
GET	Returns a test driver type by ID.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_types/1

## 60.3.3 TestDriver Resource

The TestDriver (Test Driver) resource is the package of software that Enterprise Manager uses to generate tests or workload against test systems based on a deployment plan.

**Table 60–6 TestDriver Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the test driver
testDriverTypeUri	String	URI of the test driver type being set to this test driver
testDriverTypeName	String	Test driver type name of the test driver
version	String	Version of the test driver
description	String	Description of the test driver

**Table 60–6 (Cont.) TestDriver Resource Data Model**

Field	Type	Description
contextId(guid)	String	Context ID of the test driver
resultsStorage	String	Result storage type of the Oracle Functional Testing test driver
resultFileSystem	OftrfsEntity	Detailed result file system information for Oracle Functional Testing test driver, if the 'resultsStorage' attribute is 'rfs'.

**Table 60–7 Supported Methods for the TestDriver Resource**

Method	Description	Sample URI
LIST (GET without context_id)	Returns a list of test drivers	/em/websvcs/restful/extws/cloudservices/taas/v1/test_drivers
GET	Returns a test driver by GUID	/em/websvcs/restful/extws/cloudservices/taas/v1/test_drivers/C0D0F1A8F11A2EA1E040E50A42BB70CF

**OftrfsEntity Subtype**

The OftrfsEntity (Oracle Functional Testing RFS Entity) subtype represents a NFS (Network File System) that provides the file storage service, and optional access to the stored file with HTTP protocol, for the end user.

**Table 60–8 OftrfsEntity Subtype**

Field	Type	Description
name	String	Name of the result file system
exportPath	String	Export path for the result file system
httpAccessUrl	String	HTTP URL to access the result file system

**60.3.4 QuotaUsage Resource**

The QuotaUsage (Quota Usage) resource represents usage quotas for Testers by specific roles, including the Number of Guest VMs (Virtual Machines), Number of CPUs, Memory (GB), Storage Size (GB), and Number of VUs (Virtual Users).

**Table 60–9 QuotaUsage Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
maxNumberOfGuestVM	Long	Maximum number of guest Virtual Machines that are allowed to be assigned to the role
maxNumberOfCpu	Long	Maximum number of CPUs that are allowed to be assigned to the role
maxMemory	Double	Maximum amount of memory that is allowed to be assigned to the role
maxStorageSize	Double	Maximum amount of storage that is allowed to be assigned to the role
maxNumberOfVU	Long	Maximum number Virtual Users that are allowed to be assigned to the role
numberOfCpu	Long	Number of CPUs used
numberOfGuestVM	Long	Number of guest Virtual Machines used



**Table 60–9 (Cont.) QuotaUsage Resource Data Model**

Field	Type	Description
memory	Double	Amount of memory
storageSize	Double	Amount of storage used
numberOfVU	Long	Number of Virtual Users used

The following table lists the methods supported in the QuotaUsage resource.

**Table 60–10 Supported Methods for QuotaUsage Resource**

Method	Description	Sample URI
GET	Returns quota and usage of current user.	/em/websvcs/restful/extws/cloudservices/taas/v1/quota_usage/user_quota_usage

### 60.3.5 TestAsset

A Test Asset is a collection of test artifacts (scenarios, scripts, tests) that can be executed on a test environment. A test asset defines the actions that need to be executed to reproduce the workload against the test environment.

**Table 60–11 Test Asset Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the test asset
testDriverTypeUri	String	URI of the test driver type of the test asset. (Oracle Functional Testing, Oracle Load Testing, or Custom test drivers)
testDriverTypeName	String	Name of the test driver type of the test asset (Oracle Functional Testing, Oracle Load Testing or Custom test drivers)
applicationUri	String	URI of the application being associated with this test asset
applicationName	String	Name of the application being associated with this test asset
tags	String	Tags of the test asset. A tag is a keyword assigned to an asset. Tags help describe the test asset and allows it to be found again in browsing or searching.
lastModified	String (ISO 8601 date)	Last time the test asset was modified
owner	String	User name of the owner
contextId(guid)	String	Context ID of the test asset
oltTestAssetSettings	OltTestAssetSettings	Specific test asset settings for Oracle Load Testing test asset.
oftTestAssetSettings	OftTestAssetSettings	Specific test asset settings for Oracle Functional Testing test asset
customTestAssetSettings	CustomTestAssetSettings	Specific test asset settings for Custom test asset

The following table lists the methods supported in the TestAsset resource.

**Table 60–12 Supported Methods for TestAsset Resource**

Method	Description	Sample URI
LIST (GET without context_id)	Returns a list of test assets being published to current user	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets
GET	Returns attributes of test asset by GUID.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/C0D0F1A8F11A2EA1E040E50A42BB70CF

**OltTestAssetSettings Subtype**

Use the OltTestAssetSettings subtype to provide specific test settings for the Oracle Load Testing test asset.

**Table 60–13 OltTestAssetSettings Subtype**

Field	Type	Description
vuCountEditable	Boolean	Whether script VU counts are editable
rampupSettingEditable	Boolean	Whether rampup is editable
endConditionEditable	Boolean	Whether end condition is editable
oltScenarioFileDownloadUri	String	URI of the Oracle Load Testing test scenario file download location
oltScenarioUri	String	URI of the Oracle Load Testing scenario details

**OffTestAssetSettings Subtype**

Use OffTestAssetSettings subtype to provide specific test settings for the Oracle Functional Testing test asset.

**Table 60–14 OffTestAssetSettings Subtype**

Field	Type	Description
scriptDetailsUri	String	URI for the Oracle Functional Testing script details
scriptFileUri	String	URI used to indicate the download URL for the Oracle Functional Testing script zip file

**CustomTestAssetSettings Subtype**

Use the CustomTestAssetSettings subtype to provide specific test settings for the Oracle Custom test asset.

**Table 60–15 CustomTestAssetSettings Subtype**

Field	Type	Description
scriptFileDownloadUri	String	URI of the custom script file download location
customParametersUri	String	URI of the custom parameters

**60.3.6 OltScenario**

OltScenario (Oracle Load Testing OLT Scenario) represents detail scenario information for an Oracle Load Testing Test Asset.

**Table 60–16 OltScenario Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
testAssetContextId	String	Context ID of the test asset
testAssetUri	String	URI of the test asset
hardwareEstimationAvailable	Boolean	Whether hardware estimation is available for this scenario
ramupDescription	String	Description of test asset default rampup setting
endConditionDescription	String	Description of test asset default end condition
scriptVuCounts	OltScript	VU counts for scripts in the scenario

The following table lists the method supported in the OltScenario resource.

**Table 60–17 Supported Method for OltScenario Resource**

Method	Description	Sample URI
GET	Returns Oracle Load Testing Scenario	em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/DFf34956DD08E27AE040F50A351D3DB5/olt_scenario

### OltScript Subtype

Use the OltScript subtype to identify the Oracle Load Testing script.

**Table 60–18 OltScript Subtype**

Field	Type	Description
name	String	Name of the script
vuCount	Integer	Number of virtual user count

## 60.3.7 CustomParameters

Custom Parameters is a collection of custom parameter settings for custom Test Asset or custom Trial.

**Table 60–19 CustomParameters Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
parameters	List of CustomParameter	List of custom parameter

The following table lists the method supported in the CustomParameters resource.

**Table 60–20 Supported Method for CustomParameter Resource**

Method	Description	Sample URI
GET	Returns custom parameters	<ul style="list-style-type: none"> <li>From custom test asset: em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/DFf34956DD08E27AE040F50A351D3DB5/custom_parameters</li> <li>From custom trial: em/websvcs/restful/extws/cloudservices/taas/v1/trials/E06DE62ACC497B71E040F50A351D66D0/custom_parameters</li> </ul>

**CustomParameter Subtype**

The customParameter subtype is used in custom test asset or custom trial. Each customParameter represents a custom defined parameter.

**Table 60–21 CustomParameter Subtype**

Field	Type	Description
name	String	Name of the parameter
value	String	Value of the parameter
defaultValue	String	Default value of the parameter
configurable	Boolean	Is the parameter configurable

**60.3.8 OFTAssetScript Resource**

OFTAssetScript (Oracle Functional Testing Asset Script) represents the detailed data for a script (in zip format) of an Oracle Functional Testing test asset. URI for more detailed data (if available), for example, the Open Script script information, databanks, playback settings, are retrievable from this resource.

**Table 60–22 OFTAssetScript Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
testAssetContextId	String	Context ID for the test asset
testAssetUri	String	URI for the test asset
scripts	List of OfScriptEntity	List of detailed data for each Open Script script inside this asset script zip file
urlsInsideScripts	List of String	List of URLs inside the Open Script scripts of this Oracle Functional Testing asset script zip file
csvDatabanksUri	String	URI for the resource that represents the comma-separated value (CSV) databanks
playbackSettingsUri	String	URI for the resource that represents the playback settings
dbDatabanksUri	String	URI the resource that represents the database databanks

The following table lists the methods supported in the OFTAssetScript resource.

**Table 60–23 Supported Methods for OFTAssetScript Resource**

Method	Description	Sample URI
GET	Returns Oracle Functional Testing test asset script by asset GUID.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/E3F48FC047CCE9E5E040F50A2D1E128E/oft_script_details

**OfScriptEntity Subtype**

Use the OfScriptEntity subtype to provide the specific details for the Oracle Functional Testing script entity.

**Table 60–24** *OftScriptEntity Subtype*

Field	Type	Description
name	String	Name of the Open Script script
type	String	Type of Open Script script
version	String	Version of the Open Script script
encrypted	Boolean	Indicates if the script is encrypted or not
modules	List of OftScriptModuleEntity	Modules defined and used in this Open Script script

**OftScriptModuleEntity Subtype**

Use the OftScriptModuleEntity subtype to provide the specific details for the Oracle Functional Testing script module entity.

**Table 60–25** *OftScriptModuleEntity Subtype*

Field	Type	Description
name	String	Name of the Open Script module

**60.3.9 OftAssetScriptCsvDatabanks**

The OftAssetScriptCsvDatabanks (Oracle Functional Testing Asset Script Comma-Separated Values Databanks) resource represents a list of CSV databank. The OFT Asset Script CSV Databanks resource is represented with type CsvDatabankCollection.

Databanks are used to hold unlimited amounts of input data that can be automatically fed into your Web application.

**Table 60–26** *OftAssetScriptCsvDatabanks Resource Data Model*

Field	Type	Description
uri	String	URI of the resource
testAssetContextId	String	Context ID of the test asset
testAssetUri	String	URI for the test asset
scriptDetails	String	URI for the asset script details
csvDatabanks	List of OftAssetCsvDatabankEntity	List of detailed data for all CSV databanks inside the Oracle Functional Testing asset script

The following table lists the method supported in the OftAssetScriptCsvDatabanks resource.

**Table 60–27** *Supported Method for OftAssetScriptCsvDatabanks Resource*

Method	Description	Sample URI
LIST (GET without context_id)	Returns a list of csv databanks for the specified test asset script	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/E3F48FC047CCE9E5E040F50A2D1E128E/oft_script_details/csv_data_banks

**CsvDatabank Subtype**

Use the CsvDatabank subtype to provide the specific details for the Oracle Functional Testing asset script resource.

**Table 60–28** *CsvDatabank Subtype*

Field	Type	Description
name	String	Name of the csv databank
contents	String	Contents inside the comma-separated value (CSV) databank

**60.3.10 OftPlaybackSettings Resource**

The OftPlaybackSettings (Oracle Functional Testing Playback Settings) resource represents all the playback settings configuration for a script.

**Table 60–29** *OftPlaybackSettings Resource Data Model*

Field	Type	Description
uri	String	URI of the resource
testAssetContextId	String	Context ID for the test asset
TestAssetUri	String	URI for the test asset
scriptDetailsUri	Script	URI for the asset script details
values	String	Playback settings configuration contents for the asset script

The following table lists the method supported in the OftPlaybackSettings resource.

**Table 60–30** *Supported Methods for OftPlaybackSetting Resource*

Method	Description	Sample URI
GET	Returns playback settings for specified Oracle Functional Testing asset script	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/E3F48FC047CCE9E5E040F50A2D1E128E/oft_script_details/playback_settings

**60.3.11 OftDatabaseDatabanks**

The OftDatabaseDatabanks (Oracle Functional Testing Database Databanks) resource represents a list of database databanks for a specified Oracle Functional Testing test asset. OftDatabaseDatabanks is represented with type DbDatabankCollection.

Databanks are used to hold unlimited amounts of input data that can be automatically fed into your Web application.

**Table 60–31** *OftDatabaseDatabanks Resource Data Model*

Field	Type	Description
uri	String	URI of the resource
testAssetContextId	String	Context ID for the test asset
testAssetUri	String	URI for the test asset
scriptDetailsUri	String	URI for the asset script details
databaseDatabanks	List of OftScriptDbDatabankEntity	List of detailed data for all database databanks inside the Oracle Functional Testing asset script

The following table lists the methods supported in the `OftDatabaseDatabanks` resource.

**Table 60–32 Supported Methods for `OftDatabaseDatabanks` Resource**

Method	Description	Sample URI
LIST (GET without id parameter)	Returns a list of database databanks for the specified test asset script	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/E3F708CCD6CAC1E6E040F50A2D1E4ADE/oft_script_details/db_data_banks

### **`OftScriptDbDatabankEntity` Subtype**

Use the `OftScriptDbDatabankEntity` subtype to provide the specific details for the Oracle Functional Testing script database databank entity resource.

**Table 60–33 `OftScriptDbDatabankEntity` Subtype**

Field	Type	Description
alias	String	Alias of the database databank
driver	String	Driver for the database databank
connectUrl	String	Connection URL for the database databank
userName	String	User name for the database databank
sql	String	SQL string defined inside the database databank

## **60.3.12 TestEnvironment**

`TestEnvironment` is a collection of resources that represents the entire application stack.

**Table 60–34 `TestEnvironment` Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the test environment
applicationUri	String	URI of the application of this test environment.
applicationName	String	Name of the application of this test environment
tags	String	Tags of the test environment
owner	String	User name of the owner of this test environment
description	String	Description of the test environment
lastModified	String (ISO 8601 date)	Last modified date of the test environment
contextId	String	Context ID (GUID) of the test environment

The following table lists the methods supported in the `TestEnvironment` resource.

**Table 60–35 Supported Methods for TestEnvironment Resource**

Method	Description	Sample URI
LIST (GET without ID parameter)	Returns a list of test environments being published to current user	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environments
GET	Returns test environment by GUID	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environments/C0D0F1A8F11A2EA1E040E50A42BB70CF

### 60.3.13 Test

**Note:** Test is a parent resource of the Trial resource.

Testers use this resource to create tests from test assets and test environments to perform testing activities. Testers create tests using test assets and environments that have been assigned to them by the Test Administrator.

