

Oracle® Database Appliance

X6-2S/X6-2M/X6-2L Deployment and User's Guide

Release 12.1.2.11.0 for Linux x86-64

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Preface

Oracle Database Appliance is an optimized, prebuilt database system that is easy to deploy, operate, and manage. By integrating hardware and software, Oracle Database Appliance eliminates the complexities of nonintegrated, manually assembled solutions. Oracle Database Appliance reduces the installation and software deployment times from weeks or months to just a few hours while preventing configuration and setup errors that often result in suboptimal, hard-to-manage database environments.

[Audience](#) (page xiii)

[Documentation Accessibility](#) (page xiii)

[Related Documents](#) (page xiv)

[Conventions](#) (page xv)

Audience

This guide is intended for anyone who configures, maintains, or uses Oracle Database Appliance:

- System administrators
- Network administrators
- Database administrators
- Application administrators and users

This book does not include information about Oracle Database architecture, tools, management, or application development that is covered in the main body of Oracle Documentation, unless the information provided is specific to Oracle Database Appliance. Users of Oracle Database Appliance software are expected to have the same skills as users of any other Linux-based Oracle Database installations.

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 have access to electronic 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 about Oracle Database Appliance, go to <http://www.oracle.com/goto/oda/docs> and click the appropriate release. The following documents are published in the Oracle Database Appliance online documentation library:

- *Oracle Database Appliance Release Notes*
- *Oracle Database Appliance Licensing Information User Manual*
- *Oracle Database Appliance Security Guide*
- *Oracle Database Appliance X6-2-HA Deployment and User's Guide*
- *Oracle Database Appliance X6-2S/M/L Deployment and User's Guide*
- *Oracle Database Appliance Getting Started Guide*
- *Oracle Database Appliance Administration and Reference Guide*
- Oracle Database Appliance Setup Posters and Booklets (a full-size printed copy ships with Oracle Database Appliance)
- *Oracle Database Appliance Owner's Guide*
- *Oracle Database Appliance Service Manual*
- *Oracle Database Appliance Series Safety and Compliance Guide*

The following My Oracle Support Notes contain additional information:

- <https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=888888.1>
- <https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=2144642.1>

The following documents are published in the Oracle Database Appliance Plug-ins for Oracle Enterprise Manager online documentation library at http://docs.oracle.com/cd/E70264_01/index.htm:

- *Oracle Database Appliance Plug-in for Oracle Enterprise Manager 13c User's Guide*
- *Oracle Database Appliance Plug-in for Oracle Enterprise Manager 12c User's Guide*

For more information about using Oracle Database, go to <http://docs.oracle.com/en/database/> and select the database release from the menu. See the following documents in the Oracle Database online documentation library:

- *Oracle Database Security Guide*
- *Oracle Database Administrator's Guide*

- *Oracle Database SQL Language Quick Reference*
- *Oracle Database Backup and Recovery User's Guide*
- *Oracle Database Backup and Recovery Reference*
- *Oracle Database Utilities*
- *Oracle Automatic Storage Management Administrator's Guide*

For more information about Oracle Integrated Lights Out Manager 3.2, see https://docs.oracle.com/cd/E37444_01/.

For more details about other Oracle products that are mentioned in Oracle Database Appliance documentation, see the Oracle Documentation home page at <http://docs.oracle.com>.

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 the text.
<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, text that appears on the screen, or text that you enter.
# prompt	The pound (#) prompt indicates a command that is run as the root user.

About Oracle Database Appliance

This documentation only applies to Oracle Database Appliance X6-2S, X6-2M, and X6-2L hardware models.

Oracle Database Appliance enables you to take advantage of Oracle Database in an easy-to-deploy and manage system. The complete package of software, server, storage, and networking saves time and money by simplifying deployment, maintenance, and support of database and application workloads.

Topics:

[Oracle Database Appliance Components](#) (page 1-1)

Oracle Database Appliance X6-2S, X6-2M, and X6-2L components that are installed or available for download are described in the following table.

[Overview of Oracle Database Appliance Deployment](#) (page 1-2)

Review the steps you must complete to deploy Oracle Database Appliance.

1.1 Oracle Database Appliance Components

Oracle Database Appliance X6-2S, X6-2M, and X6-2L components that are installed or available for download are described in the following table.

Components listed as **Installed** are typically available on Oracle Database Appliance when you receive it, and components listed as **Downloaded** are components that you can download and deploy yourself.

Note:

The components listed in this table are not available with every release.

Table 1-1 *Software for Oracle Database Appliance*

Component	Component Contents	Installed or Downloaded
Oracle Database Appliance Operating System Image	Oracle Appliance Manager command-line interface Oracle Appliance Manager (Web Console) Oracle Linux Hardware drivers	Installed

Table 1-1 (Cont.) Software for Oracle Database Appliance

Component	Component Contents	Installed or Downloaded
Oracle Database Appliance Single Instance Software Bundle	Oracle Database clone binaries Oracle Database templates, customized for Oracle Database Appliance deployments Oracle Grid Infrastructure clone binaries Oracle Appliance Manager Web Console Oracle Appliance Manager command-line interface Oracle Appliance Manager software	Downloaded
Note: Oracle Database Appliance supports Oracle Database 12.1.0.2 and 11.2.0.4. Oracle Database 11.2.0.3 is not supported on Oracle Database Appliance X6-2S, X6-2M, and X6-2L.		

1.2 Overview of Oracle Database Appliance Deployment

Review the steps you must complete to deploy Oracle Database Appliance.

To complete these tasks, refer to topics in this book and in the *Oracle Database Appliance Owner's Guide*.

1. Prepare for Oracle Database Appliance.
 - a. Register your Support Identifier (SI) for Oracle Database Appliance with My Oracle Support to obtain software and support from Oracle.
 - b. Plan your configuration options and gather network and related information.
 - c. Set up the server site.
 - d. Configure network names and addresses on your Domain Name System (DNS) server.
 - e. Download the Oracle Database Appliance software to a local computer on the network.
2. Ready Oracle Database Appliance for deployment.
 - a. Mount Oracle Database Appliance hardware into a rack at the server site.
 - b. Connect power and required cables to Oracle Database Appliance.
 - c. Connect the keyboard and mouse to USB ports and video display to VGA port.
 - d. Create an initial network configuration to load external files.
 - e. Start up the system.
 - f. Plumb the network.
3. Install and deploy software on Oracle Database Appliance.
 - a. Download the Oracle Database Appliance Single Instance Software Bundles to a system on the network.

- b.** Copy the Oracle Database Appliance Single Instance Software Bundles to Oracle Database Appliance.
 - c.** Run the `update -image` command to install the bundles.
- Deploy Oracle Database Appliance.
- a.** Log into the Oracle Database Appliance Web Console.
 - b.** Click **Deploy Appliance**.
 - c.** Enter the configuration details.
 - d.** Click **Submit** to start the deployment.
 - e.** Monitor the progress on the **Activities** tab.

Preparing for Oracle Database Appliance Installation and Deployment

Complete these setup tasks before Oracle Database Appliance is delivered.

Tasks:

[Registering Your Support Identifier on My Oracle Support](#) (page 2-1)

Add your hardware Support Identifier (SI) to your My Oracle Support account profile.

[Planning Oracle Database Appliance Configuration Options](#) (page 2-1)

Determine how many CPU cores you want to enable, determine your database configuration options, and gather the system information for your Oracle Database Appliance Bare Metal deployment configuration.

[Gathering System Requirement Information](#) (page 2-6)

Use these checklists to collect information before deploying Oracle Database Appliance.

2.1 Registering Your Support Identifier on My Oracle Support

Add your hardware Support Identifier (SI) to your My Oracle Support account profile.

Your hardware SI is supplied when you purchase Oracle Database Appliance. If you acquire new software licenses, then you must also register your new software SIs. The SI registration process can take up to 24 hours to complete.

Note:

You cannot obtain support or software from Oracle without registered SIs.

2.2 Planning Oracle Database Appliance Configuration Options

Determine how many CPU cores you want to enable, determine your database configuration options, and gather the system information for your Oracle Database Appliance Bare Metal deployment configuration.

Note: Do not use Oracle Database Configuration Assistant (DBCA) to create databases on Oracle Database Appliance. Only use Oracle Appliance Manager for database configuration. Deploying Oracle Database instances using Oracle Appliance Manager ensures that these databases are properly configured, optimized, and supported on Oracle Database Appliance.

Topics:

[Selecting an Oracle Database Appliance Configuration](#) (page 2-2)

Compare and select an Oracle Database Appliance X6-2S, X6-2M, or X6-2L hardware configuration.

[Selecting Operating System Groups and Users](#) (page 2-2)

Determine how you want to configure your operating system groups and users and whether or not you want to allow operating system role separation.

[Selecting Database Deployment Options](#) (page 2-4)

See the Oracle Database editions that are available for deployment.

[Selecting Database Shapes for Oracle Database Appliance](#) (page 2-5)

Oracle Database Appliance software includes preconfigured templates, known as shapes, that incorporate Oracle best practices with optimization for different classes of databases.

2.2.1 Selecting an Oracle Database Appliance Configuration

Compare and select an Oracle Database Appliance X6-2S, X6-2M, or X6-2L hardware configuration.

- Oracle Database Appliance X6-2S is a small configuration designed for smaller or entry-level deployments.
- Oracle Database Appliance X6-2M is a medium-sized configuration designed for performance.
- Oracle Database Appliance X6-2L is a large configuration designed for larger databases and database consolidation.

You cannot expand or reconfigure Oracle Database Appliance to a different configuration. For example, you cannot expand Oracle Database Appliance X6-S to Oracle Database Appliance X6-2M. For Oracle Database Appliance X6-2 configuration details, see the *Oracle Database Appliance Owner's Guide*.

2.2.2 Selecting Operating System Groups and Users

Determine how you want to configure your operating system groups and users and whether or not you want to allow operating system role separation.

About Operating System Groups and Users

Role separation enables you to configure groups and users to provide separate groups for operating system authentication.

With role separation, a single user owns all of the Oracle installations. All of the databases are installed under a single user. The separation only enables you to have separate users for Oracle and Oracle Clusterware. You can install multiple databases without sharing operating system authentication for system privileges. In addition, each Oracle software installation is owned by a separate installation owner, to provide operating system user authentication for modifications to Oracle Database binaries.

Note: Any Oracle software owner can start and stop all databases and shared Oracle Grid Infrastructure resources, such as Oracle Automatic Storage Management (Oracle ASM) or Virtual IP (VIP). The job role separation configuration enables database security, it does not restrict user roles in starting and stopping various Oracle Clusterware resources.

With Oracle Grid Infrastructure role separation, separate operating system groups provide operating system authentication for Oracle ASM system privileges for storage tier administration. This operating system authentication is separated from Oracle Database operating system authentication. In addition, the Oracle Grid Infrastructure installation owner provides operating system user authentication for modifications to Oracle Grid Infrastructure binaries.

You can configure the appliance with one of four combinations of operating system users, groups, and roles. The default users are the Oracle Database installation owner (`oracle`) and Oracle Grid Infrastructure installation owner (`grid`). The default groups are `oinstall`, `dbaoper`, `dba`, `asmadmin`, `asmoper`, and `asmdba`.

Default Configuration: Two Users with Six Groups

The default configuration is a combination of two operating system roles for users with six groups.

To configure two users, `oracle` user with the Oracle User (`oracleUser`) role and the `grid` user with the `gridUser` role, allow operating system role separation.

To configure six groups, `oinstall`, `dbaoper`, `dba`, `asmadmin`, `asmoper`, and `asmdba`, do not select the option to customize users and groups.

Note: When you select the default configuration in the Web Console, the users and groups do not appear in the interface.

Two Custom Users with Six Custom Groups

You can customize the configuration to create two custom users and six custom groups.

To configure two users, allow operating system role separation. The users are populated with the default values, `oracle` and `grid`, which you can edit.

To configure six groups, select the option to customize users and groups. The groups are populated with the default values, which you can edit. The default groups are `oinstall`, `dbaoper`, `dba`, `asmadmin`, `asmoper`, and `asmdba`.

The figure shows an example of a custom configuration with the default values populated.

Figure 2-1 Two Custom Users with Six Custom Groups

User & Group Selection	
Customize Users & Groups ☒ Yes ☐ No	
Allow OS Role Separation ☒ Yes ☐ No	
GI User *	GI UserID *
grid	1000
DB User *	DB UserID *
oracle	1001
Install Group *	Install GroupID *
oinstall	1001
DBA Oper Group *	DBA Oper GroupID *
dbaoper	1002
DBA Group *	DBA GroupID *
dba	1003
ASM Admin Group *	ASM Admin GroupID *
asmadmin	1004
ASM Oper Group *	ASM Oper GroupID *
asmoper	1005
ASM DBA Group *	ASM DBA GroupID *
asmdba	1006

Single Custom User with Six Custom Groups

You can customize the configuration to create a single operating system database user and with six custom groups. The database user can deploy both the grid infrastructure and RDBMS (relational database management system) stacks. You can edit the user name and user ID and you can customize the group names and IDs. Use this option when you deploy SAP.

To configure a single Oracle database user with the Oracle User (OracleUser) role, do not allow OS role separation.

To configure six groups, select the option to customize users and groups. The following default groups are populated: oinstall, dbaoper, dba, asmadmin, asmoper, and asmdba. You can customize the groups.

Single User with Two Groups

To configure a single Oracle user with the Oracle User (OracleUser) role, do not allow OS role separation.

To configure two groups, oinstall and dba, do not select the option to customize users and groups.

2.2.3 Selecting Database Deployment Options

See the Oracle Database editions that are available for deployment.

Oracle Appliance Manager installs Oracle Database software on mirrored disks that are internal to Oracle Database Appliance. You specify the database edition in the Web Console during the initial deployment. You cannot use both Oracle Database Enterprise Edition and Standard Edition on the same appliance.

The following Oracle Database editions are available:

- **Oracle Database Enterprise Edition**

Oracle Database Enterprise Edition provides the performance, availability, scalability, and security required for mission-critical applications such as high-volume online transaction processing (OLTP) applications, query-intensive data warehouses, and demanding Internet applications.

- Single-instance Oracle Database Enterprise Edition home
- Oracle Database options are available
- **Oracle Database Standard Edition 2**
Oracle Database Standard Edition 2 delivers unprecedented ease of use, power, and performance for workgroup, department-level, and Web applications.
- **Oracle Database Standard Edition**
Oracle Database Standard Edition delivers the unprecedented ease of use, power, and performance of Standard Edition One, with support for larger machines and clustering of services with Oracle Real Application Clusters (Oracle RAC).
- **Oracle Database Standard Edition One**
Oracle Database Standard Edition One delivers unprecedented ease of use, power, and performance for workgroup, department-level, and Web applications.

Note: Review the Oracle Database licensing guide for supported options and products.

2.2.4 Selecting Database Shapes for Oracle Database Appliance

Oracle Database Appliance software includes preconfigured templates, known as shapes, that incorporate Oracle best practices with optimization for different classes of databases.

Because of differences in CPU counts, memory size, and other resources available with different Oracle Database Appliance models, some shapes are not supported on all models.

Each Oracle Database shape has different workload profile and performance characteristics:

- Memory requirements, which are calculated from the System Global Area (SGA), and Program Global Area (PGA) sizes
- Processing requirements, which are calculated from the number of processes
- Logging requirements, which are based on log buffer size, and online redo log size

Oracle Database Appliance shapes are tuned for the size of each database instance workload and are designed to run on a specific number of cores.

Note:

Oracle strongly recommends that you use the Oracle Database Appliance shapes. These shapes implement best practices, and are configured specifically for Oracle Database Appliance.

Related Topics:

[Database Shapes for Oracle Database Appliance](#) (page E-1)

Use the information in this appendix to select database shapes, or templates, for your planned databases.

2.3 Gathering System Requirement Information

Use these checklists to collect information before deploying Oracle Database Appliance.

Topics:

[List of Information You Need Before Deployment](#) (page 2-6)

Collect security, storage, and network information required to prepare for deploying Oracle Database Appliance.

[Displaying the MAC Addresses](#) (page 2-9)

Use the `ifconfig -a` command to display the MAC addresses for various interfaces.

[Checklist for System Details](#) (page 2-9)

Use the checklist to gather system information that you need to obtain for Oracle Database Appliance. Record the values for your system.

[Checklist for Custom Network Address Configuration](#) (page 2-10)

Use the checklist to identify the IP addresses required for Oracle Database Appliance.

2.3.1 List of Information You Need Before Deployment

Collect security, storage, and network information required to prepare for deploying Oracle Database Appliance.

Review your security requirements for `root` passwords, determine your storage requirements and network administration requirements, and complete any required configuration before your Oracle Database Appliance hardware is delivered.

Security Requirements

- What root password should you use for Oracle Database Appliance? Root passwords should comply with your system security requirements.
- Secure operating systems are an important basis for general system security. Ensure that your operating system deployment is in compliance with common security practices.

Storage Administration Requirements

Storage administration is integrated into Oracle Database Appliance. No additional storage configuration is required.

Oracle Database Appliance X6-2S, X6-2M, and X6-2L use Oracle Automatic Storage Management Cluster File System (Oracle ACFS) or Oracle Automatic Storage Management (Oracle ASM) and include the following:

- Integrated storage for operational files (operating system, Oracle Grid Infrastructure home, Oracle Database homes, tools). Operational files are stored on mirrored internal system disks.
- DATA (user data and database files)

- RECO (database redo logs, archive logs, and recovery manager backups)
- Operational files are stored on mirrored internal system disks.

You can configure for External, Internal, or Custom backup location. Depending on backup location, you can select one of the following configuration options to divide the storage capacity between DATA diskgroup and RECO diskgroup:

- External: Storage capacity is split between 80% for DATA and 20% for RECO.
- Internal: Storage capacity is split between 40% for DATA and 60% for RECO.
- Custom: Storage capacity is configurable from 10% to 90% for DATA and the remainder for RECO.

Note:

Oracle Database Appliance X6-2S and X6-2M ship with two 3.2 TB non-volatile memory express (NVMe) drives for a total of 6.4 TB of NVMe storage. With Oracle Database Appliance X6-2M, you have the option to expand the system to a 4 disk configuration, which doubles the NVMe storage capacity. Oracle Database Appliance X6-2L ships with six 3.2 TB non-volatile memory express (NVMe) drives with the option to add three (3) disks for a total of nine (9) NVMe disks.

Network Administration Requirements

The network administration requirements and recommendations are as follows:

- Determine the type of network interface for your public network and know the details for your generic and public network.
- Oracle recommends that you resolve addresses using Domain Name System (DNS) servers.
- All names must conform to the RFC 952 standard, which permits alphanumeric characters and hyphens ("-"), but does not allow underscores ("_").
- Provide an IP address for the public interface. The following are the public interfaces:
 - Oracle Database Appliance X6-2S: `btbond1` or `sfpbond1`
 - Oracle Database Appliance X6-2M: `btbond1`, `btbond2` and `sfpbond1`
 - Oracle Database Appliance X6-2L: `btbond1`, `btbond2` and `sfpbond1`

Depending on your network setup, you can use one of the following available bonds:

- `btbond` are bonded interface based on onboard NIC 10GBase-T (copper) ports
- `sfpbond` is bonded interface based on the 10GbE SFP+ (fiber) PCIe card

When you use the `configure-first` command during the initial setup, you can choose one of the bonded interfaces for the public network. Use one of the remaining bonded interfaces for management, backup, data guard, or other network. Be prepared to provide a netmask and gateway for each network, as both are required when you configure a network connection for Oracle Database Appliance.

Answer These Questions

Determine the answers to the following questions:

- What is your domain name?
For example: `example.com`.
- Do you want to use DNS?
(Optional) Ensure that the names and addresses that you provide for network configuration are configured in your Domain Name System (DNS) servers. DNS is optional, but recommended. If you want to use DNS, then obtain your DNS server addresses. The addresses that you provide are configured in the `/etc/hosts` file to provide IP name and address resolution, even if a DNS server is not available.
- Do you have a Network Time Protocol (NTP) service configured for each server, so that the local system time for each server is synchronized?
- Which network interface do you want to use for your public network?
 - 10GBase-T (copper)
 - 10GbE SFP+ (fiber)
- What are the details for your public network? To connect to the system, you require the following information:
 - Host name
For example: `myhost`
 - IP address
For example: `192.0.2.18`
 - Netmask for the public network
For example: `255.255.252.0`
 - Gateway for the public network
For example: `192.0.2.1`
- Do you want the ability to configure additional networks?
- Do you want to use Oracle Integrated Lights Out Manager (Oracle ILOM) to manage Oracle Database Appliance independent of the operating system?
(Optional) Collect the following ILOM details from your network administrator:
 - Oracle ILOM host name
For example: `myilom1`
 - Oracle ILOM IP address
For example: `10.0.0.3`
 - Netmask for the Oracle ILOM network
For example: `255.255.255.0`
 - Gateway for the Oracle ILOM network

For example: 10.0.0.1

2.3.2 Displaying the MAC Addresses

Use the `ifconfig -a` command to display the MAC addresses for various interfaces.

When you deploy Oracle Database Appliance, you must provide an IP address for the primary client access network. In addition, you can configure the following networks during deployment, each of which requires an IP address:

- (Optional) Additional network
- (Optional) ILOM network

To display the MAC address, start the system and run the `ifconfig -a` command.

```
# ifconfig eth1

eth1      Link encap:Ethernet  HWaddr 00:19:2E:97:E1:4C

          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:0 errors:0 dropped:0 overruns:0 frame:0
          TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          collisions:0 txqueuelen:1000
```

2.3.3 Checklist for System Details

Use the checklist to gather system information that you need to obtain for Oracle Database Appliance. Record the values for your system.

Table 2-1 Checklist for System Configuration Information for Oracle Database Appliance

System Information	Description
Host Name	The name for the Oracle Database Appliance System. The name must conform with the RFC 952 standard, which allows alphanumeric characters and hyphens (-), but does not allow underscores (_). The name should not begin with a numeral or hyphen and should not end in a hyphen. Oracle recommends that you use all lowercase characters for the host name.
Domain Name	Your domain name. For example: <code>example.com</code>
Master Password	The password set for the root password of the system, OS users, database users, and <code>pdbadmin</code> . The password is also used to set the database <code>SYS</code> and <code>SYSTEM</code> passwords. Ensure that the password you provide is in compliance with common security practices.
DNS Server	(Optional) DNS server details.
NTP Server	(Optional) Network Time Protocol (NTP) service details.
Region	The region where you plan to operate the Oracle Database Appliance system.
Timezone	Select the time zone where you plan to operate the Oracle Database Appliance system.

Table 2-1 (Cont.) Checklist for System Configuration Information for Oracle Database Appliance

System Information	Description
Database Edition	Select an Oracle Database edition, either Enterprise Edition or Standard Edition. You cannot mix editions. The database edition you select determines the database editions that you create in the appliance. To change editions, you must redeploy Oracle Database Appliance.
Backup Location	Determine the backup location setting. The setting determines how the NVMe Disks are partitioned between DATA and RECO. Select External, Internal, or Custom: External reserves 80% of the storage for DATA and 20% for RECO. Internal reserves 40% of the storage for DATA and 60% for RECO. Custom reserves anywhere from 10% to 90% of the storage for DATA, and the remainder is reserved for RECO.
Percentage of Storage Reserved for Data	If you select a Custom backup location, determine the amount of reserves for DATA storage. The percentage must be a whole number between 10 and 90.
Diskgroup Redundancy	If the machine has 4 NVMe, select normal redundancy (two way mirror) or high redundancy (three way mirror). If the machine has 2 NVMe, redundancy is automatically set to normal and this field does not appear.
Network Information	Obtain network information: - Public network (Optional) Additional network (Optional) Oracle Integrated Lights Out Manager (Oracle ILOM) network
Initial Database Details (if you want to create one during deployment)	- Database name - Normal or container database - Class (database template) - Database character set - Database language - Database version - Shape (for example: odb1 or odb2) - Storage (Oracle ASM or Oracle ACFS) - Configure Oracle Enterprise Manager console

2.3.4 Checklist for Custom Network Address Configuration

Use the checklist to identify the IP addresses required for Oracle Database Appliance.

Note: Oracle does not recommend changing the default Host Private Address. If there is a business need to change the address, such as an IP address conflict, use the `odac li update-network` command to update the private network before using the Web Console to deploy the appliance. You cannot change the private network after deploying the appliance.

Table 2-2 Default IP Address Requirements for Oracle Database Appliance

Type of IP	IP Address Default Values	Your Values As Applicable
Client Access Network	No default	No default
Additional Network	No default	No default
Oracle Integrated Lights Out Manager (ILOM)	No default	No default
Host Private Addresses	192.168.16.24	Not applicable: the private addresses are defined before deployment and should not be changed

Readying Oracle Database Appliance for Deployment

Complete these tasks to prepare to deploy Oracle Database Appliance.

Topics:

[About Interconnect Cabling](#) (page 3-1)

Interconnect is reserved for Oracle Grid Infrastructure (GI) and Oracle Relational Database Management System (RDBMS).

[Attaching Network Cables to Oracle Database Appliance](#) (page 3-2)

Connect Oracle Database Appliance X6-2S, X6-2M, or X6-2L to either a 10GBase-T (copper) or 10GbE SFP+ (fiber) network.

[Attaching Peripheral Devices](#) (page 3-3)

Complete this task if you have direct access to Oracle Database Appliance and you intend to use a locally connected monitor, keyboard and mouse.

[First Startup of Oracle Database Appliance](#) (page 3-4)

Use this procedure to start up either a newly-installed Oracle Database Appliance, or to start up the appliance after you power it down.

[Configuring Oracle Integrated Lights Out Manager](#) (page 3-6)

Configure Oracle Integrated Lights Out Manager (Oracle ILOM) to manage Oracle Database Appliance independent of the operating system.

[Configuring an Initial Network Connection](#) (page 3-7)

Configure a temporary network configuration framework to build your network information during deployment.

[Downloading Oracle Database Appliance Software](#) (page 3-8)

Download the Oracle Database Appliance 12.1.2.11.0 Patch Bundle, also known as the Single Instance Bundle (SIB) for Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

3.1 About Interconnect Cabling

Interconnect is reserved for Oracle Grid Infrastructure (GI) and Oracle Relational Database Management System (RDBMS).

Oracle GI includes Oracle Clusterware, Oracle Automatic Storage Management (Oracle ASM), and Oracle Restart. Even if you do not use Oracle Real Application Clusters (RAC), Oracle Database Appliance uses the interconnect for RAC ASM and Oracle GI.

Note: Do not use interconnect for other applications.

When you power on Oracle Database Appliance for the first time, the system automatically defines your public network interface based on the interconnect. If you use the InfiniBand cards, then the InfiniBand network is used for the interconnect. If you ordered the configuration that contains the 10GbE SFP+ (fiber) cards instead of InfiniBand cards, then the onboard 10GbBase-T (Copper) ports are used for the interconnect.

3.2 Attaching Network Cables to Oracle Database Appliance

Connect Oracle Database Appliance X6-2S, X6-2M, or X6-2L to either a 10GbBase-T (copper) or 10GbE SFP+ (fiber) network.

Use standard Cat-6 network cables to connect to the on-board 10GbBase-T (copper) network ports. The following sections show the cabling options for 10GbE SFP+ (fiber) network ports. In the figures, callouts 4 and 5 identify the ports for the 10GbBase-T (copper) network. Callout 6 identifies the ports for the 10GbE SFP+ (fiber) network.

Figure 3-1 Connect the Fiber and Copper Network Cables for Oracle Database Appliance X6-2S or X6-2M

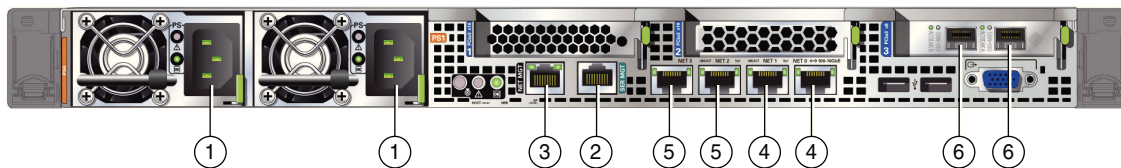


Figure 3-2 Connect the Fiber and Copper Network Cables for Oracle Database Appliance X6-2L

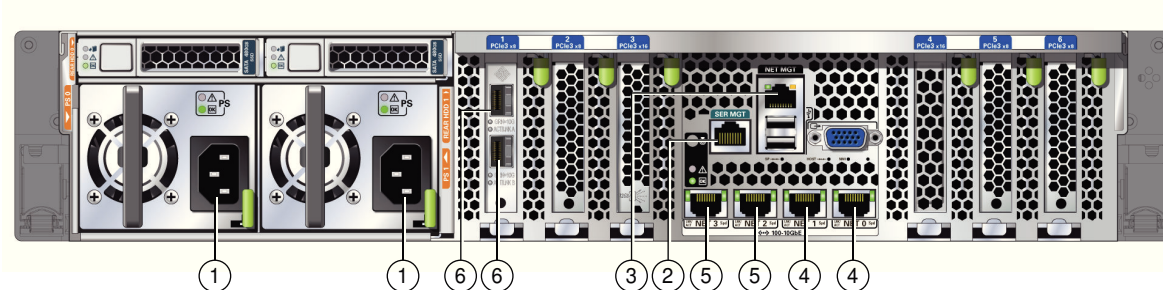


Table 3-1 Location of Network Ports and Power Cabling for Oracle Database Appliance

Callout Number	Description
1	Power cables
2	(Optional) ILOM SER MGT port. Service processor RJ-45 serial port
3	ILOM NET MGT port. Service processor 10/100/1000Base-T network interface
4	10 GbE network interface port with RJ-45 connector (btbond1)

Table 3-1 (Cont.) Location of Network Ports and Power Cabling for Oracle Database Appliance

Callout Number	Description
5	10 GbE network interface port with RJ-45 connector (btbond2) These ports are not available on Oracle Database Appliance X6-2S.
6	10 GbE dual-rate SFP+ (fiber network) ports (sfpbond1)

For 10 GbE SFP+ PCI cards, you can use fiber cables or copper cables.

Fiber Cables

For optical cables, you must purchase either Short Range (SR) or Long Range (LR) SFP+ transceivers for each of the network ports, and then plug in the appropriate optical cable. Currently, Oracle sells both the SR and LR SFP+ transceivers. In addition to these transceivers, you must purchase the appropriate LC-LC terminated fiber optic cables from a third-party vendor.

Name	Part Number
10 GbE Transceiver SR (SFP+)	X2129A-N
10 GbE Transceiver LR (SFP+)	X5562A-Z

Copper Cables

You can purchase the following copper cables from Oracle. These cables have built-in SFP+ connectors:

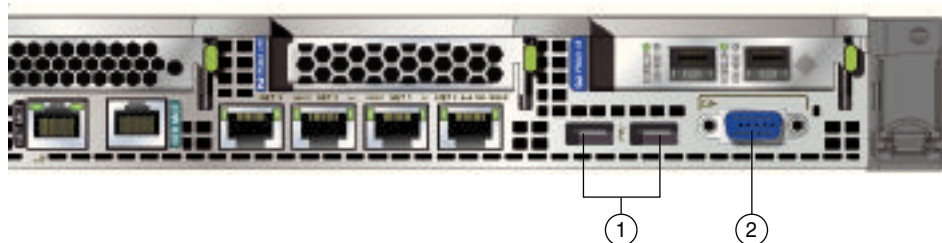
Name	Length	Part Number
TwinAx 1m	1m	X2130A-1M-N
TwinAx 3m	3m	X2130A-3M-N
TwinAx 5m	5m	X2130A-3M-N

3.3 Attaching Peripheral Devices

Complete this task if you have direct access to Oracle Database Appliance and you intend to use a locally connected monitor, keyboard and mouse.

Oracle Database Appliance is not equipped with human-computer interface devices, such as a monitor or keyboard. If you want to log in locally, instead of through a network, then you must attach interface devices.

Attach a monitor to the graphics card port, and attach a keyboard and a mouse to the USB ports. Refer to the figure and table to identify the ports.

Figure 3-3 Peripheral Device Connections for Oracle Database Appliance

In the figure, callout 1 identifies the ports for the keyboard and mouse. Callout 2 identifies the monitor port.

Table 3-2 Peripheral Device Connections for Oracle Database Appliance

Callout Number	Description
1	USB ports for the keyboard and mouse
2	Graphics card port for the monitor

3.4 First Startup of Oracle Database Appliance

Use this procedure to start up either a newly-installed Oracle Database Appliance, or to start up the appliance after you power it down.

To ready Oracle Database Appliance for the powering on the first time, you need to attach all of the required power cords and confirm that initialization completes successfully. You can then start up the system by pushing the power button once.

Topics:

[Attaching Power Cords and Initializing Components](#) (page 3-4)

Attach power cords for Oracle Database Appliance.

[Powering On Oracle Database Appliance the First Time](#) (page 3-5)

Use this procedure the first time you power on Oracle Database Appliance.

3.4.1 Attaching Power Cords and Initializing Components

Attach power cords for Oracle Database Appliance.

Caution: Before plugging in the power cords, ensure that the electrical outlets providing the power are grounded.

If you use only a single AC circuit, then connect both power cords for each component to that circuit. If you want to maintain N+1 power supply redundancy, then use two separate AC circuits. Connect one power cord from each AC circuit into each component.

For more information about cabling with the supplied Cable Management Arm, refer to *Oracle Database Appliance Owner's Guide*.

3.4.2 Powering On Oracle Database Appliance the First Time

Use this procedure the first time you power on Oracle Database Appliance.

Note:

After you connect power cords, the green SP OK light-emitting diode (LED) lights blink for a few minutes, and then turn to steady ON. The cooling fans also may turn on. However, these events do not indicate that the system is started. You must complete all of the steps in this section to turn on the appliance properly. Read through the entire section to understand the sequence required for initial system startup.

1. Push the recessed power button to turn on the appliance.

Note:

The fully-initialized state is indicated by the green SP OK LEDs staying steadily lit. If any of the green LED lights on the server are still blinking, then wait for them to complete their initialization steps.

The power button and the system initialization status indicator lights are located on the power panel. The following figure is an example of the location on the X6-2S and X6-2M. The layout on the X6-2L is slightly different.

Figure 3-4 Front of Oracle Database Appliance Power Panel for X6-2S and X6-M

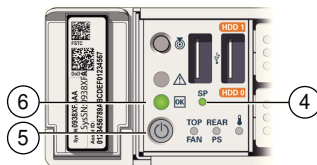


Table 3-3 Description of Callouts for Powering On Oracle Database Appliance

Callouts for X6-2S and X6-2M	Function
4	SP OK LED light, located on the front panel of the appliance.
5	Recessed On/Off power button, which is located on the front panel of the appliance. Push this button only once. Do not repeatedly push the power button.
6	Green Power OK LED, located on the front panel. These lights must be in the steady ON position (Green light does not blink) before you log on to the system.

2. Wait for Oracle Database Appliance to complete startup.

Note:

Do not repeatedly push the power buttons. Startup can take several minutes to complete.

Oracle Database Appliance is ready for use when the green Power OK LEDs on the front of the system remains steadily on.

3.5 Configuring Oracle Integrated Lights Out Manager

Configure Oracle Integrated Lights Out Manager (Oracle ILOM) to manage Oracle Database Appliance independent of the operating system.

Oracle ILOM provides alternate ways to restart and troubleshoot Oracle Database Appliance.

You must set up the following items first to configure Oracle ILOM:

- A name and IP address
- A password to replace the default Oracle ILOM password
- Access to a management network, using an assigned netmask
- An Ethernet cable connected from the NET MGT port to the management network

In the default configuration, Dynamic Host Configuration Protocol (DHCP) is enabled in Oracle ILOM and the DHCP server automatically assigns network settings. To determine the IP address or host name assigned by the DHCP server, use the network tools provided with the DHCP server.

If you do not use DHCP, then use the custom option in Oracle Database Appliance Manager Configurator to assign IP addresses and host names to Oracle ILOM when you deploy your database.

Note:

If you have not enabled DHCP, then you must complete Oracle Database Appliance configuration to access Oracle ILOM.

To connect to the Oracle ILOM, use one of the following two methods:

1. Log in using a web interface by completing these steps:
 - a. Using a client system's browser, enter the IP address or host name assigned by DHCP into the browser address field and press **Enter**.
 - b. At the login page, enter the default user name, `root` and the default password, `changeme`.

The Oracle ILOM web interface appears.

2. Log in using a command line interface (CLI) by completing these steps:
 - a. Using a client system, establish a secure shell (SSH) connection by entering the following on the command line:

```
ssh -l root sp_ip_address
```

where *sp_ip_address* is the IP address assigned by DHCP.

- b. Enter the default user name, `root`, and the default password, `changeme`.

The Oracle ILOM CLI prompt appears.

3.6 Configuring an Initial Network Connection

Configure a temporary network configuration framework to build your network information during deployment.

Oracle Database Appliance X6-2S has two highly available networks and Oracle Database Appliance X6-2M and X6-2L have three available networks. Use either the 10GBase-T or the 10GbE SFP+ network interface. Use the initial network connection to transfer deployment software to Oracle Database Appliance and deploy the appliance with the Web Console.

Note:

The initial network configuration is temporary. It is replaced during the final image deployment.

Caution:

Oracle recommends using the `configure-firstnet` command only one time on Oracle Database Appliance. Subsequent use after configuring the initial network can cause unpredictable changes to your network settings.

To configure the initial network, you will need the IP address and netmask address. Refer to the network configuration information that you collected in preparation for deployment. The program derives the gateway address using the network information you provided.

1. Log in to Oracle Database Appliance as `root`, using the password `welcome1`.
2. Run the command `configure-firstnet` to configure the initial network. Complete the network information, as prompted. Refer to the network configuration information that you collected in preparation for deployment.

Configure the first network to use a `btbond1` interface without configuring DHCP.

Complete the IP address and netmask address based on the network configuration information that you collected in preparation for deployment and accept the Gateway address when prompted. In this example, the IP address is 10.1.10.2 and the Netmask address is 255.255.255.0. The program derives 10.1.10.1 as the Gateway address to configure. The program derives this gateway address using the network information you provided for the other IP addresses. Accept this value, unless your network administrator provides an alternative gateway address that is different from the default that the appliance command-line interface detects.

```
# configure-firstnet
```

```
Select the Interface to configure the network on (btbond1 sfpbond1): btbond1
Configure DHCP on btbond1 (yes/no): no
INFO: You have chosen Static configuration
Enter the IP address to configure: 10.1.10.2
```

```

Enter the Netmask address to configure: 255.255.255.0
Enter the Gateway address to configure: 10.1.10.1
INFO: Plumbing the IPs now
INFO: Restarting the network
Shutting down interface btbon1: bonding: btbond1: Removing slave em1.
bonding btbon1: Warning: the permanent HWaddr of em1 - <mac> - is still in use by
btbon1. Set the HWaddr of em1 to a different address to avoid conflicts.
bonding: btbond1: releasing active interface em1
bonding: btbond1: making interface em2 the new active one.
bonding: btbond1: Removing slave em2.
bonding: btbond1: releasing active interface em2
:::
bonding: btbond1: Setting em1 as primary slave.
:::
bonding: btbond2: Setting em3 as primary slave.
:::
bonding: sfpbond1: Setting p3p1 as primary slave.

```

Related Topics:

[configure-firstnet](#) (page 12-5)

Use the `configure-firstnet` command to configure the first network in the appliance after racking and connecting the power and network cables. This command ensures that the system is available in the network, enabling you to manage the deployment through the Oracle Appliance Manager Web Console.

[configure-firstnet](#) (page 12-5)

Use the `configure-firstnet` command to configure the first network in the appliance after racking and connecting the power and network cables. This command ensures that the system is available in the network, enabling you to manage the deployment through the Oracle Appliance Manager Web Console.

3.7 Downloading Oracle Database Appliance Software

Download the Oracle Database Appliance 12.1.2.11.0 Patch Bundle, also known as the Single Instance Bundle (SIB) for Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

This file contains the latest patches for DCS Agent, DCS Controller, OAK , GI and RDBMS 12.1 and 11.2 homes.

If you have Oracle Database Appliance X6-2S or X6-2M with dcs-agent version 12.1.2.7, you must apply patch 24391174 before applying this patch.

[24391174](#)

Use the `rpm -qa |grep dcs-agent` command to check the dcs-agent version .

```
# rpm -qa |grep dcs-agent
dcs-agent-12.1.2.7.0_LINUX.X64_160601.x86_64
```

Oracle Database Appliance release 12.1.2.7 is no longer supported for the X6-2S and X6-2M models.

1. From an external client machine, log on to My Oracle Support.
2. Locate patch 26080577 for the Oracle Database Appliance.

<https://updates.oracle.com/download/26080577.html>

3. Select the patch version for Oracle Appliance Kit 12.1.2.11.0.
4. Click **Download** to download the zip files onto your external client.

p26080577_1212110_Linux-x86-64.zip

5. Use either a Secure Copy (scp) command or a USB storage device to copy the file from the external client to dom0 on Node 0. Use the /tmp directory as the target location.

Note:

If you use a USB drive to transfer the file, then format it first as FAT32, ext3, or ext4. NTFS file formats are not supported.

6. Unzip the patch bundle.

```
# cd /tmp
# unzip p26080577_1212110_Linux-x86-64.zip
```

Related Topics:

[https://updates.oracle.com/Orion/PatchDetails/process_form?
patch_num=24391174](https://updates.oracle.com/Orion/PatchDetails/process_form?patch_num=24391174)

Deploying Oracle Software on Oracle Database Appliance

Complete these tasks to deploy the Oracle Database Appliance software.

Topics:

[About Deploying Oracle Database Appliance Software](#) (page 4-1)

Review this information to understand the available deployment options.

[Verifying the DCS Agent Version](#) (page 4-2)

Ensure that your appliance has the latest `dcS-agent` before updating the repository.

[Special Instructions for Upgrading from a 12.1.2.7.0 Environment](#) (page 4-2)

If you are using Oracle Database Appliance 12.1.2.7.0, then you must upgrade the `dcS-agent` to 12.1.2.8.0 before installing the latest patch set. If you are using 12.1.2.8 or later, you do not need to update the `dsc-agent`.

[Updating the Infrastructure with the Latest Patch Bundle](#) (page 4-3)

If an older version of the `dcS-agent` is installed, then download the latest patch bundle and update the repository, `dcS-agent`, and server components.

[Copying the Oracle Database Appliance Software](#) (page 4-4)

Copy the software bundle to the system and update the image to the latest version before deploying the appliance.

[Deploying Oracle Database Appliance](#) (page 4-5)

Configure the system, network, user groups, database, and Oracle Auto Service Request (Oracle ASR) and deploy the appliance.

4.1 About Deploying Oracle Database Appliance Software

Review this information to understand the available deployment options.

The procedure to deploy software consists of the following steps:

1. Copy the Oracle Database Appliance Single Instance software bundle that you downloaded earlier.
2. Update the repository with Oracle Database Appliance Single Instance software bundle.
3. Deploy your configuration.

The Web Console is the preferred method of deploying your configuration. The Web Console provides all of the fields necessary to provision Oracle Database Appliance,

including configuring the system, network, database, and Oracle Auto Service Request (Oracle ASR). If you prefer to use the command-line interface, you must create a JSON file to configure the deployment options.

Deploying Oracle Database Appliance software requires approximately 1 hour to complete.

4.2 Verifying the DCS Agent Version

Ensure that your appliance has the latest `dcx-agent` before updating the repository.

1. Check the `dcx-agent rpm` version.

```
# rpm -qa | grep dcx-agent
dcx-agent-12.1.2.11.0_LINUX.X64_170607-1.x86_64
```

2. See the *Oracle Database Appliance Release Notes* for details about the latest agent, most recently released versions and patches, and known issues.
3. If you have an older version of the `dcx-agent`, then upgrade the `dcx-agent` before applying the latest patch bundle and updating both `dcxagent` and `server` components.

4.3 Special Instructions for Upgrading from a 12.1.2.7.0 Environment

If you are using Oracle Database Appliance 12.1.2.7.0, then you must upgrade the `dcx-agent` to 12.1.2.8.0 before installing the latest patch set. If you are using 12.1.2.8 or later, you do not need to update the `dcx-agent`.

The 12.1.2.8.0 version of the `dcx-agent` includes changes and information not available in the 12.1.2.7.0 version of the `dcx-agent`. The information is needed to use the command-line interface to install the update bundle and update the agent, server, and databases. Use the `describe-job` command to monitor the progress of each patching job. Run the `update-image` command to update the `dcx-agent` image to the latest version.

Note: If you are using 12.1.2.7.0, you must run the `update-image` command to update the `dcx-agent` image to version 12.1.2.8.0. Once you are on version 12.1.2.8.0, use the `update-repository` command and follow the steps to install the latest update release. before using the patching command-line interface.

1. Log into My Oracle Support and search for patch 24391174 for the 12.1.2.8.0 release. Review the ReadMe, then click **Download** to download the patch.

<https://support.oracle.com/>

2. Log in to Oracle Database Appliance as a root user.
3. Unzip the downloaded patch.
4. Update the `dcx-agent` using the `update-image` command.

```
# /opt/oracle/oak/bin/update-image --image-files /tmp/oda-
sm-12.1.2.8.0-160xxx-DCS.zip
```

The agent automatically restarts. It may take 1-2 minutes for the `dcS-agent` to complete restarting. Wait until the agent completes restarting before updating the patch repository or performing any tasks.

5. When the `dcS-agent` is upgraded to 12.1.2.8 and restarted, apply the latest patch bundle and update both the `dcSagent` and server components.

Caution:

Do not patch Oracle Database Appliance using individual patches for Oracle Grid Infrastructure, Oracle Database, or Oracle Linux. Also do not use individual infrastructure patches, such as firmware patches. You must only use Oracle Database Appliance patches.

If you use patches that are not intended for Oracle Database Appliance, or if you use `Opatch`, or a similar patching tool, then Oracle Database Appliance inventory is not updated, and you cannot complete future patch updates.

Related Topics:

[Patch 24391174](#)

[Updating Oracle Database Appliance Software](#) (page 6-1)

To keep Oracle Database Appliance running with the latest software, check for and apply Oracle Database Appliance patch bundles when they are released.

4.4 Updating the Infrastructure with the Latest Patch Bundle

If an older version of the `dcS-agent` is installed, then download the latest patch bundle and update the repository, `dcS-agent`, and server components.

In some cases, a machine might ship with an older version of the `dcS-agent`.

Note: If you are on version 12.1.2.7, then you must upgrade the agent to a version that supports patching.

1. Log in to Oracle Database Appliance as a root user.
2. Download the latest `dcS-agent` patch from My Oracle Support.
3. Update the repository.

```
odacli update-repository -fileName patch bundle
```

4. Update the `dcS-agent`.

```
odacli update-dcsagent -version version
```

```
# odacli update-dcsagent -v 12.1.2.11.0
{
  "jobId" : "77e454d3-eb68-4130-a247-7633f8d6192b",
  "status" : "Created",
  "message" : null,
```

```
"reports" : [ ],
"createTimestamp" : "January 26, 2017 14:09:24 PM CST",
"description" : "DcsAgent patching",
"updatedAt" : "June 26, 2017 14:09:24 PM CST"
}
```

The agent automatically restarts. It may take 1-2 minutes for the dcs-agent to complete restarting.

Note: Wait until the agent completes restarting before performing the next step.

5. Update the server components.

```
odacli update-server -version version

# odacli update-server -v 12.1.2.11.0
{
  "jobId" : "6f27a29a-959f-44e1-b984-7473e3c918ad",
  "status" : "Created",
  "message" : "Success of Server Update may trigger reboot of node after 4-5
minutes. Please wait till node restart",
  "reports" : [ ],
  "createTimestamp" : "January 26, 2017 14:13:45 PM CST",
  "resourceList" : [ ],
  "description" : "Server Patching",
  "updatedAt" : "June 26, 2017 14:13:45 PM CST"
}
```

Related Topics:

[Special Instructions for Upgrading from a 12.1.2.7.0 Environment](#) (page 4-2)

If you are using Oracle Database Appliance 12.1.2.7.0, then you must upgrade the dcs-agent to 12.1.2.8.0 before installing the latest patch set. If you are using 12.1.2.8 or later, you do not need to update the dcs-agent.

[Updating Oracle Database Appliance Software](#) (page 6-1)

To keep Oracle Database Appliance running with the latest software, check for and apply Oracle Database Appliance patch bundles when they are released.

4.5 Copying the Oracle Database Appliance Software

Copy the software bundle to the system and update the image to the latest version before deploying the appliance.

You must copy the Oracle Database Appliance Single Instance software bundle to the Oracle Database Appliance.

Copy the file using a Secure Copy (scp) or Secure File Transfer Protocol (sftp) protocol. To use scp or sftp, you must first set up a static IP address (for example, oda_host) and configure Oracle Database Appliance with that address by using the configure-firstnet command. This command ensures the system is available in your network, enabling you to use the Oracle Appliance Manager Web Console to deploy Oracle Database Appliance.

Alternatively, you can use a USB storage device. To use a USB drive to transfer the files, you must format it first as FAT32, ext3, or ext4. NTFS file formats are not supported.

Before running the `update-repository` command, ensure that your appliance has the latest version of the `dcS-agent` and that the initial network connection is configured.

1. Copy the Oracle Database Appliance Single Instance software bundle (SIB) from the external client to Oracle Database Appliance. Use the `scp` or `sftp` protocol to copy the bundle.

```
oda-sm-release number -date-GI-12.1.0.2.zip to root@oda_host
oda-sm-release number -date-DB.zip to root@oda_host
```

For example, if you use the `scp` command, then enter a command similar to the following, where the temporary host address is `oda_host`, the release number is 12.1.2.11.0, and you are copying the bundle to `/tmp`:

```
scp oda-sm-release number -date-GI-12.1.0.2.zip root@oda_host:/tmp
scp oda-sm-release number -date-DB-12.1.0.2.zip root@oda_host:/tmp
scp oda-sm-release number -date-DB-11.2.0.4.zip root@oda_host:/tmp
```

For example, if you use the `sftp` command, then enter a command similar to the following, where the temporary host address is `oda_host`, and you are copying the bundle to `/tmp`:

```
sftp root@oda_host
Enter the root password.
put oda-sm-12.1.2.11.0-date-DB-12.1.0.2.zip
```

2. Update Oracle Database Appliance with the single instance bundle files that have been copied to system in the previous step. If there is more than one file, you can list all of them separated by a comma. Spaces are not allowed between the filenames.

For example, enter a command similar to the following to update the image file, where the temporary host address is `oda_host`, and you are copying the bundle to `/tmp`:

```
# opt/oracle/dcs/bin/odacli update-repository -f /tmp/oda-
sm-12.1.2.11.0-160XXXX-GI-12.1.0.2.zip,/tmp/oda-
sm-12.1.2.11.0-160XXXX-DB-12.1.0.2.zip,/tmp/oda-
sm-12.1.2.11.0-160XXXX-DB-11.2.0.4.zip
```

Related Topics:

[Configuring an Initial Network Connection](#) (page 3-7)

Configure a temporary network configuration framework to build your network information during deployment.

4.6 Deploying Oracle Database Appliance

Configure the system, network, user groups, database, and Oracle Auto Service Request (Oracle ASR) and deploy the appliance.

You must configure the initial network connection before you deploy Oracle Database Appliance.

Launch the Web Console to complete the following configuration steps to deploy Oracle Database Appliance:

1. Configure the system
2. Configure the client access network
3. (Optional) Configure an additional network and an Oracle ILOM network
4. Configure a database
5. (Optional) Configure Oracle ASR

Use the checklists that you completed earlier as a reference for the configuration settings needed to deploy the appliance.

1. Open a browser, and enter the following URL to launch the Web Console:

The Google Chrome browser is preferred.

`https://ip-address:7093/mgmt/index.html`

2. Enter the following credentials:

- User name: `oda-admin`
- Password: `welcome1`

3. Click **Deploy Appliance**.

4. Enter the following information to configure the system:

- a. **Host Name:** Enter the host name.

The host name can contain alphanumeric characters and dashes (-), but cannot start with a number or dash (-) or end with dash (-). Do not exceed 30 characters.

- b. (Optional) **Domain Name:** Enter the domain name.

- c. (Optional) **Region:** Select the region of the world where the Oracle Database Appliance is located.

- d. (Optional) **Time Zone:** Select the time zone where the Oracle Database Appliance is located.

- e. (Optional) **DNS Servers:** Enter addresses for one or more DNS servers.

- f. (Optional) **NTP Servers:** Enter addresses for one or more NTP servers.

- g. **Database Edition:** Select the Oracle Database edition, either **Enterprise Edition** or **Standard Edition**.

Note: You cannot mix editions. The database edition you select on this page determines the database editions that you create in the appliance. To change editions, you must redeploy Oracle Database Appliance.

- h. **Diskgroup Redundancy:** This field appears when the Web Console detects that the system has 4 NVMe. Select **Normal** or **High**.

If the system has 2 NVMe, redundancy is automatically set to Normal and this field does not appear.

- i. **Backup Location:** Select one of the following backup locations:

- **External:** reserves 80% of the storage for DATA and 20% for RECO.
- **Internal:** reserves 40% of the storage for DATA and 60% for RECO.
- **Custom :** enables you to define the percentage of storage for DATA, anywhere from 10% to 90%, the remainder is reserved for RECO.

- j. **Data Storage Percentage:** If you selected **Custom** in the previous step, enter a whole number between 10 and 90 to define the percentage of storage reserved for DATA.

- k. **Master Password and Confirm Password:** Enter the master password in both fields.

The master password is the password set for UNIX users, `root`, `SYS`, `SYSTEM`, and `PDBADMIN`. The password must begin with an alpha character and cannot contain quotation marks. Do not exceed 30 characters.

System Information

Host Name * hrsys	Database Edition Enterprise Edition	Master Password *
Domain Name example.com	Diskgroup Redundancy Normal	Confirm Password *
Region America	Backup Location External	
Time Zone America/Los_Angeles	Data Storage Percentage * 80	
DNS Servers 19.135.82.132		
NTP Servers 19.135.185.1		

5. Enter the following information to configure the network:

This page enables you to configure the primary client access network, an additional network and an ILOM network. You are only required to configure the client access network.

- a. **Client Access Network IP Address:** Enter the IP address for the primary client access network.
- b. **Client Access Network Subnet Mask:** Enter the subnet mask address for the primary client access network.
- c. **Client Access Network Gateway:** Enter the gateway address for the primary client access network.
- d. **Client Access Network Interface:** Enter the interface for the primary client access network.

- e. (Optional) **Additional Network IP Address:** Enter an IP address to configure an additional network.
- f. (Optional) **Additional Network Subnet Mask:** Enter the subnet mask address for the additional network.
- g. (Optional) **Additional Network Gateway:** Enter the gateway address for the additional network.
- h. (Optional) **Additional Network Interface:** Enter the interface for the additional network.
- i. (Optional) **ILOM Host Name:** Enter the name of the Oracle ILOM host.
- j. (Optional) **ILOM Network IP Address:** Enter the IP address for the ILOM.
- k. (Optional) **ILOM Network Subnet Mask:** Enter the subnet mask address for the ILOM.
- l. (Optional) **ILOM Network Gateway:** Enter the gateway address for the ILOM.

Network Information		
Client Access Network	Additional Network	ILOM Network
IP Address * 192.0.2.254	IP Address 198.51.100.1	ILOM Host Name
Subnet Mask * 255.255.255.240	Subnet Mask * 255.255.255.0	IP Address
Gateway * 10.209.12.1	Gateway 40.33.69.1	Subnet Mask
Interface * btbond1	Interface * sfpbond1	Gateway

6. Determine how you want to configure your users and groups and whether or not you want to allow operating system role separation:
 - Two users with six groups: Customize Users and Groups, select **No**. Allow OS Role Separation, select **Yes**. This is the default configuration.
 - Two customized users with six customized groups: Customize Users and Groups, select **Yes**. Allow OS Role Separation, select **Yes**.

User & Group Selection

Customize Users & Groups ☒ Yes ☐ No Allow OS Role Separation ☒ Yes ☐ No

GI User * grid	GI UserID * 1000
DB User * oracle	DB UserID * 1001
Install Group * oinstall	Install GroupID * 1001
DBA Oper Group * dbaoper	DBA Oper GroupID * 1002
DBA Group * dba	DBA GroupID * 1003
ASM Admin Group * asmadmin	ASM Admin GroupID * 1004
ASM Oper Group * asmoper	ASM Oper GroupID * 1005
ASM DBA Group * asmdba	ASM DBA GroupID * 1006

- Single user with two groups: Customize Users and Groups, select **No**. Allow OS Role Separation, select **No**
- Single user with six groups: Customize Users and Groups, select **Yes**. Allow OS Role Separation, select **No**. SAP deployments use this configuration.

User & Group Selection

Customize Users & Groups ☐ Yes ☒ No Allow OS Role Separation ☐ Yes ☒ No

DB User * oracle	DB UserID * 1001
Install Group * oinstall	Install GroupID * 1001
DBA Oper Group * dbaoper	DBA Oper GroupID * 1002
DBA Group * dba	DBA GroupID * 1003
ASM Admin Group * asmadmin	ASM Admin GroupID * 1004
ASM Oper Group * asmoper	ASM Oper GroupID * 1005
ASM DBA Group * asmdba	ASM DBA GroupID * 1006

7. Do you want to create an initial database? Select **Yes** and go to Step 8 or select **No** and go to Step 9.
8. Enter the following information to configure the database:
 - a. **DB Name:** Enter a name for the database.
The name must contain alphanumeric characters and cannot exceed 8 characters.
 - b. (Optional) **DB Version:** Select a database bundle patch number.

- c. (Optional) **CDB**: Select **Yes** or **No** to specify whether or not you want a Container Database (CDB).
- d. (Optional) **PDB Name**: Enter a name for the pluggable database (PDB).
The name must begin with an alphanumeric character. The following characters are valid: alphanumeric characters, and underscore (_).
- e. (Optional) **Characterset**: Select a characterset.
- f. (Optional) **National Characterset**: Select a national characterset.
- g. (Optional) **Language**: Select the database language.
- h. (Optional) **Territory**: Select a territory or location from the list.
- i. (Optional) **Database Class**: Select a database class from the list.
Enterprise Edition supports OLTP, DSS, or IMDB. Standard Edition supports OLTP.
- j. (Optional) **Shape**: Select a database shape from the list.
- k. (Optional) **Storage**: Select **ACFS** or **ASM**.
Only Oracle 12.1 databases can use ASM storage. Oracle Database 11.2 is only supported on Oracle ACFS.
- l. (Optional) **Configure EM Express**: Select **Yes** or **No**.

Select **Yes** to configure the Oracle Enterprise Manager Database Express (EM Express) console for Oracle Database 12.1.0.2 or the Database Control Console for Oracle Database 11.2.0.4. Selecting Yes enables you to use the console to manage the database.

Database Information		
Create Initial Database ☒ Yes ☐ No		
DB Name * db1	Characterset AL32UTF8	Database Class OLTP
DB Version 12.1.0.2	National Characterset AL16UTF16	Shape odb1(1 Core, 8 GB Memory)
CDB ☒ Yes ☐ No	Language AMERICAN	Storage ACFS
PDB Name crms01	Territory AMERICA	Configure EM Express ☐ Yes ☒ No

- 9. (Optional) Configure and enable Oracle ASR on the ASR page.