**Table 60–36 Test Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the test. When using the POST method, name is required. When using the PUT method, name is optional.
testDriverTypeUri	String	URI of the test driver type
testDriverTypeName	String	Name of the test driver type
description	String	Description of the test. [POST] [PUT] optional
testAssets	List of AssetInTestEntity	List of the test assets of this test. For Oracle Load Testing or custom test, one asset is used. For Oracle Functional Testing test, one or more test assets could be defined.[POST][PUT] required
testEnvironmentUri	String	URI of the test environment of this test
testEnvironmentName	String	Name of the test environment of this test
useEnvironmentLibrary	Boolean	Returns <i>true</i> if the associated test environment is from 'my library'. Returns <i>false</i> if the associated test environment is an existing Enterprise Manager target
systemTargetUri	String	Returns <i>true</i> if the associated test environment is from 'my library'. Returns <i>false</i> if the associated test environment is an existing Enterprise Manager target
testDriverUri	String	URI of the test driver of this test
testDriverName	String	Name of the test driver of this test
replaceUrls	List of ReplaceUrl	A list of replace URLs for this test asset. Only for Oracle Functional Testing test, multi (more than one) replace URLs are supported. [POST][PUT] optional, if null using default setting.
trialsUri	String	URI of all trials of this test
contextId(guid)	String	GUID of the test
testEnvironmentContextId	String	GUID of the test environment. [POST][PUT] optional.
systemTargetContextId	String	GUID of the Enterprise Manager target. [POST][PUT] optional.
testDriverContextId	String	GUID of the test driver. [POST][PUT] optional.



The following table lists the methods supported in the Test resource.

**Table 60–37 Supported Methods for Test Resource**

Method	Description	Sample URI
LIST (GET without context_id)	Returns a list of tests of the current user	/em/websvcs/restful/extws/cloudservices/taas/v1/tests
GET	Returns test by GUID as context_id	/em/websvcs/restful/extws/cloudservices/taas/v1/tests/C0D0F1A8F11A2EA1E040E50A42BB70CF
POST	Create a new test. context_id should be null in request. It returns the URI of new created test.	/em/websvcs/restful/extws/cloudservices/taas/v1/tests/
PUT	Update attributes of a test	/em/websvcs/restful/extws/cloudservices/taas/v1/tests/C0D0F1A8F11A2EA1E040E50A42BB70CF
DELETE	Delete a test	/em/websvcs/restful/extws/cloudservices/taas/v1/tests/C0D0F1A8F11A2EA1E040E50A42BB70CF

### AssetInTestEntity Subtype

Use the AssetInTestEntity subtype to provide the specific details for the test asset used in the Test resource.

**Table 60–38 AssetInTestEntity Subtype**

Field	Type	Description
testAssetContextId	String	Context ID of the test asset resource
testAssetUri	String	GUID of the test environment. [POST][PUT] optional.
testAssetName	String	Name of the test asset

### ReplaceUrl Subtype

Represents a URL replacing a recorded script within test asset. While a trial is running, a URL starting with the specified segment will be replaced by the given string before the URL request is sent.

**Table 60–39 ReplaceUrl Subtype**

Field	Type	Description
originalUrl	String	Original recorded URL in the script of the Test Asset. This field is optional for the POST and PUT methods.
newUrl	String	New URL to replace original URL This field is optional for the POST and PUT methods.
replaceType	String	Value of KEEP_SAME, FROM_APPLIANCE, SPECIFIED. KEEP_SAME: newUrl is ignored. FROM_APPLIANCE newUrl is set from test environment appliance. SPECIFIED: originalUrl is replaced by newUrl that provided by user.

## 60.3.14 Trial

**Note:** Trial is a child resource of Test.

Testers to create and run trials from the test instances that have been created. The Tester runs trials on the test asset and environment, monitors ongoing trials, and analyzes the results of completed trials.

**Table 60–40 Trial Resource Model Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the trial. [POST] required [PUT] optional
testUri	String	URI of the associated test
testName	String	Name of the associated test
testContextId	String	Context ID of the test. [POST][PUT] required
testEnvironmentInstanceContextId	String	Context ID of the test environment instance. [POST][PUT] required if Test Environment is selected by its Test, and testEnvironmentInstanceName and testEnvironmentInstancePassword are not provided
testEnvironmentInstanceUri	String	URI of the associated test environment instance
testEnvironmentInstanceName	String	Name of the associated test environment instance. [POST][PUT] required if Test Environment is selected by its Test, and testEnvironmentInstanceContextId is not provided
testEnvironmentInstancePassword	String	Password of the new environment instance is going to create. [POST][PUT] required if Test Environment is selected by its Test, and testEnvironmentInstanceContextId is not provided
testEnvironmentInstanceStopDelaySeconds	Long	Stop test environment instance delay seconds after trial complete. [POST][PUT] optional
testEnvironmentInstanceDeleteDelaySeconds	Long	Delete test environment instance delay seconds after trial complete. [POST][PUT] optional, ignored if the testEnvironmentInstanceContextId is provided.
testDriverInstanceContextId	String	Context ID of the test driver instance. [POST][PUT] required if testDriverInstanceName and testDriverInstancePassword are not provided
testDriverInstanceUri	String	URI of the test driver instance
testDriverInstanceName	String	Name of test driver instance. [POST][PUT] required if testDriverInstanceContextId is not provided.
testDriverInstancePassword	String	Password of the new test driver instance is going to create. [POST][PUT] required if testDriverInstanceContextId is not provided.
testDriverInstanceStopDelaySeconds	Long	Delay seconds to stop the test driver instance after trial complete. [POST][PUT] optional
testDriverInstanceDeleteDelaySeconds	Long	Delay seconds to delete test driver instance after trial is complete. [POST][PUT] optional, ignored if the testDriverInstanceContextId is provided.
description	String	Description of the trial. [POST][PUT] optional
owner	String	User name of the user of this trial
status	String	Status of this trial
startTime	String (ISO 8601 date time)	Scheduled start time of this trial. [POST][PUT] optional
endTime	String (ISO 8601 date time)	End time of this trial.
testingExistedSystem	Boolean	Test is defined as testing existed target system

**Table 60–40 (Cont.) Trial Resource Model Data Model**

Field	Type	Description
executionLog	String	Execution log of the trial
metricsUri	String	URI of the Enterprise Manager metrics collected by the trial.
awrDownloadUri	String	URI of the AWR report download place generated by the trial.
operationsUri	String	URI of the operations available for the trial.
contextId(guid)	String	GUID of the trial
oltTrialSettings	String	Specific trial settings for Oracle Load Testing. [POST][PUT] optional, using default setting from test asset if null
customTrialSettings	String	Specific trial settings for Custom.[POST][PUT] optional, using default setting from test asset if null.
oftAssetExecutions	String	Specific Oracle Functional Testing trial asset execution configuration and result data. [POST][PUT] optional, using default settings from test assets if this is null

The following table lists the methods supported in the Trial resource.

**Table 60–41 Supported Methods for Trial Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	Returns a list of trials of a test being owned by current user.	/em/websvcs/restful/extws/cloudservices/taas/v1/trials
GET	Returns a trial by context_id (GUID)	/em/websvcs/restful/extws/cloudservices/taas/v1/trials/C0D0F1A8F11A2EA1E040E50A42BB70CE
POST	Creates a new trial	/em/websvcs/restful/extws/cloudservices/taas/v1/trials
PUT	Updates a trial by context_id.	/em/websvcs/restful/extws/cloudservices/taas/v1/trials/C0D0F1A8F11A2EA1E040E50A42BB70CE
DELETE	Deletes a trial by context_id.	/em/websvcs/restful/extws/cloudservices/taas/v1/trials/C0D0F1A8F11A2EA1E040E50A42BB70CE

### OltTrialSettings Subtype

Use the OltTrialSettings subtype to provide specific trial settings for the Oracle Load Testing trial.

**Table 60–42 Oracle Load Testing Trial Settings Subtype**

Field	Type	Description
oltSessionName	String	Name of the Oracle Load Testing session
oltSessionUri	String	URI of the Oracle Load Testing session resource
rampup	OltRampup	Oracle Load Testing rampup setting. [POST][PUT] optional, using default setting from test asset if null

**Table 60–42 (Cont.) Oracle Load Testing Trial Settings Subtype**

Field	Type	Description
endCondition	OltEndCondition	Oracle Load Testing trial end condition setting. [POST][PUT] optional, using default setting from test asset if null
scriptVuCounts	OltScript	Script VU counts setting. Refer to the details on OltScript in OltTestAssetSettings. [POST][PUT] optional, using default setting from test asset if null
numberOfAgentDeployments	Long	Number of agent deployments

**OltRampup Subtype**

Use the OltRampup subtype to provide the specific details for the rampup settings used in the Oracle Load Testing trial. OltRampup represents the rate at which an OLT trial starts running virtual users.

**Table 60–43 OltRampup Subtype**

Field	Type	Description
rampupOption	Integer	Rampup setting option. Value from 1,2,3,4. <ol style="list-style-type: none"> <li>1. X user every X seconds</li> <li>2. X user every X iterations</li> <li>3. X percent every X seconds</li> <li>4. X percent every X iterations</li> </ol>
user	Integer	Number of users [POST][PUT] required if rampupOption 1,2
percent	Double	Number of percent [POST][PUT] required if rampupOption 3,4 <i>percent</i> - Specifies a percentage of the virtual users to start at a time based on the <i>After</i> setting. <i>After every</i> - Specifies how often the specified number or percentage of virtual users start running. <i>After every</i> has the following options: seconds, iterations.
seconds	Long	Number of seconds [POST][PUT] required if rampupOption 1,3
iterations	Long	Number of iterations [POST][PUT] required if rampupOption 2,4

**OltEndCondition Subtype**

Use the OltEndCondition subtype to provide the specific end conditions used in the Oracle Load Testing trial.

**Table 60–44 OltEndCondition Subtype**

Field	Type	Description
endConditionOption	Integer	End condition option. Value from 1,2. 1: end after X seconds 2: end after X iterations
afterSeconds	Long	Number of seconds. [POST][PUT] required if endConditionOption 1
afterIterations	Long	Number of iterations. [POST][PUT] required if endConditionOption 2

**CustomTrialSettings Subtype**

Use the CustomTrial Settings subtype to provide the specific custom trial settings used in the trial resource.

**Table 60–45 CustomTrialSettings Subtype**

Field	Type	Description
resultAvailable	Boolean	States whether the custom result is available. This field is read only.
resultStatus	String	Status of custom result. Value from RESULT_PASSED, RESULT_FAILED, RESULT_PASSED_WITH_WARN
resultDownloadUri	String	URI of result file download place.
customParametersUri	String	URI of custom parameters.
parameters	List of CustomParameter	The custom parameters setting for custom trial. Refer to CustomParameter definition on CustomTestAssetSettings. [POST][PUT] optional, using default setting from test asset if null.

**OfAssetExecutionCollection Subtype**

Use the OfAssetExecutionCollection subtype to provide the specific Oracle Functional Testing asset execution collection settings used in the trial resource.

**Table 60–46 OfAssetExecutionCollection Subtype**

Field	Type	Description
trialContextId	String	Context ID for the trial
trialUri	String	URI for the trial
totalAssets	Integer	Number of total assets for this trial.
passedAssets	Integer	Number of passed assets for this trial.
failedAssets	Integer	Number of failed assets for this trial.
warningAssets	Integer	Number of warning assets for this trial.
notExecutedAssets	Integer	Number of not executed assets for this trial.
assetExecutions	List of OfTrialAssetExecution	List of executions that represent the execution and playback of all asset scripts for this trial.

**60.3.15 Metric**

Enterprise Manager target metric monitored by a Trial.

**Table 60–47 Metric Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
contextId(trial_metric_id)	String	Trial metric ID of the metric.
trialContextId	Long	Context ID the trial refers to
trialUri	String	URI of the trial
metricName	String	Name of the metric
metricValuesUri	String	URI of MetricValues

The following table lists the methods supported in the Metric resource.

**Table 60–48 Supported Methods for Metric Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	Returns a list of metrics	em/websvcs/restful/extws/cloudservices/taas/v1/trials/E0306FAA6635149DE040F50A351D0350/metrics
GET	Returns a metric	em/websvcs/restful/extws/cloudservices/taas/v1/metrics/1085

### 60.3.16 MetricValue

**Note:** Enterprise Manager metric value.

The value of a metric at a specific time stamp.

**Table 60–49 MetricValue Resource Data Model**

Field	Type	Description
metricContextId	String	Trial metric ID of the metric
metricUri	String	URI of the metric
metricName	String	Name of the metric
metricValue	Double	Number of metric value
collectionDate	String (ISO 8601 date)	Date and time value when metric value is collected.

The following table lists the method supported in the MetricValue resource.

**Table 60–50 Supported Method for MetricValue Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	Returns a list of metric values	em/websvcs/restful/extws/cloudservices/taas/v1/metrics/1085/metric_values

### 60.3.17 OltSession

**Note:** Only application to Oracle Load Testing trial.

The OltSession (Oracle Load Testing Session) associated with a Oracle Load Testing trial.

**Table 60–51 OltSession Resource Data Model**

Field	Type	Description
uri	String	URI of this entity
contextId(olt session run id)	String	Session run ID of the Oracle Load Testing session
trialUri	String	URI of the trial
trialContextId	String	Context of the trial
oltCountersUri	String	URI of the Oracle Load Testing counters
sessionName	String	Name of the Oracle Load Testing session
startTime	String (ISO 8601 date)	Start time of the session
finishTime	String (ISO 8601 date)	Finish time of the session

The following table lists the methods supported in the OltSession resource.

**Table 60–52 Supported Methods for OltSession Resource**

Method	Description	Sample URI
GET	Returns an Oracle Load Testing session	em/websvcs/restful/extws/cloudservices/taas/v1/trials/E082496BD7336A9EE040F50A351D4F28/olt_session

### 60.3.18 OltCounter

**Note:** Only applicable to Oracle Load Testing trial.

The OltCounter (Oracle Load Testing Counter) monitored by Oracle Load Testing trial.

**Table 60–53 OltCounter Resource Data Model**

Field	Type	Description
uri	String	URI of this entity
oltSessionContextId	String	ID of the counter
oltSessionUri	String	URI of the Oracle Load Testing session
counterName	String	Name of the counter. For example, Hits/sec, Number of VUs, and Trans/sec
objectName	String	Script object name of the counter
instanceName	String	Step instance name of the counter. E.g. {Run: MedRecAppScript}.[[2] Oracle WebLogic Server - Medical Record Sample Application]
niceName	String	User-friendly display name of the counter
oltCounterValuesUri	String	URI of OltCounterValues

The following table lists the methods supported in the OltCounter resource.

**Table 60–54 Supported Methods for OltCounter Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	Returns a list of Oracle Load Testing counters	em/websvcs/restful/extws/cloudservices/taas/v1/olt_sessions/81/olt_counters
GET	Returns an Oracle Load Testing counter	em/websvcs/restful/extws/cloudservices/taas/v1/olt_counters/81/1671

### 60.3.19 OltCounterValue

The value of Oracle Load Testing counter at specific time stamp.

**Table 60–55 OltCounterValue Resource Data Model**

Field	Type	Description
oltSessionUri	String	URI of the Oracle Load Testing session

**Table 60–55 (Cont.) OltCounterValue Resource Data Model**

Field	Type	Description
oltCounterUri	String	URI of the Oracle Load Testing counter
counterValue	Double	Value of the counter
counterTime	String (ISO 8601 date)	Time the counter value is collected.