You can configure and enable Oracle Auto Service Request (Oracle ASR) now or later:

- To not enable Oracle ASR during deployment, select **No** and click **Submit**. After deployment, you can configure an internal Oracle ASR or register with an external Oracle ASR Manager from either the Web Console or command-line interface.

- Internal Oracle ASR: choose to configure Oracle ASR Manager on Oracle Database Appliance or use Oracle ASR Manager configured on another server in the same network as your appliance.
 - External Oracle ASR: If you already have Oracle ASR Manager configured elsewhere, you can register Oracle Database Appliance with your existing Oracle ASR Manager.
- To enable Oracle ASR, select **Yes** and complete the fields:
 - a. **ASR User Name:** Enter the e-mail address associated with the My Oracle Support account under which the server is registered.
 - b. **Password:** Enter the password associated with the My Oracle Support account under which the server is registered.
 - c. **SNMP Version:** Select **V2** or **V3**.
 - d. **HTTP Proxy used for Upload to ASR:** Select **Yes** or **No**.
 - e. **Proxy User Name:** If you are using a proxy for upload, enter the proxy user name.
 - f. **Proxy Port:** If you are using a proxy for upload, enter the proxy port.
 - g. **(Optional) HTTP Proxy Requires Authentication:** If you are using a proxy for upload, select **Yes** if you require authentication. If you do not require authentication, select **No**.
 - h. **(Optional) Proxy Password:** If you are using a proxy for upload and require authentication, enter the proxy password.

10. Click **Submit**. When prompted, click **Yes** to confirm that you want to start the job to deploy the appliance.

Click the **Activities** tab to monitor the job progress. Click the job number to view the tasks.

After deployment, the `root` and database users `SYS`, `SYSTEM`, and `PDBADMIN` are set to the master password. The `oracle` and `grid` passwords are set to `welcome1`. Change these passwords to comply with your user security protocols.

Related Topics:

[About Configuring Oracle ASR](#) (page 10-2)

Configure Oracle Auto Service Request (Oracle ASR) to automatically generate service requests for specific hardware faults.

[Configuring Oracle ASR in the Web Console](#) (page 10-2)
Configure Oracle Auto Service Request.

[odacli configure-asr](#) (page 12-42)

Oracle Database Appliance Postinstallation Tasks

Complete these administrative tasks after you have deployed software, but before the system is operational.

Topics:

[Changing the Oracle Installation Owner Passwords](#) (page 5-1)

You must change the default administrative account passwords after installation to secure your system.

[Changing the oda-admin User Password](#) (page 5-1)

Use the `odacli-adm set-credential` command to change the `oda-admin` user password to restrict access to the Oracle Appliance Manager Web Console.

5.1 Changing the Oracle Installation Owner Passwords

You must change the default administrative account passwords after installation to secure your system.

During deployment, the `root` and database users `SYS`, `SYSTEM` and `PDBADMIN` are set to the master password. After deployment, the `oracle` and `grid` passwords are set to `welcome1`. Change the passwords to comply with your enterprise user security protocols.

Refer to the *Oracle Database Appliance Security Guide* and *Oracle Database Security Guide* for information about the required configuration and best practices to secure database systems.

5.2 Changing the oda-admin User Password

Use the `odacli-adm set-credential` command to change the `oda-admin` user password to restrict access to the Oracle Appliance Manager Web Console.

Oracle Database Appliance is configured with a default user name, `oda-admin`, and password `welcome1`. The credentials enable access to the Web Console. After deploying the appliance, Oracle recommends resetting the `oda-admin` user password.

Note: Only `root` user can reset the `oda-admin` user credentials.

1. Log in to the appliance as `root`.
2. Run the `odacli-adm set-credential` command to reset the password. Enter the new password when prompted.

```
# odacli-adm set-credential --password --username oda-admin  
Agent password: new password
```

Related Topics:

[odacli-adm set-credential](#) (page 12-61)

Use the `odacli-adm set-credential` command to change the `oda-admin` user credentials.

Updating Oracle Database Appliance Software

To keep Oracle Database Appliance running with the latest software, check for and apply Oracle Database Appliance patch bundles when they are released.

Topics:

[About Updating Oracle Database Appliance Software](#) (page 6-1)

Oracle Database Appliance patching is done using the quarterly Oracle Database Appliance patch bundle.

[Step 1: Update the Patch Repository](#) (page 6-3)

Download the Oracle Database Appliance patch set bundle from My Oracle Support and update the repository with the new patches.

[Step 2: Update the Agent](#) (page 6-4)

Run the `update-dcsagent` command to update the agent version.

[Step 3: Update the Server](#) (page 6-5)

Run the `update-server` command to update the operating system, firmware, Oracle Appliance Kit, Oracle Clusterware, and all other infrastructure components.

[Step 4: Update Oracle Database](#) (page 6-7)

Run the `update-dbhome` command to update a specific RDBMS Home to the latest patch bundle version.

[Updating Components Without Using a Patch Update](#) (page 6-9)

The patch bundle updates provide all relevant patches for the entire system and are designed to work with Oracle Database Appliance and future update patch bundles.

[Performing a Bare Metal Restore](#) (page 6-11)

Reimage Oracle Database Appliance to perform a bare metal restore of Oracle Database Appliance.

6.1 About Updating Oracle Database Appliance Software

Oracle Database Appliance patching is done using the quarterly Oracle Database Appliance patch bundle.

The patch set bundle, also known as the Single Instance Bundle (SIB) for Oracle Database Appliance X6-2S, X6-2M, and X6-2L, contains the latest patches for DCS Agent, DCS Controller, OAK, GI and RDBMS 12.1 and 11.2 homes, enhancements, and fixes.

The patch bundle provides all relevant patches for the entire system, including the following:

- BIOS
- Hardware drivers, Hardware Management Pack (HWM), and firmware drivers for various components
- Oracle Appliance Manager
- Oracle Linux
- Oracle VM
- Java Development Kit (JDK)
- Oracle Integrated Lights Out Manager (Oracle ILOM)
- Oracle Database Patch Set Update (PSU)
- Oracle Auto Service Request (Oracle ASR)
- Oracle Grid Infrastructure
- Intelligent Platform Management Interface (IPMI)

About Oracle Database Appliance Software Updates

To keep Oracle Database Appliance running with the latest software, check for and apply Oracle Database Appliance patch bundles when they are released. As well as offering new features, patches may improve the functionality of existing features.

Caution:

Do not patch Oracle Database Appliance using individual patches for Oracle Grid Infrastructure, Oracle Database, or Oracle Linux. Also do not use individual infrastructure patches, such as firmware patches. You must only use Oracle Database Appliance patches.

If you use patches that are not intended for Oracle Database Appliance, or if you use Opatch, or a similar patching tool, then Oracle Database Appliance inventory is not updated, and you cannot complete future patch updates.

Minimum Supported Appliance Manager Software Versions

The *Oracle Database Appliance Release Notes* include information about the latest Oracle Database Appliance patch bundle and a list of component versions in the patch bundle. Oracle recommends updating the appliance with the latest Oracle Database Appliance software version to take advantage of new features, fixes, and the latest supported component versions.

Table 6-1 Minimum Supported Appliance Manager Software Versions

Oracle Database Appliance Hardware Version	Minimum Supported Software Version
X6-2S	12.1.2.8.0
X6-2M	12.1.2.8.0
X6-2L	12.1.2.8.1

Overview of the Patch Upgrade

Oracle Database Appliance patch set releases include new enhancements, including a comprehensive patching solution for Oracle Database Appliance X6-2S, X6-2M, and X6-2L. You must have a database deployed before updating the repository, agent, server, or database. Do not have any jobs running or pending during the update window.

Note: If you are using Oracle Database Appliance 12.1.2.7, then you must upgrade the `dcS-agent` before installing the latest patch set. The `dcS-agent` upgrade includes changes that enable you to install the patch set bundle. Use the `odacli describe-job` command to monitor the progress of each patching job.

All patching-related information is logged in the `dcS-agent` log file at `/opt/oracle/dcs/log/dcs-agent.log`.

Related Topics:

[odacli describe-job](#) (page 12-36)

Use the `odacli describe-job` command to display details about a specific job, including the job ID, status, tasks, and the job created date and time stamp.

6.2 Step 1: Update the Patch Repository

Download the Oracle Database Appliance patch set bundle from My Oracle Support and update the repository with the new patches.

Perform the following tasks before updating Oracle Database Appliance:

- On a new Oracle Database Appliance machine, confirm that the initial deployment completed successfully and that the public network is configured.
- Confirm that you have a database deployed. To verify that the database is successfully deployed, run Oracle ORAchk and ensure that it completes successfully.
- Do not have any jobs running or pending during the update window.

1. Ensure that your appliance has at least version 12.1.2.8.0 of the agent.

Oracle Database Appliance release 12.1.2.7 is no longer supported for the X6-2S and X6-2M models. Use the `rpm -qa |grep dcs-agent` command to check the `dcS-agent` version.

```
# rpm -qa |grep dcs-agent
dcS-agent-12.1.2.7.0_LINUX.X64_160601.x86_64
```

If you have Oracle Database Appliance X6-2S or X6-2M with `dcS-agent` version 12.1.2.7, then you must download and apply patch 24391174 before updating to the latest release.

2. From an external client machine, log on to My Oracle Support and locate patch 26080577 for Oracle Database Appliance.

<https://updates.oracle.com/download/26080577.html>

3. Select the patch version for Oracle Appliance Kit 12.1.2.11.0, then click **Download** to download the zip files onto your external client.

p26080577_1212110_Linux-x86-64.zip

4. Use either a Secure Copy (scp) command or a USB storage device to copy the file from the external client to dom0 on Node 0. Use the /tmp directory as the target location.

Note:

If you use a USB drive to transfer the file, then format it first as FAT32, ext3, or ext4. NTFS file formats are not supported.

5. Run the `update-repository` command to unpack the patch bundle to the correct locations in the file system. You must include the fully qualified directory.

If you have more than one patch, you can use a comma-separated list for the *filename*.

```
# /opt/oracle/dcs/bin/odacli update-repository -f comma seperated  
list of enduser bundles
```

Ensure the job completes before you run the next step.

Related Topics:

[Viewing Job Activity](#) (page 10-5)

Use the Oracle Appliance Manager Web Console to view job activity, the status of tasks in a job, and job status.

[Special Instructions for Upgrading from a 12.1.2.7.0 Environment](#) (page 4-2)

If you are using Oracle Database Appliance 12.1.2.7.0, then you must upgrade the `dcs-agent` to 12.1.2.8.0 before installing the latest patch set. If you are using 12.1.2.8 or later, you do not need to update the `dcs-agent`.

6.3 Step 2: Update the Agent

Run the `update-dcsagent` command to update the agent version.

Before updating the agent, ensure that you do not have any jobs running or pending during the update window. The update automatically restarts the DCS Agent.

1. Log in as the root user.
2. Run the `update-dcsagent` command to define the patch set bundle version and update the agent.

```
# /opt/oracle/dcs/bin/odacli update-dcsagent -v version
```

As the patch runs, output displays advising you of the installation progress. After the update is applied, the agent automatically restarts. It takes a few minutes to reconnect to the `dcs-agent`. Wait until the agent shuts down and completes restarting before proceeding to the next step.

- Run the `describe-job` command for the patch job to verify that the update completed successfully. The jobID displays in the `update-dcsagent` output. You can also get the job ID by running the `list-jobs` command.

```
# /opt/oracle/dcs/bin/odacli describe-job -i jobid
```

After the DCS Agent is updated, wait two (2) minutes before going to the next step.

Example 6-1 Updating the DCS Agent Version

Run the following command to update the DCS Agent to version 12.1.2.11.0:

```
# odacli update-dcsagent -v 12.1.2.11.0
{
  "jobId" : "77e454d3-eb68-4130-a247-7633f8d6192b",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "June 9, 2017 10:30:02 AM EDT",
  "description" : "DcsAgent patching",
  "updatedAtTime" : "June 9, 2017 10:30:02 AM EDT"
}
```

Example 6-2 Verifying the DCS Agent Version

The following example uses job ID 77e454d3-eb68-4130-a247-7633f8d6192b from the previous example to get the job details.

```
# odacli describe-job -i "77e454d3-eb68-4130-a247-7633f8d6192b"
```

Job details

```
-----
ID: 77e454d3-eb68-4130-a247-7633f8d6192b
Description: DcsAgent patching
Status: Success
Created: June 9, 2017 10:39:02 AM EDT
Message:

Task Name                               Start Time
-----
dcsagent rpm version checking           June 9, 2017 10:39:02 AM EDT
Patch location validation                 June 9, 2017 10:39:02 AM EDT
Apply dcsagent patch                     June 9, 2017 10:39:02 AM EDT

(Continued)

End Time                               Status
-----
June 9, 2017 10:39:02 AM EDT           Success
June 9, 2017 10:39:02 AM EDT           Success
June 9, 2017 10:39:02 AM EDT           Success
```

6.4 Step 3: Update the Server

Run the `update-server` command to update the operating system, firmware, Oracle Appliance Kit, Oracle Clusterware, and all other infrastructure components.

Patching information is logged in the `dcs-agent` log file (`/opt/oracle/dcs/log/dcs-agent.log`.)

Before executing the `odacli update-server` command, update the repository with the latest patch bundle, update the DCS Agent to the latest version, and ensure that the agent is running.

1. Log in as the root user.
2. Run the command `update-server -v version`, where *version* is the patch set bundle version.

/opt/oracle/dcs/bin/odacli update-server -v version

Observe the patch status reports. As the patch runs, it displays output that advises you of the installation progress.
3. Run the `describe-job` command for the patch job to verify that the update completed successfully. The jobID displays in the `update-server` output. You can also get the job ID by running the `list-jobs` command.
4. Run the `odacli describe-component` command to verify that the components are on the latest version.

```
# /opt/oracle/dcs/bin/odacli describe-job -i jobid
```

```
# odacli describe-component
```

```
System Version
```

```
-----
```

```
12.1.2.11.0
```

Component	Installed Version	Available Version
-----	-----	-----
OAK	12.1.2.10.0	12.1.2.11.0
GI	12.1.0.2.170117	12.1.0.2.170418
DB	12.1.0.2.170117	12.1.0.2.170418
ILOM	3.2.6.24.r107041	3.2.9.23.r116695
BIOS	38030000	38070200
OS	6.8	up-to-date

When the server is patched, proceed to the next step.

Example 6-3 Updating the Server Version

Run the following command to update the server to version 12.1.2.11.0:

```
# odacli update-server -v 12.1.2.11.0
{
  "jobId" : "\"94685c73-55c2-40b1-a02e-265a23c45642\"",
  "status" : "Created",
  "message" : "Success of Server Update may trigger reboot of node after 4-5
minutes. Please wait till node restart",
  "reports" : [ ],
  "createTimestamp" : "June 9, 2017 14:13:45 PM CST",
  "resourceList" : [ ],
  "description" : "Server Patching",
  "updatedAt" : "June 9, 2017 14:13:45 PM CST"
}
```

Example 6-4 Verifying that the Server is on the Updated Version

The following example uses job ID 94685c73-55c2-40b1-a02e-265a23c45642 from the previous example to get the job details and status.

```
# /opt/oracle/dcs/bin/odacli describe-job -i "94685c73-55c2-40b1-a02e-265a23c45642"
```

```
Job details
```

```
-----
```

ID: 94685c73-55c2-40b1-a02e-265a23c45642
 Description: Server Patching
 Status: Success
 Created: June 9, 2017 11:02:30 AM EDT
 Message:

Task Name	Start Time
-----	-----
dcsccontroller rpm version checking	June 9, 2017 11:02:30 AM EDT
Patch location validation	June 9, 2017 11:02:31 AM EDT
Apply dcsccontroller patch	June 9, 2017 11:02:31 AM EDT
dcsccli rpm version checking	June 9, 2017 11:02:32 AM EDT
Patch location validation	June 9, 2017 11:02:32 AM EDT
Apply dcsccli patch	June 9, 2017 11:02:32 AM EDT
oak rpm version checking	June 9, 2017 11:02:33 AM EDT
Patch location validation	June 9, 2017 11:02:33 AM EDT
Apply oak patch	June 9, 2017 11:02:33 AM EDT
Checking Ilom patch Version	June 9, 2017 11:03:02 AM EDT
Patch location validation	June 9, 2017 11:03:05 AM EDT
Apply Ilom patch	June 9, 2017 11:03:05 AM EDT
Copying Flash Bios to Temp location	June 9, 2017 11:03:06 AM EDT
Patch application verification	June 9, 2017 11:03:06 AM EDT
Patch location validation	June 9, 2017 11:03:09 AM EDT
Opatch updation	June 9, 2017 11:04:13 AM EDT
analyzing patch	June 9, 2017 11:04:15 AM EDT
Apply gi patch	June 9, 2017 11:04:50 AM EDT
Reboot Ilom	June 9, 2017 11:16:17 AM EDT

(Continued)

End Time	Status
-----	-----
June 9, 2017 11:02:31 AM EDT	Success
June 9, 2017 11:02:31 AM EDT	Success
June 9, 2017 11:02:32 AM EDT	Success
June 9, 2017 11:02:32 AM EDT	Success
June 9, 2017 11:02:32 AM EDT	Success
June 9, 2017 11:02:33 AM EDT	Success
June 9, 2017 11:02:33 AM EDT	Success
June 9, 2017 11:02:33 AM EDT	Success
June 9, 2017 11:03:02 AM EDT	Success
June 9, 2017 11:03:05 AM EDT	Success
June 9, 2017 11:03:05 AM EDT	Success
June 9, 2017 11:03:06 AM EDT	Success
June 9, 2017 11:03:06 AM EDT	Success
June 9, 2017 11:03:09 AM EDT	Success
June 9, 2017 11:03:14 AM EDT	Success
June 9, 2017 11:04:15 AM EDT	Success
June 9, 2017 11:04:50 AM EDT	Success
June 9, 2017 11:16:08 AM EDT	Success
June 9, 2017 11:16:17 AM EDT	Success

6.5 Step 4: Update Oracle Database

Run the `update-dbhome` command to update a specific RDBMS Home to the latest patch bundle version.

After patching, download the latest database end user bundles. You can use the `odacli create-database` command to create different versions of the database without downloading the latest database end user bundle.

Note: Oracle recommends downloading the latest database bundle and use it to create any new databases.

1. Log in as the root user.
2. Run the `odacli list-dbhomes` command to get a list of database homes in the system and the *dbhomeid* for each database.

```
# /opt/oracle/dcs/bin/odacli list-  
dbhomes
```

3. Run the command `update-dbhome -i dbhomeid -v version`, where *dbhomeid* is the Oracle Database Home to update and *version* is the Oracle Database Appliance patch set bundle version.

Note:

You cannot perform individual database updates for databases running in the same home. All databases running in the homes that you update are patched to the Oracle Database 12c release 1 patch for Oracle Database Appliance (12.1.0.2.170418). For Oracle Database 11.2, the database is patched to 11.2.0.4.170418.

```
# /opt/oracle/dcs/bin/odacli update-dbhome -i dbhomeid -v version
```

Observe the patch status reports. As the patch runs, it displays output that advises you of the job identifier (ID) and the installation progress.

4. Run the `describe-job` command for the patch job to verify that the update completed successfully. The jobID displays in the `update-dbhome` output. You can also get the job ID by running the `list-jobs` command.

```
# /opt/oracle/dcs/bin/odacli describe-job -i jobid
```

Example 6-5 Getting a List of Database Home IDs

The following example shows how to get a database home ID using JSON output:

```
# /opt/oracle/dcs/bin/odacli list-dbhomes -j  
[ {  
  "id" : "ab3cecaf-2223-4726-b95c-488f0aec914a",  
  "name" : "OraDB12102_home1",  
  "dbVersion" : "12.1.0.2.161018 (24927502, 24340679)",  
  "dbHomeLocation" : "/u01/app/oracle/product/12.1.0.2/dbhome_1",  
  "createTime" : "June 8, 2017 08:46:52 AM PDT",  
  "state" : {  
    "status" : "CONFIGURED"  
  },  
  "updatedAt" : "June 8, 2017 11:55:55 AM PDT"  
}, {  
  "id" : "d5b01e27-799e-4e8a-bfe6-07a781f79526",  
  "name" : "OraDB12102_home2",  
  "dbVersion" : "12.1.0.2.160719 (23739960, 23144544)",  
  "dbHomeLocation" : "/u01/app/oracle/product/12.1.0.2/dbhome_2",  
  "createTime" : "June 8, 2017 22:34:31 PM PDT",  
  "state" : {  
    "status" : "CONFIGURED"  
  }  
}]
```



```

    },
    "updatedAt" : "June 8, 2017 22:36:59 PM PDT"
  } ]

```

Example 6-6 Updating the Database Home Version

The following example updates database home ID d5b01e27-799e-4e8a-bfe6-07a781f79526 to Oracle Database Appliance version 12.1.2.11.0.

```
# odacli update-dbhome -i d5b01e27-799e-4e8a-bfe6-07a781f79526 -v 12.1.2.11.0
```

```

{
  "jobId" : "576cdbfa-ece4-4e5f-becd-9bc6e6bf430b",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "June 9, 2017 11:08:35 AM PDT",
  "description" : "DbHome Patching: Home Id is d5b01e27-799e-4e8a-bfe6-07a781f79526",
  "updatedAt" : "June 9, 2017 11:08:35 AM PDT"
}

```

Example 6-7 Verifying that Database Home is Updated

The following example uses job ID 576cdbfa-ece4-4e5f-becd-9bc6e6bf430b from the previous example to get the job details.

```
# /opt/oracle/dcs/bin/odacli describe-job -i "576cdbfa-ece4-4e5f-becd-9bc6e6bf430b"
Job details
```

```

-----
                        ID: 576cdbfa-ece4-4e5f-becd-9bc6e6bf430b
                Description: DbHome Patching: Home Id is d5b01e27-799e-4e8a-bfe6-07a781f79526
                        Status: Success
                        Created: June 9, 2017 11:08:35 AM PDT
                        Message:

```

Task Name	Start Time
Patch application verification	June 9, 2017 11:08:35 AM PDT
location validation	June 9, 2017 11:08:37 AM PDT
updateOpatch	June 9, 2017 11:09:41 AM PDT
analyzing patch	June 9, 2017 11:09:43 AM PDT
Apply db patch	June 9, 2017 11:10:17 AM PDT

```

(continued)
End Time                               Status
-----
June 9, 2017 11:08:37 AM PDT    Success
June 9, 2017 11:08:42 AM PDT    Success
June 9, 2017 11:09:43 AM PDT    Success
June 9, 2017 11:10:17 AM PDT    Success
June 9, 2017 11:14:13 AM PDT    Success

```

6.6 Updating Components Without Using a Patch Update

The patch bundle updates provide all relevant patches for the entire system and are designed to work with Oracle Database Appliance and future update patch bundles.

The patch bundle includes relevant patches, including the following:

- BIOS
- Hardware drivers, Hardware Management Pack (HWM), and firmware drivers
- Oracle Appliance Manager
- Oracle Linux
- Oracle VM
- Java Development Kit (JDK)
- Oracle Integrated Lights Out Manager (Oracle ILOM)
- Oracle Database Patch Set Update (PSU)
- Oracle Auto Service Request (Oracle ASR)
- Oracle Grid Infrastructure
- Intelligent Platform Management Interface (IPMI)

Caution:

Do not patch Oracle Database Appliance using individual patches for Oracle Grid Infrastructure, Oracle Database, and most Oracle Linux RPM updates. Do not use individual infrastructure patches, such as firmware patches. You must only use Oracle Database Appliance patches.

If you use patches that are not intended for Oracle Database Appliance, or if you use Opatch, or a similar patching tool, then you can encounter problems with storage, communication, and applying patch updates in the future.

Updating Oracle Linux RPMs

While not recommended, you can update some Oracle Linux RPMs for database nodes. Do not update or customize Oracle Linux kernel, Oracle Optimal Flexible Architecture, Oracle InfiniBand, or related software. Other software may be installed, updated, or customized. However, the Oracle Database Appliance update may not carry newer version dependencies of customized components. Therefore, you might be required to remove and subsequently reapply site-specific changes to successfully update Oracle Database Appliance in the future.

Caution:

For database nodes, do not update the following:

- Oracle Linux Kernel (kernel*)
- Oracle Optimal Flexible Architecture (ofa*)
- Oracle InfiniBand-related packages (ofed*)

For storage, do not apply *any* RPM updates.

Using a Different Version of Java Development Kit (JDK)

Oracle Database Appliance depends on a specific version of JDK. If you want to use a different version of JDK for a specific application, then install it in a different directory and only point to it for that application.

6.7 Performing a Bare Metal Restore

Reimage Oracle Database Appliance to perform a bare metal restore of Oracle Database Appliance.

Topics:

[About Performing a Bare Metal Restore](#) (page 6-11)

Bare metal operating system (OS) re-imaging installs Oracle Database Appliance operating system software on the local (boot) drive.

[Downloading the ISO Image for Bare Metal Restore](#) (page 6-12)

Download the Oracle Database Appliance 12.1.2.11.0 Bare Metal ISO image to prepare for a bare metal restore on Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

[Reimaging Oracle Database Appliance](#) (page 6-13)

Reimage Oracle Database Appliance to perform a bare metal restore of Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

6.7.1 About Performing a Bare Metal Restore

Bare metal operating system (OS) re-imaging installs Oracle Database Appliance operating system software on the local (boot) drive.

Bare Metal is a non-virtualized Oracle Database Appliance configuration. Oracle Database Appliance ships from the factory with a bare metal configuration, default ISO image and Appliance Manager installed.

The following are some of the reasons that you might want to reimage to perform a bare metal restore:

- Deploy Bare Metal with latest Oracle Database Appliance software.
In some cases, the Oracle Database Appliance machine is shipped from the factory with an earlier release of Oracle Database Appliance software. To deploy the machine with the latest software, you can perform an update or you can reimage the machine.
- Roll back to an earlier version of Oracle Database Appliance software.
Reimaging with older release of Oracle Database Appliance software does not rollback the firmware version.
- Recover from a catastrophic failure.
You can reimage Oracle Database Appliance to re-install the operating system and restore the appliance.

Use the OS ISO Image to restore the OS to the "shipped from factory" state. Use only when necessary.

Note: Bare metal OS re-imaging is specific to the node on which the procedure is executed and overwrites the local storage (operating system) on that node. You must reimage both nodes.

Reimaging does not patch the firmware or update the component versions, it only re-images the local system disk from an OS perspective. After imaging is completed, redeploy the End User image, then restore from backup, as needed.

Access to the physical machine is not required. Bare metal restore uses Oracle Integrated Lights Out Manager (ILOM) to reimage the Oracle Database Appliance node. Newer ILOM versions require that the Java client be on `jre-7-linux-i586.rpm` or higher to be able to launch remote console.

Note: To use Oracle Database Appliance Virtualized Platform, you must reimage Oracle Database Appliance with the virtualized VM ISO image and the VM Template instead of the OS ISO image.

6.7.2 Downloading the ISO Image for Bare Metal Restore

Download the Oracle Database Appliance 12.1.2.11.0 Bare Metal ISO image to prepare for a bare metal restore on Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

Before downloading the image, ensure that the initial network connection is configured. To use `scp` or `sftp`, you must first set up a static IP address (for example, `oda_host`) and configure Oracle Database Appliance with that address by using the `configure-firstnet` command. This command ensures the system is available in your network, enabling you to use the Oracle Appliance Manager Web Console to deploy Oracle Database Appliance.

1. From an external client machine, log on to My Oracle Support.
2. Locate patch 23530609 for the Oracle Database Appliance Bare Metal ISO Image.

<https://updates.oracle.com/download/23530609.html>

3. Select the patch version for Oracle Appliance Kit 12.1.2.11.0.
4. Click **Download** to download the zip files onto your external client.

`p23530609_1212110_Linux-x86-64.zip`

5. Use either a Secure Copy (`scp`) command or a USB storage device to copy the file from the external client to `dom0` on Node 0. Use the `/tmp` directory as the target location.

Note:

If you use a USB drive to transfer the file, then format it first as FAT32, ext3, or ext4. NTFS file formats are not supported.

6. Unzip the patch bundle.

```
# cd /tmp
# unzip p23530609_1212110_Linux-x86-64.zip
```

Related Topics:

[Configuring an Initial Network Connection](#) (page 3-7)

Configure a temporary network configuration framework to build your network information during deployment.

<https://updates.oracle.com/download/23530609.html>

6.7.3 Reimaging Oracle Database Appliance

Reimage Oracle Database Appliance to perform a bare metal restore of Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

Bare metal restore uses Oracle Integrated Lights Out Manager (ILOM) to re-image the Oracle Database Appliance node. Newer ILOM versions require that the Java client be on jre-7-linux-i586.rpm or higher to be able to launch the remote console.

Download the Oracle Database Appliance Bare Metal ISO image to your local machine before you launch the ILOM console.

1. Open a browser and connect to Oracle Integrated Lights Out Manager (ILOM) on Node 0 as root.
2. Launch the Remote Console.
 - a. Expand **Remote Control** in the left navigation.
 - b. Click the **Redirection** tab.
 - c. Click **Launch** for the Remote Console in the Actions menu.

The state of the system determines what appears on the Console page.

3. Add the image.
 - a. Click the **KVMS** tab, then select **Storage**.
 - b. Click **Add**.
 - c. Browse to the Oracle Database Appliance Bare Metal ISO Image, highlight the image, then click **Select**.
 - d. Click **Connect**.

The mounting of the ISO image is successful when the **Connect** button changes to a **Disconnect** button.

- e. Click **OK**

The CD-ROM icon in the top right corner is highlighted.

4. Configure the CD-ROM as the next boot device.
 - a. Expand **Host Management** in the left menu of the ILOM Remote Console tab.
 - b. Click **Host Control**.
 - c. Select **CDROM** from the Next Boot Device menu, then click **Save**.
5. Power cycle the node.

- a. Click **Power Control** in the **Host Management** menu.
- b. Select **Power Cycle** , then click **Save**.

When the node comes back after the power cycle, re-imaging starts automatically. The Oracle Linux page appears, followed by the Running Post-Install scripts page.

The Running Post-Install scripts page is a static page and might give the impression that the reimaging process is not progressing. The post-install process during reimaging will wait until the synchronization between the partitions of the two mirrored local hard disks is complete, which can take 15 to 20 minutes to complete.

To check the progress of resynchronization, press the ALT-F2 key combination to open a second console and enter the following command:

```
# cat /proc/mdstat
```

When the resynchronization is complete, re-imaging is completed and the machine restarts.

6. Repeat the procedure for Node 1.

Reimaging is node specific. You must reimage both nodes.
7. After reimaging both nodes, verify that the Oracle Database Appliance components are up-to-date. If components are not up-to-date, update the components to the latest version.

Managing Oracle Databases

Manage the Oracle Databases on your Oracle Database Appliance.

Topics:

[Administrative Groups and Users on Oracle Database Appliance](#) (page 7-1)

Oracle Database Appliance Web Console deployment creates operating system groups and users whose members are granted system administration privileges on the appliance.

[Data Migration and Management and Oracle Database Appliance](#) (page 7-2)

Oracle Database Appliance supports the use of standard Oracle Database loading and migration tools.

[Working with Databases](#) (page 7-2)

Use the Web Console to display a list of databases, database details, and create and delete databases.

[Working with Database Homes](#) (page 7-6)

Use the Web Console to display a list of database homes, details, and create and delete database homes.

[Migrating Databases](#) (page 7-10)

Review these topics to learn how to prepare for and migrate an entire database to your Oracle Database Appliance.

[About Managing Multiple Database Instances Using Instance Caging](#) (page 7-16)

Use instance caging to manage your system resources on Oracle Database Appliance.

[Oracle Enterprise Manager Database Express and Oracle Database Appliance](#) (page 7-17)

You can use Oracle Enterprise Manager Database Express, also known as EM Express, to manage your database.

7.1 Administrative Groups and Users on Oracle Database Appliance

Oracle Database Appliance Web Console deployment creates operating system groups and users whose members are granted system administration privileges on the appliance.

During configuration, two administrative accounts are created for Oracle Database Appliance: the user `grid`, with a user ID (UID) of 1001, and the user `oracle`, with a UID of 1000. The user `grid` is the Oracle Grid Infrastructure installation owner. The user `oracle` is the Oracle Database installation owner, and the owner of all Oracle Database homes (Oracle homes). By default, these users are members of operating system groups whose members are granted privileges to start up and administer Oracle Database and Oracle Automatic Storage Management.

The following table describes the Oracle system privileges groups, and information about the operating system authentication groups:

Table 7-1 Operating System Groups and Users on Oracle Database Appliance

Oracle System Privileges	Group Name	Group ID (GID)	<i>grid</i> is a member	<i>oracle</i> is a member
Oracle Inventory group (OINSTALL)	oinstall	1001	yes (primary group)	yes (primary group)
OSOPER for dbaoper group	dbaoper	1002	yes	yes
OSDBA group	dba	1003	no	yes
OSASM Group for Oracle ASM	asmadmin	1004	yes	no
OSOPER for ASM group	asmoper	1005	yes	no
OSDBA for ASM group	asmdba	1006	yes	yes

If you create an initial database during deployment, then the password for the SYS and SYSTEM users is the Master Password that you set in the Web Console. Change this password for both users as soon as possible after configuration to prevent unauthorized access to your database using these privileged accounts.

7.2 Data Migration and Management and Oracle Database Appliance

Oracle Database Appliance supports the use of standard Oracle Database loading and migration tools.

If you are loading data or migrating data from an existing database to Oracle Database Appliance, then you can use the standard Oracle Database loading and migration tools. These tools include the following:

- Oracle GoldenGate
- SQL*Loader
- Oracle Data Pump
- transportable tablespaces
- RMAN

You can also use the RMAN utility to back up and recover databases on Oracle Database Appliance.

7.3 Working with Databases

Use the Web Console to display a list of databases, database details, and create and delete databases.

Topics:

Viewing Databases in the Web Console (page 7-3)

Use the Oracle Appliance Manager Web Console to display a list of Oracle databases, database details, and to delete a database in Oracle Database Appliance.

Creating a Database in the Web Console (page 7-3)

Use the Oracle Appliance Manager Web Console to create a database in Oracle Database Appliance.

7.3.1 Viewing Databases in the Web Console

Use the Oracle Appliance Manager Web Console to display a list of Oracle databases, database details, and to delete a database in Oracle Database Appliance.

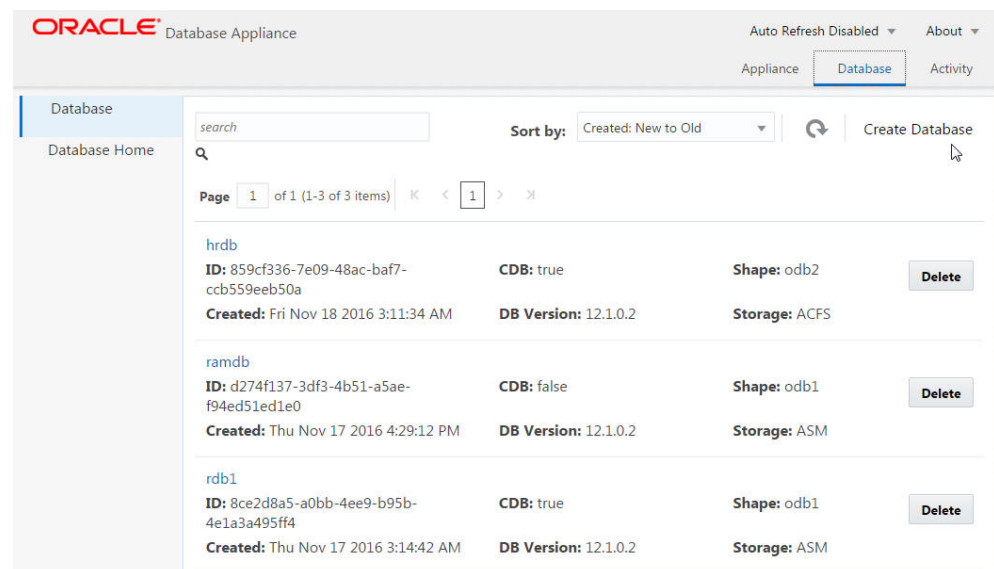
1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

2. Enter the following credentials:

- User name: `oda-admin`
- Password: `welcome1`

3. Click the **Database** tab.



4. Click **Delete** next to a database entry to delete the database.

7.3.2 Creating a Database in the Web Console

Use the Oracle Appliance Manager Web Console to create a database in Oracle Database Appliance.

The Web Console provides a quick and easy method of creating new databases. The Create New Database page in the Web Console is populated with default options for most of the configuration options. Drop-down lists enable you to quickly view and select from a list of available options. You can use the drop-down list to create a new database Oracle Database Home (ORACLE_HOME) for the database or select an existing ORACLE_HOME that you created earlier.

Note: You cannot mix Oracle Database Standard Edition and Enterprise Edition databases on the same appliance. The database edition selected during Oracle Database Appliance deployment determines the database editions that you create in the appliance. To change editions, you must redeploy Oracle Database Appliance.

Oracle Database 12.1 is supported on both Oracle Automatic Storage Management (Oracle ASM) and Oracle ASM Cluster file system (ACFS). Oracle Database 11.2 is only supported on Oracle ACFS. When databases are created in Oracle ACFS, each database is configured with its own Oracle ACFS file system for the datafiles and uses the following naming convention: `/u02/app/db user/oradata/db unique name`. The default size of this mount point is 100 GB.

The fields in the Web Console adjust, depending on which database version you select. For example, if you select database version 11.2.0.4.161018, the storage field does not appear in the Web Console because Oracle ACFS is the only option available.

1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

2. Enter the following credentials:

- User name: `oda-admin`
- Password: `welcome1`

3. Click the **Database** tab.

4. Click **Create Database** to display the Create New Database page.

The image shows the fields completed to create a new database named `db1` using database version `12.1.0.2.170117` with a new database home. The database is a container database. The pluggable database (PDB) name is `pdb1` and the PDB Admin User is `pdbadmin`. The Characterset, National Characterset, Language, Territory, and Class are all default options. The shape is `odb1`, which has 1 core and 8 GB of memory. The database uses the default ACFS storage and is not configured for EM Express.

The screenshot displays the 'Create New Database' form in the Oracle Database Appliance Web Console. The form is organized into several sections. On the left, there are fields for 'DB Name' (db1), 'DB Unique Name', 'Use Existing DB Home' (No), 'DB Version' (12.1.0.2.170117), 'CDB' (Yes), 'PDB Name' (pdb1), and 'PDB Admin User' (pdbadmin). In the center, there are dropdown menus for 'Characterset' (AL32UTF8), 'National Characterset' (AL16UTF16), 'Language' (AMERICAN), 'Territory' (AMERICA), and 'Class' (OLTP). On the right, there are dropdowns for 'Shape' (odb1(1 Core, 8 GB Memory)) and 'Storage' (ACFS), followed by 'Password' and 'Confirm Password' fields, and a 'Configure EM Express' section with 'Yes' and 'No' radio buttons. The 'No' button is selected. At the bottom right, there are 'Cancel' and 'Create' buttons.

5. Enter the following information on the Create New Database page to configure the database:

- a. For the **Create an instance only** option, keep the default value **No**.
- b. In the **DB Name** field, enter a name for the database.

The name must contain lowercase alphanumeric characters and cannot exceed 8 characters. In Oracle Database Appliance X6-2, the Oracle system identifier (SID) is always set to the database name.

- c. (Optional) In the **DB Unique Name** field, enter a name to define a unique name for the database.
- d. In the **DB Version** field, select a database bundle patch number from the drop-down list.

Available database versions with available clones appear in the list in descending order. Supported versions that are not available in the repository appear in light gray font at the bottom of the list. Search is available for the list. To add a supported version to the repository, download the clone file.

- e. In the **DB Home** field, select **Create a new DB Home** or select a version from the drop-down list. The list is populated with database homes that you created earlier.
- f. For the **CDB** option on Oracle Database version 12, select **Yes** or **No**, depending on whether or not you want the database to be a container database (CDB). The default is **Yes**. This option is not available for Oracle Database version 11.
- g. In the **PDB Name** field, enter a name for the pluggable database (PDB). This field is not available for Oracle Database version 11.

Alphanumeric characters and underscore (_) are valid. The name must begin with an alphanumeric character and cannot exceed 30 characters.

- h. In the **Character set** field, select an option from the drop-down list. The default is AL32UTF8.
- i. In the **National Character set** field, select an option from the drop-down list. The default is AL16UTF16.
- j. In the **Language** field, select a database language from the drop-down list. The default is American.
- k. In the **Territory** field, select a territory or location for the database from the drop-down list. The default is America.
- l. In the **Class** field, select a database class from the drop-down list. If an option is not available in the list, it is not supported for the database edition on the Oracle Database Appliance or the version that you selected. The default is OLTP.
- m. In the **Shape** field, select a database shape from the drop-down list. The shape determines the number of cores and total memory allocated to the database. The default is odb1 (1 Core, 8 GB Memory).
- n. In the **Storage** field, select ACFS or ASM from the drop-down list. The default is Oracle ACFS. For Oracle Database version 11, Oracle ACFS is the only option and the field does not appear in the Web Console.

- o. In the **Password** field, enter the password for the SYS, SYSTEM, and PDB Admin.

The password must begin with an alpha character and cannot exceed 30 characters. Quotation marks are not allowed.

- p. In the Confirm Password field, enter the password again to confirm.
- q. For the **Configure EM Express** or **Configure EM Console** option, select **Yes** or **No**. The default is **No**.

Select **Yes** to configure the Oracle Enterprise Manager Database Express (EM Express) console for Oracle Database 12.1.0.2 or the Enterprise Manager Database Control Console (EM Console) for Oracle Database 11.2.0.4. Selecting **Yes** enables you to use the console to manage the database.

- 6. Click **Create**. When prompted, click **Yes** to confirm that you want to start the job to create the database.

The job is submitted and a confirmation page appears with a link to the job. Click the link to view the job progress, tasks, and status. Click the job number to view the tasks.

After you close the Job confirmation page, you can click the **Activity** tab to monitor the job progress. Click the job number to view the tasks and status details.

7.4 Working with Database Homes

Use the Web Console to display a list of database homes, details, and create and delete database homes.

Topics:

[About Managing Multiple Oracle Homes on Oracle Database Appliance](#)
(page 7-6)

Create and manage one or more Oracle home directories and Oracle databases on Oracle Database Appliance.

[Downloading an End-User RDBMS Clone File](#) (page 7-8)

Download an Oracle Database Appliance End-User RDBMS Clone file onto your local machine to create a new database home.

[Viewing Database Homes in the Web Console](#) (page 7-9)

Use the Oracle Appliance Manager Web Console to display a list of database homes, database home details, and to delete database homes in Oracle Database Appliance.

[Creating Database Homes with the Web Console](#) (page 7-9)

Use the Oracle Appliance Manager Web Console to create database homes in Oracle Database Appliance.

7.4.1 About Managing Multiple Oracle Homes on Oracle Database Appliance

Create and manage one or more Oracle home directories and Oracle databases on Oracle Database Appliance.

Oracle home is the directory in which you install Oracle Database binaries, and from which Oracle Database runs. Oracle Database Appliance supports multiple Oracle homes, including support of different release Oracle Database homes. You can create multiple Oracle databases on a given Oracle home. Use Oracle Appliance Manager ODA CLI commands to create and manage multiple Oracle homes and databases on Oracle Database Appliance. Oracle Database Appliance Manager automatically creates

an Oracle Database Oracle home that is compliant with Oracle's Optimal Flexible Architecture (OFA) standards.

Check the related *Readme* files or the *Release Notes* to obtain information about the specific Oracle software releases supported for your Oracle Database Appliance platform.

When you use ODACLI commands to create multiple homes on Oracle Database Appliance, the commands start the Oracle Home cloning process. In Oracle Database Appliance deployments, the user `oracle` is the default software installation owner.

Note:

If you are not upgrading from an earlier release, then download the Oracle Database Appliance End-User Bundle for the Oracle Database version that you want to install.

You can use the Web Console or the command-line interface to create and manage databases.

Use ODACLI commands to create, list, describe, and delete databases on Oracle Database Appliance. The `odacli create-database` command enables you to create a database with minimal user input. When you run this command without any additional options, the command creates a new database home (ORACLE_HOME). You can create a database in an existing home by using the `--dbhomeid` option. To find the `dbhomeid`, use the `odacli list-dbhomes` command.

Alternatively, you can use the Web Console to create list, describe and delete databases and database homes. You can display a list of all Database Homes that includes the database home name, ID, version, the date and time that the database home was created and the location on the same page. Click **Delete** to delete a database home. Click **Create Database Home** to create a new database home.

The screenshot shows the Oracle Database Appliance Web Console interface. The top navigation bar includes the Oracle logo, 'Database Appliance', and links for 'Auto Refresh Disabled' and 'About'. Below the navigation bar are tabs for 'Appliance', 'Database' (which is selected), and 'Activity'. On the left side, there is a sidebar with 'Database' and 'Database Home' (selected). The main content area displays a table of database homes. At the top of the table, there is a search bar, a 'Sort by' dropdown set to 'Created: New to Old', and a 'Create Database Home' button. The table lists two database homes, each with its name, ID, creation date, version, location, and a 'Delete' button.

Database Home	ID	Created	Version	Location	Action
OraDB11204_home1	03838455-cfd0-4573-b987-87bb92dbc29a	Tue Nov 29 2016 7:06:22 AM	11.2.0.4.161018 (23054319, 24006111)	/u01/app/oracle/product/11.2.0.4/dbhome_1	Delete
OraDB12102_home1	04551687-7ca8-4210-80f0-2f68cea9c61c	Tue Nov 29 2016 6:22:21 AM	12.1.0.2.161018 (24927502, 24340679)	/u01/app/oracle/product/12.1.0.2/dbhome_1	Delete

Caution:

Do not apply Oracle Database patches directly to Oracle Databases on Oracle Database Appliance. Only use Oracle Database Appliance patch bundles, which are tested to work across the whole software stack. If a one-off database patch is required, it may be applied to the Oracle Home. When you apply the Oracle Database Appliance patch bundle, it may cause a conflict during future patching events and you might need to roll back and then re-apply the patch.

Related Topics:

[Downloading the ISO Image for Bare Metal Restore](#) (page 6-12)

Download the Oracle Database Appliance 12.1.2.11.0 Bare Metal ISO image to prepare for a bare metal restore on Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

7.4.2 Downloading an End-User RDBMS Clone File

Download an Oracle Database Appliance End-User RDBMS Clone file onto your local machine to create a new database home.

This software clone file contains the Oracle Database software images for Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

- Use the Oracle 12.1.0.2.x RDBMS Software Clone file to create any new 12.1 database homes.
- Use the Oracle 11.2.0.4.x RDBMS Software Clone file for creating any new 11.2 database homes.

Oracle Database Appliance X6-2 models do not support Oracle Database 11.2.0.3.x.

Before you transfer these files to Oracle Database Appliance, complete the hardware setup and configure the public network interface with the command `configure-firstnet` on Oracle Database Appliance.

1. From an external client machine, log on to My Oracle Support.
2. Select the Oracle Database Appliance End-User RDBMS Clone file (Patch) for the supported Oracle Database version.
 - 12.1.0.2.170418: Patch 23494992. Select the latest release from the Release drop down box.
 - 11.2.0.4.170418: Patch 23494997. Select the latest release from the Release drop down box.
3. Click **Download** to download the zip file onto your external client.
4. Use either a Secure Copy (`scp`) command or a USB storage device to copy the file from the external client to `dom0` on Node 0. Use the `/tmp` directory as the target location.

Note:

If you use a USB drive to transfer the file, then format it first as FAT32, `ext3`, or `ext4`. NTFS file formats are not supported.

5. Unzip the patch bundle, then use the `update-repository` command as root user to update the repository.

```
# cd /tmp
# unzip p23494997_1212110_Linux-x86-64.zip .
# odacli update-repository -fileName /tmp/oda-sm-12.1.2.11.0-161116-DB-11.2.0.4.zip
```

Related Topics:

<https://updates.oracle.com/download/23494992.html>

<https://updates.oracle.com/download/23494997.html>

7.4.3 Viewing Database Homes in the Web Console

Use the Oracle Appliance Manager Web Console to display a list of database homes, database home details, and to delete database homes in Oracle Database Appliance.

1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

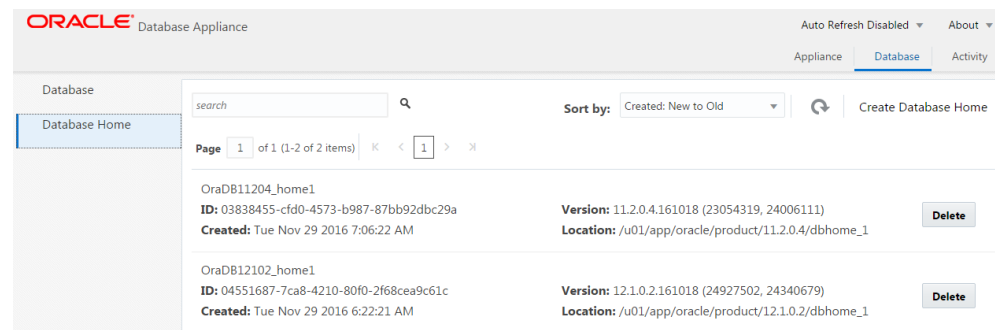
2. Enter the following credentials:

- User name: oda-admin
- Password: welcome1

3. Click the **Database** tab.

4. Click **Database Home** on the left menu.

5. Click **Create Database Home**.



6. Click **Delete** next to a database home entry to delete the database home.

7.4.4 Creating Database Homes with the Web Console

Use the Oracle Appliance Manager Web Console to create database homes in Oracle Database Appliance.

The Create New Database page in the Web Console is populated with default options for most of the configuration options. Drop-down lists enable you to quickly view and select from a list of available options. You can use the drop-down list to create a new database Oracle Database Home (ORACLE_HOME) for the database or select an existing ORACLE_HOME that you created earlier.

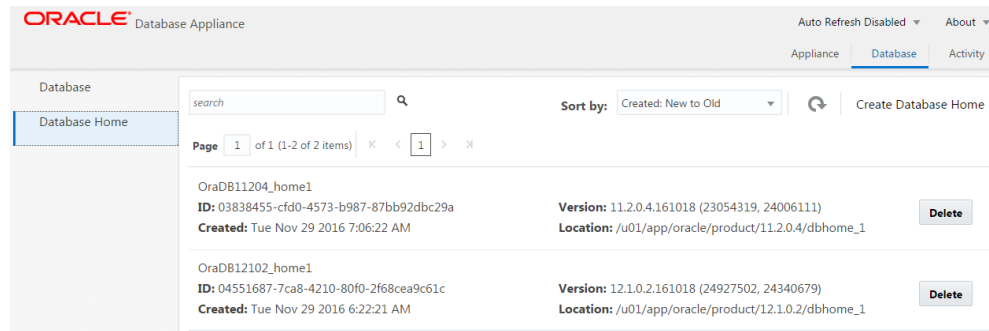
1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

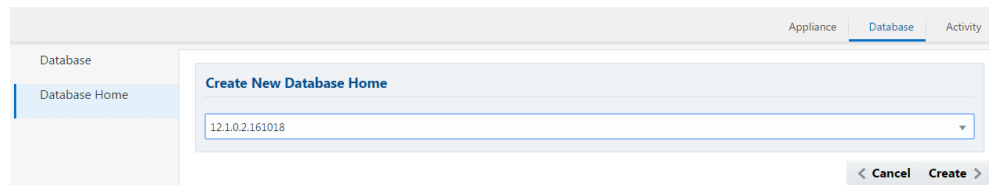
2. Enter the following credentials:

- User name: oda-admin

- Password: welcome1
- Click the **Database** tab.
 - Click **Database Home** on the left menu.
 - Click **Create Database Home**.



- Select a database version from the list of available versions.



- Click **Create**. When prompted, click **Yes** to confirm that you want to start the job.

7.5 Migrating Databases

Review these topics to learn how to prepare for and migrate an entire database to your Oracle Database Appliance.

Topics:

[About Migrating Databases](#) (page 7-11)

You can migrate an entire active container database (CDB) or non-CDB database to an Oracle Database Appliance X6-2S, X6-2M, or X6-2L machine by using the RMAN duplicate command.

[Creating an Instance Only Database](#) (page 7-11)

Create an instance only database from the command-line interface.

[Configuring a Static Listener](#) (page 7-12)

Configure a static listener before you duplicate a database.

[Migrating a Database](#) (page 7-13)

Use the RMAN `Duplicate` command to migrate the entire database to the appliance.

[Registering a Database](#) (page 7-15)

Use the `odacli register-database` command to register the migrated database with the appliance.

7.5.1 About Migrating Databases

You can migrate an entire active container database (CDB) or non-CDB database to an Oracle Database Appliance X6-2S, X6-2M, or X6-2L machine by using the RMAN duplicate command.

When using RMAN Duplicate, ensure to have network connectivity from source and target databases:

- Source database: The existing database to be migrated.
- Target database: The new database created on an X6-2S, X6-2M, or X6-2L environment.

If you do not have network connectivity between the source and the target environments, you can use the offline migration method. Offline migration uses RMAN backup sets for duplication, which does not require connectivity to the primary database.

At a high level, the procedure involves the following steps:

- 1. Deploy or update Oracle Database Appliance X6-2S, X6-M, or X6-2L to the latest version.**

Confirm that the provisioning completed successfully. Use the `odacli list-jobs` and `odacli describe-job` commands to verify the status.

- 2. Create an instance only database from the command-line interface.**

Use the `odacli create-database` command with the `instanceonly` flag on an Oracle Database Appliance X6-2S, X6-M, or X6-2L machine. The new database is the target database.

Creating an instance only database also creates the following:

- ACFS Filesystem used to store the database files
 - Directory structures that are required by the database instance/`rman duplicate` command
 - Password file for the SYS user
- 3. Configure a static listener.**
 - 4. Migrate the existing database to the target database using the backup and restore operations.**
 - 5. Register the migrated database with the appliance.**

Related Topics:

[Oracle Appliance Manager Command-Line Interface](#) (page 12-1)

Oracle Appliance Manager Command-Line Interface has different classes of tools to manage Oracle Database Appliance.

7.5.2 Creating an Instance Only Database

Create an instance only database from the command-line interface.

Note: If you provisioned the appliance without creating an initial database, then you must create a new Oracle home. If the version of the database home is different from the migrated database, create a new database home for the migrated database. You might want to create a database home specifically for the migrated database.

This example creates an instance only database named **PRODDb** with database version 12.1.0.2.160719 and a new database home.

1. Use the `odacli list-dbhomes` command to display a list of database homes and verify that a database home exists for the database version.

Note the ID if you want to use an existing database home or if you want to get more details. Use the `odacli describe-dbhomes` command to get greater details about a specific database home.

```
# odacli list-dbhomes
ID                               Name                               DB Version
-----
b727bf80-c99e-4846-ac1f-28a81a725df6 OraDB12102_home1 12.1.0.2

(continued)
Home Location
-----
/u01/app/orauser/product/12.1.0.2/dbhome_1
```

2. Create a database home if a database home does not exist for the database version.

If you want to create a database home for specifically for the migrated database, you can use the `odacli create-dbhome` command, or you can create the database home when you create the database. The example creates a database home for database version 12.1.0.2.

```
# odacli create-dbhome -v 12.1.0.2
```

3. Create an instance only database. You can use an existing database home ID or you can create a database home when creating the database.

To create an instance only database named **PRODDb** with database version 12.1.0.2 that uses an existing database home with ID b727bf80-c99e-4846-ac1f-28a81a725df6:

```
#odacli create-database -n PRODDb -v 12.1.0.2 -io -m -dh b727bf80-c99e-4846-ac1f-28a81a725df6
```

To create an instance only database named **PRODDb** with database version 12.1.0.2 and a database home:

```
#odacli create-database -n PRODDb -v 12.1.0.2 -io -m
```

7.5.3 Configuring a Static Listener

Configure a static listener before you duplicate a database.

The static listener is only required when using RMAN Duplicate command.

Perform the following steps to manually configure the `listener.ora` file:

1. Log in as a grid user.

2. Navigate to `/u01/app/12.1.0.2/grid/network/admin/` directory.
3. Edit the default `listener.ora` file and append the static database entry.

```
SID_LIST_LISTENER=
(SID_LIST=
(SID_DESC=
  (GLOBAL_DBNAME=db_unique_name with domain)
  (ORACLE_HOME=db_home)
  (SID_NAME=db_unique_name)
  (ENVS="TNS_ADMIN=database_home/network/admin"))
)
```

For example, the following file is edited for a 12.1.0.2 database named PRODDB in the `example.com` domain:

```
SID_LIST_LISTENER=
(SID_LIST=
(SID_DESC=
  (GLOBAL_DBNAME=PRODDB.example.com)
  (ORACLE_HOME=/u01/app/oracle/product/12.1.0.2/dbhome_2)
  (SID_NAME=PRODDB)
  (ENVS="TNS_ADMIN=/u01/app/oracle/product/12.1.0.2/dbhome_2/network/
admin"))
)
```

4. Save the file.
5. Restart the listener.

```
srvctl stop listener -l listener
srvctl start listener -l listener
```

7.5.4 Migrating a Database

Use the `RMAN Duplicate` command to migrate the entire database to the appliance.

Before migrating the database, ensure that the following prerequisites are met:

- Oracle Database Appliance X6-2S, X6-2M, or X6-2L with at least version 12.1.2.9.0.
Use the `odacli list-jobs` and `odacli describe-job` commands to verify the status.
 - Verify that a network connection exists between the source and destination databases.
1. Verify that the `sysdba` connection to the auxiliary database is working. Use the password that you defined when you created the database with the `--instanceonly` flag.

```
sqlplus sys/password@hostname:PORT/GLOBAL_DBNAME as sysdba << EOF
select 1 from dual;
exit;
EOF
```

The following example uses the `Welcome_12` password for myhost on port 1521 for `PRODDB.example.com`.

```
sqlplus sys/Welcome_12@myhost:1521/PRODDB.example.com as sysdba << EOF
select 1 from dual;
```

```
exit;
EOF
```

2. As oracle user, set the ORACLE_HOME and ORACLE_SID environment variables.

```
ORACLE_HOME=path of Oracle Home against which the AUX DB is created
ORACLE_SID=database unique name
```

3. Display a list of all database storage configured on the appliance and database storage identifiers (ID).

Use the `odacli list-dbstorages` to display the storage IDs for all configured filesystems.

```
# odacli list-dbstorages
```

ID Type	DBUnique	Name	Status
68d13446-f26c-49ee-ab75-a393732aa88a	Asm	rdb1	Configured
ff2023d9-338d-4cff-8bb4-e73a89e32ce4	Acfs	PRODDB	Configured

4. Display the database storage details, including the DATA, RECO and REDO locations, for each database storage ID.

For example, use the `odacli describe-dbstorage` command to display information about the ACFS storage for ID 9fe39332-cc1a-4b4b-8393-165524a6ef6b.

```
# odacli describe-dbstorage -i ff2023d9-338d-4cff-8bb4-e73a89e32ce4
DBStorage details
-----
ID: ff2023d9-338d-4cff-8bb4-e73a89e32ce4
DB Name: PRODDB
DBUnique Name: PRODDB
DB Resource ID: c5b77384-634e-4dc8-b10b-fa2831d2c59b
Storage Type: Acfs
DATA Location: /u02/app/oracle/oradata/PRODDB
RECO Location: /u03/app/oracle/fast_recovery_area/
REDO Location: /u03/app/oracle/redo/
State: ResourceState(status=Configured)
Created: November 22, 2016 12:07:12 PM SGT
UpdateTime: November 22, 2016 12:26:39 PM SGT
```

5. Duplicate the database.

Use the RMAN duplicate database command to duplicate the database.

```
rman target sys/welcome_12@source database hostname:PORT
(Continued)
/Service Name auxiliary sys/welcome_12@hostname of the target database:1521/
service name
RUN {
SET NEWNAME FOR DATABASE TO NEW;
duplicate target database to PRODDB from active database
SPFILE
SET cluster_database 'false'
SET audit_file_dest '/u01/app/oracle/admin/PRODDB/adump'
SET db_create_file_dest '/u02/app/oracle/oradata/PRODDB'
SET db_create_online_log_dest_1 '/u03/app/oracle/redo'
SET db_recovery_file_dest '/u03/app/oracle/fast_recovery_area'
SET control_files '/tmp/control_PRODDB.ctl' nofilenamecheck;
}
```

7.5.5 Registering a Database

Use the `odacli register-database` command to register the migrated database with the appliance.