The following table lists the method supported in the OltCounterValue resource.

**Table 60–56 Supported Method for OltCounterValue Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	Returns a list of Oracle Load Testing counters	em/websvcs/restful/extws/cloudservices/taas/v1/olt_counters/81/1671/olt_counter_values

### 60.3.20 OftTrialAssetExecution

This resource represents details (configuration and results) of an Oracle Functional Testing test asset script execution (playback).

**Table 60–57 OftTrialAssetExecution Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
contextId	String	Context ID for the Oracle Functional Testing trial asset execution.
trialContextId	String	Context ID of the Oracle Functional Testing trial
trialUri	String	URI of the Oracle Functional Testing trial
assetContextId	String	Context ID of the asset
assetUri	String	URI of the asset
configuration	AssetConfigurationEntity	Configuration of the Oracle Functional Testing trial asset execution.
executionResult	AssetResultEntity	Result of the Oracle Functional Testing trial asset execution.

The following table lists the method supported in the OftTrialAssetExecution resource.

**Table 60–58 Supported Method for OftTrialAssetExecution Resource**

Method	Description	Sample URI
GET	Returns data of an Oracle Functional Testing trial execution by trial and execution context ID	/em/websvcs/restful/extws/cloudservices/taas/v1/trials/E3F85B2946C890BAE040F50A2D1E2D1B/executions/E3F85B2946C990BAE040F50A2D1E2D1B

#### AssetConfigurationEntity Subtype

Use the AssetConfigurationEntity subtype to provide the specific asset configuration entity settings used in the Oracle Functional Testing Trial Asset Execution resource.



**Table 60–59    AssetConfigurationEntity Subtype**

Field	Type	Description
runAlways	Boolean	Configure if the execution will always run without considering previous errors.
continueOnWarning	Boolean	Configure if the execution will always run without considering previous errors.
continueOnError	Boolean	Configure if the execution will continue to run in the event there are errors in the previous execution.
playbackSettings	List of PlaybackSettingEntity	List of playback settings configuration.
csvDatabanks	List of CsvDatabankEntity	List of csv databanks configuration.
databaseDatabanks	List of DbDatabankEntity	List of database databanks configuration.
playbackSettingsUri	String	URI to access the modified playback settings configuration
csvDatabanksUri	String	URI to access the modified csv databanks configuration
dbDatabanksUri	String	URI to access the modified database databanks configuration

**PlaybackSettingEntity Subtype**

Use the PlaybackSettingEntity subtype to provide the specific playback entity settings used in the Oracle Functional Testing Trial Asset Execution resource.

**Table 60–60    PlaybackSettingEntity Subtype**

Field	Type	Description
name	String	Name of the playback setting field
value	String	Value of the playback setting field

**CsvDatabankEntity Subtype**

Use the CsvDatabankEntity subtype to provide the specific comma-separated databank entity settings used in the Oracle Functional Testing Trial Asset Execution resource.

**Table 60–61    CSV Databank Entity Subtype**

Field	Type	Description
name	String	Name of the csv databank
contents	String	Contents of the csv databank file

**DbDatabankEntity Subtype**

Use the DbDatabankEntity subtype to provide the specific database databank entity settings used in the Oracle Functional Testing Trial Asset Execution resource.

**Table 60–62 Database Databank Entity Subtype**

Field	Type	Description
alias	String	Alias of the database databank
driver	String	Driver of the database databank
connectUrl	String	Connection URL for the database databank.
userName	String	User name for the database databank.
password	String	Password for the database databank. [GET] not available for GET method.
sql	String	SQL string defined inside the database databank.

**AssetResultEntity Subtype**

Use the AssetResultEntity subtype to provide the specific asset result entity settings used in the Oracle Functional Testing Trial Asset Execution resource.

**Table 60–63 Asset Result Entity Subtype**

Field	Type	Description
trialContextId	String	Context ID for the trial
assetContextId	String	Context ID for the asset
executionResultUri	String	URI for the trial asset execution result.
overallResult	String	Overall result of the execution
status	String	Status of the asset result
iterations	Integer	Total iterations of the asset script execution.
totalUserDefinedTests	Integer	Amount of total user defined tests.
passedUserDefinedTests	Integer	Amount of passed user defined tests.
failedUserDefinedTests	Integer	Amount of failed user defined tests
warningUserDefinedTests	Integer	Amount of warning user defined tests.
totalScriptActions	Integer	Amount of total script actions.
passedScriptActions	Integer	Amount of passed script actions.
failedScriptActions	Integer	Amount of failed script actions.
warningScriptActions	Integer	Amount of warning script actions.
totalSteps	Integer	Amount of total steps
execOrder	Integer	Order of this execution inside the Oracle Functional Testing trial all assets executions.
uniqueName	String	Unique name of the asset execution.
scriptName	String	Name of the script.
resultStorage	String	Result storage (local or rfs) of the asset execution.
zipResultUri	String	URI to the execution result zip
rfsLocation	String	Location of the asset execution stored on rfs.
stepDetailsUri	String	URI to the steps details of the executions.

### 60.3.21 TestDriverInstance

The instance of Test Driver.

**Table 60–64 TestDriverInstance Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the test driver instance. [POST] required
status	String	Status of the test driver instance.
testDriverUri	String	URI of the test driver of the instance.
testDriverContextId	String	ID of the test driver. [POST] required
testDriverName	String	Name of the test driver of the instance.
owner	String	Owner of the test driver instance.
creationDate	String (ISO 8601 date)	Creation date of the test driver instance.
contextId(id)	Long	Context ID of the test driver instance
testDriverInstancePassword	String	Password of the new test driver instance. [POST] required
scheduledStartTime	String (ISO 8601 date)	Scheduled start time of the new instance. [POST] optional
scheduledDeleteTime	String (ISO 8601 date)	Scheduled delete time of the new instance. [POST] optional
operationsUri	String	URI of all available operations.

The following table lists the methods supported in the TestDriverInstance resource.

**Table 60–65 Supported Methods for Test Driver Instance Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	List all test driver instances.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances
GET	Returns data of a test driver instance by context ID.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF
POST	Create a test driver instance.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances
DELETE	Delete the test driver instance by context ID.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF

### 60.3.22 TestEnvironmentInstance Resource

The instance of Test Environment.

**Table 60–66 TestEnvironmentInstance Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Name of the test environment instance. [POST] required
status	String	Status of the test environment instance
testEnvironmentContextId	String	Context id of the test environment. [POST] required
testEnvironmentUri	String	URI of the test environment of this instance.
testEnvironmentName	String	Name of the test environment of this instance.
owner	String	Owner of the test environment instance.
creationDate	String (ISO 8601 date)	Creation date of the instance.
contextId	Long	ID of the test environment instance
testEnvironmentInstancePassword	String	Password of the new test driver instance. [POST] required
scheduledStartTime	String (ISO 8601 date)	Scheduled start time of the new instance. [POST] optional
scheduledDeleteTime	String (ISO 8601 date)	Scheduled delete time of the new instance. [POST] optional
operationsUri	String	URI of available operations.

The following table lists the methods supported in the TestEnvironmentInstance resource.

**Table 60–67 Supported Methods for Test Environment Instance Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	List all test environment instances.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances
GET	Returns data of a test environment instance by context ID.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF
POST	Create a test environment instance.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances
DELETE	Delete the test environment instance by context id.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF

### 60.3.23 Operation

An Operation represents one allowed operation on a resource, for example, TestEnvironmentInstance/TestDriverInstance/Trial.

The supported operations for test environment instance are: start, stop, restart.

The supported operations for test driver instance are: start, stop, restart, add\_agents, remove\_agent, acquire\_agent.

The supported operation for trial is stop.

**Table 60–68    Operation Resource Data Model**

Field	Type	Description
uri	String	URI of the operation
name	String	Name of the operation
method	String	Method of the operation (POST)
parameters	List of OperationParameter	Parameters for Method

The following table lists the methods supported in the Operation resource.

**Table 60–69    Supported Methods for Operation Resource**

Method	Description	Sample URI
LIST (GET without context_id parameter)	List all operations of test environment/drive r instances	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/operations
POST	Perform an operation on instance.	1./em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/operations/start 2./em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/operations/stop 3./em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/operations/add_agents Parameter:number of agent want to add. 4./em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/operations/remove_agent Parameters:context id of agent. 5./em/websvcs/restful/extws/cloudservices/taas/v1/tests/C0D0F1A8F11A2EA1E040E50A42BB70CF/trials/C0D0F1A8F11A2EA1E040E50A42BB70CE/operations/stop 6./em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/operations/acquire_agent Parameters:context id of agent.

### OperationParameter Subtype

Use the OperationParameter subtype to provide the specific operation parameter settings used in the Operation resource.

**Table 60–70    OperationParameter Subtype**

Field	Type	Description
name	String	Name of the parameter
value	String	The parameter value
defaultValue	String	Default parameter value

**Table 60–70 (Cont.) OperationParameter Subtype**

Field	Type	Description
isRequiredValue	Boolean	Whether the parameter is required
possibleValues	List of String	Possible values for the parameter
description	String	Description of parameter

## 60.3.24 TestType

The type of Test

**Table 60–71 TestType Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
name	String	Test type name
contextId(id)	Long	ID of the test type

The following table lists the methods supported in the TestType resource.

**Table 60–72 Supported Methods for Test Type Resource Model**

Method	Description	Sample URI
LIST (GET without context_id parameter)	List all test types.	/em/websvcs/restful/extws/cloudservices/taas/v1/test_types
GET	Returns a test type	/em/websvcs/restful/extws/cloudservices/taas/v1/test_types/1

## 60.3.25 Target

Enterprise Manager target.

**Table 60–73 Target Resource Data Model**

Field	Type	Description
uri	String	URI of the resource
contextId	String	GUID of the target
targetName	String	Name of the target
targetType	String	Type of the target
status	Integer	Status of the target
statusDisplay	String	The display status of the target. For example, up, down, and so on
hostName	String	The host name of the target that on

The following table lists the methods supported in the Target resource.

**Table 60–74 Supported Methods for Target Resource**

Method	Description	Sample URI
LIST	Returns a list of targets	/em/websvcs/restful/extws/cloudservices/taas/v1/targets
GET	Returns a target	/em/websvcs/restful/extws/cloudservices/taas/v1/targets/C0D0F1A8F11A2EA1E040E50A42BB70CF

### 60.3.26 OltAgent

OltAgent (Oracle Load Testing Agent) represents an agent machine that can be used to run an Oracle Load Testing trial.

**Table 60–75 OltAgent Resource Data Model**

Field	Type	Description
uri	String	URI of the OLT agent
contextId	String	GUID of the OLT agent
hostName	String	Name of the OLT agent
status	String	Status of the OLT agent
ip	String	IP address of the OLT agent
port	String	Port of Agent service of Olt Agent
version	String	Version of OLT Agent
cpu	String	CPU count of OLT Agent
memory	String	Memory of OLT Agent, unit is MB.
storage	String	Storage of OLT Agent, unit is MB.

The following table lists the methods supported in the OltAgent resource.

**Table 60–76 Supported Methods for OltAgent Resource**

Method	Description	Sample URI
LIST	Returns a list of OLT Agent	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/OltAgents
GET	Returns an Agent	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/C0D0F1A8F11A2EA1E040E50A42BB70CF/OltAgents/C0D0F1A8F11A2EA1E040E50A42BB70CF

## 60.4 Testing as a Service REST API Examples

The following are examples of how to use the TaaS REST API.

- [Viewing Details of all Applications](#)
- [Querying an Application by Context ID](#)
- [Viewing Details of All Test Assets](#)
- [Querying a Test Asset by Context ID](#)
- [Viewing Details of all Test Environments](#)
- [Querying a Test Environment by Context ID](#)

- [Viewing Details of all Test Drivers](#)
- [Querying a Test Driver by Context ID](#)
- [Querying Test Driver Type by Context ID](#)
- [Viewing Details of all Test Environment Instances](#)
- [Querying a Test Environment Instance by Context ID](#)
- [Creating a Test Environment Instance](#)
- [Executing an Operation on Test Environment / Driver Instance](#)
- [Deleting a Stopped Test Environment Instance](#)
- [Viewing Details of All Test Driver Instances](#)
- [Querying a Test Driver Instance by Context ID](#)
- [Creating a Test Driver Instance](#)
- [Deleting a Stopped Test Driver Instance](#)
- [Viewing Details of all Tests](#)
- [Querying a Test by Context ID](#)
- [Creating a Test](#)
- [Deleting a Test](#)
- [Viewing Details of All Trials](#)
- [Querying a Trial by Context ID](#)
- [Creating a New Trial](#)
- [Updating a Trial](#)
- [Deleting a Trial](#)

### 60.4.1 Viewing Details of all Applications

The table below shows the GET request configuration.

**Table 60–77** *GET Request Configuration for Listing all Applications*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/applications
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/applications",
 "items": {
 "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1",
 ,
 "contextId": "1",
 "name": "medrec"
 }
}
```



```
}
```

## 60.4.2 Querying an Application by Context ID

The table below shows the GET request configuration.

**Table 60–78** *GET Request Configuration for Querying an Application by Context ID*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1",
 "contextId": "1",
 "name": "medrec"
}
```

## 60.4.3 Viewing Details of All Test Assets

The table below shows the GET request configuration.

**Table 60–79** *GET Request Configuration for Listing all Test Assets*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
assets", "items": {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
assets/DCBDEA617F62EC63E040F20AA0512492", "contextId":
 "DCBDEA617F62EC63E040F20AA0512492",
 "name": "Asset001",
 "testDriverTypeUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
types/1", "testDriverTypeName": "OLT",
 "applicationUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1",
 "applicationName": "medrec",
 "lastModified": "1368603913000",
 "owner": "TAASUSER1",
 "vuCountEditable": "true",
 "rampupSettingEditable": "true",
 "endConditionEditable": "true"
 }
}
```

## 60.4.4 Querying a Test Asset by Context ID

The table below shows the GET request configuration.

**Table 60–80** GET Request Configuration for Querying a Test Assets by Context ID

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/DCBDEA617F62EC63E040F20AA0512492
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
assets/DCBDEA617F62EC63E040F20AA0512492", "contextId":
"DCBDEA617F62EC63E040F20AA0512492",
"name": "Asset001",
"testDriverTypeUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
types/1", "testDriverTypeName": "OLT",
"applicationUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1
", "applicationName": "medrec",
"lastModified": "1368603913000",
"owner": "TAASUSER1",
"oltScenario": {
 "scripts": {
 "name": "MedRec1Script",
 "vuCount": "1"
 },
 "rampupOptionIndex": "3",
 "rampupOptionLabel": "X Percent every Y Seconds",
 "rampupUserOrPercent": "10.0",
 "rampupSecondOrIteration": "10.0",
 "endCondition": "As defined in the scenario: After each user plays 2 Iterations"
},
"vuCountEditable": "true",
"rampupSettingEditable": "true",
"endConditionEditable": "true"
}
```

## 60.4.5 Viewing Details of all Test Environments

The table below shows the GET request configuration.