The `dbclass`, `dbshape`, `servicename` and `password` are mandatory for registering the database. The `dbclass` and `dbshape` determine the `sga_target` and `pga_target` settings. The database `init.ora` parameters are reset as part of the `odacli register-database` command. Review the `init.ora` parameters after registration and ensure that the parameters set correctly.

Note:

For a standby database, open the standby database in `READ ONLY` mode before executing the `odacli register-database` command.

1. If you have Oracle Database version 12.1 with SQL patches, ensure that the `sqlpatches` are in the Oracle Database Appliance environment. If the patches are not in the environment, copy the `$OH/sqlpatch` directories from the source database home to the `$OH` in Oracle Database Appliance before executing the `odacli register-database` command

The `odacli register-database` command invokes the `datapatch` utility for applying the post patch SQLs. If the source database has any `sqlpatches` applied that are not present in the Oracle Database Appliance environment, then the `datapatch` will fail.

2. If you have Oracle Database version 11.2 with SQL patches, you must roll back any patches applied to the source database that are not part of the installed PSU.
3. Register the database with Oracle Database Appliance.

```
odacli register-database -c OLTP -s odb1 -sn proddb.example.com -p
```

Password for SYS:

```
{
  "jobId" : "317b430f-ad5f-42ae-bb07-13f053d266e2",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "August 08, 2016 05:55:49 AM EDT",
  "description" : "Database service registration with
                  db service name: proddb.example.com",
  "updateTime" : "August 08, 2016 05:55:49 AM EDT"
}
rpandrap: ]# odacli describe-job -i "317b430f-ad5f-42ae-bb07-13f053d266e2"
```

Job details

```
-----
ID: 317b430f-ad5f-42ae-bb07-13f053d266e2
Description: Database service registration with
            db service name: proddb.example.com
Status: Success
Created: November 23, 2016 5:55:49 AM EDT
Message:
```

```
Task Name                               Start Time
-----
```

restore control file	November 23, 2016 5:55:49 AM EDT
move spfile to right location	November 23, 2016 5:56:08 AM EDT
register DB with clusterware	November 23, 2016 5:56:13 AM EDT
reset db parameters	November 23, 2016 5:57:05 AM EDT
Running DataPatch	November 23, 2016 5:57:36 AM EDT

(Continued)

End Time	Status
-----	-----
November 23, 2016 5:56:08 AM EDT	Success
November 23, 2016 5:56:13 AM EDT	Success
November 23, 2016 5:57:05 AM EDT	Success
November 23, 2016 5:57:36 AM EDT	Success
November 23, 2016 5:57:49 AM EDT	Success

4. Use the `odacli list-databases` command to view the registered database.

7.6 About Managing Multiple Database Instances Using Instance Caging

Use instance caging to manage your system resources on Oracle Database Appliance.

Oracle Database provides a method for managing CPU allocations on a multi-CPU server that runs multiple database instances. This method is called instance caging. Instance caging uses an initialization parameter to limit the number of CPUs that an instance can use simultaneously.

Instance caging and Oracle Database Resource Manager (the Resource Manager) work together to support your desired service levels across multiple instances. Consolidation can minimize idle resources, maximize efficiency, and lower costs.

Oracle Database Appliance templates are already tuned for the size of each database instance workload. They are designed to run on a specific number of cores. Instance caging ensures that each database workload is restricted to the set of cores allocated by the template, enabling multiple databases to run concurrently with no performance degradation, up to the capacity of Oracle Database Appliance. You can select database template sizes larger than your current needs to provide for planned growth.

Note:

Oracle strongly recommends that you use the Oracle Database Appliance templates, because they implement best practices and are configured specifically for Oracle Database Appliance.

The Oracle Database Appliance Manager interface refers to the database sizing templates as database classes.

By default, instance caging is not enabled on Oracle Database Appliance. To enable instance caging, set the initialization parameter, `RESOURCE_MANAGER_PLAN`, for each database on Oracle Database Appliance. The parameter specifies the plan to be used by the Resource Manager for the current instance. Setting this parameter directs the Resource Manager to allocate core resources among databases. If a plan is not specified with this parameter, then the Resource Manager and instance caging are not enabled.

Instance caging allocation of core resources is enabled in accordance with the Oracle Database Appliance database template size that you select for each database. The `CPU_COUNT` initialization parameter is set in the template. Use the `CPU_COUNT` setting

that matches the size of each database to consolidate, and follow the standard instructions for configuring instance caging.

7.7 Oracle Enterprise Manager Database Express and Oracle Database Appliance

You can use Oracle Enterprise Manager Database Express, also known as EM Express, to manage your database.

Oracle Enterprise Manager Database Express is a web-based tool for managing Oracle Database 12c. Oracle Enterprise Manager Database Express is installed with Oracle Database on the Oracle Database Appliance.

Oracle Enterprise Manager Database Express provides the following features:

- Support for basic administrative tasks, such as storage and user management
- Comprehensive solutions for performance diagnostics and tuning
- Performance advisors in a graphic user interface
- Oracle Database utilities in a graphic user interface, such as SQL*Loader and Oracle Recovery Manager (RMAN)

Managing Storage

Expand storage capacity and replace disks in Oracle Database Appliance.

Topics:

[About Managing NVMe Storage Disks](#) (page 8-1)

Depending on the available drives, you can expand Oracle Database Appliance X6-2S, X6-2M, or X6-L storage to add NVMe disks or replace existing NVMe disks.

8.1 About Managing NVMe Storage Disks

Depending on the available drives, you can expand Oracle Database Appliance X6-2S, X6-2M, or X6-L storage to add NVMe disks or replace existing NVMe disks.

Use the ODAADMCLI commands to perform appliance storage maintenance tasks, including perform storage diagnostics and collect diagnostic logs for storage components.

Changing NVMe Storage Disks

The default configuration for Oracle Database Appliance X6-2S or X6-2M includes two (2) NVMe disks. You can expand storage by adding two (2) additional disks for a total of four (4) NVMe disks. When you expand storage, you must add both NVMe drives, adding just one is not supported.

The default configuration for Oracle Database Appliance X6-2L includes six (6) NVMe disks. You can expand storage by adding three (3) disks for a total of nine (9) NVMe disks. When you expand storage, you must add all three NVMe drives, adding just one or two is not supported.

Oracle Database Appliance uses special commands to add or remove NVMe storage.

WARNING: Pulling a drive before powering it off will crash the kernel, which can lead to data corruption. Do not pull the drive when the LED is an amber or green color. When you need to replace an NVMe drive, use the software to power off the drive before pulling the drive from the slot. If you have more than one disk to replace, complete the replacement of one disk before starting replacement of the next disk.

Drive LED Indicators

Each NVMe drive slot has a light-emitting diode (LED) indicator indicating the disk status:

- Green LED: OK/ Activity. Disk is working normally. It is not safe to pull the drive when the green indicator light is on.

- Amber LED: Service needed or there is a critical warning. It is not safe to pull the drive when the amber indicator light is on.
- Blue LED: The disk is powered off and it is safe to remove the drive from the system.

Managing Networks

Use the Web Console to view, create, update, and delete networks on your Oracle Database Appliance.

Topics:

[Viewing Configured Networks](#) (page 9-1)

Use the Oracle Appliance Manager Web Console to display a list of configured networks and network details.

[Creating a Network](#) (page 9-2)

Use the Oracle Appliance Manager Web Console to create networks in Oracle Database Appliance.

[Updating a Network](#) (page 9-3)

Use the Oracle Appliance Manager Web Console to update an existing network configuration.

[Deleting a Network](#) (page 9-3)

Use the Oracle Appliance Manager Web Console to delete a specific network.

Related Topics:

[odacli Network Commands](#) (page 12-37)

Use the `odacli network` commands to list and describe network interfaces.

9.1 Viewing Configured Networks

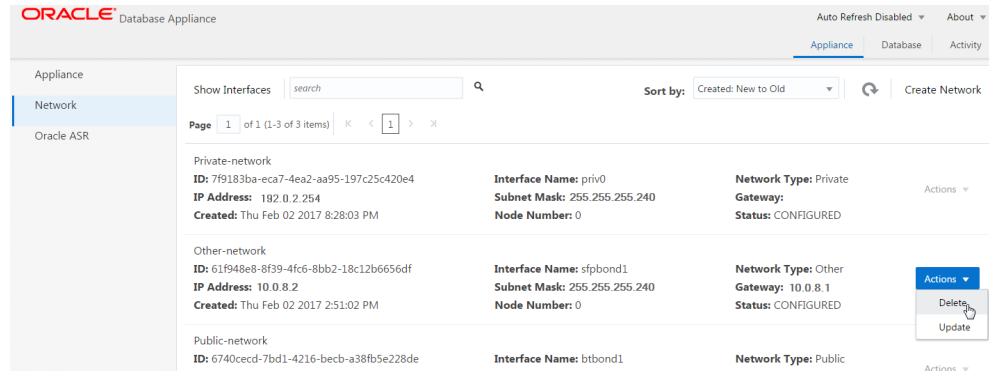
Use the Oracle Appliance Manager Web Console to display a list of configured networks and network details.

1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

2. Enter the following credentials:

- User name: `oda-admin`
- Password: `welcome1`

3. Click the **Network** tab.

You can view network details, create a new network, update an existing network, and delete a network.

9.2 Creating a Network

Use the Oracle Appliance Manager Web Console to create networks in Oracle Database Appliance.

The Web Console provides a quick and easy method of creating networks. You can create the following types of networks: Public, Private, Dataguard, Backup, and Other.

1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

2. Enter the following credentials:

- User name: `oda-admin`
- Password: `welcome1`

3. Click the **Network** tab.

4. Click **Create Network** to display the Create New Network page.

5. Enter the following information on the Create New Network page to configure the network:

- a. In the **IP Address** field, enter the network's IP address.
- b. In the **Interface** field, select an interface from the menu.
- c. In the **Subnet Mask** field, enter the subnet mask.
- d. In the **Network Type** field, select an option from the drop-down list. The options are: Public, Private, Dataguard, Backup, and Other.
- e. In the **Gateway** field, enter the gateway. The gateway is required for the default network.
- f. For the Default Network, select **Yes** or **No** to identify whether or not the network is the default network.

In this example the fields are completed to create a new Other type network that uses an `sfpbond1` interface with a defined IP address, subnet mask, and gateway.

The screenshot shows the Oracle Database Appliance Web Console interface. On the left, there is a navigation menu with 'Appliance', 'Network', and 'Oracle ASR'. The 'Network' tab is selected. The main area displays the 'Create New Network' form. The form has the following fields and values:

Field	Value
IP Address *	10.0.8.2
Interface *	sfbond1
Subnet Mask *	255.255.255.240
Network Type	Other
Gateway	10.0.8.1
Default Network	☐ Yes ☒ No

At the bottom right of the form, there are buttons for '< Cancel' and 'Create >'.

6. Click **Create**. When prompted, click **Yes** to confirm that you want to start the job to create the network.

9.3 Updating a Network

Use the Oracle Appliance Manager Web Console to update an existing network configuration.

1. Open a browser and enter the following URL to launch the Web Console:
`https://ip-address:7093/mgmt/index.html`
2. Enter the following credentials:
 - User name: oda-admin
 - Password: welcome1
3. Click the **Network** tab.
4. Select **Update** from the Actions menu next to the network you want to update.
5. Edit the fields, as needed, on the Update Network page to update the network configuration:
 - a. In the **IP Address** field, enter the network's IP address.
 - b. In the **Interface** field, enter the name of the network interface.
 - c. In the **Subnet Mask** field, enter the subnet mask.
 - d. In the **Network Type** field, select an option from the drop-down list. The default is Other.
 - e. In the **Gateway** field, enter the gateway. The gateway is required for the default network.
 - f. For the Default Network, select **Yes** or **No** to identify whether or not the network is the default network.
6. Click **Update**. When prompted, click **Yes** to confirm that you want to start the job to update the network.

9.4 Deleting a Network

Use the Oracle Appliance Manager Web Console to delete a specific network.

Note: You can only delete networks that are not public or private networks. The delete option is disabled for the private and public networks.

1. Open a browser and enter the following URL to launch the Web Console:
`https://ip-address:7093/mgmt/index.html`
2. Enter the following credentials:
 - User name: oda-admin
 - Password: welcome1
3. Click the **Network** tab.
4. Select **Delete** from the Actions menu next to a network entry.

Other-network ID: 61f948e8-8f39-4fc6-8bb2-18c12b6656df IP Address: 10.0.8.2 Created: Thu Feb 02 2017 2:51:02 PM	Interface Name: sfpbond1 Subnet Mask: 255.255.255.240 Node Number: 0	Network Type: Other Gateway: 10.0.8.1 Status: CONFIGURED	Actions ▼ Delete Update
Public-network ID: 6740cecd-7bd1-4216-becb-a38fb5e228de	Interface Name: btbond1	Network Type: Public	

Oracle Appliance Manager Web Console

Oracle Appliance Manager Web Console provides a user-friendly interface to view and create databases and view job activity.

Topics:

[About the Oracle Appliance Manager Web Console](#) (page 10-1)

Use the Oracle Appliance Manager Web Console to view and create databases and to view job activity.

[Configuring Oracle ASR in the Web Console](#) (page 10-2)

Configure Oracle Auto Service Request.

[Viewing Job Activity](#) (page 10-5)

Use the Oracle Appliance Manager Web Console to view job activity, the status of tasks in a job, and job status.

10.1 About the Oracle Appliance Manager Web Console

Use the Oracle Appliance Manager Web Console to view and create databases and to view job activity.

The Web Console assists you to deploy Oracle Databases that follow Optimal Flexible Architecture guidelines. The Optimal Flexible Architecture standard provides best practices configurations to help to ensure database deployments that are easier to support and maintain. Optimal Flexible Architecture includes the following:

- Structured organization of directories and files, and consistent naming for critical database files, such as control files, redo log files, and other critical files, which simplifies database administration.
- Separation of tablespace contents to minimize tablespace free space fragmentation, and maximize administrative flexibility
- Stripe and Mirror Everything (SAME) deployment, which safeguards against database failures

The Web Console provides a user-friendly option to perform the following tasks:

- Deploy the appliance
- View existing databases
- Create and delete databases
- View existing database homes
- Create and delete database homes
- View job activity

- Configure and enable Oracle Auto Service Request (Oracle ASR)

Note: Create Oracle Databases using the Web Console or command-line interface to ensure that your database is configured optimally for Oracle Database Appliance.

10.2 Configuring Oracle ASR in the Web Console

Configure Oracle Auto Service Request.

Topics:

[About Configuring Oracle ASR](#) (page 10-2)

Configure Oracle Auto Service Request (Oracle ASR) to automatically generate service requests for specific hardware faults.

[Configuring Internal Oracle ASR](#) (page 10-3)

Use the Oracle Appliance Manager Web Console to configure Oracle Auto Service Request (Oracle ASR) in Oracle Database Appliance.

[Registering with External Oracle ASR Manager](#) (page 10-4)

Use the Oracle Appliance Manager Web Console to register Oracle Database Appliance with an existing Oracle Auto Service Request (Oracle ASR) Manager.

10.2.1 About Configuring Oracle ASR

Configure Oracle Auto Service Request (Oracle ASR) to automatically generate service requests for specific hardware faults.

Oracle ASR is a secure support feature that can improve system availability through expedited diagnostics and priority service request handling. You can configure Oracle ASR on Oracle Database Appliance to use its own ASR Manager (**internal Oracle ASR**) or use Oracle ASR Manager configured on another server in the same network as your appliance (**external Oracle ASR**). If you already have Oracle ASR Manager configured in your environment, you can register Oracle Database Appliance with your existing Oracle ASR Manager.

Note: With an internal Oracle ASR Manager, an alert is not sent when the server goes down. If a critical event occurs on Oracle Database Appliance with an external Oracle ASR Manager, then an alert can still be sent to Oracle.

You can configure Oracle ASR as part of deploying the appliance, or you can use the Oracle Appliance Manager Web Console or command-line interface to configure or edit an Oracle ASR after deployment.

You need the following items to support Oracle ASR:

- Oracle Database Appliance hardware must be associated with a Support Identifier (SI) in My Oracle Support.
- If a proxy server is required for Internet access to Oracle, then you must also provide the name of the proxy server. You can optionally configure Oracle ASR to use Simple Network Management Protocol (SNMP) Version 2 or SNMP Version 3.

- To configure an internal Oracle ASR Manager, you need a My Oracle Support account user name (e-mail address) and password associated with the My Oracle Support account under which the server is registered.
- To register with an external Oracle ASR Manager, you need the IP address of the Oracle ASR Manager.

Related Topics:

[Configuring Internal Oracle ASR](#) (page 10-3)

Use the Oracle Appliance Manager Web Console to configure Oracle Auto Service Request (Oracle ASR) in Oracle Database Appliance.

[Configuring External Oracle ASR](#) (page 10-4)

Use the Oracle Appliance Manager Web Console to register Oracle Database Appliance with an existing Oracle Auto Service Request (Oracle ASR) Manager.

[odacli configure-asr](#) (page 12-42)

10.2.2 Configuring Internal Oracle ASR

Use the Oracle Appliance Manager Web Console to configure Oracle Auto Service Request (Oracle ASR) in Oracle Database Appliance.

You can register with an internal Oracle ASR Manager at any time, or edit an existing registration. Before configuring, verify that the Oracle Database Appliance hardware is associated with a Support Identifier (SI) in My Oracle Support.

You need the following information to configure Oracle ASR:

- The e-mail address associated with the My Oracle Support account under which the server is registered
- The password associated with the My Oracle Support account under which the server is registered
- If a proxy server is required for Internet access to Oracle, then you must also provide the name of the proxy server

1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

2. Enter the following credentials:

- User name: `oda-admin`
- Password: `welcome1`

3. Click the **Appliance** tab.
4. Click the Oracle ASR menu.
5. If Oracle ASR is already configured,
6. Click **Configure ASR**.
7. Select **Internal** from the ASR Type menu.

8. In the ASR User Name field, enter e-mail address associated with the My Oracle Support account under which the server is registered.
9. In the Password field, enter the password associated with the My Oracle Support account under which the server is registered.
10. Select **V2** or **V3** from the SNMP Version menu.
11. (Optional) If you are using an HTTP Proxy for upload to Oracle ASR, complete the following:
 - a. **HTTP Proxy used for Upload to ASR:** Select **Yes**.
 - b. **Proxy User Name:** If you are using a proxy for upload, enter the proxy user name.
 - c. **Proxy Port:** If you are using a proxy for upload, enter the proxy port.
 - d. **(Optional) HTTP Proxy Requires Authentication:** If you are using a proxy for upload, select **Yes** if you require authentication. If you do not require authentication, select **No**.
 - e. **(Optional) Proxy Password:** If you are using a proxy for upload and require authentication, enter the proxy password.
12. Click **Create**.

10.2.3 Registering with External Oracle ASR Manager

Use the Oracle Appliance Manager Web Console to register Oracle Database Appliance with an existing Oracle Auto Service Request (Oracle ASR) Manager.

You can register with an external Oracle ASR Manager at any time.

Before configuring, verify that the Oracle Database Appliance hardware is associated with a Support Identifier (SI) in My Oracle Support.

To configure Oracle ASR, you need the IP Address for the Oracle ASR Manager:

1. Open a browser and enter the following URL to launch the Web Console:
`https://ip-address:7093/mgmt/index.html`
2. Enter the following credentials:
 - User name: `oda-admin`
 - Password: `welcome1`
3. Click the **Appliance** tab.
4. Click the Oracle ASR menu.
5. If Oracle ASR is already configured,
6. Click **Configure ASR**.
7. Select **External** from the ASR Type menu.
8. Enter the IP Address for the Oracle ASR Manager in the ASR Manager IP field.

9. Select **V2** or **V3** from the SNMP Version menu.

10. Click **Create**.

10.3 Viewing Job Activity

Use the Oracle Appliance Manager Web Console to view job activity, the status of tasks in a job, and job status.

1. Open a browser and enter the following URL to launch the Web Console:

`https://ip-address:7093/mgmt/index.html`

2. Enter the following credentials:

- User name: oda-admin
- Password: welcome1

3. Click **Activity**.

The jobs page displays recent jobs, the job name, identifier (ID) date created, and status.

4. (Optional) Click the job name to display greater details about the job, including the tasks that make up the job and the status of each task. In this image, the job name is Provisioning service creation. Several tasks finished successfully, but there are two tasks that failed and the overall job status is Failure due to inability to run root scripts.

The screenshot shows the 'Activity' tab in the Oracle Appliance Manager Web Console. It displays details for a job named 'Provisioning service creation' with ID 'd88c1f5f-b088-4dba-acf7-92a9f83c9369'. The job was created on 'Thu Feb 02 2017 3:35:02 AM' and has a status of 'Failure'. The message indicates a failure to run root scripts. Below the job details is a table of tasks:

Task Name	Start Time	End Time	Status
Cloning GI home	Thu Feb 02 2017 3:41:21 AM	Thu Feb 02 2017 3:44:39 AM	Success
Updating GIHome version	Thu Feb 02 2017 3:44:39 AM	Thu Feb 02 2017 3:44:43 AM	Success
Grid stack creation	Thu Feb 02 2017 3:44:43 AM	Thu Feb 02 2017 3:51:40 AM	Failure
Configuring GI	Thu Feb 02 2017 3:44:43 AM	Thu Feb 02 2017 3:45:10 AM	Success
Running GI root scripts	Thu Feb 02 2017 3:45:10 AM	Thu Feb 02 2017 3:51:40 AM	Failure

Managing Oracle Database Appliance Virtualized Platform

Review the concepts and procedures for Oracle Database Appliance Virtualized Platform.

Topics:

[About KVM Virtualization](#) (page 11-1)

KVM virtualization uses a kernel-based virtual machine (KVM) to create a virtualized environment for your Linux applications.

11.1 About KVM Virtualization

KVM virtualization uses a kernel-based virtual machine (KVM) to create a virtualized environment for your Linux applications.

Beginning with Oracle Database Appliance 12.1.2.11.0, the required RPMs are included in the Oracle Database Appliance patch bundle. When you upgrade to Oracle Database Appliance 12.1.2.11.0, the Oracle Linux KVM hypervisor is installed as part of the Oracle Linux kernel and uses CPU extensions (HVM) for virtualization. The Linux KVM is a Type II hypervisor, which means that it is one layer above the operating system. When you run your Linux applications in a virtualized environment, you can isolate your database from your applications. One of the advantages to isolating the applications is that you can update your Oracle Database without impacting the applications.

All virtual machines, or guests, are Oracle Linux operating systems and only Linux applications are supported in the KVM. You cannot deploy an Oracle Database in the KVM. Oracle Databases must run on the base Oracle Linux operating system.

See Also:

For more about Oracle Linux KVM on Oracle Database Appliance, see the Oracle Database Appliance blog at <https://blogs.oracle.com/oda/>.

Oracle Appliance Manager Command-Line Interface

Oracle Appliance Manager Command-Line Interface has different classes of tools to manage Oracle Database Appliance.

Topics:

[About Oracle Appliance Manager Command-line Interface](#) (page 12-2)

Three classes of tools are available to perform configuration, lifecycle management, and system administration on Oracle Database Appliance.

[Configure Command](#) (page 12-4)

Use the `configure` and `update` commands to configure the appliance.

[odacli Apply Patch and Update Commands](#) (page 12-6)

Use the `odacli update` and `apply patch` commands to apply patches and update the appliance.

[odacli Appliance Commands](#) (page 12-12)

Use the `odacli appliance` commands to perform lifecycle activities for the appliance.

[odacli CPU Core Commands](#) (page 12-13)

Use the CPU Core commands to enable CPU cores and display current and historical CPU core configurations.

[odacli Database Commands](#) (page 12-15)

Use the `odacli database` commands to perform database lifecycle operations.

[odacli DBHome Commands](#) (page 12-28)

Use the `odacli DBHome` commands to manage database Home operations.

[odacli Database Storage Commands](#) (page 12-31)

Use the Database Storage commands to list, describe, create, and delete Oracle database storage.

[odacli Job Commands](#) (page 12-35)

Use the `odacli list-jobs` and `odacli describe-job` commands to display job details.

[odacli Network Commands](#) (page 12-37)

Use the `odacli network` commands to list and describe network interfaces.

[odacli Oracle Auto Service Request Commands](#) (page 12-42)

Use the Oracle Auto Service Request (Oracle ASR) commands to configure, update, test, and delete Oracle ASR on the system.

[odaadmcli Storage Commands](#) (page 12-47)

Use the `odaadmcli storage` commands to perform storage diagnostics.

[odaadmcli Hardware Monitoring Commands](#) (page 12-55)

Use the hardware monitoring commands to display hardware configurations.

[odaccli-adm set-credential](#) (page 12-61)

Use the `odaccli-adm set-credential` command to change the `oda-admin` user credentials.

12.1 About Oracle Appliance Manager Command-line Interface

Three classes of tools are available to perform configuration, lifecycle management, and system administration on Oracle Database Appliance.

Oracle Database Appliance X6-2 uses a role-based command-line interface. Use the ODACLI commands to perform lifecycle management tasks and the ODAADMCLI commands to perform storage and hardware monitoring maintenance. Many tasks related to managing Oracle Databases are also required with databases on Oracle Database Appliance. Tasks common to Oracle Database generally are described in the Oracle Database documentation library. However, to simplify tasks, use the Oracle Database Appliance command-line interface. The ODACLI and ODAADMCLI utilities combine the capabilities of the SYS database administrator role and the operating system Superuser (`root` user). Always perform administrative tasks using the command-line utilities.

The following classes of commands are available:

- **Deployment and Configuration:** Use the deployment and configuration commands as part of the initial deployment of the appliance and to configure CPU cores.
- **Lifecycle management:** Use `odaccli` commands to perform database and system administration tasks for the appliance. The `odaccli` commands are the primary interface to perform life cycle activities for the appliance.
- **Administration:** Use `odaadmcli` commands to perform hardware administration tasks for the appliance. The `odaadmcli` commands are the interface for infrequent administration activities needed to manage appliance hardware components.

You can perform the following deployment and configuration tasks:

- Configure the first network in the appliance
- Unzip and copy the Oracle Database Appliance Single Instance Software Bundle to the correct locations
- Set the number of CPU Cores for the system

You can perform the following appliance lifecycle tasks with `odaccli` commands:

- Create and describe the appliance
- Create, list, describe, and delete databases
- Create, list, describe, and delete Oracle Database Homes

- Create, list, and describe the networks
- List and describe the jobs

You can perform the following appliance administration tasks with `odaadmc li` commands:

- Show storage, disks, diskgroups, and controllers
- Display storage diagnostics for disks and NVM Express (NVMe)s
- Locate disks
- Show server, memory, processor, power, cooling, and network details

Depending on your version of Oracle Appliance Manager and your hardware, some of the `odac li` commands may not be available to you. To see which commands are supported on your version of Oracle Appliance Manager and your hardware, run the `odac li help` command: `odac li -h`.

ODACLI Command Location and Path Configuration

The Oracle Appliance Manager command-line interface is in the following directory:

`/opt/oracle/dcs/bin/odac li`

Configure the root user account on your Oracle Database Appliance servers to have the `PATH` variable defined to search for `odac li` commands in the path `/opt/oracle/oda/bin/odac li`.

ODACLI Syntax

Oracle Appliance Manager command-line interface commands and parameters are case-sensitive.

An `odac li` command uses the following command syntax:

`odac li command [options]`

- *command* is an action you want to perform on the appliance. For example: `list-networks`, `create-appliance`, or `describe-jobs`.
- *options* are optional parts of the `odac li` command. Options can consist of one or more options that extend the use of the `odac li` command carried out on an object. Options include additional information about the action that you want to perform on the object. Option names are preceded with a dash. Some options require the name of an object for the command to perform the action that you want to carry out. When appending `-j` to the `odac li` command, the output is returned in JSON format. The help option (`-h`) is an option that is available with almost all commands. When you include the `-h` option, you can obtain additional information about the command that you want to perform.

Example 12-1 Command-Line Interface Syntax

```
# odac li create-database -h
```

Usage: `create-database [options]`

Options:

```
* --adminpassword, -m
    Password for SYS,SYSTEM and PDB Admin
--backupconfigid, -bi
    Backup Config ID
--cdb, -c
```

```
        Create Container Database (Inverse option: --no-cdb/-no-c)
--characterset, -cs
    Character Set (default:AL32UTF8)          Default: AL32UTF8
--databaseUniqueName, -u
    database unique name
--dbclass, -cl
    Database Class EE: OLTP/DSS/IMDB, SE: OLTP    Default: OLTP
--dbconsole, -co
    Enable Database Console (Inverse option: --no-dbconsole/-no-co)
--dbhomeid, -dh
    Database Home ID (Use Existing DB Home)
--dblanguage, -l
    Database Language (default:AMERICAN)        Default: AMERICAN
* --dbname, -n
    Database Name
--dbshape, -s
    Database Shape{odb1s,odb1,odb2,etc.}        Default: odb1
--dbstorage, -r
    Database Storage {ACFS|ASM}                 Default: ACFS
--dbterritory, -dt
    Database Territory (default:AMERICA)        Default: AMERICA
--dbtype, -y
    Database Type: SI                          Default: SI
--help, -h
    get help
--instanceonly, -io
    Create Instance Only (For Standby)
--json, -j
    json output
--nlscharacterset, -ns
    NLS Character Set (default:AL16UTF16)        Default: AL16UTF16
--no-cdb, -no-c
    Won't create Container Database (Inverse option: --cdb/-c)
--no-dbconsole, -no-co
    Disable Database Console (Inverse option: --dbconsole/-co)
--pdbadmin, -d
    Pluggable Database Admin User
--pdbname, -p
    Pluggable Database Name
--version, -v
    Database Version
```

Oracle Database Appliance Manager Command-Line Interface Help

Run the `-h` command to see the usage information for all commands available for your Oracle Database Appliance. For example:

```
odacli -h
```

Run `odacli command -h` or `odacliadm command -h` to see detailed help about a specific command. For example, to see detailed help for the `odacli describe-dbhome` command, use the following:

```
odacli describe-dbhome -h
```

12.2 Configure Command

Use the `configure` and `update` commands to configure the appliance.

Topics:

[configure-firstnet](#) (page 12-5)

Use the `configure-firstnet` command to configure the first network in the appliance after racking and connecting the power and network cables. This command ensures that the system is available in the network, enabling you to manage the deployment through the Oracle Appliance Manager Web Console.

12.2.1 configure-firstnet

Use the `configure-firstnet` command to configure the first network in the appliance after racking and connecting the power and network cables. This command ensures that the system is available in the network, enabling you to manage the deployment through the Oracle Appliance Manager Web Console.

Syntax

To ensure that the system is available in the network:

```
configure-firstnet
```

Example 12-2 Configuring the First Network

Configure the first network to use a `btbond1` interface without configuring DHCP. Complete the IP address, netmask address, and gateway address.

Values that you need to provide are shown in *italic font*, with the exception of the `net1` gateway address; the program obtains the gateway IP address. The program derives this gateway address using the network information you provided for the other IP addresses. Accept this value, unless your network administrator provides an alternative gateway address that is different from the default that the appliance command-line interface detects.

```
# configure-firstnet
```

```
Select the Interface to configure the network on (btbond1 sfpbond1): btbond1
Configure DHCP on btbond1 (yes/no): no
INFO: You have chosen Static configuration
Enter the IP address to configure: 10.1.10.2
Enter the Netmask address to configure: 255.255.255.0
Enter the Gateway address to configure: 10.1.10.1
INFO: Plumbing the IPs now
INFO: Restarting the network
Shutting down interface btbon1:
bonding: btbond1: Removing slave em1.
bonding btbon1: Warning: the permanent HWaddr of em1 - <mac> - is still in use by
btbon1. Set the HWaddr of em1 to a different address to avoid conflicts.
bonding: btbond1: releasing active interface em1
bonding: btbond1: making interface em2 the new active one.
bonding: btbond1: Removing slave em2.
bonding: btbond1: releasing active interface em2
:::
bonding: btbond1: Setting em1 as primary slave.
:::
bonding: btbond2: Setting em3 as primary slave.
:::
bonding: sfpbond1: Setting p3p1 as primary slave.
```

12.3 odacli Apply Patch and Update Commands

Use the `odacli update` and `apply patch` commands to apply patches and update the appliance.

Topics:

[odacli describe-component](#) (page 12-6)

Use the `odacli describe-component` command to display the installed version and the latest available version for each component.

[odacli describe-latestpatch](#) (page 12-7)

Use the `odacli describe-latestpatch` command to display a list of the latest supported patch versions for each component.

[odacli update-dbhome](#) (page 12-8)

Use the `odacli update-dbhome` command to update a specific RDBMS Home to the latest patch bundle version.

[odacli update-dcsagent](#) (page 12-8)

Use the `odacli update-dcsagent` command to update the agent.

[update-image](#) (page 12-9)

Use the `odacli update-repository` command to unzip the Single Instance Software Bundle (SIB). For releases earlier than 12.1.2.9.0, use the `update-image` command to unzip and copy the Single Instance Software Bundle to the appropriate locations so that the system is ready for deployment.

[odacli update-repository](#) (page 12-10)

Use the `odacli update-repository` command to unzip and copy the Single Instance Software Bundle (SIB) and update the repository with the new patches.

[odacli update-server](#) (page 12-11)

Use the `odacli update-server` command to update the operating system, firmware, Oracle Appliance Kit, Oracle Clusterware, and all other infrastructure components.

12.3.1 odacli describe-component

Use the `odacli describe-component` command to display the installed version and the latest available version for each component.

If there are multiple DB Homes installed in Oracle Database Appliance, then the output will display the version details for each of the installed homes. You can use this command to check the component version after applying a patch.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

`odacli describe-component [-h]`

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-3 Displaying Patch Details for Components

```
# odacli describe-component
```

```
System Version
```

```
-----
```

```
12.1.2.10.0
```

Component	Installed Version	Available Version
-----	-----	-----
OAK	12.1.2.10.0	up-to-date
GI	12.1.0.2.170117	up-to-date
DB {		
[OraDB12102_home1]	12.1.0.2.170117	up-to-date
[OraDB11204_home1]	11.2.0.4.161018	up-to-date
}		
ILOM	3.2.8.24.114611	up-to-date
BIOS	39070000	up-to-date
OS	6.8	up-to-date

12.3.2 odacli describe-latestpatch

Use the `odacli describe-latestpatch` command to display a list of the latest supported patch versions for each component.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli describe-latestpatch [-h]
```

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-4 Listing the Latest Supported Versions

```
# odacli describe-latestpatch
```

componentType	availableVersion
-----	-----
gi	12.1.0.2.170117
db	11.2.0.4.161018
db	12.1.0.2.170117
oak	12.1.2.10.0
ilom	3.2.8.24.114611
bios	39070000
os	6.8

12.3.3 odacli update-dbhome

Use the `odacli update-dbhome` command to update a specific RDBMS Home to the latest patch bundle version.

File Path

`/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli update-dbhome -i dbhomeid -v version [-j] [-h]
```

Parameters

Parameter	Description
<code>--dbhomeid, -i</code>	Defines the Oracle Database Home to update.
<code>--json, -j</code>	(Optional) Displays JSON output. The default is false.
<code>--version, -v</code>	Defines the Oracle Database Appliance version to update. For example, 12.1.2.8.
<code>--help-h</code>	(Optional) Displays help for using the command.

Usage Notes

- The `update-dbhome` command applies the latest bundle patch for Oracle Database version 12.1 and the latest patch set updates (PSU) for Oracle Database 11.2.0.4.x home.
- To be updated with the latest patches, the database must be running.
- Only databases in the `Configured` status are updated. Use the `odacli list-database` command to see a list of configured databases. Databases in any other status are skipped during the update.

Example 12-5 Updating an Oracle Database Home

To apply the latest patch bundle to update an Oracle Database:

```
# odacli update-dbhome -i ad6c7326-e460-411e-94df-230dedbef743 -v 12.1.2
```

12.3.4 odacli update-dcsagent

Use the `odacli update-dcsagent` command to update the agent.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli update dcsagent -v version [-j] [-h]
```

Parameters

Parameter	Description
<code>--version, -v</code>	Defines the Oracle Database Appliance version after update.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

The `update dcsagent` command updates the `dcs-agent` to the RPM package that is located in the *location* and restarts the `dcs-agent`. After the update is applied, the agent automatically restarts. It will take a few minutes to reconnect to the `dcs-agent`. Wait until the agent shuts down and completes restarting before performing any tasks.

Note: Before updating the agent, ensure that you do not have any jobs running or pending during the update window.

Example 12-6 Updating the Agent

To update the `dcs-agent` to version 12.1.2.10:

```
# odacli update-dcsagent -v 12.1.2.10.0
{
  "jobId" : "77e454d3-eb68-4130-a247-7633f8d6192b",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "January 26, 2017 14:09:24 PM CST",
  "description" : "DcsAgent patching",
  "updateTime" : "January 26, 2017 14:09:24 PM CST"
}
```

12.3.5 update-image

Use the `odacli update-repository` command to unzip the Single Instance Software Bundle (SIB). For releases earlier than 12.1.2.9.0, use the `update-image` command to unzip and copy the Single Instance Software Bundle to the appropriate locations so that the system is ready for deployment.

Note: The `update-image` command is discontinued. It is used for earlier releases and is only included for backward compatibility.

Syntax

To update an image:

```
update-image --image-files absolute file names
```

Parameters

Parameter	Description
<code>--image-files file1, file2, file3</code>	Identifies the file names. Use a comma separated list of absolute file names. Ensure that there are no spaces after the comma.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-7 Updating the Image

To update the Single Instance Software Bundle:

```
# update-image --image-files file1,file2,file3
```

12.3.6 odacli update-repository

Use the `odacli update-repository` command to unzip and copy the Single Instance Software Bundle (SIB) and update the repository with the new patches.

File Path

`/opt/oracle/dcs/bin/odacli`

Syntax

To unpack and copy the patch bundle to the correct locations in the file system:

```
odacli update-repository -f filename [-j] [-h]
```

Parameters

Parameter	Description
<code>--filename, -f</code>	Defines the zip filename of patch bundle or RDBMS clones downloaded from My Oracle Support. Provide a comma-separated list of absolute file paths.
<code>--json, -j</code>	(Optional) Displays JSON output. The default is false.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

Note: Before updating the repository, ensure that you do not have any jobs running or pending during the update window.

Example 12-8 Updating the Repository

To update the dcs-repository with the latest patches:

```
# odacli update-repository -f /root/12.1.2.8/oda-sm-12.1.2.8.0-160719-GI-12.1.0.2.zip
{
  "jobId" : "d3510276-da05-447b-990e-6d30964f8f79",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
```



```

    "createTimestamp" : "August 08, 2016 03:45:39 AM EDT",
    "description" : "Repository Update",
    "updatedAtTime" : "August 08, 2016 03:45:39 AM EDT"
  }

```

12.3.7 odacli update-server

Use the `odacli update-server` command to update the operating system, firmware, Oracle Appliance Kit, Oracle Clusterware, and all other infrastructure components.

File Path

/opt/oracle/dcs/bin/odacli

Syntax

```
odacli update-server -v version [-j] [-h]
```

Parameters

Parameter	Description
--version, -v	Defines the version to update.
--json, -j	(Optional) Displays JSON output. The default is false.
--help, -h	(Optional) Displays help for using the command.

Usage Notes

The update-server command applies the patches to various infrastructure components and Oracle Clusterware. Before executing the `update-server` command, use the `update-dcsagent` command to update the agent to the current version.

After the update is applied, the agent automatically restarts. It will take a few minutes to reconnect to the server. Wait until the agent shuts down and completes restarting before performing any tasks.

Note: Before updating the server, ensure that you do not have any jobs running or pending during the update window.

Example 12-9 Updating the Server

To update the server to version 12.1.2.10.0:

```

# odacli update-server -v 12.1.2.10.0
{
  "jobId" : "6f27a29a-959f-44e1-b984-7473e3c918ad",
  "status" : "Created",
  "message" : "Success of Server Update may trigger reboot of node after 4-5
minutes. Please wait till node restart",
  "reports" : [ ],
  "createTimestamp" : "January 26, 2017 14:13:45 PM CST",
  "resourceList" : [ ],

```

```
"description" : "Server Patching",  
"updateTime" : "January 26, 2017 14:13:45 PM CST"  
}
```

12.4 odacli Appliance Commands

Use the `odacli appliance` commands to perform lifecycle activities for the appliance.

Topics:

[odacli create-appliance](#) (page 12-12)

Use the `odacli create-appliance` command in a JSON file format to provision Oracle Database Appliance.

[odacli describe-appliance](#) (page 12-12)

Use the `odacli describe-appliance` command to display appliance details.

12.4.1 odacli create-appliance

Use the `odacli create-appliance` command in a JSON file format to provision Oracle Database Appliance.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To view help for the `odacli create-appliance` command:

```
odacli create-appliance -r requestjson [-j] [-h]
```

Note:

The `odacli create-appliance` command only supports a JavaScript Object Notation (JSON) file format. An example JSON files and a readme are available in an appendix in this document and in the `/opt/oracle/dcs/sample` directory.

Parameters

Parameter	Description
<code>--requestjson, -r</code>	JSON input for appliance creation.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--help, -h</code>	(Optional) Displays help for using the command.

12.4.2 odacli describe-appliance

Use the `odacli describe-appliance` command to display appliance details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli describe-appliance [-d|-no-d][-j][-h]
```

Parameters

Parameter	Description
--details, -d	(Optional) Displays the agent CLI build details.
--help, -h	(Optional) Displays help for using the command.
--json, -j	(Optional) Displays JSON output.
--no-details, -no-d	(Optional) Displays no detailed information. Use this flag if you do not want to display details.

Example 12-10 Displaying Appliance Details

```
# odacli describe-appliance -d

Appliance Information
-----
ID: 78e9a6b8-c4f8-42b2-9e72-7d23c2636544
Platform: OdaliteL
Data Disk Count: 6
CPU Core Count: 20
Created: November 17, 2016 5:14:41 AM EST
```

```
System Information
-----
Name: rwsoda6f002
Domain Name: example.com
Time Zone: America/New_York
DB Edition: EE
DNS Servers: 10.204.32.1
NTP Servers: 10.68.0.41 10.68.0.42
```

```
Disk Group Information
-----
DG Name      Redundancy  Percentage
-----
Data         High        80
Reco         High        20
```

12.5 odacli CPU Core Commands

Use the CPU Core commands to enable CPU cores and display current and historical CPU core configurations.

Topics:

[odacli list-cpucore](#) (page 12-14)

Use the `odacli list-cpucore` command lists the history of core configuration changes in the system.

[odacli describe-cpucore](#) (page 12-14)

Use the `odacli describe-cpucore` command to display the current core configuration and the modification date and time.

[update-cpucore](#) (page 12-15)

Use the `odacli update-cpucore` command to enable the number of CPU cores in the system.

12.5.1 odacli list-cpucores

Use the `odacli list-cpucores` command lists the history of core configuration changes in the system.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli list-cpucores [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-11 Displaying a List of Cores

```
# odacli list-cpucores
```

Node	Cores	Modified	Job Status
0	10	July 22, 2016 12:06:08 PM SGT	Configured
0	8	July 25, 2016 9:39:59 AM SGT	Configured

12.5.2 odacli describe-cpucore

Use the `odacli describe-cpucore` command to display the current core configuration and the modification date and time.

File Path

`/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli describe-cpucore [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-12 Displaying the Current Core Configuration

```
# odacli describe-cpucore
```

Node	Cores	Modified	Job Status
0	8	July 25, 2016 9:39:59 AM SGT	Configured

12.5.3 update-cpucore

Use the `odacli update-cpucore` command to enable the number of CPU cores in the system.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli update-cpucore -c cores [-h]
```

Parameters

Parameter	Description
<code>--cores, -c</code>	Defines the number of cores to be enabled in the system.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

- The number of cores you enable must be a multiple of 2.
- After the initial configuration, you cannot reduce the number of cores. You can only increase the number of cores.

Example 12-13 Enabling CPU Cores

The following command enables 8 CPU cores.

```
# odacli update-cpucore -c 8

{
  "jobId" : "2807f6ae-3ba5-48a5-8941-b8b365d89d24",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : 1469410799194,
  "description" : "CPU cores service update",
  "updatedAtTime" : 1469410799194
}
```

12.6 odacli Database Commands

Use the `odacli` database commands to perform database lifecycle operations.

Topics:

[odacli list-databases](#) (page 12-16)

Use the `odacli list-databases` command to list all databases on the appliance.

[odacli describe-database](#) (page 12-16)

Use the `odacli describe-database` command to display database details.

[odacli create-database](#) (page 12-17)

Use the `odacli create-database` command to create a new database.

[odacli register-database](#) (page 12-21)

[odacli update-tdekey](#) (page 12-24)

[odacli upgrade-database](#) (page 12-25)

Use the `odacli upgrade-database` command to upgrade a database from version 11.2.0.4 to version 12.1.0.2.

[odacli delete-database](#) (page 12-27)

Use the `odacli delete-database` command to delete a database.

12.6.1 odacli list-databases

Use the `odacli list-databases` command to list all databases on the appliance.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To display a list of all databases:

```
odacli list-databases [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-14 Displaying a List of Databases

Display a list of databases:

```
# odacli list-databases
```

ID	DB Name	DB Version	CDB
ad6c7326-e460-411e-94df-230dedbef743	rdb121a	12.1.0.2	true
fb4d02f3-2413-47ca-8584-a768e23ec2e7	ee12db	12.1.0.2	false

(Continued)

Class	Shape	Storage	Status
OLTP	odb1	ACFS	Configured
IMDB	odb1	ASM	Configured

12.6.2 odacli describe-database

Use the `odacli describe-database` command to display database details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To display database details:

```
odacli describe-database -i dbid [-h] [-j]
```

Parameters

Parameter	Description
<code>--dbid, -i</code>	Identifies the database home identifier (ID) to display. Use the <code>odacli list-databases</code> command to obtain the dbid.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-15 Displaying Database Details

Display information for database named `ac48e0d2-a7b0-4ffd-a27e-f8e42b028c5f`:

```
# odacli describe-database -i ac48e0d2-a7b0-4ffd-a27e-f8e42b028c5f
```

Database details

```
-----
ID: ac48e0d2-a7b0-4ffd-a27e-f8e42b028c5f
Description: rdb1
DB Name: rdb1
DB Version: 12.1.0.2
DBID: 1339792271
CDB: true
PDB Name: r1pdb1
PDB Admin User Name: pdbadmin
Class: OLTP
Shape: odb2
Storage: ASM
CharacterSet: DbCharacterSet(characterSet=AL32UTF8, nlsCharacterSet=AL16UTF16,
dbTerritory=AMERICA, dbLanguage=AMERICAN)
Home ID: fe87f30c-b810-45d1-8b96-13996ad7a255
Console Enabled: true
Created: Jun 14, 2016 6:21:14 PM
```

12.6.3 odacli create-database

Use the `odacli create-database` command to create a new database.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli create-database -n database_name -m -cs characterSet -cl {OLTP|DSS|IMDB}
-l dblanguage -s dbshape -r {ACFS|ASM} -dt dbterritory
```

```
-y dbtype -ns nlscharacteraset -d pdbname -p pdbname -v version
[-u databaseUniqueName] [-dh Database Home ID] [-c|-no-c] [-co|-no-co]
[-bi backupconfigid] [-io] [-j] [-h]
```

Parameters

Parameter	Description
--adminpassword, -m	Defines the password for SYS, SYSTEM, and PDB Admin. Use this option to specify the password interactively. When using this option, do not enter the password in the command-line. To use non-interactive mode, use the -hm option instead of the -m option.
--backupconfigid, -bi	(Optional) Defines the backup configuration identifier for future use.
--cdb, -c	(Optional) Creates the database as a container database. Use the -c flag to create a container database and use the -no-c flag to create a non-CDB database. The default is -no-c.
--characteraset, -cs	Defines the character set. The default is AL32UTF8.
--databaseUniqueName, -u	(Optional) Defines a unique name for the database.
--dbclass, -cl {OLTP DSS IMDB}	Defines the database class. The default is OLTP. The options are as follows: - Enterprise Edition: OLTP, DSS, or IMDB. - Standard Edition: OLTP
--dbconsole, -co	(Optional) Enables the Database Console. Use the -no-co flag to disable the Database Console. If not selected, the default is no database console.
--dbhomeid, -dh	(Optional) Identifies the existing Database Home ID.
--dblanguage, -l	Defines the database language. The default language is AMERICAN.
--dbname, -n	Defines the name given to the new database (dbname.)
--dbshape, -s	Identifies the database shape (template) and determines the total memory allocated to the database. For example, odb1 and odb2. The default is odb1.
--dbstorage, -r {ACFS ASM}	Defines the Database Storage, either Oracle ACFS or Oracle ASM. The default value is ACFS.
--dbterritory, -dt	Defines the database territory. The default territory is AMERICA.
--dbtype, -y [SI]	Defines the database type. The default database type is SI.
--help, -h	(Optional) Displays help for using the command.

Parameter	Description
<code>--instanceonly, -io</code>	(Optional) Creates a database instance, password file and also the underlying Oracle ACFS mount point. You can use the instance as an auxiliary instance for RMAN duplicate.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--nlscharacter set, -ns</code>	Defines the NLS National Character Set. The default is AL16UTF16.
<code>--no-cdb, -no-c</code>	(Optional) Creates a database that is <i>not</i> a container database. Use this flag when you want to create a non-CDB database. Use the <code>-c</code> flag to create a container database.
<code>--no-dbconsole, -no-co</code>	(Optional) Disables Database Console. Use the <code>-co</code> flag to enable Database Console.
<code>--pdbadmin, -d</code>	Defines the Pluggable Database (PDB) Admin User.
<code>--pdbname, -p</code>	Defines the Pluggable Database (PDB) name. The default value is <code>pdb1</code> .
<code>--version, -v</code>	Defines the database bundle patch number. To install the latest bundle patch for a release, specify 11.2.0.4 or 12.1.0.2. The default version is 12.1.0.2. To specify a specific supported bundle, use the 5 digit format. For example, 12.1.0.2.161018 or 11.2.0.4.161018.

Usage Notes

- You cannot mix Oracle Database Standard Edition and Enterprise Edition databases on the same appliance.
- Use the `--cdb` or `--no-cdb` flag to indicate whether or not the database is a container database. When neither flag is specified, the default database created is a non-CDB database.
- When `--dbhomeid` is not provided, the `create-database` command creates a new Oracle Database Home.
- When `--dbhomeid` is provided, the `create-database` command creates the database using the existing Oracle Home. Use the `odacli list-dbhomes` command to obtain the `dbhomeid`.
- When you specify both the `--version` and the `--dbhomeid`, the version is ignored and the database is created against the existing database home.
- Oracle Database 12.1 is supported on both Oracle Automatic Storage Management (Oracle ASM) and Oracle ASM Cluster file system (ACFS). The default is Oracle ACFS.
- Oracle Database 11.2 is only supported on Oracle ACFS.
- When databases are created in Oracle ACFS, each database is configured with its own Oracle ACFS file system for the datafiles and uses the following naming

convention: `/u02/app/db user/oradata/db unique name`. The default size of this mount point is 100 GB.

Note: Oracle recommends not sharing the mount point across different databases.

- Online logs are stored in the `/u03/app/db user/redo/` directory.
- Oracle Fast Recovery Area (FRA) is located in the `/u03/app/db user/fast_recovery_area` directory.
- Use one of the following options to specify the adminpassword:
 - Interactive mode: Use the `-m` option and enter the password when prompted.
 - Non-interactive mode: Use the `-hm` option and specify the adminpassword in the command-line.
- For the version, you can specify the database version, either 12.1.0.2 or 11.2.0.4, or you can use a 5 digit format to specify a specific patch bundle version. If you use the database version without specifying the bundle patch number, the latest bundle patch is used. The following values are supported:
 - 12.1.0.2
 - 12.1.0.2.161018
 - 12.1.0.2.160719
 - 12.1.0.2.160419
 - 11.2.0.4
 - 11.2.0.4.161018
 - 11.2.0.4.160719
 - 11.2.0.4.160419

Example 12-16 *Creating a Database in Interactive Mode*

This example creates an 12.1.0.2 OLTP container database named `hrdb` with shape `odb2` and enables you to provide the password interactively.

Note: To provide a password interactively, use the `-m` option, but do not provide the password until prompted.

```
# odacli create-database -n hrdb -c -m -cl OLTP -s odb2 -p pdb1
```

Password for SYS,SYSTEM and PDB Admin:

```
{
  "jobId" : "f12485f2-dcbe-4ddf-aeel-de24d37037b6",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "November 08, 2016 03:54:03 AM EDT",
  "description" : "Database service creation with db name: hrdb",
```

```

    "updatedAt" : "November 08, 2016 03:54:03 AM EDT"
  }

```

Example 12-17 Creating a Database in Non-Interactive Mode

This example creates an 12.1.0.2 OLTP database named `crmdb` with shape `odb2` and enables you to specify the password in the command-line. To define the password in the command-line, use the `-hm` option and define the password. Because the container database flag (`-c`) is not used, the database created is not a container database.

```

# odacli create-database -n crmdb -hm WelCome__12 -cl OLTP -s odb2
{
  "jobId" : "30b5e2a6-493b-4461-98b8-78e9a15f8cdd",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "November 08, 2016 03:59:22 AM EDT",
  "description" : "Database service creation with db name: crmdb",
  "updatedAt" : "November 08, 2016 03:59:22 AM EDT"
}

```

Example 12-18 Creating a Database Against a Different Version

Either of the following statements creates a database against a home with April Database Bundle (160419) applied:

```

# odacli create-database -m -n hrmsdb1 -v 12.1.0.2
# odacli create-database -m -n hrmsdb2 -v 12.1.0.2.160719

```

The following statement creates a new database against a home with April PSU (160419):

```

# odacli create-database -m -n hrmsdb3 -v 12.1.0.2.160419

```

12.6.4 odacli register-database

Use the `odacli register-database` command to register a migrated database with the appliance.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```

odacli register-database -c {OLTP|DSS|IMDB} -s dbshape -t dbtypeSI
-o hostname -sn servicename -p syspassword[-bi backupconfigid] [-co|-no-co] [-h][-j]

```

Parameters

Parameter	Description
<code>--backupconfigid, -bi</code>	(Optional) Defines the backup configuration identifier for future use.

Parameter	Description
--dbclass, -c {OLTP DSS IMDB}	Defines the database class. The database class setting determines the database SGA memory and instance PGA memory configuration. The options are as follows: - Enterprise Edition: OLTP, DSS, or IMDB. - Standard Edition: OLTP
--dbconsole, -co	(Optional) Enables the Database Console. Use the -no-coflag to disable the Database Console. If not selected, the default is no Database Console.
--dbshape, -s	Identifies the database shape (template) and determines the total memory allocated to the database. For example, odb1 and odb2. The default is odb1.
--dbtype, -t [SI]	Defines the type of database. The database type is Single Instance. The default is SI.
--help, -h	(Optional) Displays help for using the command.
--hostname, -o	Defines the host name. Default: local host name
--json, -j	(Optional) Displays JSON output.
--no-dbconsole, -no-co	(Optional) Disables Database Console. Use the -coflag to enable Database Console.
--servicename, -sn	Defines the Database Service Name. Using this service name, the EZCONNECT String is derived for connecting to the database. For example, hostname:port/servicename. The Port number is the port configured for the listener, as part of the deployment.
--syspassword, -p	Defines the proxy user password for SYS.

Usage Notes

Note: It is a good practice to use Easy Connect (EZCONNECT) to test the database connectivity before registering the database.

Log in as the sys user and enter the following command:

```
sqlplus sys/welcome1@//hostname:1521/service name
```

- To execute the command in non-interactive mode, use the hidden parameter `-hp` to specify the password in the command line instead of using the `-p` parameter to specify the password.
- The migrated database is registered with the listener configured during the provisioning of the appliance. The migrated database must be in read-write or read-only mode for the registration to succeed.
- The `register-database` command validates the `datafile` and log file locations and moves the `controlfile` and `spfile` to the correct locations.
- The following are the minimum compatible parameters set, based on the database version:
 - Oracle Database 12c : 12.1.0.2
 - Oracle Database 11 g : 11.2.0.4
- Some `init.ora` parameters are set, or reset, as part of the registration. Review the parameter changes before and after registration.

The following are examples of changes implemented as part of registration:

- The `memory_target` is reset.
- The `sga_target/pga_aggregate_target/log_buffer/inmemory_size` is configured based on the database class and database shape settings used during registration.
- The registration process sets, or resets, the recommended appliance-specific parameters.
- The database being registered must use Oracle Managed Files and the file location must match the DATA Location, REDO Location and RECO Location of the `odacli describe-dbstorage` command.
- As part of the registration process, the database is registered with Oracle Clusterware. Depending on the database role, the database is registered as Primary or Standby database with Oracle Clusterware.
- If you are registering the database as a standby database, then open the database in **read-only** mode before executing the `odacli register-database` command.