**Table 60–81** GET Request Configuration for Viewing all the Test Environments

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environments
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environments", "items": {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environments/DCBDF6F2FFC90069E040F20AA051215F", "contextId":
 "DCBDF6F2FFC90069E040F20AA051215F",
 "name": "MedrecEnv",
 "applicationUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1
", "applicationName": "medrec",
 "owner": "TAASUSER1",
 "lastModified": "1368604061000"
 }
}
```

## 60.4.6 Querying a Test Environment by Context ID

The table below shows the GET request configuration.

**Table 60–82** GET Request Configuration for Querying a Test Environment by Context ID

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_ environments/DCBDF6F2FFC90069E040F20AA051215F
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environments/DCBDF6F2FFC90069E040F20AA051215F", "contextId":
 "DCBDF6F2FFC90069E040F20AA051215F",
 "name": "MedrecEnv",
 "applicationUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/applications/1
", "applicationName": "medrec",
 "owner": "TAASUSER1",
 "lastModified": "1368604061000"
}
```

## 60.4.7 Viewing Details of all Test Drivers

The table below shows the GET request configuration.

**Table 60–83** GET Request Configuration for Listing all Test Drivers

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_drivers
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers", "items": {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "contextId":
 "DCBD49A045FFD35BE040F20AA05150F5",
 "name": "Default OLT",
 "testDriverTypeUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
types/1", "testDriverTypeName": "OLT"
 }
}
```

### 60.4.8 Querying a Test Driver by Context ID

The table below shows the GET request configuration.

**Table 60–84** GET Request Configuration for Querying a Test Driver by Context ID

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_drivers/DCBD49A045FFD35BE040F20AA05150F5
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "contextId":
 "DCBD49A045FFD35BE040F20AA05150F5",
 "name": "Default OLT",
 "testDriverTypeUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
types/1", "testDriverTypeName": "OLT"
}
```

### 60.4.9 Querying Test Driver Type by Context ID

The table below shows the GET request configuration.

**Table 60–85** GET Request Configuration for Querying a Test Driver Type by Context ID

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_types/1
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
driver_types/1", "contextId": "1",
 "name": "OLT",
 "testTypeUri":
}
```

```

"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_types/1",
"testTypeName": "OLT"
}

```

### 60.4.10 Viewing Details of all Test Environment Instances

The table below shows the GET request configuration.

**Table 60–86** *GET Request Configuration for Viewing all Test Environment Instances*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances", "items": [
 {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/1", "contextId": "1",
 "name": "Medrec_11",
 "status": "Ready",
 "testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
 "MedrecEnv",
 "owner": "TAASUSER1",
 "creationDate": "1368604209000",
 "operations": {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/1/operations", "\\\\" "items": [
 {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/1/operations/stop", "\\\\" "contextId": "stop",
 "method": "POST"
 },
 {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/1/operations/restart", "contextId": "restart",
 "method": "POST"
 }
]
 }
 }
]
}

```

### 60.4.11 Querying a Test Environment Instance by Context ID

The table below shows the GET request configuration.

**Table 60–87** *GET Request Configuration for Querying a Test Environment Instance by Context ID*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/1
Body	None
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environment_instances/1", "contextId": "1",
 "name": "Medrec_11",
 "status": "Ready",
 "testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
 "MedrecEnv",
 "owner": "TAASUSER1",
 "creationDate": "1368604209000",
 "operations": {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environment_instances/1/operations", "items": [
 {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environment_instances/1/operations/stop", "contextId": "stop",
 "method": "POST"
 },
 {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environment_instances/1/operations/restart", "contextId": "restart",
 "method": "POST"
 }
]
 }
}
```

## 60.4.12 Creating a Test Environment Instance

The table below shows the POST request configuration.

**Table 60–88** *POST Request Configuration for Creating a Test Environment Instance*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances
Body	{       "name": "testEnvInst1",       "testEnvironmentContextId": "DCBDF6F2FFC90069E040F20AA051215F",       "testEnvironmentInstancePassword": "Oracle123"       "scheduledStartTime": null,       "scheduledDeleteTime": null     }

**Table 60–88 (Cont.) POST Request Configuration for Creating a Test Environment**

Feature	Description
Request method	POST

A sample of the response received is shown below.

Method: POST

URI: `https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances`

Request:

Response:

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/41", "contextId": "41",
 "name": "testEnvInst1",
 "status": "Scheduled",
 "testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
 "MedrecEnv",
 "owner": "TAASUSER1",
 "creationDate": "1368772865392",
 "operations": {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/41/operations" }
}
```

### 60.4.13 Executing an Operation on Test Environment / Driver Instance

---

**Note:** The executable operation depends on the status of the test environment instance. Operations are start, stop, and restart.

---

The table below shows the POST request configuration.

**Table 60–89 POST Request Configuration for Executing an Operation on a Test Environment / Driver Instance**

Feature	Description
URI	<code>/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/1/operations/stop</code>
Body	None
Request method	POST

A sample of the response received is shown below.

Operation request has been submitted.

### 60.4.14 Deleting a Stopped Test Environment Instance

The table below shows the DELETE request configuration.

**Table 60–90 DELETE Request Configuration for Deleting a Stopped Test Environment Instance**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/21
Body	None
Request method	DELETE

A sample of the response received is shown below.

```
TestEnvironmentInstanceEntity has been deleted.Context Id:21
```

### 60.4.15 Viewing Details of All Test Driver Instances

The table below shows the GET request configuration.

**Table 60–91 GET Request Configuration for Viewing all Test Driver Instances**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances
Body	None
Request method	GET

A sample of the response received is shown below.

```
{ "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances", "items": { "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/1", "contextId": "1", "name": "ManualTDInst", "status": "Ready", "testDriverUri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT", "owner": "TAASUSER1", "creationDate": "1368576000000", "operations": { "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/1/operations", "items": [{ "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/1/operations/stop", "contextId": "stop", "method": "POST" }, { "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/1/operations/restart", "contextId": "restart", "method": "POST" }] } }
```

### 60.4.16 Querying a Test Driver Instance by Context ID

The table below shows the GET request configuration.

**Table 60–92 GET Request Configuration for Querying a Test Driver Instance by Context ID**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/1
Body	None



**Table 60–92 (Cont.) GET Request Configuration for Querying a Test Driver Instance by Context ID**

Feature	Description
Request method	GET

A sample of the response received is shown below.

```
{
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
driver_instances/1", "contextId": "1",
 "name": "ManualTDInst",
 "status": "Ready",
 "testDriverUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
 "owner": "TAASUSER1",
 "creationDate": "1368576000000",
 "operations": {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
driver_instances/1/operations", "items": [
 {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
driver_instances/1/operations/stop", "contextId": "stop",
 "method": "POST"
 },
 {
 "uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
driver_instances/1/operations/restart", "contextId": "restart",
 "method": "POST"
 }
]
 }
}
```

## 60.4.17 Creating a Test Driver Instance

The table below shows the POST request configuration.

**Table 60–93 POST Request Configuration for Creating a Test Driver Instance**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/1
Body	{       "name": "testDriverInst1",       "testDriverContextId": "DCBD49A045FFD35BE040F20AA05150F5",       "testDriverInstancePassword": "Oracle123"       "scheduledStartTime": null,       "scheduledDeleteTime": null     }
Request method	POST

A sample of the response received is shown below.

```
{
```

```

"uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
driver_instances/25", "contextId": "25",
"name": "testDrvInst1",
"status": "NotAvailable",
"testDriverUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_drivers",
"owner": "TAASUSER1",
"creationDate": "1368774079487",
"operations": {
"uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
driver_instances/25/operations" }
}

```

## 60.4.18 Deleting a Stopped Test Driver Instance

The table below shows the DELETE request configuration.

**Table 60–94 DELETE Request Configuration for Deleting a Stopped Test Driver Instance**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/25
Body	None
Request method	DELETE

A sample of the response received is shown below.

```

TestDriverInstanceEntity has been deleted. Context Id:25

```

## 60.4.19 Viewing Details of all Tests

The table below shows the GET request configuration.

**Table 60–95 GET Request Configuration for Viewing all Tests**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/tests
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
"uri": "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests",
"items": [
{
"uri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC58
03CF97B2E040F20AA05152EC", "contextId": "DCC7AC5803CF97B2E040F20AA05152EC",
"name": "Test1",
"testDriverTypeContextId": "1",

"testDriverTypeUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
types/1", "testDriverTypeName": "OFT",

```

```

"testAssets": {
 "testAssetContextId": "DCBDEA617F62EC63E040F20AA0512492",
 "testAssetUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 assets/DCBDEA617F62EC63E040F20AA0512492",
 "testAssetName": "Asset001"
},
"testEnvironmentContextId": "DCBDF6F2FFC90069E040F20AA051215F",
"testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 environments/DCBDF6F2FFC90069E040F20AA051215F", \ "testEnvironmentName":
 "MedrecEnv",
"useEnvironmentLibrary": "false"
"testDriverContextId": "DCBD49A045FFD35BE040F20AA05150F5",
"testDriverUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
"mappingUrls": "xx.example.com:7011|FROM_APPLIANCE|MedRec/MedRec1/MedRecServer",
"trialsUri": "/slc03rgd:5416/em/websvcs/restful/extws/cloudservices/taas/v1/tests/D
CC7AC5803CF97B2E040F20AA05152EC/trials"

}
]
}

```

## 60.4.20 Querying a Test by Context ID

The table below shows the GET request configuration.

**Table 60–96** GET Request Configuration for Querying a Test by Context ID

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC5803CF97B2E040F20AA05152EC
Body	None
Request method	GET

A sample of the response received is shown below.

```

{
 "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC58
 03CF97B2E040F20AA05152EC", "contextId": "DCC7AC5803CF97B2E040F20AA05152EC",
 "name": "Test1",
 "testDriverTypeContextId": "1",
 "testDriverTypeUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
 types/1", "testDriverTypeName": "OLT",
 "testAssets": {
 "testAssetContextId": "DCBDEA617F62EC63E040F20AA0512492",
 "testAssetUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 assets/DCBDEA617F62EC63E040F20AA0512492",
 "testAssetName": "Asset001"
 },
 "testEnvironmentContextId": "DCBDF6F2FFC90069E040F20AA051215F",
 "testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_

```

```
environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
"MedrecEnv",
"useEnvironmentLibrary": "false",
"testDriverContextId": "DCBD49A045FFD35BE040F20AA05150F5",
"testDriverUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
"replaceUrls": {
"originalUrl": "testserver2.us.example.com",
"newUrl": "MedRec/MedRec1/MedRecServer",
"replaceType": "FROM_APPLIANCE"
},
"trialsUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC58
03CF97B2E040F20AA05152EC/trials" }
```

## 60.4.21 Creating a Test

The table below shows the POST request configuration.

**Table 60–97 POST Request Configuration for Creating a Test**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/tests
Body	<pre>{   "name": "Test100",   "testAssets": {     "testAssetContextId": "DCBDEA617F62EC63E040F20AA0512492"   },   "testEnvironmentContextId": "DCBDF6F2FFC90069E040F20AA051215F",   "testDriverContextId" : "DCBD49A045FFD35BE040F20AA05150F5",   "replaceUrls": {     "originalUrl": "testserver2.us.example.com",     "replaceType": "FROM_APPLIANCE"   } }</pre>
Request method	POST

A sample of the response received is shown below.

```
{
 "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCE58A1C
 BF8B0D06E040F20AA0511AB5", "contextId": "DCE58A1CBF8B0D06E040F20AA0511AB5",
 "name": "Test100",
 "testDriverTypeContextId": "1",
 "testDriverTypeUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
 types/1", "testDriverTypeName": "OLT",
 "testAssets": {
 "testAssetContextId": "DCBDEA617F62EC63E040F20AA0512492",
 "testAssetUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 assets/DCBDEA617F62EC63E040F20AA0512492",
 "testAssetName": "Asset001"
 },
 "testEnvironmentContextId": "DCBDF6F2FFC90069E040F20AA051215F",
 "testEnvironmentUri":
```

```

"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
"MedrecEnv",
"useEnvironmentLibrary": "false",
"testDriverContextId": "DCBD49A045FFD35BE040F20AA05150F5",
"testDriverUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
"replaceUrls": {
"originalUrl": "testserver2.us.example.com",
"replaceType": "FROM_APPLIANCE"
},
"trialsUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCE58A1C
BF8B0D06E040F20AA0511AB5/trials" }

```

## 60.4.22 Updating a Test

The table below shows the PUT request configuration.

**Table 60–98** PUT Request Configuration for Updating a Test

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCE58A1CBF8B0D06E040F20AA0511AB5
Body	<pre> {   "name": "Test101",   "testAssets":{     "testAssetContextId": "DCBDEA617F62EC63E040F20AA0512492",   },   "testEnvironmentContextId": "DCBDF6F2FFC90069E040F20AA051215F",   "testDriverContextId" : "DCBD49A045FFD35BE040F20AA05150F5" } </pre>
Request method	PUT

A sample of the response received is shown below.

```

{
 "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCE58A1C
 BF8B0D06E040F20AA0511AB5", "contextId": "DCE58A1CBF8B0D06E040F20AA0511AB5",
 "name": "Test101",
 "testDriverTypeContextId": "1",
 "testDriverTypeUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
 types/1", "testDriverTypeName": "OLT",
 "testAssets":{
 "testAssetContextId": "DCBDEA617F62EC63E040F20AA0512492",
 "testAssetUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 assets/DCBDEA617F62EC63E040F20AA0512492", "testAssetName": "Asset001"
 },
 "testEnvironmentContextId": "DCBDF6F2FFC90069E040F20AA051215F",
 "testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
 "MedrecEnv",
 "useEnvironmentLibrary": "false",

```

```

"testDriverContextId": "DCBD49A045FFD35BE040F20AA05150F5",
"testDriverUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
"replaceUrls": {
"originalUrl": "burepvl4.us.example.com:7011",
"replaceType": "FROM_APPLIANCE",
"newUrl": "MedRec/MedRec1/MedRecServer"
},
"trialsUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCE58A1C
BF8B0D06E040F20AA0511AB5/trials" }

```

### 60.4.23 Deleting a Test

The table below shows the DELETE request configuration.

**Table 60–99 DELETE Request Configuration for Deleting a Test**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCE58A1CBF8B0D06E040F20AA0511AB5
Body	None
Request method	DELETE

A sample of the response received is shown below.

TestEntity has been deleted. Context Id:DCE58A1CBF8B0D06E040F20AA0511AB5

### 60.4.24 Viewing Details of All Trials

The table below shows the GET request configuration.

**Table 60–100 GET Request Configuration for Viewing all the Trials**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/trials
Body	None
Request method	GET

A sample of the response received is shown below.