Example 12-19 Registering a Migrated Database

The following is the syntax to register a single instance OLTP database that is using shape `odb1`.

```
odacli register-database -c OLTP -s odb1 -sn crmdb.example.com -p
Password for SYS:
{
  "jobId" : "317b430f-ad5f-42ae-bb07-13f053d266e2",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "August 08, 2016 05:55:49 AM EDT",
  "description" : "Database service registration with db service name:
crmdb.example.com",
  "updateTime" : "August 08, 2016 05:55:49 AM EDT"
}
```

```
rpandrap: ]# odacli describe-job -i "317b430f-ad5f-42ae-bb07-13f053d266e2"
```

Job details

```
-----
ID: 317b430f-ad5f-42ae-bb07-13f053d266e2
Description: Database service registration with db service name:
crmdb.example.com
Status: Success
Created: August 8, 2016 5:55:49 AM EDT
Message:
```

Task Name	Start Time
restore control file	August 8, 2016 5:55:49 AM EDT
move spfile to right location	August 8, 2016 5:56:08 AM EDT
register DB with clusterware	August 8, 2016 5:56:13 AM EDT
reset db parameters	August 8, 2016 5:57:05 AM EDT
Running DataPatch	August 8, 2016 5:57:36 AM EDT

(Continued)

End Time	Status
August 8, 2016 5:56:08 AM EDT	Success
August 8, 2016 5:56:13 AM EDT	Success
August 8, 2016 5:57:05 AM EDT	Success
August 8, 2016 5:57:36 AM EDT	Success
August 8, 2016 5:57:49 AM EDT	Success

12.6.5 odacli update-tdekey

Use the `odacli update-tdekey` command to update the Transparent Data Encryption (TDE) parameters for Oracle Database Appliance.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli update-tdekey -i databaseId -p -n pdbNames -t tagName -r dbStorage [-r|-no-r]
[-h][-j]
```

Parameters

Parameter	Description
<code>--databaseId, -i</code>	Identifies the database home identifier (ID) for which the key is to be rotated.
<code>--help, -h</code>	(Optional) Displays help for using the command.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--no-rootDatabase, -no-r</code>	Rotates the key for a non-root container database. For a root container database, use the <code>-r</code> flag.

Parameter	Description
--password, -p, --hiddenPassword, -hp	Defines the Transparent Data Encryption (TDE) Admin wallet password. To use non-interactive mode, use the -p option. To specify the password interactively, use the -hp option.
--pdbNames, -n	Defines the names of the Pluggable Databases (PDB) to be rotated.
--rootDatabase, -r	Rotates the key for a root database if it is a container database. Use -no -r to rotate the key for a non-root container database.
--tagName, -t	Defines the name used to backup the wallet. The default tag name is OdaRotateKey.

Example 12-20 Updating a TDE Key for a Root Container Database

```
# odacli -i a3f4a6c0-a0c9-4c79-bad7-898afcf9de46 -r -p -t
TDE Admin wallet password: <enter the pwd here>
{
  "jobId" : "d47bd867-6ee6-45f6-82ed-ba99352856ec",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : 1467869434888,
  "description" : "TDE update",
  "updateTime" : 1467869434888
}
```

12.6.6 odacli upgrade-database

Use the `odacli upgrade-database` command to upgrade a database from version 11.2.0.4 to version 12.1.0.2.

File Path

(Required) Specify the file path of the command here.

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To upgrade an Oracle Database:

```
odacli upgrade-database -i Comma separated list of database ids -from source dbhome id -to destination dbhome id [-j] [-h]
```

Parameters

Parameter	Description
--databaseids, -i	(Optional) Defines the Database IDs to upgrade. You can use a comma separated list of database IDs.

Parameter	Description
--destDbHomeId, -to	The DB HOME ID of the destination database home.
--sourceDbHomeId, -from	The DB HOME ID of the source database home.
--json, -j	(Optional) Displays JSON output. The default is false.
--help, -h	(Optional) Displays help for using the command.

Usage Notes

You have the following options for defining the databases to upgrade:

- When you define a single database ID, only the database of the source database home is upgraded.
- When you define more than one database ID, only those databases of the source database home are upgraded.
- When you do not define a database ID, all of the databases under the source database home are upgraded.

You can only upgrade from 11.2.0.4 to 12.1.0.2.

Example 12-21 Upgrading an Oracle Database

In this example, a single database is upgraded. Use the `odacli list-databases` command to display the database ID, then use the `odacli upgrade-databases` command to upgrade the 11.2.0.4 database. After the upgrade is complete, you can run the `odacli list-databases` command again to verify the upgrade.

```
# odacli list-databases
```

ID	DB Name	DB Version	CDB
ad6c7326-e460-411e-94df-230dedbef743	rdb121a	11.2.0.4	true
fb4d02f3-2413-47ca-8584-a768e23ec2e7	ee12db	12.1.0.2	false

(Continued)

Class	Shape	Storage	Status
OLTP	odb1	ACFS	Configured
IMDB	odb1	ASM	Configured

```
# odacli upgrade-database -i ad6c7326-e460-411e-94df-230dedbef743 -from
fa4321f5-0543-477d-bb54-a429dcc8ee8d -to d752df28-ecdd-4af4-9454-38085ea17f8b
{
  "jobId" : "1bbe8boe-acb0-4296--9c8b-473b69da0c18",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "June 24, 2017 03:54:03 AM EDT",
  "description" : "Database service upgrade with db ids: [ad6c7326-
e460-411e-94df-230dedbef743]",
  "updatedAt" : "June 24, 2017 03:54:03 AM EDT"
```



```

}

# odacli list-databases

ID                               DB Name    DB Version  CDB
-----
ad6c7326-e460-411e-94df-230dedbef743  rdb121a    12.1.0.2    true
fb4d02f3-2413-47ca-8584-a768e23ec2e7  ee12db     12.1.0.2    false

(Continued)
Class    Shape    Storage    Status
-----
OLTP     odb1     ACFS       Configured
IMDB     odb1     ASM        Configured

```

12.6.7 odacli delete-database

Use the `odacli delete-database` command to delete a database.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To delete a database:

```
odacli delete-database -i dbid [-h] [-j]
```

Parameters

Parameter	Description
<code>--dbid, -i</code>	Identifies the database home identifier (ID) to display. Use the <code>odacli list-databases</code> command to obtain the <code>--dbid</code> .
<code>--help, -h</code>	(Optional) Displays help for using the command.
<code>--json, -j</code>	(Optional) Displays JSON output.

Usage

Note: The `delete-database` command deletes the database, the file system, and the underlying `advn` volumes assigned to the database. For example, deleting a database named `hrpdb` also deletes the file system `/u02/app/oracle/oradata/hrpdb`. Do not keep any other files on this database file location.

Example 12-22 Deleting a Database Named `hrmsdb`

In this example we want to delete a database named `hrmsdb`. Before we can delete the database, we need to know the database home identifier (*dbid*). This example shows how to run the `odacli list-databases` command to list the databases and their associated *dbid*, then how to delete database `hrmsdb`.

```
# odacli list-databases
```

ID	DB Name	DB Version	CDB	Class
a3f4a6c0-a0c9-4c79-bad7-898afc9de46	hrmsdb	12.1.0.2	true	OLTP
7e28bf52-1a09-49fd-9391-841838d2c42f	crmdb	12.1.0.2	false	OLTP

```
(continued)
```

Shape	Storage	Status
odb1	ACFS	Configured
odb1	ACFS	Configured

```
# odacli delete-database -i a3f4a6c0-a0c9-4c79-bad7-898afc9de46
```

12.7 odacli DBHome Commands

Use the `odacli DBHome` commands to manage database Home operations.

Topics:

[odacli list-dbhomes](#) (page 12-28)

Use the `odacli list-dbhomes` command to display a list of Oracle Home directories.

[odacli describe-dbhome](#) (page 12-29)

Use the `odacli describe-dbhome` command to display Oracle Database Home details.

[odacli create-dbhome](#) (page 12-29)

Use the `odacli create-dbhome` command to create an Oracle Database Home.

[odacli delete-dbhome](#) (page 12-30)

Use the `odacli delete-dbhome` command to delete database home that is not associated with a database.

12.7.1 odacli list-dbhomes

Use the `odacli list-dbhomes` command to display a list of Oracle Home directories.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To display a list of Oracle Home directories:

```
odacli list-dbhomes [-h] [-j]
```

Parameters

Parameter	Description
<code>--help,-h</code>	(Optional) Displays help for using the command.
<code>--json,-j</code>	(Optional) Displays JSON output.

Example 12-23 Displaying a List of Oracle Home Directories

Run the following command to display a list of Oracle Home directories:

```
# odacli list-dbhomes

ID                               Name                               DB Version
-----
b727bf80-c99e-4846-ac1f-28a81a725df6 OraDB12102_home1 12.1.0.2

(continued)
Home Location
-----
/u01/app/orauser/product/12.1.0.2/dbhome_1
```

12.7.2 odacli describe-dbhome

Use the `odacli describe-dbhome` command to display Oracle Database Home details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To display details about Oracle Database Home:

```
odacli describe-dbhome -i dbhomeid [-h] [-j] [-v]
```

Parameters

Parameter	Description
<code>-i <i>dbhomeid</i></code>	Identifies the database home ID. Use the <code>odacli list-dbhomes</code> command to get the <i>dbhomeid</i> .
<code>--help, -h</code>	(Optional) Displays help for using the command.
<code>--json, -j</code>	(Optional) Displays JSON output. The default is false.
<code>-vdbversion</code>	(Optional) Identifies the Database Home Version. Use the <code>odacli list-dbhomes -v</code> command to get the <i>dbversion</i> .

Example 12-24 Displaying Oracle Database Home Details

The following output is an example of using the display Oracle Database Home details command:

```
# odacli describe-dbhome -i b727bf80-c99e-4846-ac1f-28a81a725df6

DB Home details -----
ID: b727bf80-c99e-4846-ac1f-28a81a725df6
Name: OraDB12102_home1
Version: 12.1.0.2
Home Location: /u01/app/orauser/product/12.1.0.2/dbhome_1
Created: Jun 2, 2016 10:19:23 AM
```

12.7.3 odacli create-dbhome

Use the `odacli create-dbhome` command to create an Oracle Database Home.

File Path`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`**Syntax**

To create an Oracle Database Home:

```
odacli create-dbhome -v version [-j] [-h]
```

Parameters

Parameter	Description
<code>-v <i>version number</i></code>	Defines the database bundle patch number.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

For the version number, you can specify the database version, either 12.1.0.2 or 11.2.0.4, or you can use a 5 digit format to specify a specific patch bundle version. For example, 12.1.0.2.161018. If you use the database version without specifying the bundle patch number, then the latest bundle patch is used.

The following values are supported:

- 12.1.0.2
- 12.1.0.2.170117
- 12.1.0.2.161018
- 12.1.0.2.160719
- 12.1.0.2.160419
- 11.2.0.4
- 11.2.0.4.161018
- 11.2.0.4.160719
- 11.2.0.4.160419

Example 12-25 Creating an Oracle Database Home

The following example creates an Oracle Database Home version 12.1.0.2.161018.

```
# odacli create-dbhome -v 12.1.0.2.161018
```

12.7.4 odacli delete-dbhome

Use the `odacli delete-dbhome` command to delete database home that is not associated with a database.

File Path`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli delete-dbhome -i [-h]
```

Parameters

Parameter	Description
<code>--id, -i</code>	Identifies the database home using a database identifier (ID).
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

- Use the `odacli list-dbhomes` command to locate the identifier.
- To delete, or uninstall, a database home (dbhome), there must not be any associated databases in the dbhome.
- Use the `odacli delete-database` command to delete an existing database.

Example 12-26 Deleting an Empty Database Home

```
# odacli delete-dbhome -i 0ce547ca-3df2-4178-a7e6-eeefa613aeab4
```

12.8 odacli Database Storage Commands

Use the Database Storage commands to list, describe, create, and delete Oracle database storage.

Topics:

[odacli list-dbstorages](#) (page 12-31)

Use the `odacli list-dbstorages` command to display a list of all of the database storage configured in the appliance.

[odacli describe-dbstorage](#) (page 12-32)

Use the `odacli describe-dbstorage` command to display storage configuration details.

[odacli create-dbstorage](#) (page 12-33)

Use the `odacli create-dbstorage` command to create the file system for database migrations.

[odacli delete-dbstorage](#) (page 12-35)

Use the `odacli delete-dbstorage` command to delete database storage that is not associated with a database.

12.8.1 odacli list-dbstorages

Use the `odacli list-dbstorages` command to display a list of all of the database storage configured in the appliance.

File Path

```
$ORACLE_HOME/opt/oracle/dcs/bin/odacli
```

Syntax

```
# odacli list-dbstorages [-h]
```

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Usage Notes

This command displays a list of all of the filesystems that are configured with the `create-database` command and the `create-dbstorage` command.

Example 12-27 Displaying a List of all Database Storage

```
# odacli list-dbstorages
```

ID	Type	DBUnique	Name	Status
9fe39332-cc1a-4b4b-8393-165524a6ef6b	Acfs		rdb121a	Configured
4f2a1b59-ca66-4d80-951c-425ab7b0acae	Asm		ee12db	Configured
0266edac-c729-4539-861f-3f3d543be9e4	Acfs		db12SE	Configured

12.8.2 odacli describe-dbstorage

Use the `odacli describe-dbstorage` command to display storage configuration details.

File Path

```
$ORACLE_HOME/opt/oracle/dcs/bin/odacli
```

Syntax

```
odacli describe-dbstorage -i [-j] [-h]
```

Parameters

Parameter	Description
--id, -i	Identifies the database storage.
--json, -j	(Optional) Displays JSON output. The default is false.
--help, -h	(Optional) Displays help for using the command.

Usage Notes

- Use the `odacli list-dbstorages` command to get the database storage identifier (ID).

- The DATA Location corresponds to the `init.ora` parameter `db_create_file_dest`.
- RECO Location corresponds to the `init.ora` parameter `db_recovery_file_dest`
- REDO Location corresponds to the `init.ora` parameter `db_create_online_log_dest_1`

Example 12-28 Displaying Database Oracle ACFS Storage Details

The following example displays Oracle ASM Cluster file system (ACFS) storage details:

```
# odacli describe-dbstorage -i 9fe39332-cc1a-4b4b-8393-165524a6ef6b

DBStorage details
-----
ID: 9fe39332-cc1a-4b4b-8393-165524a6ef6b
DB Name: rdb121a
DBUnique Name: rdb121a
DB Resource ID: ad6c7326-e460-411e-94df-230dedbef743
Storage Type: Acfs
DATA Location: /u02/app/oracle/oradata/rdb121a
RECO Location: /u03/app/oracle/fast_recovery_area/
REDO Location: /u03/app/oracle/redo/
State: ResourceState(status=Configured)
Created: July 22, 2016 12:07:12 PM SGT
UpdatedTime: July 22, 2016 12:26:39 PM SGT
```

Example 12-29 Displaying Database Oracle ASM Storage Details

The following example displays Oracle Automatic Storage Management (Oracle ASM) storage details:

```
# odacli describe-dbstorage -i 4f2a1b59-ca66-4d80-951c-425ab7b0acae

DBStorage details
-----
ID: 4f2a1b59-ca66-4d80-951c-425ab7b0acae
DB Name: ee12db
DBUnique Name: ee12db
DB Resource ID: fb4d02f3-2413-47ca-8584-a768e23ec2e7
Storage Type: Asm
DATA Location: DATA
RECO Location: RECO
REDO Location: RECO
State: ResourceState(status=Configured)
Created: July 22, 2016 1:13:51 PM SGT
UpdatedTime: July 22, 2016 1:13:52 PM SGT
```

12.8.3 odacli create-dbstorage

Use the `odacli create-dbstorage` command to create the file system for database migrations.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli create-dbstorage -n dbname -s dataSize -u databaseUniqueName -r [ASM|ACFS] [-h]
```

Parameters

Parameter	Description
--dbname, -n	Defines the name of the database.
--dataSize, -s	(Optional) Defines the size, in gigabytes (GB), of the filesystem for storing database files and temp files. The default is: 100 GB The minimum size is 10 GB. When entering the size, do not include GB. For example, for 50 GB, use 50.
--databaseUniqueName, -u	(Optional) Defines a unique name for the database. Specify only if the database unique name is different than the database name. The command creates the following mount point: <code>/u02/app/oracle/oradata/db unique name</code>
--dbstorage, -r [ASM ACFS]	(Optional) Defines the type of database storage, either ASM or ACFS. When you select ASM, the command only creates the supporting directory structure for storing non-database files. The default is: ACFS
--help, -h	(Optional) Displays help for using the command.

Usage Notes

- The `odacli create-dbstorage` command registers the storage metadata with the Appliance Manager.
- When you create ACFS database storage, the command creates a separate ACFS file system and creates the directory structure for other database files, such as archives and online logs.
- When you create ASM database storage, the command only creates the corresponding directories for non-database files.

Example 12-30 Creating Database Storage

The following statement creates 50 GB ACFS database storage for the APPSDB database.

```
# odacli create-dbstorage -n APPSDB -s 50 -r ACFS
{
  "jobId" : "fc6bf8fd-60c2-44f3-b8b7-efd0e9a2149f",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "August 09, 2016 06:19:35 AM WST",
```



```

    "description" : "Database storage service creation with db name: APPSDB",
    "updatedAt" : "August 09, 2016 06:19:35 AM WSST"
  }

```

12.8.4 odacli delete-dbstorage

Use the `odacli delete-dbstorage` command to delete database storage that is not associated with a database.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

`odacli delete-dbstorage -i [-h]`

Parameters

Parameter	Description
<code>--id, -i</code>	Identifies the database storage using a database identifier (ID).
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

- You can only use the `delete-dbstorage` when the storage is not associated with any databases.
- Use the `delete-database` command to delete an existing database.
- Use the `list-dbstorages` command to locate the identifier.

Example 12-31 Deleting Empty Database Storage

```
# odacli delete-dbstorage -i 9fe39332-cc1a-4b4b-8393-165524a6ef6b
```

12.9 odacli Job Commands

Use the `odacli list-jobs` and `odacli describe-job` commands to display job details.

Topics:

[odacli list-jobs](#) (page 12-36)

Use the `odacli list-jobs` command to display a list of jobs, including the job IDs, status, and the job created date and time stamp.

[odacli describe-job](#) (page 12-36)

Use the `odacli describe-job` command to display details about a specific job, including the job ID, status, tasks, and the job created date and time stamp.

12.9.1 odacli list-jobs

Use the `odacli list-jobs` command to display a list of jobs, including the job IDs, status, and the job created date and time stamp.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To list jobs and view job details and status:

```
odacli list-jobs [-j] [-h]
```

Parameters

Parameter	Description
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-32 Displaying a List of Jobs

To display a list of jobs:

```
# odacli list-jobs
```

ID	Description	Created
a6084067-72a1-4625-bea7-efd	Provisioning service	creation Jun 2, 2016 10:19:23 AM

(Continued)

Status

Success

12.9.2 odacli describe-job

Use the `odacli describe-job` command to display details about a specific job, including the job ID, status, tasks, and the job created date and time stamp.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To view a specific job, status, and tasks:

```
odacli describe-job -i jobid [-j] [-h]
```

Parameters

Parameter	Description
<code>--jobid, -i <i>jobid</i></code>	Identifies the job. To get the job identifier (jobid), run the <code>list-jobs</code> command.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-33 Displaying Details for a Job

To display details of a specific job with jobid 02df22c8-c21f-4162-8265-97f7826c243a:

```
# odacli describe-job -i 02df22c8-c21f-4162-8265-97f7826c243a
```

12.10 odacli Network Commands

Use the `odacli network` commands to list and describe network interfaces.

Topics:

[odacli list-networks](#) (page 12-37)

Use the `odacli list-networks` command to display networks.

[odacli describe-network](#) (page 12-38)

Use the `odacli describe-network` command to display the details of a specific network.

[odacli create-network](#) (page 12-39)

Use the `odacli create-network` command to create a network.

[odacli update-network](#) (page 12-40)

Use the `odacli update-network` command to update an existing network configuration.

[odacli delete-network](#) (page 12-40)

Use the `odacli delete-network` command to delete a network.

12.10.1 odacli list-networks

Use the `odacli list-networks` command to display networks.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli list-networks [-j] [-h]
```

Parameters

Parameter	Description
<code>--json, -j</code>	(Optional) Displays JSON output.

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-34 Displaying a List of Networks

Use the `odacli list-networks` command to display a list of networks:

```
# odacli list-networks
```

ID	Name	NIC	IP Address
7e3fd7e7-0975-4c74-9720-a01a2a7a838d	Private-network	priv0	192.0.2.1
e37b0ae9-1420-4e05-943b-7a8ee912cafb	Public-network	btbond1	10.20.30.100

(Continued)

Subnet Mask	Gateway
255.255.255.240	
255.255.252.0	10.20.30.1

12.10.2 odacli describe-network

Use the `odacli describe-network` command to display the details of a specific network.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To display the details of a specific network:

```
odacli describe-network -i id [-j][-h]
```

Parameters

Parameter	Description
--id, -i	Identifies the network ID. Use the <code>odacli list-networks</code> command to obtain the id.
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Example 12-35 Displaying Network Details

Enter the following command to display the details of network ID 9e5ba92b-3f64-4ca7-9067-48be0952510a:

```
# odacli describe-network -i 9e5ba92b-3f64-4ca7-9067-48be0952510a
```

Network details

```
-----
ID: 9e5ba92b-3f64-4ca7-9067-48be0952510a
Name: Public-network
NIC: btbond1
```

```

IP Address: 192.0.2.1
Subnet Mask: 255.255.252.0
Gateway: 10.20.30.1
Type: Public
Default: true
Created: July 28, 2016 10:10:49 AM EDT

```

12.10.3 odacli create-network

Use the `odacli create-network` command to create a network.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```

odacli create-network [-d|-no-d] -n interface -p ipaddress
-w {Public|Private|Dataguard|Backup|Other} -s subnetmask -g gateway[-h] [-j]

```

Parameters

Parameter	Description
<code>--defaultnetwork, -d</code>	Identifies the default network.
<code>--gateway, -g</code>	Defines the network gateway. The gateway is required for the default network.
<code>--help, -h</code>	(Optional) Displays help for using the command.
<code>--interface, -n</code>	Defines the name of the network interface.
<code>--ipaddress, -p</code>	Defines the network IP address.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--networktype, -w</code>	Defines the type of network. Options are: {Public Private Dataguard Backup Other}
<code>--no-defaultnetwork, no-d</code>	Identifies a network as not the default network. Use <code>--defaultnetwork, -d</code> to identify a default network.
<code>subnetmask, -s</code>	Defines the Network Subnet Mask.

Usage Notes

Use this command to create an additional network not done in `create-appliance`.

You are only allowed to create a network on the bond interface.

Example 12-36 Creating a Network

The following example creates a new network, `sfpbond1`, with IP address `192.0.2.15`. The network is an additional network that uses subnet mask `255.255.255.0` and is not a default network.

```
# odacli create-network -n sfpbond1 -p 192.0.2.15 -w Backup -s 255.255.255.0 -no-d
```

12.10.4 odacli update-network

Use the `odacli update-network` command to update an existing network configuration.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To update a network:

```
odacli update-network -i id [-p IP address]
[-w [Public|Private|Dataguard|Backup|Other]] [-s network subnet mask]
[-g network gateway] [-j] [-h]
```

Parameters

Parameter	Description
<code>--id, -i</code>	Defines the network identity.
<code>--gateway, -g</code>	(Optional) Defines the network gateway.
<code>--ipaddress, -p</code>	(Optional) Defines the network IP address.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--networktype, -w</code> [Public Private Dataguard Backup Other]	(Optional) Defines the type of network.
<code>subnetmask, -s</code>	(Optional) Defines the Network Subnet Mask.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

You cannot modify the Public and Private-interfaces after the system is deployed.

The system has both SFP+ and 10GBaseT bonded pairs, which means that one of them is used for the public, and you can configure the other after deployment if you want additional connectivity. For example, if you want a backup network.

Example 12-37 Updating a Network

The following example updates network ID `192.0.0.2` and designates the network as a backup network:

```
# odacli update-network -i 192.0.0.2 -w Backup
```

12.10.5 odacli delete-network

Use the `odacli delete-network` command to delete a network.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

To delete a network:

```
odacli delete-network -i id [-j] [-h]
```

Parameters

Parameter	Description
--id, -i	Defines the network identity.
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Usage Notes

You cannot delete the Public-network or Private-network after the system is deployed.

Example 12-38 Deleting a Network

The following example deletes a backup network with a network ID of 55db39db-d95c-42c5-abbd-b88eb99b83ec.

```
# odacli delete-network -i 55db39db-d95c-42c5-abbd-b88eb99b83ec
```

```
{
  "jobId" : "c26d217e-419b-4a91-8680-7b06bcfe9828",
  "status" : "Running",
  "message" : null,
  "reports" : [ {
    "taskId" : "TaskSequential_137",
    "taskName" : "deleting network",
    "taskResult" : "Running",
    "startTime" : "July 30, 2016 23:14:32 PM EDT",
    "endTime" : "July 30, 2016 23:14:32 PM EDT",
    "status" : "Running",
    "taskDescription" : null,
    "parentTaskId" : "TaskSequential_135",
    "jobId" : "c26d217e-419b-4a91-8680-7b06bcfe9828",
    "tags" : [ ],
    "reportLevel" : "Info",
    "updatedAt" : "July 30, 2016 23:14:32 PM EDT"
  }, {
    "taskId" : "TaskZJsonRpcExt_142",
    "taskName" : "Setting up Network",
    "taskResult" : "Network setup success",
    "startTime" : "July 30, 2016 23:14:32 PM EDT",
    "endTime" : "July 30, 2016 23:14:32 PM EDT",
    "status" : "Success",
    "taskDescription" : null,
    "parentTaskId" : "TaskParallel_141",
    "jobId" : "c26d217e-419b-4a91-8680-7b06bcfe9828",
    "tags" : [ ],
    "reportLevel" : "Info",
    "updatedAt" : "July 30, 2016 23:14:32 PM EDT" } ],
  "createTimestamp" : "July 30, 2016 23:14:32 PM EDT",
  "description" : "Network service delete",
  "updatedAt" : "July 30, 2016 23:14:32 PM EDT"
}
```

12.11 odacli Oracle Auto Service Request Commands

Use the Oracle Auto Service Request (Oracle ASR) commands to configure, update, test, and delete Oracle ASR on the system.

Topics:

[odacli configure-asr](#) (page 12-42)

[odacli update-asr](#) (page 12-44)

[odacli describe-asr](#) (page 12-45)

[odacli test-asr](#) (page 12-46)

[odacli delete-asr](#) (page 12-47)

12.11.1 odacli configure-asr

Use the `odacli configure-asr` command to configure Oracle Auto Service Request (Oracle ASR) after deploying the appliance.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
odacli configure-asr -u username -a asrpassword [-r proxyserver] [-t proxyport]
[-y proxyuser] [-ppwd proxypassword] [-s snmpversion] -i[asrip] -e [internal|
external] [-j] [-h]
```

Parameters

Parameter	Description
<code>--asrip, -i</code>	(Optional) Identifies the external Oracle ASR Manager IP address.
<code>--asrpassword, -a</code>	Defines the My Oracle Support password associated with the user name. Use this option to specify the password interactively. When using this option, do not enter the password in the command-line. To use non-interactive mode, use the <code>-ha</code> option instead of the <code>-a</code> option.
<code>--asrtype, -e {internal external}</code>	Defines the Oracle ASR Configuration Type. The default is internal.
<code>--help, -h</code>	(Optional) Displays help for using the command.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--proxypassword, -ppwd</code>	(Optional) Defines the proxy user password.

Parameter	Description
<code>--proxyport, -t</code>	(Optional) Defines the proxy server port.
<code>--proxyserver, -r</code>	(Optional) Defines the Proxy Server Address.
<code>--proxyuser, -y</code>	(Optional) Defines the proxy user name needed to authenticate the proxy server.
<code>--snmpversion, -s [V2 V3]</code>	(Optional) Defines Simple Network Management Protocol (SNMP) Version 2 or SNMP Version 3. The default is V2.
<code>--username, -u</code>	Defines the Oracle ASR user name. The user name is the My Oracle Support user name under which the server is registered.

Usage Notes

To execute the command in non-interactive mode and specify the password in the command-line itself, use the option `-ha` instead of `-a`.

All log files for Oracle ASR are located in the `/var/opt/asrmanager/log/` directory.

To configure an external Oracle ASR Manager, you must define the Oracle ASR Configuration Type as external (`-e external`). For example, `odacli configure-asr -e external -i 198.51.100.1`

Example 12-39 Configuring Oracle ASR with a Proxy Server

This example configures Oracle ASR for user name `scott.tiger@example.com`. A proxy server, `www-proxy.example.com`, and port 80 are defined.

```
# odacli configure-asr -u john.smith1@example.com -a -t 80 -r www-proxy.example.com
Asr User password:
```

Job details

```
-----
ID: d99559b6-d98d-4cb7-b44d-8577cab26667
Description: Configure ASR
Status: Created
Created: August 9, 2016 6:12:19 AM WSST
Message:
```

```
Task Name      Start Time      End Time      Status
-----
```

Example 12-40 Configuring an External Oracle ASR

This example configures Oracle Database Appliance to use an external Oracle ASR instance at IP address 10.20.30.40.

```
# odacli configure-asr --asrip 10.20.30.40 --asrtype External
{
  "jobId" : "ea054a2f-d18d-4253-83bc-b57434e3598e",
  "status" : "Created",
  "message" : "Please run the script '/tmp/activateExternalAssets.pl' on the
ASRManager host once the current job is successful.",
```

```
"reports" : [ ],
"createTimestamp" : "November 20, 2016 22:12:34 PM EST",
"description" : "Configure ASR",
"updatedAt" : "November 20, 2016 22:12:34 PM EST"
}
```

When the job completes successfully, run the `/tmp/activateExternalAssets.pl` script on the Oracle ASR Manager host.