```

{ "uri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/trials",
"items": [{ "uri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/trials/DCC75B3
C889F0463E040F20AA0514349", "contextId": "DCC75B3C889F0463E040F20AA0514349",
"name": "Trial1", "owner": "TAASUSER1", "status": "ERROR_SUBMITTING", "startTime":
"1368671518000", "testUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC58
03CF97B2E040F20AA05152EC", "testName": "Test1", "testContextId":
"DCC7AC5803CF97B2E040F20AA05152EC", "testAssetUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
assets/DCBDEA617F62EC63E040F20AA0512492", "testAssetName": "Asset001",
"testEnvironmentUri":

```

```
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
"MedrecEnv", "testEnvironmentInstanceUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environment_instances/1", "testEnvironmentInstanceName": "MedrecEnv",
"testEnvironmentInstanceContextId": "1", "testDriverUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
"testDriverInstanceUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
instances/1", "testDriverInstanceContextId": "1", "testDriverInstanceName":
"ManualTDInst", "oltTrialSettings": { "scriptVuCounts": { "name": "MedRec1Script",
"value": "1" }, "rampupOptionIndex": "3", "rampupOptionLabel": "X Percent every Y
Seconds", "rampupUserOrPercent": "0.1", "rampupSecondOrIteration": "5.0" } }] }
```

## 60.4.25 Querying a Trial by Context ID

The table below shows the GET request configuration.

**Table 60–101** GET Request Configuration for Querying a Trail by Context ID

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/trials/DCC75B3C889F0463E040F20AA0514349
Body	None
Request method	GET

A sample of the response received is shown below.

```
{ "uri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/trials/DCC75B3
C889F0463E040F20AA0514349", "contextId": "DCC75B3C889F0463E040F20AA0514349",
"name": "Trial1", "owner": "TAASUSER1", "status": "ERROR_SUBMITTING", "startTime":
"1368671518000", "testUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC58
03CF97B2E040F20AA05152EC", "testName": "Test1", "testContextId":
"DCC7AC5803CF97B2E040F20AA05152EC", "testAssetUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
assets/DCBDEA617F62EC63E040F20AA0512492", "testAssetName": "Asset001",
"testEnvironmentUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
"MedrecEnv", "testEnvironmentInstanceUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
environment_instances/1", "testEnvironmentInstanceName": "MedrecEnv",
"testEnvironmentInstanceContextId": "1", "testDriverUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
"testDriverInstanceUri":
"https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
instances/1", "testDriverInstanceContextId": "1", "testDriverInstanceName":
"ManualTDInst", "oltTrialSettings": { "scriptVuCounts": { "name": "MedRec1Script",
"value": "1" }, "rampupOptionIndex": "3", "rampupOptionLabel": "X Percent every Y
Seconds", "rampupUserOrPercent": "0.1", "rampupSecondOrIteration": "5.0" } }
```

## 60.4.26 Creating a New Trial

The table below shows the POST request configuration.

**Table 60–102** *POST Request Configuration for Creating a Trail*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/trials
Body	<pre>{ "name": "APITrial1",   "testContextId": "DCC7AC5803CF97B2E040F20AA05152EC",   "testEnvironmentInstanceContextId": "1",   "testDriverInstanceContextId": "1",   "startTime": null,   "oltTrialSettings":     { "scriptVuCounts":       { "name": "MedRec1Script", "value": "3" },       "rampupOptionIndex": "3",       "rampupUserOrPercent": "0.1",       "rampupSecondOrIteration": "5.0" }     } }</pre>
Request method	POST

A sample of the response received is shown below.

```
{ "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/trials/DCE58A1CBF8D0D06E040F20AA0511AB5", "contextId": "DCE58A1CBF8D0D06E040F20AA0511AB5",
 "name": "APITrial1", "owner": "TAASUSER1", "status": "SCHEDULED", "startTime":
 "1368800849000", "testUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC5803CF97B2E040F20AA05152EC", "testName": "Test1", "testContextId":
 "DCC7AC5803CF97B2E040F20AA05152EC", "testAssetUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_assets/DCBDEA617F62EC63E040F20AA0512492", "testAssetName": "Asset001",
 "testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
 "MedrecEnv", "testEnvironmentInstanceUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_environment_instances/1", "testEnvironmentInstanceName": "MedrecEnv",
 "testEnvironmentInstanceContextId": "1", "testDriverUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
 "testDriverInstanceUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_instances/1", "testDriverInstanceContextId": "1", "testDriverInstanceName":
 "ManualTDInst", "oltTrialSettings": { "scriptVuCounts": { "name": "MedRec1Script",
 "value": "3" }, "rampupOptionIndex": "3", "rampupOptionLabel": "X Percent every Y Seconds", "rampupUserOrPercent": "0.1", "rampupSecondOrIteration": "5.0" } }
```

## 60.4.27 Updating a Trial

---

**Note:** This is applicable only if the trial is in "Scheduled" status.

---



The table below shows the PUT request configuration.

**Table 60–103 PUT Request Configuration for Updating a Trail**

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/trials/DCE58A1CBF8D0D06E040F20AA0511AB5
Body	<pre>{ "name": "NewTrialName",   "testContextId": "DCC7AC5803CF97B2E040F20AA05152EC",   "testEnvironmentInstanceContextId": "1",   "testDriverInstanceContextId": "1",   "startTime":1398800849000,   "oltTrialSettings":     { "scriptVuCounts":       { "name": "MedRec1Script", "value": "3" },       "rampupOptionIndex": "3",       "rampupUserOrPercent": "0.1",       "rampupSecondOrIteration": "5.0" }     } }</pre>
Request method	PUT

A sample of the response received is shown below.

```
{ "uri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/trials/DCE58A1CBF8D0D06E040F20AA0511AB5", "contextId": "DCE58A1CBF8D0D06E040F20AA0511AB5",
 "name": "NewTrialName", "owner": "TAASUSER1", "status": "SCHEDULED", "startTime":
 "1398800849000", "testUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/tests/DCC7AC5803CF97B2E040F20AA05152EC", "testName": "Test1", "testContextId":
 "DCC7AC5803CF97B2E040F20AA05152EC", "testAssetContextId":
 "DCBDEA617F62EC63E040F20AA0512492", "testAssetUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 assets/DCBDEA617F62EC63E040F20AA0512492", "testAssetName": "Asset001",
 "testEnvironmentUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 environments/DCBDF6F2FFC90069E040F20AA051215F", "testEnvironmentName":
 "MedrecEnv", "testEnvironmentInstanceUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 environment_instances/1", "testEnvironmentInstanceName": "MedrecEnv",
 "testEnvironmentInstanceContextId": "1", "testDriverUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_
 drivers/DCBD49A045FFD35BE040F20AA05150F5", "testDriverName": "Default OLT",
 "testDriverInstanceUri":
 "https://example.com/em/websvcs/restful/extws/cloudservices/taas/v1/test_driver_
 instances/1", "testDriverInstanceContextId": "1", "testDriverInstanceName":
 "ManualTDInst", "oltTrialSettings": { "scriptVuCounts": { "name": "MedRec1Script",
 "value": "3" }, "rampupOptionIndex": "3", "rampupOptionLabel": "X Percent every Y
 Seconds", "rampupUserOrPercent": "0.1", "rampupSecondOrIteration": "5.0" } }
```

## 60.4.28 Deleting a Trial

The table below shows the DELETE request configuration.

**Table 60–104** *DELETE Request Configuration for Deleting a Trail*

Feature	Description
URI	/em/websvcs/restful/extws/cloudservices/taas/v1/trials/DCE5F68EEF937640E040F20AA0514029
Body	None
Request method	DELETE

A sample of the response received is shown below.

TrialEntity has been deleted. Context Id:DCE5F68EEF937640E040F20AA0514029

# Part XVII

---

## Appendixes

This part contains the following appendix:

- [Appendix A, "Use Case: Refreshing Test Data"](#)



---

## Use Case: Refreshing Test Data

This appendix demonstrates how Enterprise Manager can be used to enable application developers and testers to quickly and easily provision secure, storage-efficient database clones on-demand, whenever updates are made to production data.

This appendix contains the following sections:

- [The Challenge of Refreshing Test Data](#)
- [The Enterprise Manager Solution](#)
- [Create the Test Master Database](#)
- [Mask and Subset Data on the Test Master Database](#)
- [Create Database Clones On-Demand](#)
- [Implementing the Example Scenario](#)
- [Ongoing Refresh of Test Data](#)

### A.1 The Challenge of Refreshing Test Data

IT environments typically require multiple copies of production databases for application development and testing purposes. However, provisioning a full clone of production data is a time-consuming process that not only involves coordination among database administrators, systems administrators and storage administrators, but also requires significant storage space.

When an application developer or tester needs a database clone, he or she must typically go through an approval cycle, which then initiates a cumbersome and time-consuming cloning process that may span days. Clones are shared by multiple users and applications, which results in degraded performance due to increased sharing by multiple users.

In such an environment, refreshing test data to reflect changes made to a production database is typically done on a fixed schedule, and may not be done as often as needed. As a result, it may often not be feasible to ensure that developers and testers are testing with the latest data.

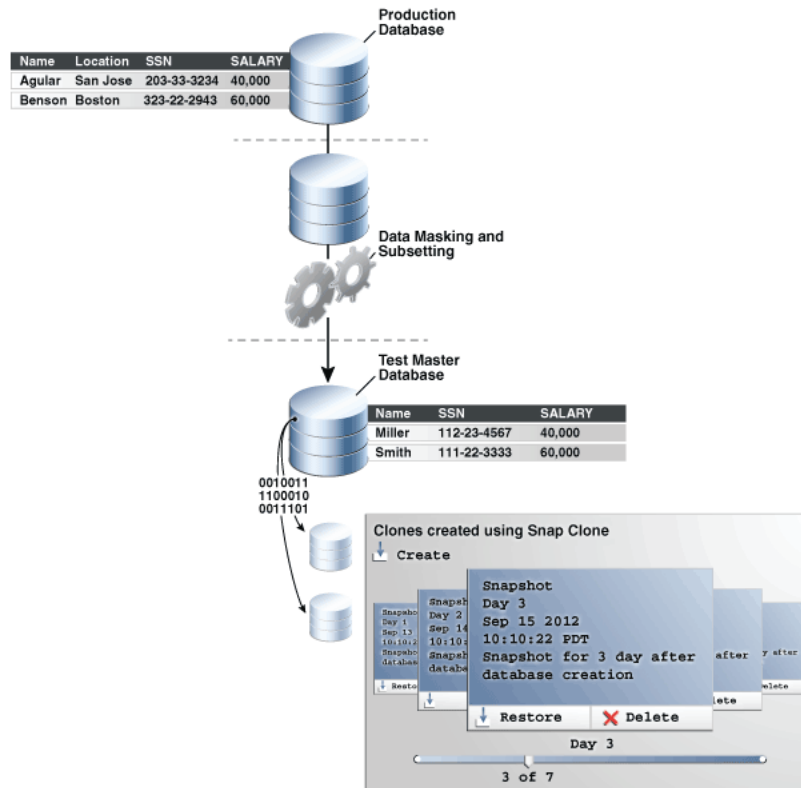
### A.2 The Enterprise Manager Solution

The following sections provide a solution to the previously noted challenges that leverages the features of Enterprise Manager. The goal is to enable developers and testers to provision secure, reduced-size copies of production databases on-demand, whenever required due to production database updates.

Note that this solution requires that the enterprise already has the Database as a Service (DBaaS) Cloud feature enabled. See Chapter 12, "Enabling the DBaaS Cloud" for instructions on enabling DBaaS.

The basic flow of this example scenario is illustrated below:

**Figure A-1 The Enterprise Manager Solution**



### A.3 Create the Test Master Database

This scenario assumes that an administrator-level role will create a "test master database" - a copy of the production database that will be used for application testing. Oracle offers various options for creating a test master database, but this scenario assumes that the administrator will use RMAN backup and RMAN restore operations to create a backup of the production database, then restore it as the test master.

The expectation is that RMAN backups will be used to refresh the test master database with current data from the production database at regularly scheduled intervals in a discrete manner.

### A.4 Mask and Subset Data on the Test Master Database

To enable production data to be utilized in testing, data identified as sensitive should be masked - or scrambled - on the test master database. Ideally data subsetting should also be used to reduce the database size to include only the data that is needed for testing.

For example, assume a company is developing a human resources application, and needs to test it using employee Social Security and salary data. This sensitive data

could be masked/scrambled, while at the same time extraneous data such as employee location could be excluded from the data subset actually needed for testing.

Oracle's inline masking and subsetting feature makes it possible to mask sensitive data and simultaneously reduce the size of the database, all within the same task flow. This serves the dual purpose of protecting sensitive production data while greatly reducing hardware costs related to storing large masked production databases for testing.

## A.5 Create Database Clones On-Demand

After a process is in place to create and refresh the test master and protect and subset the data to be used in testing, application developers and testers - also called self service users in DBaaS parlance - can quickly and easily create clones of the test master database using Enterprise Manager's Self Service Portal, the primary user interface for Database as a Service.

This functionality is enabled through Snap Clone, a feature provided with Database as a Service that enables the creation of fully functional copies of Oracle databases with minimal storage requirements. With Snap Clone, users can create test master clones containing terabytes of data in just minutes instead of hours, while keeping storage requirements to a minimum.

## A.6 Implementing the Example Scenario

This section outlines the tasks involved in implementing the test data refresh solution outlined in the previous section.

### A.6.1 Assign and Create Roles in Enterprise Manager

#### Role: Super Administrator

Roles are used to manage system and object privileges within Enterprise Manager. Roles must be assigned to both administrators and self service users.

#### A.6.1.1 Assign Administrator Roles to Administrators

Assign the following administrator roles to users who will perform various DBaaS setup tasks within this scenario. These roles are provided out of the box within Enterprise Manager.

- **EM\_SSA\_ADMINISTRATOR:** Users with this role can define quotas and constraints for the self service users who will create clones.
- **EM\_STORAGE\_ADMINISTRATOR:** Users with this role will have privileges to register storage hardware required to use Snap Clone.

See [Section 3.3, "Defining Roles and Assigning Users"](#) for instructions on completing this task.

#### A.6.1.2 Create Custom Roles for Self Service Users

Custom self service user roles must be created for users who will use the Self Service Portal to create clones of the test master database. Typically you will create roles for each of the different functional groups involved in testing, such as application developers and functional testers.

All roles will be based on the `EM_SSA_USER` role provided with Enterprise Manager.

See [Section 3.3.1, "Creating Custom Roles for Self Service Application Administrators and Users"](#) for instructions on completing this task.

### A.6.1.3 Create Self Service Users

After the various roles are created, create self-service user accounts for each individual tester or developer who will create clones. Each user will be assigned one of the custom roles defined in the previous task.

See [Section 3.3.2, "Creating a User and Assigning Roles"](#) for instructions on completing this task.

## A.6.2 Create a Backup of the Production Database

Role: DBA

Use an Oracle RMAN backup operation to create a backup of the production database. This backup will then be restored to create the test master database from which clones will be created.

Although several options are available for creating a test master database, RMAN backup and restore is used because the backup database created can be masked and subsetting.

See the following documentation for instructions on creating the database backup:

<http://www.oracle.com/pls/topic/lookup?ctx=em121&id=EMLCM93231>

## A.6.3 Prepare to Mask and Subset Data

Role: DBA and Security Analyst

The following steps must be completed to prepare for masking and subsetting data.

### A.6.3.1 Plan the Masking and Subsetting Strategy

Before beginning, determine what data must be protected, what data is needed for testing, and how to best implement masking and subsetting.

- Identify the sensitive data that must be masked.
- Locate the tables and columns containing the sensitive data. The Data Discovery and Modeling feature in Oracle Enterprise Manager facilitates such data discovery using pattern search criteria.
- Determine which masking algorithms match the enterprise's needs. Can the Oracle-supplied formats for masking common types of sensitive database be used, or will custom formats need to be created?
- Determine how to best subset the data, such as deciding which tables are not needed and can be excluded.

### A.6.3.2 Create the Application Data Model (ADM)

Both data subsetting and data masking depend on an Application Data Model (ADM). An ADM is a knowledge base within Enterprise Manager that captures and stores application metadata, such as referential relationships and sensitive columns within an application.

See the following documentation for instructions on creating the ADM:

<http://www.oracle.com/pls/topic/lookup?ctx=em121&id=RATUG4045>



### A.6.3.3 Create the Masking Definition

Create the data masking definition using the Enterprise Manager user interface to apply the masking formats to the sensitive columns. Oracle supplies an extensive library of masking formats that can be used out of the box or modified as needed. Custom masking formats can also be created.

See the following documentation for instructions on completing this task:

<http://www.oracle.com/pls/topic/lookup?ctx=em121&id=RATUG04000>

## A.6.4 Configure the Storage Server

### Role: Storage Administrator

The Snap Clone feature requires adequate storage for the database clones that will be created. In addition to providing native storage support, Oracle also supports a software approach to Snap Clone using the Oracle Sun ZFS file system.

This scenario assumes that Oracle Sun ZFS file system storage will be utilized. The basic flow is to first configure the ZFS file system, then register the storage in Enterprise Manager. Note that as a first step, storage must be acquired and allocated to the ZFS storage server.

The key steps are:

- Configure or create a user who can administer the storage from Enterprise Manager.
- Configure the ZFS pool that is used to host the storage volumes, and grant privileges to the pool.
- Allocate quota to the ZFS pool and assigns permissions to the user.
- Register the ZFS file system with Enterprise Manager by specifying the user name, protocol, and storage credentials.
- Create the storage volumes

See [Section 12.7.3.1, "Configuring Storage Servers"](#) for instructions on completing this task.

## A.6.5 Create the Test Master Database on the Storage Volume

The test master database must be created on the storage volume on which the snap clone copies will be created. The test master can be created from a snapshot or from an RMAN Backup profile taken at a prior point in time and refreshed at specific intervals.

See [Section 20.5.6, "Creating a Discretely Synchronized Test Master"](#) for instructions on completing this task.

## A.6.6 Enable the Test Master Database to Use Snap Clone

Once the test master database is created, it must be enabled for snap clone.

- Return to the Storage Registration page in Enterprise Manager
- After the test master database configuration has been refreshed, the target is automatically detected and visible on the Storage Registration page. Select the test master database, then select the Enable Snap Clone option at the top of the page.

The test master database is now Snap Clone-ready. For more details, see [Section 20.4.7, "Enabling the Test Master for Snap Clone"](#)

## A.6.7 Mask and Subset the Test Data

### Role: Self Service Administrator

Once the test master is ready, the data can be masked and subsetted according to the rules defined.

When a change is made to the production database, the test master database must be refreshed. It may be necessary to revisit the masking and subsetting rules to reflect changes to the production database. A new subset definition can then be applied to the test master database.

### A.6.7.1 Create the Subset Definition

Data masking and subsetting can be performed simultaneously by creating a subset definition through the Enterprise Manager user interface. The basic flow is:

- Select the test master as the source database.
- Define table rules to filter the data to include in the subset. Perform a space estimates action to determine how much the size of the database has been reduced. This can be an iterative process as you fine-tune the rules to resize the database subset.
- Reference the masking definition you created in [Section A.6.3.3, "Create the Masking Definition"](#).
- Optionally, use column rules to mask additional columns, typically vertical columns such as CLOB and BLOB columns. This can also aid in reducing the subset size.

See the following documentation for instructions on completing this task:

<http://www.oracle.com/pls/topic/lookup?ctx=em121&id=RATUG4053>

### A.6.7.2 Save and Execute the Subset Script

Once the subset definition is created, apply it to the test master database. The key steps are:

- Save and subset the definition as a ZIP archive.
- Extract the archive on the test master database host.
- Execute the subset script against the test master database to apply the mask and subset the data.

See the following documentation for instructions on completing this task:

<http://www.oracle.com/pls/topic/lookup?ctx=em121&id=RATUG4214>

## A.6.8 Configure the Database Cloud Self Service Portal

### Role: Self Service Administrator

After the storage has been configured and the test master database has been set up, the self service portal, which will be used by self service users to create test master clones must be configured.

The first step is to create a Platform as a Service (PaaS) infrastructure zone. The PaaS zone defines placement policy constraints for a set of targets (database hosts) that clones will be created on, and the users (based on roles) who can access these targets. For example, you could create a PaaS zone for a group of developers (assigned the

APP\_DEV role) and give them access to a set of specific hosts, and another for a group of testers, giving them access to a different set of hosts.

Hosts within each zone are then grouped into pools, depending on the operating system and the type and version of Oracle database installed on each host. For example, one pool could be created for all hosts configured with single instance Oracle Database 12.1.01 on Linux, another for Oracle RAC on Solaris, and so on.

To enable users to create clones of the test master database using the Snap Clone feature, you must create a provisioning profile for the test master database. Clones created by users will be based on this profile.

Finally, a "Snap Clone service template" is created to encapsulate the above configuration. When self service users create a clone, they will select this template which defines the host and database on which the clones will be created.

### **A.6.8.1 Create the PaaS Infrastructure Zone**

Create the PaaS infrastructure zone containing the hosts onto which test master clones will be deployed.

- Add one or more database host targets to the zone.
- Specify the placement policy constraints for each host.
- Select the self service user roles who can access this zone.

See [Section 11.2.2.1, "Creating a PaaS Infrastructure Zone"](#) for instructions on completing this task.

### **A.6.8.2 Create Database Pools**

Within the PaaS infrastructure zone, create one or more database pools, one for each database type.

- Specify the host credentials required for Snap Clone.
- Select the PaaS infrastructure zone into which the database pool is to be created.
- Specify the configuration (single instance or cluster), platform and version of the database being deployed.
- Specify the number of database instances that can be running on each host within the pool.

See [Section 11.2.2.2.1, "Creating a Database Pool"](#) for instructions on completing this task.

### **A.6.8.3 Configure Request Settings**

Configure the database request settings by specifying when a request can be made, its duration, and so on. To configure the request settings, you must specify the following:

- Future Reservation Length
- Maximum Archive Retention Period
- Default Retirement Period

See [Section 11.2.3, "Configuring Request Settings"](#) for instructions on completing this task.

#### A.6.8.4 Set Up User Quotas

Quotas control the amount of DBaaS resources that are available to each self service user. To assign quotas:

- Select the self service user role to which the quota is to be assigned.
- Specify the total memory and storage that can be assigned to all databases created by the self service user.
- Specify the number of databases that can be requested by the user.

See [Section 11.2.4, "Setting Up Quotas"](#) for instructions on completing this task.

#### A.6.8.5 Create a Database Provisioning Profile Using Snapshots

Create the provisioning profile for the test master database. The service template that will be created in the next step will use this profile.

- Select the test master database as the database you want to create a profile for. The database must be enabled for Snap Clone as described in [Section A.6.6, "Enable the Test Master Database to Use Snap Clone"](#).
- Specify the Named Credentials that will be required to access the database.
- Enter a unique name for the profile, for example "Snap Clone Profile".

See [Section 20.4.8, "Creating a Database Provisioning Profile Using Snapshots"](#) for instructions on completing this task.

#### A.6.8.6 Create the Service Template

Finally, create the service template that testers and developers will use to create clones of the test master database.

- Select the "Snap Clone Profile" created in the previous step as the profile to base the template on.
- Specify the database definition details such as database type (single instance or RAC), database SID, and domain name.
- Select the PaaS infrastructure zone and the database pool. Database clones created using this service template will be deployed onto this pool. The host target is populated in the Reference Host field.
- Configure the storage volumes that will be used by the database clones. Specify the prefix for the new mount point of the database being deployed and the amount of space required for block changes.
- Specify the number of snapshots that the self service user can take on the cloned database.
- Specify the snapshot policy and the credentials for the system schemas of the clones.
- Configure the initialization parameters that can affect the operation of the new database.
- Select the self service user roles that will have access to this service template.

See [Section 20.4.9, "Creating Service Template Using Snap Clone Profile"](#) for instructions on completing this task.

## A.6.9 Create Database Clones to Use in Testing On-Demand

### Role: Self Service Users

At this point, the Database Cloud Self Service Portal interface provided with Enterprise Manager Cloud Control can now be used by testers and developers to create thin clones of the test master database whenever needed. The essential steps self service users will follow are:

- Select the test master service template as the template to use.
- Select the PaaS infrastructure zone onto which the clone is to be deployed

See [Section 22.2, "Requesting a Database"](#) for instructions on completing this task.

## A.7 Ongoing Refresh of Test Data

Once the infrastructure to support the refreshing of test data has been set up, a strategy for regularly refreshing the data to reflect updates made to the production data must be put in place. The following steps should be repeated each time a data refresh is needed.

- To get the latest production data, you must refresh the test master database. See [Section 20.5.10, "Refreshing the Test Master Database"](#) for instructions on completing this task.
- After the test master has been refreshed, you must create a new revision of the snapshot based database provisioning profile. See [Section 20.5.11, "Refreshing the Snap Shot Profile"](#) for instructions on completing this task.
- Using the new revision of the snapshot based database provisioning profile, the self service user can refresh his database instance to reflect the latest production data. See [Section 22.3, "Refreshing a Database"](#).



---

---

# Index

## A

---

Accounts  
    vDC, 34-26  
acknowledging OVM events, 5-46  
activating and deactivating policies, 6-7  
Add Content, 34-4  
adding  
    hosts to PaaS infrastructure, 11-2  
    middleware pools to chargeback  
        application, 25-22  
    Oracle VM Manager, picture of, 5-8  
adding target  
    Chargeback, 43-19  
Administration Dashboard  
    Refresh Database, 20-20  
Administration Group feature, 2-4  
administrative operations, performing on storage  
    repository, 5-32  
APIs  
    error response messages, 45-8  
    Testing as a Service, 60-1  
Application Home page, viewing, 28-17  
Application resource model, 60-6  
assemblies, cloud setup, 5-34  
assembly  
    binary file prerequisite, 9-22  
    components, creating, 9-22, 41-2  
    definition of, 9-22, 9-29  
    deploying, 9-29  
    instance, definition of, 9-29  
Assembly Deployment  
    Deployment Configuration, picture of, 9-32  
    Instance Details, picture of, 9-29  
    Network and Agent, picture of, 9-31  
    Review page, picture of, 9-37  
assembly instance  
    specifying public and private networks, 9-30  
assembly network, definition of, 9-30  
AssemblyInstance, definition of, 59-4  
assigning  
    users, 3-5  
    virtual drives, .iso files, 5-35  
authentication  
    protocol, 3-12  
    schemes, 3-12

Automatic Storage Management (ASM), 15-8

## B

---

BI Publisher  
    integrate with Chargeback, 43-30  
    integrate with Consolidation Planner, 44-14,  
        44-15  
Blueprints  
    About, 57-1  
    Deploy, 57-4  
    Graphical Representation, 57-14  
    Uses, 57-2  
business hierarchy  
    Chargeback  
        business hierarchy, 43-3  
    import from LDAP server, 43-18

## C

---

Cache-Control, 45-6  
charge plan  
    assign to target, 43-24  
charge trends  
    Chargeback, 43-26  
Chargeback, 43-3  
    add target, 43-19  
    application, adding middleware pools to, 25-22  
    assign charge plan to target, 43-24  
    assign cost center to target, 43-23  
    BI Publisher, 43-30  
    configuring, 25-22  
    currency, 43-8  
    details, viewing, 8-14  
    report generation, 43-29  
    self service applications, 43-6  
    setting up, 42-10  
    universal metrics, 43-3  
    universal rate adjustment, 43-12  
    usage and charge trends, 43-26  
    usage metering  
        Chargeback, 43-2  
Chargeback metrics  
    configuration-based, 43-6  
cloning  
    guest virtual machine, 9-14

- cloud
  - APIs
    - common behaviors, 45-4
  - computing, 45-1
  - defining performance policies, 6-4
  - definition of, 2-8
  - infrastructure, 5-1
  - installing plug-ins, 3-3
  - management
    - faster deployment, 2-1
    - provisioning, 2-2
    - quality of service, 2-1
    - resource elasticity, 2-2
  - Oracle Management Agent and Cloud Control, 11-2
  - policies
    - definition of, 6-1
    - monitoring, 6-2
    - policy groups, 6-9
    - types of, 6-1
    - viewing, 6-2
    - viewing for a target, 6-3
  - resource data models, 46-3
- cloud computing
  - Chargeback
    - cloud computing, 43-1
- Cloud Control
  - and Management Agent, 11-2
- Cloud Policy Home page, picture of, 6-2
- Cloud Self Service Portal Home page, 8-1
- Cloud Service Family, 11-1
  - Middleware, 13-1
- Cluster Database Home page
  - QoS status on, 22-13
  - viewing, 22-11
- collating targets into groups for better manageability, 2-4
- common behaviors, cloud APIs, 45-4
- common resource attributes, APIs, 45-7
- configuring
  - chargeback, 25-22
  - guest virtual machine, 9-16
  - listener running from same Oracle Home, 12-4
  - listener running from SIHA Oracle Home, 12-4
  - privilege delegation settings, 3-12
  - request settings, 25-11
  - self service login page, 3-12
  - Self Service Portal, 7-1
  - Server Load Balancer (SLB), 3-15
  - software library user, 5-44
  - storage servers, 12-6
  - VLAN groups, 5-18, 5-19
  - YUM repository, 5-46
- connecting to Management Agent, 12-26
- consolidation planner
  - using, 44-4
- consolidation constraints, 44-3
- Consolidation Planner
  - BI Publisher, 44-14, 44-15
- consolidation planner
  - overview, 44-1
- Consolidation Planner, Enterprise Manager, 2-2
- consolidation project
  - creating, 44-5
  - definition, 44-2
- consolidation scenario
  - custom, 44-8
  - definition, 44-2
  - evaluating, 44-8, 44-12
  - pre-configured, 44-7
- Contractual Service Level Agreements (SLAs), 2-4
- cost center
  - assign to target, 43-23
- Chargeback
  - cost center, 43-3
  - create, 43-17
- Create a New Trial TaaS API example, 60-48
- Create a Test Environment Instance TaaS API example, 60-38
- Create a Test TaaS API example, 60-44
- Create Credential, 34-4
- Create Data Source page, picture of, 28-13
- Create One Test Driver Instance TaaS API example, 60-41
- Create Performance Policy page, picture of, 6-5
- Create Schedule Policy page, picture of, 6-6
- Create Storage Repository pop-up, picture of, 5-32
- Create Template Upload Files page, 9-24
- Create Test Master
  - Live Standby Database, 20-23
- Create Virtual Disk Upload Files page, 9-27
- Create Zone page, 5-42
- creating
  - assembly components, 9-22
  - automated DRS and DPM policies, 6-15
  - custom SSA user role, 3-8, 3-9
  - database pool for schema as service, 16-2
  - deployment plans, 41-3
  - guest virtual machine, 9-12
  - ISO component, 9-25
  - middleware home, 13-4
  - middleware pool, 25-2, 26-6
  - multiple virtual LAN (VLANs), 5-18, 5-19
  - named credentials, 12-2
  - network profile, 5-25
  - networks, Configure Ports and VLAN Interfaces page, 5-23
  - networks, prerequisites for, 5-22
  - PaaS Infrastructure Zone, 11-3, 11-4
  - Paas pool in PaaS infrastructure, 11-6
  - provisioning profiles, 13-3
  - PXE bootable guest virtual machines, 9-44
  - repository export, prerequisites, 5-37
  - service template, 25-13
  - service template for schema as service, 16-8, 16-11
  - service template using DBCA template profile, 15-6
  - service template using RMAN backup profile, 19-11, 19-16, 20-34, 20-49



- storage repository, 5-31
- storage servers, illustration of, 5-26
- template components, 9-24
- test administrators, 41-2
- users, 3-9
- virtual disk component, 9-27
- virtual machines, 9-29
- virtual server pool, 5-38
  - Virtual IP address, 5-41
- virtual server pools, 5-39
- VLAN group, 5-18, 5-20
- zones, 5-42, 9-6
- zones, illustration of, 5-42
- creating a cost center, 43-17
- creating a universal charge plan, 43-10
- creating an extended charge plan, 43-11
- credentials
  - Management Agent, 12-26
  - setting for OMS requirement, 9-23
  - setting up for provisioning, 12-2
  - types of, 12-2
- Crypto Units, 34-16
- currency
  - Chargeback, 43-8
- custom SSA user role, creating, 3-8, 3-9
- customized
  - Post-Login page, picture of, 3-14
  - SSA Login page, picture of, 3-14
- customizing
  - storage agent proxy, 12-21
- CustomParameters resource model, 60-11

## D

- Data Lifecycle Management, 18-1
- data sharing, 43-31
- data source
  - editing, 28-14
- Database
  - pluggable database
    - pool, 17-2
- database
  - container database, 12-4
  - creating
    - pool for schema as service, 16-2
    - service template for schema as service, 16-8, 16-11
  - deploying, 12-3
  - pluggable database, 17-9, 17-13
    - home, 22-15
    - service template, 17-9, 17-12
  - provisioning
    - using RMAN backup, 19-1, 50-11, 50-12
  - provisioning pluggable database, 17-1, 50-6
  - provisioning profile
    - creating using DBCA template, 15-3
    - creating using existing RMAN backup, 19-7, 20-46
    - creating using export schema objects, 16-4, 17-4

- creating using RMAN backup, 19-3
  - creating using snapshots, 20-25
- self service portal, 22-1
- services, definition of, 22-9
- starting, 22-11
- stopping, 22-11
- using self service portal, 22-1
- Database as a Service (DBaaS)
  - service model, 2-6
- Database Instance Home page, viewing, 22-10
- Database Pool Home page, viewing, 29-12
- database provisioning profile, 2-9
- Database Self Service Portal, 22-1
- Database Service Home page, viewing, 22-9
- Database Software Maintenance, 23-1
  - Create Gold Image, 23-3
  - Create New Image Version, 23-8
  - Deploy Image, 23-6
  - Subscribe to Image, 23-4
  - Update Database, 23-7
  - Workflow, 23-2
- Database-as-a-Service (DBaaS) cloud, 2-3
- databases software
  - provisioning, 12-2
- DBaaS Use Cases, 14-1, 50-1
- DBCA template profile, creating service template
  - using, 15-6
- default SDK, overriding, 12-22
- defining
  - performance policies, 6-4
  - policy groups, 6-9
  - quotas, 25-12
  - request purging policy, 5-45
  - roles
    - EM\_CLOUD\_ADMINISTRATOR, 3-5
    - EM\_SSA\_ADMINISTRATOR, 3-6
    - EM\_SSA\_USER, 3-6
  - schedule-based policy, 6-6
  - storage QoS, 5-43
- Delete a Stopped Test Driver Instance TaaS API
  - example, 60-42
- Delete a Stopped Test Environment Instance TaaS API
  - example, 60-39
- Delete a Test TaaS API example, 60-46
- Delete a Trial TaaS API example, 60-49
- deleting
  - deployed application, 28-13
  - PaaS Infrastructure Zone, 11-6
  - zones, 9-7, 9-19, 9-20
- Deploy Application page, picture of, 28-12
- deploying
  - an assembly, 9-29
  - database, 12-3
  - ISO image, 9-42
  - preconfigured Java EE application, 28-12
  - templates, 9-38
  - virtual machine
    - infrastructure requirements, 9-21
    - provisioning, 9-21
- deployment

- information
  - viewing, 42-21
- plans, creating, 41-3
- Deployment plans
  - Oracle VM Server for SPARC, 34-19
- discovering
  - Oracle VM Manager, 5-11
  - Oracle VM Server, 5-16
  - virtual servers, illustration of, 5-16
- Discretely Synced Test Master
  - Create Snap Clone, 20-37
- Distributed Power Management (DPM)
  - policies, 6-14
- DRS and DPM policies, creating automated
  - policies, 6-15
- Dynamic private networks, 34-25
- Dynamic Resource Scheduling (DRS) policies, 6-13

## E

---

- editing
  - data source, 28-14
  - existing MWaaS service template, 25-17
  - guest virtual machine, 9-16
  - PaaS Infrastructure Zone, 11-6
  - storage ceiling, 12-33
  - virtual server, 9-10
  - virtual server pools, 5-41
  - zones, 9-6
- EM\_INFRASTRUCTURE\_ADMIN privilege, 3-2
- EM\_SSA\_ADMINISTRATOR, and provisioning
  - database software, 12-2
- EMCLI, setting up, 3-3
- enable metric collection
  - for shared database, 43-20
- Enterprise Manager
  - Incident Management system, 2-4
- Enterprise Manager Consolidation Planner, 2-2
- Enterprise Manager Store, available functional
  - updates, 3-1
- Enterprise User Security (EUS), 3-12
- Enterprise user security based authentication, 3-12
- error response messages, APIs, 45-8
- Execute an Operation on Test Environment / Driver
  - Instance TaaS API example, 60-39
- extended charge plan
  - Chargeback
    - extended charge plan, 43-3
  - create, 43-11
  - update, 43-15

## F

---

- faster deployment, enabling, 2-1
- file systems, illustration of, 5-26
- Full Clone, 19-1
  - RMAN Backup, 19-1
  - RMAN Duplicate, 19-15
- Full Clones, 18-2
  - RMAN Backup, 19-1

## G

---

- general privileges, granting, 3-10
- generating reports
  - Chargeback, 43-29
- Get One Test Asset by Context ID TaaS API
  - example, 60-34
- Get One Test by Context ID TaaS API
  - example, 60-43
- Get One Test Driver by Context ID TaaS API
  - example, 60-36
- Get One Test Driver Instance by Context ID TaaS API
  - example, 60-40
- Get One Test Environment by Context ID TaaS API
  - example, 60-35
- Get One Test Environment Instance by Context ID TaaS API
  - example, 60-37
- Get One Trial by Context ID TaaS API
  - example, 60-47
- Get Test Driver Type by Context ID TaaS API
  - example, 60-36
- granting
  - general privileges, 3-10
  - privileges for provisioning, 3-11
  - roles, 3-11
  - target privileges, 3-10
- guest virtual machine
  - cloning, 9-14
  - creating, 9-12
  - definition of, 9-12
  - deploying, 9-20
  - deployment options, 9-21
  - editing, 9-16
  - enabling high availability, 9-34
  - infrastructure requirements, 9-21
  - instances
    - modifying resource configuration
      - parameters, 9-33
  - prerequisites for creating, 9-12
  - provisioning using Oracle VM templates, 9-38
  - provisioning using OVA, 9-29
  - restarting, 9-13
  - restricting amount of physical CPU, 9-34
  - saving as template, 9-18
  - specifying priority to access physical CPUs, 9-34
  - starting, 9-13
  - stopping, 9-13
- Guest Virtual Machine Home page, 9-12

## H

---

- HTTP Status Codes, 45-6
- hypervisor, 9-9

## I

---

- Icons
  - Add Content, 34-4
- Incident Management system, 2-4
- Infrastructure as a Service (IaaS)
  - service model, 2-5

- Infrastructure as a Service (PaaS)
  - setting up and using, 4-2
- Infrastructure Cloud Home page
  - picture of, 5-8, 9-2
  - viewing, 9-1
- Infrastructure-as-a-Service (IaaS) cloud, 2-3
- installing
  - Management Agent on an unmanaged server, 11-2
  - Oracle Management Agents on unmanaged hosts, 11-2
  - plug-ins, 3-3
- In-Sync Test Master
  - Create Snap Clones, 20-21
- Intelligent Platform Management Interface (IPMI), 9-10
- ISO component, creating, 9-25
- ISO Deployment page, picture of, 9-42

## J

---

- Java EE component, uploading to Software Library, 28-16
- JavaScript Object Notation, 45-4

## L

---

- LDAP server
  - import business hierarchy, 43-18
- List All Applications TaaS API example, 60-32
- List All Test Assets TaaS API example, 60-33
- List All Test Drivers TaaS API example, 60-35
- List All Test Environment Instances TaaS API example, 60-37, 60-40
- List All Test Environments TaaS API example, 60-34
- List All Tests TaaS API example, 60-42
- List All Trials TaaS API example, 60-46
- logical
  - pools, 2-7
  - zones, 2-7

## M

---

- machine sizes, setting up, 5-44
- maintaining virtual servers, 9-11
- maintenance mode, virtual servers, 9-11
- MANAGE\_SELF\_UPDATE privileges, 3-2
- Management Agent credentials, 12-26
- managing
  - storage access privileges, 12-41
  - storage allocation, 12-32
  - storage servers, advisory information, 12-5
  - virtualization targets
    - OVN Manager Home page, 9-3
  - zones, 9-5
- Maximum Transfer Unit size, setting, 5-19, 5-20
- metering and chargeback features, 2-5
- Metric resource model, 60-21
- MetricValue resource model, 60-22
- Microsoft Active Directory based authentication, 3-12

- middleware
  - creating middleware home, 13-4
  - enabling as a service (MWaaS), 13-2, 26-1
  - viewing Middleware Pool Home page, 29-15
- Middleware as a Service (MWaaS)
  - enabling, 13-2, 26-1
  - service model, 2-6
  - setting up and using, 4-10
- middleware pool
  - creating, 25-2, 26-6
  - definition of, 2-9, 25-2, 26-6
  - getting detailed information on, 29-15
- Middleware Pool Home page, viewing, 29-15
- middleware provisioning profile, 2-9
- Middleware Self Service Portal, purpose of, 28-1
- Middleware Service Home page
  - picture of, 28-9
  - purpose of, 28-9
  - viewing, 28-9
- middleware services
  - Middleware Self Service Portal, 28-1
- Middleware-as-a-Service (MWaaS) cloud, 2-3
- modifying configuration of guest virtual machine, 9-16
- monitoring cloud policies, 6-2
- MTU field, setting, 5-19, 5-20
- MWaaS Application Home page, picture of, 28-17
- MWaaS Self Service Portal
  - setting up, 25-2, 27-1
  - viewing, 28-1
- MWaaS service template, editing, 25-17
- My Oracle Support, Cloud management capabilities, 2-5

## N

---

- named credentials, creating, 12-2
- NetApp hardware licenses, 12-8
- NetApp storage server, setting up, 12-8
- network bootable (PXE boot) virtual machine, 9-44
- network profile
  - DNS servers, 5-25
  - domain name, 5-25
  - gateway, 5-25
  - Netmask, 5-25
  - setting up, 5-25
  - specifying IP addresses, 5-25
- Network Profile page, picture of, 5-25
- network roles
  - cluster heartbeat, 5-23
  - live migrate, 5-23
  - server management, 5-23
  - storage, 5-23
  - Virtual Machine, 5-23
- network type, setting up, 5-43
- NetworkInterface, 59-8
- networks, setting up, 5-17
- NVRAMRC Value, 34-16

## O

- OFTAssetScript resource model, 60-12
- OfAssetScriptCsvDatabanks resource model, 60-13
- OfDatabaseDatabanks resource model, 60-14
- OfPlaybackSettings resource model, 60-14
- OfTrialAssetExecution resource model, 60-24
- OltAgent resource model, 60-31
- OltCounter resource model, 60-23
- OltCounterValue resource model, 60-23
- OltScenario resource model, 60-10
- OltSession resource model, 60-22
- OMS
  - Agent File System, 9-26
    - location, 9-28
    - setting credentials, 9-23
  - OMS Shared File System location, 9-26, 9-27
- Operation resource model, 60-28
- Oracle Access Manager (OAM) SSO, 3-12
- Oracle Cloud
  - logical pools, 2-7
  - logical zones, 2-7
- Oracle Cloud Compute configuration, 44-2
- Oracle Internet Directory (OID) based authentication, 3-12
- Oracle Listener, setting up for database hosts, 12-4
- Oracle Management Service (OMS), routing SSA requests, 3-15
- Oracle Solaris 11 Software Update Library
  - adding content, 34-4
- Oracle VM Manager
  - registering, 5-7, 5-8
- Oracle VM Network, 5-17
  - Virtual Area Network (VLAN) Group, 5-18, 5-19
- Oracle VM Server
  - creating virtual server pools, 5-39
  - discovering, 5-16
  - file systems, 5-26
  - patching, 5-45
  - storage servers, setting up, 5-26
  - virtual server, 5-16
  - virtual server pool, 5-38
  - virtualization software (hypervisor), 5-16
- Oracle VM Server for SPARC
  - deployment plans, 34-19
  - requirements, 34-15, 34-16
  - server pools, 34-19
- overriding
  - default SDK, 12-22
  - third-party server components, 12-22
- OVN events, acknowledging, 5-46
- OVN Manager
  - Home page, 9-3
  - Home page, picture of, 9-3
- OVN Manager targets, synchronizing, 5-14
- OVN Managers, list of, 9-5

## P

- PaaS infrastructure
  - adding hosts, 11-2

- creating PaaS pool, 11-6
- Paas pool, picture of, 11-6
- PaaS Infrastructure Zone, 2-9
  - creating, 11-3
  - creating middleware home, 13-4
  - Database Pool Home page, 29-12
  - deleting, 11-6
  - editing, 11-6
  - middleware pool, 25-2, 26-6
  - picture of, 11-4
  - prerequisites, 11-4
- parent repository, 34-4
- patching, Oracle VM server, 5-45
- performance policies
  - defining, 6-4
- Platform as a Service (PaaS)
  - service model, 2-6
  - setting up
    - and using, 4-3
- plug-ins
  - definition of, 3-3
  - installing, 3-3
- policies
  - activating and deactivating, 6-7
  - defining groups, 6-9
  - Distributed Power Management (DPM), 6-14
  - Dynamic Resource Scheduling (DRS), 6-13
  - schedule-based, 6-6
  - viewing, 8-14
- policy group
  - defining, 6-7
  - definition of, 6-7
  - examples of, 6-11
- PowerBroker, 3-12
- Preboot Execution Environment (PXE), 9-44
- preferences, viewing, 8-15
- prerequisites
  - assembly binary file, 9-22
  - configuring YUM repository, 5-46
  - creating a zone, 5-42
  - creating an assembly component, 9-22
  - creating database provisioning profile, 20-24
  - creating middleware home, 13-5
  - creating networks, 5-22
  - creating PaaS Infrastructure Zone, 11-4
  - creating PXE bootable guest virtual machines, 9-44
  - creating repository export, 5-37
  - provisioning guest virtual machine, 9-42
  - provisioning guest virtual machine using ISO image, 9-42
  - provisioning guest virtual machine using templates, 9-38
  - provisioning guest virtual machines, 9-21
  - registering storage servers, 12-6
  - Self Service Portal, 7-1
  - Self Update feature, 3-1
  - Testing as a Service, 42-2
  - virtual server pools, 5-38
- Presented Servers page, picture of, 5-34

- Private networks, 34-28
  - dynamic, 34-25
  - static, 34-25
- Private vNets, 34-25
  - creating, 34-28
- privilege delegation settings, configuring, 3-12
- privilege delegation tools, Sudo and PowerBroker, 3-12
- privileges
  - and roles, granting, 3-10
  - EM\_INFRASTRUCTURE\_ADMIN, 3-2
  - for provisioning, granting, 3-11
  - MANAGE\_SELF\_UPDATE, 3-2
  - managing storage access, 12-41
  - NetApp hardware users, 12-7
  - versus permissions, 12-10
  - VIEW\_SELF\_UPDATE, 3-2
- Provision Oracle Database deployment
  - procedure, 12-3
- provisioning
  - credentials, setting up, 12-2
  - database instance within PaaS Infrastructure Zone, 29-12
  - database software, 12-2
  - database using RMAN backup, 19-1, 50-11, 50-12
  - guest virtual machine
    - using ISO image, 9-42
  - guest virtual machine using ISO image, 9-42
  - guest virtual machine using OVA, 9-29
  - guest virtual machine using templates
    - prerequisites, 9-38
  - guest virtual machines, 9-21
  - profiles, creating, 13-3
  - virtualized systems, 9-20
- PXE bootable guest virtual machines, creating, 9-44

## Q

---

- QoS
  - Priority Class, 9-35
  - setting up, 5-43
  - status on Cluster Database Home page, 22-13
- quality of service, increasing, 2-1
- Query One Application by Context ID TaaS API
  - example, 60-33
- quota
  - definition of, 11-9, 25-12
  - sample validation log, 11-10
  - setting up, 11-9, 25-12
- QuotaUsage Resource resource model, 60-8

## R

---

- redeploying preconfigured Java EE
  - application, 28-12
- redirecting SSA requests, 3-15
- rediscovering virtual server, 5-16
- Refresh Test Master, 20-43
- registering
  - Oracle VM Manager, 5-7

- storage servers
  - advisory information, 12-5
  - overview of, 12-5
  - prerequisites, 12-6
- Repository-based authentication, 3-12
- Representational State Transfer API, 45-1
- request purging policy, defining, 5-45
- request settings
  - configuring, 25-11
- requesting
  - or reserving servers, 8-2
  - server resources, 8-1
- resource attributes, APIs, 45-7
- resource elasticity, providing, 2-2
- resource models
  - in TaaS APIs, 60-5
  - used in TaaS, 60-4
- Resource Provider, 11-2
- restarting guest virtual machine, 9-13
- RESTARTING, VM data model, 59-8
- RESTful API, 45-1
- RESTful APIs, 45-4
- RESUMING, VM data model, 59-8
- RMAN
  - full clone, 50-11, 50-12
- RMAN backup profile, creating service template
  - using, 19-11, 19-16, 20-34, 20-49
- roles
  - defining, 3-5
  - definition of, 3-5
  - EM\_CLOUD\_ADMINISTRATOR, 3-5, 11-2
  - EM\_SSA\_ADMINISTRATOR, 3-6
    - provisioning database software, 12-2
  - EM\_SSA\_USER, 3-6
    - granting, 3-11
- roles and privileges, granting, 3-10

## S

---

- sample quota validation log, 11-10
- saving
  - guest virtual machine, 9-18
- Scalability Group, 59-5
- schedule-based policy, 6-6
  - examples of, 6-9
- schema
  - as a service, creating database pool for, 16-2
  - as a service, creating service template for, 16-8, 16-11
  - defining one or more, 29-13
  - requesting, 22-5
- Schema Pool Home page, viewing, 29-13
- Schema Service Template, selecting, 22-5
- security, Enterprise User Security (EUS), 3-12
- self service
  - database portal, 22-1
  - login page, configuring, 3-12
- self service applications
  - Chargeback, 43-6
- Self Service Portal, 7-1

- chargeback, illustration of, 7-6
- configuring, 7-1
- defining mapping between roles and other entities, 7-3
- defining set of templates or assemblies, 7-4
- Home page, picture of, 8-1
- machine sizes, 7-1
- prerequisites, 7-1
- purpose of, 3-7, 7-1, 8-1
- requesting or reserving servers, 8-2
- requesting server resources, 8-1
- setting up Chargeback Plan, 7-6
- viewing storage, 8-13
- Self Update
  - downloading assemblies and templates, 5-37
  - prerequisites, 3-1
- Self Update Console page, picture of, 5-38
- self-service users, accessing services without IT intervention, 2-10
- server data model, 59-6
- Server Load Balancer (SLB), configuring, 3-15
- server pool, definition of, 2-8
- Server pools
  - Oracle VM Server for SPARC, 34-19
- servers, requesting or reserving, 8-2
- service instance, deploying preconfigured Java EE application to, 28-12
- service template, 2-9, 46-3
  - create
    - standby databases, 15-11
  - creating, 25-13
  - creating using DBCA template profile, 15-6
  - creating using RMAN backup profile, 19-11, 19-16, 20-34, 20-49
  - creating using snap clone profile, 20-29
  - definition of, 25-13
  - editing MWaaS, 25-17
- setting
  - credentials for OMS, 9-23
  - Maximum Transfer Unit size, 5-19, 5-20
  - MTU field, 5-19, 5-20
- setting up, 7-1
  - and using IaaS, 4-2
  - and using MWaaS, 4-10
  - and using TaaS, 4-11
  - Chargeback Plan for Self Service Portal, 7-6
  - Chargeback Service, 42-10
  - listener for database zone hosts, 12-4
  - machine sizes, 5-44
  - MWaaS Self Service Portal, 25-2, 27-1
  - NetApp storage server, 12-8
  - network profile, 5-25
  - networks, 5-17
    - network profile, 5-25
    - network type, 5-25
  - provisioning credentials, 12-2
  - QoS, 5-43
  - QoS for network, 5-43
  - quotas, 11-9, 25-12
  - Self Service Portal, 7-1
  - storage servers, 5-26
    - Sun ZFS storage server, 12-10
  - Testing as a Service, 41-1
  - virtualization infrastructure, 5-2
  - virtualized systems, 5-1
- setting up and using PaaS, 4-3
- shared database
  - enable metric collection, 43-20
- shared resources
  - Chargeback
    - shared resources, 43-1
- sharing Chargeback data, 43-31
- Snap Clone
  - About, 20-1
- snap clone
  - creating service template, 20-29
- Snap Clones, 18-2
- Software Library
  - creating virtualization components in, 9-22
  - uploading files from storage location, 9-26
  - uploading Java EE component to, 28-16
  - user, configuring, 5-44
- software pool, definition of, 2-9
- SSA requests, redirecting, 3-15
- SSA User Portal page, picture of, 2-10
- SSA user role, creating custom role, 3-8, 3-9
- SSO-based authentication, 3-12
- standby database
  - database pool, 15-10
  - primary database pool, 15-10
- STARTED, VM data model, 59-7
- starting
  - database, 22-11
  - guest virtual machine, 9-13
  - virtual server, 9-10
- STARTING, VM data model, 59-7
- Static private networks, 34-25
- STOPPED, VM data model, 59-7
- stopping
  - database, 22-11
  - guest virtual machine, 9-13
  - virtual server, 9-10
- STOPPING, VM data model, 59-7
- storage agent proxy, customizing, 12-21
- storage allocation, managing, 12-32
- storage ceiling
  - definition of, 12-32
  - editing, 12-33
- storage entity, definition of, 2-9
- storage pool, definition of, 2-9
- storage QoS, defining, 5-43
- Storage Quality of Service (QoS), setting up, 5-43
- storage repository
  - assemblies, illustration of, 5-34
  - creating, 5-31
  - ISOs, 5-34
  - Oracle Virtual Assemblies, 5-34
  - Oracle VM templates, 5-34
  - performing administrative operations, 5-32
  - presenting to server pool, 5-33

- virtual disks, 5-34
- Virtual Disks, illustration of, 5-36
- VM files, 5-34
- VM Templates, illustration of, 5-35
- Storage Repository page, picture of, 5-32
- Storage Server page, picture of, 5-26
- storage servers
  - configuring, 12-6
  - deregistering, 12-31
  - managing, 12-32
  - managing access privileges, 12-41
  - registering, 12-24, 12-26, 12-28
  - selecting type of storage array, 5-26
  - synchronizing, 12-30
- storage vendor SDK, uploading, 12-21
- Sudo, 3-12
- Sun ZFS
  - hardware licenses, 12-10
  - storage server, setting up, 12-10
- Super Administrator roles, tasks to perform, 4-2
- SUSPENDED, VM data model, 59-7
- SUSPENDING, VM data model, 59-8
- synchronizing OVM Manager targets, 5-14

## T

---

- target privileges, granting, 3-10
- Target resource model, 60-30
- target resource usage
  - Chargeback
    - target resource usage, 43-28
- template components
  - creating, 9-24
  - virtualization types, 9-24
- Template Deployment - Deployment Configuration
  - page, 9-40
- template deployment, selecting target and
  - source, 9-39
- templates
  - deploying, 9-38
  - provisioning guest virtual machine, 9-38
- test
  - activity and usage information, 42-21
  - administrators, 40-2
    - creating, 41-2
    - tasks, 42-3
  - assets, 42-9
    - creating, 42-10, 42-11
    - verifying, 42-14
  - designers, 40-2
  - environments, 42-9
    - creating, 42-10, 42-13
    - using, 42-14
    - verifying, 42-14
  - sharing, 42-20
  - testers, 40-3
  - trials
    - comparing results, 42-20
    - creating and running, 42-17
    - monitoring, 42-19

- Test resource model, 60-16
- TestAsset resource model, 60-9
- TestDriver resource model, 60-7
- TestDriverInstance resource model, 60-27
- TestDriverType resource model, 60-7
- TestEnvironment resource model, 60-15
- TestEnvironmentInstance resource model, 60-27
- testing
  - home page, 42-22
  - setting up
    - applications, 42-4
    - custom test driver types, 42-7
    - Oracle Load Testing Test Drivers, 42-5
    - quotas, 42-8
- Testing as a Service
  - overview, 40-1
  - prerequisites, 42-2
  - setting up and using, 4-11
- Testing as a Service (TaaS)
  - APIs, 60-1
- TestType resource model, 60-30
- third-party licenses, acquiring, 12-21
- third-party server components, overriding, 12-22
- Tier Deployment Configuration - Miscellaneous,
  - picture of, 9-36
- Tier Deployment Configuration Product
  - Configuration, picture of, 9-36
- topology of a zone, 5-42
- Transport Protocol, 45-4
- Trial Trial, 60-17

## U

---

- undeploying an application, 28-13
- universal charge plan
  - Chargeback
    - universal charge plan, 43-3
  - create, 43-10
- Update a Test TaaS API example, 60-45
- Update a Trial TaaS API example, 60-48
- updates available, Enterprise Manager Store, 3-1
- updating an extended charge plan, 43-15
- upgrading
  - virtual server, 5-46, 9-10
- Upload to Software Library page, picture of, 28-16
- uploading
  - Java EE component to Software Library, 28-16
  - storage vendor SDK, 12-21
- URI Space, 45-4
- usage trends
  - Chargeback, 43-26
- usage-based, 43-6
- users
  - assigning, 3-5
  - creating, 3-9

## V

---

- vDC
  - accounts, 34-26

- vServer type
    - creating, 34-28
  - vServers, 34-27
- VIEW\_SELF\_UPDATE privileges, 3-2
- viewing
  - Application Home page, 28-17
  - chargeback details, 8-14
  - cloud policies, 6-2
  - cloud policies for a target, 6-3
  - Cluster Database Home page, 22-11
  - Database Instance Home page, 22-10
  - Database Pool Home page, 29-12
  - Database Service Home page, 22-9
  - Infrastructure Cloud Home page, 9-1
  - MWaaS Self Service Portal, 28-1
  - OVM Manager home page, 9-3
  - policies, 8-14
  - preferences, 8-15
  - Schema Pool Home page, 29-13
  - storage, Self Service Portal, 8-13
  - Zone Home page, 9-5
- virtual
  - disk component, creating, 9-27
  - machine provisioning, 9-21
- Virtual datacenter See vDC, 34-1
- virtual drives, assigning using .iso files, 5-35
- virtual machine
  - creating, 9-29
  - creating assembly component, 9-22
  - editing guest machine, 9-16
- Virtual machines, 34-25, 34-27
- Virtual Network Interface Card Manager, 5-18
- Virtual Network Interfaces (VNICs), 5-17
- virtual server
  - definition, 9-9
  - editing, 9-10
  - maintaining, 9-11
  - Oracle VM Server, 5-16
  - rediscovering, 5-16
  - starting, 9-10
  - stopping, 9-10
  - upgrading, 5-46, 9-10
- Virtual Server Home page
  - picture of, 9-9
  - viewing, 9-9
- Virtual Server Pool Home page, picture of, 9-8
- Virtual Server Pool Home page, viewing, 9-8
- virtual server pools
  - creating or editing, 5-38
  - definition, 9-8
  - editing, 5-41
  - prerequisites, 5-38
  - zone, creating, 5-42
- virtualization
  - infrastructure, 5-1
  - infrastructure, setting up, 5-2
  - managing targets, 9-3
  - software (hypervisor), 5-16
  - targets, viewing members, 9-5
  - types, template components, 9-24

- virtualization targets, managing members, 9-5
- virtualized systems
  - provisioning, 9-20
  - setting up, 5-1
- VLAN group
  - configuring, 5-18, 5-19
  - creating, 5-18, 5-20
- VNet, definition of, 59-8
- vServer type, 34-28
- vServers
  - vDC, 34-27

---

## W

- WebLogic Domain Provisioning Profile
  - definition of, 13-3

---

## Y

- YUM repository
  - configuring, 5-46
  - upgrading virtual server, 9-10

---

## Z

- Zone Home page, 9-5
  - picture of, 9-6
- zones
  - and server pools, 2-8
  - Create Zone page, 5-42
  - creating, 5-42, 9-6
  - definition, 5-42
  - definition of, 2-8, 46-5
  - deleting, 9-7, 9-19, 9-20
  - editing, 9-6
  - managing, 9-5
  - prerequisites to creating, 5-42
  - topology of, 5-42