12.11.2 odacli update-asr

Use the `odacli update-asr` command to make changes to Oracle Auto Service Request (Oracle ASR) configuration details after deploying the appliance.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
update-asr -u username -a asrpassword [-r proxyserver] [-t proxyport] [-y
proxyuser [-ppwd proxypassword] [-s snmpversion] -i[asrip] -e [internal|external] [-
j] [-h]
```

Parameters

Parameter	Description
<code>--asrip, -i</code>	(Optional) Identifies the external Oracle ASR Manager IP address.
<code>--asrpassword, -a</code>	Defines the My Oracle Support password associated with the user name. Use this option to specify the password interactively. When using this option, do not enter the password in the command-line. To use non-interactive mode, use the <code>-ha</code> option instead of the <code>-a</code> option.
<code>--asr type, -e [internal external]</code>	Defines the Oracle ASR Configuration Type. The default is internal.
<code>--help, -h</code>	(Optional) Displays help for using the command.
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--proxypassword, -ppwd</code>	(Optional) Defines the proxy user password.
<code>--proxyport, -t</code>	(Optional) Defines the proxy server port.
<code>--proxyserver, -r</code>	(Optional) Defines the Proxy Server Address.
<code>--proxyuser, -y</code>	(Optional) Defines the proxy user name needed to authenticate the proxy server.

Parameter	Description
<code>--snmpversion, -s [v2 v3]</code>	(Optional) Defines Simple Network Management Protocol (SNMP) Version 2 or SNMP Version 3. The default is v2.
<code>--username, -u</code>	Defines the Oracle ASR user name. The user name is the My Oracle Support user name under which the server is registered.

Usage Notes

- You can define the password as a command-line argument or enter the password during Oracle ASR configuration. To support non-interactive mode and pass the password in the command-line, use the `-ha` option instead of the `-a` option.
- All log files for Oracle ASR are located in the `/var/opt/asrmanager/log/` directory.
- You cannot use the `update-asr` command to change the Oracle ASR type. For example, from internal to external. To change the Oracle ASR type, delete the existing configuration using the `odacli delete-asr` and then re-configure Oracle ASR using the `odacli configure-asr` command.
- To configure an external Oracle ASR Manager, you must define the Oracle ASR Configuration Type as external (`-e external`). For example, `odacli update-asr -e external -i 198.51.100.1`

Example 12-41 Updating Oracle ASR with a New Proxy Server

This example updates Oracle ASR for user name `scott.tiger@example.com`. The password is not defined in the command-line. You are prompted to enter the password during configuration. The proxy server is updated to `www-proxy2.example.com`.

```
# odacli update-asr -u scott.tiger@example.com --asrpassword --proxyserver www-
proxy2.example.com --proxyport 80
Asr User password:
```

Job details

```
-----
ID: 79cb2baa-1644-45c5-a004-a303e3111807
Description: Update ASR
Status: Created
Updated: July 15, 2016 9:53:54 AM PST
Message:
```

Task Name	Start Time	End Time	Status
-----	-----	-----	-----

12.11.3 odacli describe-asr

Use the `odacli describe-asr` command to display Oracle Auto Service Request (Oracle ASR) configuration details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
describe-asr [-h]
```

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-42 Displaying Oracle ASR Details

(Optional) Describe the example here.

```
# odacli describe-asr
```

ASR details

```
-----
ID: e841d74a-687b-4e87-9548-1baa2090d48e
Name: UserName: scott.tiger@example.com
ProvyServerName: www-proxy.example.com
ProxyPort: 80
ProxyUserName:
SnmpVersion: V3
State: N/A
Created: July 15, 2016 8:53:54 AM PST
Updated: July 15, 2016 8:53:54 AM PST
```

12.11.4 odacli test-asr

Use the `odacli test-asr` command to test the Oracle Auto Service Request (Oracle ASR) configuration.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
# odacli test-asr [-h]
```

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Usage Notes

This command internally invokes the SNMP test trap by invoking `/SP/alertmgmt/rules/1 testrule=true`.

Example 12-43 Testing the Oracle ASR Configuration

```
# odacli test-asr
```

Job details

```

-----
ID: ec6783f4-551d-4686-ab1b-22e2d9e59c98
Description: Test ASR
Status: Created
Created: July 25, 2016 9:03:15 AM SGT
Message:

```

Task Name	Start Time	End Time	Status

12.11.5 odacli delete-asr

Use the `odacli delete-asr` command to remove the Oracle Auto Service Request (Oracle ASR) configuration from the system.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odacli`

Syntax

```
# odacli delete-asr [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-44 Deleting Oracle ASR From the System

```

# odacli delete-asr
{
  "jobId" : "5d70bd17-ec4a-48da-8196-1364105db99d",
  "status" : "Running",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : 1469409622451,
  "description" : "Delete ASR",
  "updatedAtTime" : 1469409622458
}

```

12.12 odaadmcli Storage Commands

Use the `odaadmcli storage` commands to perform storage diagnostics.

Topics:

[odaadmcli expand storage](#) (page 12-48)

Use the `odaadmcli expand storage` command to expand storage.

[odaadmcli show disk](#) (page 12-48)

Use the `odaadmcli show disk` command to display the status of a single disk or of all disks on the system.

[odaadmcli show diskgroup](#) (page 12-50)

Use the `odaadmcli show diskgroup` command to list configured diskgroups or display a specific diskgroup configuration.

[odaadmcli show controller](#) (page 12-51)

Use the `odaadmcli show controller` command to display details of the controller.

[odaadmcli show iraid](#) (page 12-51)

Use the `odaadmcli show iraid` command to display details of the internal RAID sub-system.

[odaadmcli show raidsyncstatus](#) (page 12-52)

Use the `odaadmcli show raidsyncstatus` command to display the RAID SYNC status.

[odaadmcli show storage](#) (page 12-53)

Use the `odaadmcli show storage` command to show the storage controllers, expanders, and disks.

[odaadmcli storddiag](#) (page 12-54)

Use the `odaadmcli storddiag` command to collect detailed information for each disk or NVMe.

[odaadmcli manage diagcollect](#) (page 12-54)

Use the `odaadmcli manage diagcollect` command to collect diagnostic logs for storage components.

[odaadmcli power disk](#) (page 12-55)

Use the `odaadmcli power disk` command to power a disk on or off.

12.12.1 odaadmcli expand storage

Use the `odaadmcli expand storage` command to expand storage.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To expand storage:

```
odaadmcli expand storage [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

12.12.2 odaadmcli show disk

Use the `odaadmcli show disk` command to display the status of a single disk or of all disks on the system.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To display the status of all disks on the system:

```
odaadmcli show disk [-h]
```

To display the status of a single disk:

```
odaadmcli show disk disk_name [-h]
```

Parameters

Parameter	Description
<i>disk_name</i>	(Optional) Define the disk resource name. The resource name format is pd_[0..3].
--help, -h	(Optional) Displays help for using the command.

Example 12-45 Displaying the Status of All Disks

To display the status of all the disks on the system:

```
# odaadmcli show disk
NAME          PATH          TYPE      STATE      STATE_DETAILS
pd_00         /dev/nvme0n1  NVD       ONLINE     Good
pd_01         /dev/nvme1n1  NVD       ONLINE     Good
```

Example 12-46 Displaying the Status of a Single Disk

To display the status of a disk named pd_00:

```
# odaadmcli show disk pd_00

The Resource is : pd_00
ActionTimeout : 1500
ActivePath : /dev/nvme0n1
  AsmDiskList : |data_00||reco_00|
AutoDiscovery : 1
AutoDiscoveryHi : |data:80:NVD||reco:20:NVD|
CheckInterval : 300
ColNum : 0
CriticalWarning : 0
DependListOpr : add
  Dependency : |0|
DiskId : 360025380144d5332
DiskType : NVD
Enabled : 1
ExpNum : 19
HbaPortNum : 10
IState : 0
Initialized : 0
IsConfigDepende : false
  ModelNum : MS1PC2DD30RA3.2T
  MonitorFlag : 1
MultiPathList : |/dev/nvme0n1|
Name : pd_00
NewPartAddr : 0
OSUserType : |userType:Multiuser|
PlatformName : X6_1_LITE_S
PrevState : Invalid
PrevUsrDevName :
```

```
SectorSize : 512
SerialNum  : S2LHNAAH000001
Size       : 3200631791616
SlotNum    : 0
SmartDiskWarnin : 0
SmartTemperatur : 37
State      : OnLine
StateChangeTs : 1465263789
StateDetails : Good
TotalSectors : 6251233968
TypeName   : 0
UsrDevName  : NVD_S00_S2LHNAAH101026
VendorName  : Samsung
gid         : 0
  mode      : 660
uid         : 0
```

12.12.3 odaadmcli show diskgroup

Use the `odaadmcli show diskgroup` command to list configured diskgroups or display a specific diskgroup configuration.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To list configured diskgroups:

```
odaadmcli show diskgroup [-h]
```

To display DATA configurations:

```
odaadmcli show diskgroup [DATA] [-h]
```

To display RECO configurations:

```
odaadmcli show diskgroup [RECO] [-h]
```

Parameters

Parameter	Description
DATA	(Optional) Displays the DATA diskgroup configurations.
RECO	(Optional) Displays the RECO diskgroup configurations.
--help, -h	(Optional) Displays help for using the command.

Example 12-47 Listing All Diskgroups

To list all diskgroups:

```
# odaadmcli show diskgroup
```

```
DiskGroups
-----
DATA
RECO
```


Example 12-48 Displaying DATA Configurations

To display DATA configurations:

```
# odaadmcli show diskgroup DATA
```

ASM_DISK	PATH	DISK	STATE	STATE_DETAILS
data_00	/dev/NVD_S00_S2LHNAAH101026p1	pd_00	ONLINE	Good
data_01	/dev/NVD_S01_S2LHNAAH101008p1	pd_01	ONLINE	Good

12.12.4 odaadmcli show controller

Use the `odaadmcli show controller` command to display details of the controller.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To display details of the controller:

```
odaadmcli show controller id [-h]
```

Parameters

Parameter	Description
<code>controller_id, id</code>	Defines the controller.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-49 Showing Controller Details

```
# odaadmcli show controller 1
Controller [1] information:
  sun-controller-id = nvme:1b:00.00
  sun-id = nvme:1b:00.00
  sun-controller-manufacturer = Samsung
  pci-vendor-id = 0x0000144d
  sun-controller-model = 0xa821
  pci-device-id = 0x0000a821
  sun-controller-type = NVMe
  sun-card-manufacturer = Sun Microsystems
  pci-subvendor-id = 0x0000108e
  sun-card-model = 0xa803
  pci-subdevice-id = 0x0000a803
  pci-address = 1b:00.0
  sun-version-firmware = KPYA7R3Q
  sun-serial-number = S2LHNAAH101008
  sun-product-name = MS1PC2DD30RA3.2T
  pci-slot-number = 11
  nvme-power-control = 1
  sun-nac-name = /SYS/DBP/NVME1
```

12.12.5 odaadmcli show iraid

Use the `odaadmcli show iraid` command to display details of the internal RAID sub-system.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To display details of the internal RAID subsystem:

```
odaadmcli show iraid [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-50 Displaying Details of the Internal RAID Sub-system

To display details of the internal RAID sub-system:

```
# odaadmcli show iraid
```

```
NAME      CTRL#  PRODUCT  SERIAL_NO  BIOS_VER  FW_VER
IR_0_0_0  0      LSI      MegaRAID  9361-8i   SV52756042  6.17.04.2_4.16.08.00_0x06060A
IR_0_0_1  0      LSI      MegaRAID  9361-8i   SV52756042  6.17.04.2_4.16.08.00_0x06060A
```

```
VDISK_TYPE  VDISK_STATE  PDISK_MODEL
4.230.40-3739  RAID1      Optl MS4SC2JH20RA480G
4.230.40-3739  RAID1      Optl MS4SC2JH20RA480G
```

```
EID:SLT  PDISK_STATE  SIZE          CV_MODEL  CV_STATE  CV_TEMP
252:0    Onln        446.102 GB   CVPM02    Optimal    25C
252:1    Onln        446.102 GB   CVPM02    Optimal    25C
```

12.12.6 odaadmcli show raidsyncstatus

Use the `odaadmcli show raidsyncstatus` command to display the RAID SYNC status.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To display the status of RAID SYNC:

```
odaadmcli show raidsyncstatus [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-51 Displaying the RAID SYNC Status

To display the RAID SYNC details and status:

```
# odaadmcli show raidsyncstatus
```

Raid Type	Raid Device	Raid Status	maintainPdFailHistory	Rebuildrate
H/W Raid	/dev/sda	Optimal	ON	30%

12.12.7 odaadmcli show storage

Use the `odaadmcli show storage` command to show the storage controllers, expanders, and disks.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To display the storage controllers, expanders, and disks:

```
odaadmcli show storage [-h]
```

To show storage errors:

```
odaadmcli show storage -errors [-h]
```

Parameters

Parameter	Description
<code>--errors</code>	(Optional) Shows storage errors.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-52 Displaying Storage Devices

To display storage devices:

```
# odaadmcli show storage

==== BEGIN STORAGE DUMP =====
Host Description: Oracle Corporation:ORACLE SERVER X6-2
Total number of controllers: 2
  Id = 0
    Pci Slot = 10
    Serial Num = S2LHNAAH101026
    Vendor = Samsung
    Model = MS1PC2DD30RA3.2T
    FwVers = KPYA7R3Q
    strId = nvme:19:00.00
    Pci Address = 19:00.0

    Id = 1
    Pci Slot = 11
    Serial Num = S2LHNAAH101008
    Vendor = Samsung
    Model = MS1PC2DD30RA3.2T
    FwVers = KPYA7R3Q
    strId = nvme:1b:00.00
    Pci Address = 1b:00.0

Total number of expanders: 0
```

```
Total number of PDs: 2
/dev/nvme0n1 Samsung NVD 3200gb slot: 0 pci : 19
/dev/nvme1n1 Samsung NVD 3200gb slot: 1 pci : 1
```

```
==== END STORAGE DUMP =====
```

12.12.8 odaadmcli stordiag

Use the `odaadmcli stordiag` command to collect detailed information for each disk or NVMe.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To collect storage diagnostics for disks and NVM Express (NVMe):

```
odaadmcli stordiag n [-h]
```

Parameters

Parameter	Description
<code>-n <i>disk_name</i></code>	Defines the disk resource name. The resource name format is <code>pd_[0..3]</code> .
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-53 Displaying NVMe Details

To display detailed information for NVMe `pd_00`:

```
# odaadmcli stordiag pd_00
```

12.12.9 odaadmcli manage diagcollect

Use the `odaadmcli manage diagcollect` command to collect diagnostic logs for storage components.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To collect diagnostic logs for storage components:

```
odaadmcli manage diagcollect --storage [-h]
```

Parameters

Parameter	Description
<code>--storage</code>	Collects storage logs.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-54 Collecting Storage Logs

```
# odaadmcli manage diagcollect --storage
Collecting storage log data. It will take a while, please wait...
Collecting oak data. It will take a while, please wait...
tar: Removing leading '/' from member names
tar: /opt/oracle/oak/onecmd/tmp/OakCli-Command-Output.log: file changed as we read it

Logs are collected to : /opt/oracle/oak/log/rwsoda6f002/oakdiag/oakStorage-
rwsoda6f002-20161120_2217.tar.gz
```

12.12.10 odaadmcli power disk

Use the `odaadmcli power disk` command to power a disk on or off.

File Path

```
$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli
```

Syntax

To power a disk on or off:

```
odaadmcli power disk {on|off|status} disk_name [-h]
```

Parameters

Parameter	Description
<i>disk_name</i>	Defines the disk resource name. The resource name format is <code>pd_[0..3]</code> .
<code>{on off status}</code>	Power on a disk, power off a disk, display status.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-55 Powering a Disk Off

This example shows how to power off a disk.

```
# odaadmcli power disk off pd_00
Disk 'pd_00' is already part of ASM

Are you sure you want to power OFF the disk?: 'pd_00'?
[yes/no]:
yes
Powered OFF pd_00
```

Example 12-56 Checking the Disk Status

This example shows how to get the status of disk `pd_00`.

```
# odaadmcli power disk status pd_00
The disk is powered ON
```

12.13 odaadmcli Hardware Monitoring Commands

Use the `hardware monitoring` commands to display hardware configurations.

Topics:

[odaadmcli show cooling](#) (page 12-56)

Use the `odaadmcli show cooling` command to show cooling details.

[odaadmcli show env_hw](#) (page 12-56)

Use the `odaadmcli show env_hw` command to display information about the environment and hardware.

[odaadmcli show fs](#) (page 12-57)

Use the `odaadmcli show fs` command to display filesystem details.

[odaadmcli show memory](#) (page 12-58)

Use the `odaadmcli show memory` command to display memory details.

[odaadmcli show network](#) (page 12-58)

Use the `odaadmcli show network` command to show network details.

[odaadmcli show power](#) (page 12-59)

Use the `odaadmcli show power` command to display power supply details.

[odaadmcli show processor](#) (page 12-59)

Use the `odaadmcli show processor` command to display processor details.

[odaadmcli show server](#) (page 12-60)

Use the `odaadmcli show server` command to display server details.

12.13.1 odaadmcli show cooling

Use the `odaadmcli show cooling` command to show cooling details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To show cooling details:

```
odaadmcli show cooling [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

12.13.2 odaadmcli show env_hw

Use the `odaadmcli show env_hw` command to display information about the environment and hardware.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To display environment and hardware details:

```
odaadmcli show env_hw [-h]
```

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-57 Displaying Environment and Hardware Details

To display the hardware details, enter `odaadmcli show env_hw`. The results show a bare metal Oracle Database Appliance X6-2S system.

```
# odaadmcli show env_hw
```

```
BM ODA_Lite X6-2 Small
```

12.13.3 odaadmcli show fs

Use the `odaadmcli show fs` command to display filesystem details.

File Path

```
$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli
```

Syntax

To display filesystem details:

```
odaadmcli show fs [-h]
```

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-58 Displaying Filesystem Details

```
# odaadmcli show fs
```

Type	Total Space	Free Space	Total DG Space	Free DG Space
ext3	30237M	7763M	-	-
ext3	484M	416M	-	-
ext3	60475M	38149M	-	-
ext3	100793M	22060M	-	-

acfs	102400M	102158M	4894016M	2418668M
acfs	102400M	100501M	4894016M	2418668M
acfs	102400M	100601M	4894016M	2418668M

(Continued)

```
Diskgroup Mount Point
/
/boot
/opt
```

```
DATA      /u01
DATA      /u02/app/oracle/oradata/ACFSDB1
DATA      /u02/app/oracle/oradata/ACFSDB2
DATA      /u02/app/oracle/oradata/EE12NCDB
```

12.13.4 odaadmcli show memory

Use the `odaadmcli show memory` command to display memory details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To show memory details:

```
odaadmcli show memory [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-59 Display Memory Details

```
# odaadmcli show memory
```

NAME	HEALTH	HEALTH_DETAILS	PART_NO.	SERIAL_NO.
DIMM_0	OK	-	3A4K40BB1-CRC	00CE01154602EADA96
DIMM_11	OK	-	3A4K40BB1-CRC	00CE01154602EADADA
DIMM_3	OK	-	3A4K40BB1-CRC	00CE01154602EADBC7
DIMM_8	OK	-	3A4K40BB1-CRC	00CE01154602EADBA0

(Continued)

LOCATION	MANUFACTURER	MEMORY_SIZE	CURR_CLK_SPEED	ECC_Errors
P0/D0	Samsung	32 GB	2400 MHz	0
P0/D1	Samsung	32 GB	2400 MHz	0
P0/D3	Samsung	32 GB	2400 MHz	0
P0/D8	Samsung	32 GB	2400 MHz	0

12.13.5 odaadmcli show network

Use the `odaadmcli show network` command to show network details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To show network details:

```
odaadmcli show network [-h]
```


Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-60 Showing Network Details

```
# odaadmcli show network
NAME          HEALTH  HEALTH_DETAILS LOCATION PART_NO  MANUFACTURER
Ethernet_NIC_0 OK      -        NET0      X540    INTEL
Ethernet_NIC_1 OK      -        NET1      X540    INTEL
Ethernet_NIC_2 -       -        NET2      X540    INTEL
Ethernet_NIC_3 -       -        NET3      X540    INTEL
```

(Continued)

```
MAC_ADDRESS    LINK_DETECTED  DIE_TEMP
00:10:e0:95:98:ec  yes (em1)      61.250 degree C
00:10:e0:95:98:ed  yes (em2)      61.250 degree C
90:e2:ba:ae:1e:ad   no (em4)       -
90:e2:ba:ae:1e:ac   no (em3)       -
```

12.13.6 odaadmcli show power

Use the `odaadmcli show power` command to display power supply details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To show power supply details:

```
odaadmcli show power [-h]
```

Parameters

Parameter	Description
--help, -h	(Optional) Displays help for using the command.

Example 12-61 Displaying Power Supply Details

```
# odaadmcli show power
```

```
NAME          HEALTH  HEALTH_DETAILS  PART_NO.  SERIAL_NO.
Power_Supply_0 OK      -              7079395   476856Z+1514CE056G
```

(Continued)

```
LOCATION    INPUT_POWER  OUTPUT_POWER  INLET_TEMP  EXHAUST_TEMP
PS0        Present      112 watts     28.000 degree C  34.938 degree C
```

12.13.7 odaadmcli show processor

Use the `odaadmcli show processor` command to display processor details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To show processor details:

```
odaadmcli show processor [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-62 Displaying Processor Details

```
# odaadmcli show processor
```

NAME	HEALTH	HEALTH_DETAILS	PART_NO.	LOCATION	MODEL
CPU_0	OK	-	060F P0	(CPU 0)	Intel(R) Xeon(R) CPU
E5-2630					

(Continued)

MAX_CLK_SPEED	TOTAL_CORES	ENABLED_CORES
2.200 GHz	10	10

12.13.8 odaadmcli show server

Use the `odaadmcli show server` command to display server details.

File Path

`$ORACLE_HOME/opt/oracle/dcs/bin/odaadmcli`

Syntax

To show server details:

```
odaadmcli show server [-h]
```

Parameters

Parameter	Description
<code>--help, -h</code>	(Optional) Displays help for using the command.

Example 12-63 Displaying Server Details

```
# odaadmcli show server
```

```
Power State : On
Open Problems : 0
Model : ORACLE SERVER X6-2
Type : Rack Mount
Part Number : 7320190
Serial Number : 1605NM10JJ
Primary OS : Not Available
ILOM Address : 10.209.8.215
```

ILOM MAC Address : 00:10:E0:95:98:F0
 Description : Oracle Database Appliance X6-2 Small 1606NM1s02
 Locator Light : Off
 Actual Power Consumption : 135 watts
 Ambient Temperature : 24.250 degree C
 Open Problems Report : System is healthy

12.14 odacli-adm set-credential

Use the `odacli-adm set-credential` command to change the `oda-admin` user credentials.

Syntax

To reset the `oda-admin` user credentials in interactive mode:

```
odacli-adm set-credential --password --username username [-j] [-h]
```

To reset the `oda-admin` user credentials in non-interactive mode:

```
odacli-adm set-credential --hp password --username username [-j] [-h]
```

Parameters

Parameter	Description
<code>--password, -p</code>	Agent password. The Agent password is needed to access the Oracle Appliance Manager Web Console. The default password is <code>welcome1</code> . To define the password in non-interactive mode, use <code>--hp</code> instead of <code>--password</code> .
<code>--username, -u</code>	User name required to access the Oracle Appliance Manager Web Console. The default user name is <code>oda-admin</code> .
<code>--json, -j</code>	(Optional) Displays JSON output.
<code>--help, -h</code>	(Optional) Displays help for using the command.

Usage Notes

Only `root` user can reset the `oda-admin` user credentials.

Example 12-64 Resetting the oda-admin Password in Interactive Mode

To reset the `oda-admin` user password to `welcome2` in interactive mode:

```
# odacli-adm set-credential --password --username oda-admin
Agent password: welcome2
```

Example 12-65 Resetting the oda-admin Password in Non-Interactive Mode

To reset the `oda-admin` user password to `welcome2` in non-interactive mode:

```
# odacli-adm set-credential --password welcome2 --username oda-admin
```

Oracle Database Appliance Software Configuration Defaults

Oracle Database Appliance software configuration defaults.

Topics:

[Directory Paths for Oracle Database Appliance](#) (page A-1)

Oracle homes on Oracle Database Appliance follow Optimal Flexible Architecture guidelines.

[Location of Log Files](#) (page A-2)

Log files are available for actions performed in the command-line interface and Web Console and are useful when you need to track and debug jobs.

[Oracle Groups and User Configurations for Oracle Database Appliance](#) (page A-3)

Review the groups and default users when you use the Web Console to deploy the appliance. All passwords are set to the Master password that you define during deployment.

[System Configuration for Oracle Database Appliance](#) (page A-3)

Review the system configuration for Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

A.1 Directory Paths for Oracle Database Appliance

Oracle homes on Oracle Database Appliance follow Optimal Flexible Architecture guidelines.

Table A-1 *Directory Paths for Oracle Database Appliance*

Item	Directory Path
Grid home	/u01/app/release-specific_name/gi owner
Grid base	/u01/app/gi owner
Oracle home	/u01/app/rdbms owner/product/dbhome_release-specific_namesequence_number
Oracle base	/u01/app/rdbms owner
Oracle Inventory	/u01/app/oraInventory

A.2 Location of Log Files

Log files are available for actions performed in the command-line interface and Web Console and are useful when you need to track and debug jobs.

You can also use the Oracle Appliance Manager Web Console to view job activity, including the tasks that make up the job. The status of each task appears in the Web Console and you can drill down to get greater details.

If you log a Service Request, upload all of the logs in the `/opt/oracle/dcs/log` directory.

Patching Log Files

All patching-related information is logged in the `dcsc-agent` log file at `/opt/oracle/dcs/log/dcs-agent.log`.

DCS Agent Log Directories

Agent-specific activities are logged in the `dcsc-agent` log.

The DCS Agent, controller, and command-line interface output appears in the `/opt/oracle/dcs/log/dcs-agent.log` file.

If an error occurs in the command-line interface layer, then the output will show in the `/opt/oracle/dcs/log/dcscli.log` file first.

Storage Logs

Storage-related activity is logged in the `oakd` log file.

`/opt/oracle/oak/log/hostname/oak/oakd.log`

For example, `/opt/oracle/oak/log/myhost/oak/oakd.log`

Use the `odaadmcli manage diagcollect` command to collect diagnostic logs for storage components. The files are saved in the `oakdiag` log file.

`/opt/oracle/oak/log/hostname/oakdiag/file name.tar.gz`

For example, `/opt/oracle/oak/log/myhost/oakdiag/oakStorage-myhost-20161120_2217.tar.gz`

Database Logs

Online logs are stored in the `/u03/app/db user/redo/` directory.

Oracle Fast Recovery Area (FRA) is located in the `/u03/app/db user/fast_recovery_area` directory.

Oracle Auto Service Request (Oracle ASR) Log Files

All log files for Oracle ASR are located in the `/var/opt/asrmanager/log/` directory.

Related Topics:

[Viewing Job Activity](#) (page 10-5)

Use the Oracle Appliance Manager Web Console to view job activity, the status of tasks in a job, and job status.

A.3 Oracle Groups and User Configurations for Oracle Database Appliance

Review the groups and default users when you use the Web Console to deploy the appliance. All passwords are set to the Master password that you define during deployment.

Default Operating System Groups and User Configurations

Table A-2 *Default Operating System Groups and Users Configuration for Oracle Database Appliance*

Groups and Users	Default Value
Oracle Grid Infrastructure installation owner	grid, UID 1001
Oracle Database installation owner	oracle, UID 1000
Oracle Database system administrator	sys
Oracle Database generic administrator	system
Oracle Inventory system privileges group	oinstall, GID 1001
Oracle ASM Administrators system privileges	asmadmin, GID 1004
Oracle ASM Users system privileges	asmdba, GID 1006
Oracle ASM Operator system privileges	asmoper, GID 1005
Oracle Database Administrators system privileges	dba, GID 1003
Oracle Database Operator system privileges	dbaoper, GID 1002

Oracle Groups and User Configurations

You can use the Web Console or the `odacli create-appliance` command and a JSON file to deploy the appliance. The following configurations are supported:

- 2 Users with 6 groups (operating system role separation)
- Single User with 6 groups (no operating system role separation)
- Single user with 2 groups (no operating system role separation)

You can customize groupname, username, and UID.

A.4 System Configuration for Oracle Database Appliance

Review the system configuration for Oracle Database Appliance X6-2S, X6-2M, and X6-2L.

Table A-3 System Configuration for Oracle Database Appliance X6-2S, X6-2M, and X6-2L

Item	Value
Oracle Linux with the Red Hat-compatible kernel	Oracle Linux 6.8 with 4.1.12-61.33.1.el6uek.x86_64
Oracle Database release	12.1.0.2.170418 and 11.2.0.4.170418 Oracle Database Enterprise Edition, Oracle Database Standard Edition 2, Oracle Database Standard Edition 1, Oracle Database Standard Edition
Oracle Enterprise Manager Express 12c	Port 5500 To access Oracle Enterprise Manager, enter the following URL string, where <i>hostname</i> is the name of the Oracle Database Appliance server: <code>https://hostname:5500/em</code>
Oracle Enterprise Manager 11.2 database console	Port 1158 To access Oracle Enterprise Manager, enter the following URL string, where <i>hostname</i> is the name of the Oracle Database Appliance server: <code>https://hostname:1158/em</code>

Storage on Oracle Database Appliance

Review this section to understand Oracle Database Appliance storage architecture and options and how to determine usable storage.

Topics:

[About Oracle Database Appliance Storage](#) (page B-1)

Use Oracle Automatic Storage Management (Oracle ASM) or Oracle Automatic Storage Management Cluster File System (Oracle ACFS) for database files storage.

[Determining Usable Disk Capacity on Oracle Database Appliance for X6-2S, X6-2M, and X6-2L](#) (page B-4)

Review the usable disk capacity available for Oracle Database Appliance X6-2S, X6-2M, and X6-2L and how capacity is derived.

B.1 About Oracle Database Appliance Storage

Use Oracle Automatic Storage Management (Oracle ASM) or Oracle Automatic Storage Management Cluster File System (Oracle ACFS) for database files storage.

Database file systems are used exclusively for storing database files, and they include a DATA file system for database data files and a RECO file system for storing archive files and backups. Oracle Database Appliance supports Oracle ACFS and Oracle ASM database file storage. You determine the type of database storage when you create the database.

About Oracle ASM Database Storage

Use Oracle ASM with Oracle Database 12c release 1 (12.1.0.2).

With Oracle ASM, database datafiles are stored in DATA diskgroup. Redo and archive files are in RECO diskgroup.

About Oracle ACFS Database Storage

Use Oracle ACFS with Oracle Database 12c release 1 (12.1.0.2) or Oracle Database 11g release 2 (11.2.0.4).

With Oracle ACFS, an Oracle ACFS file system is created from DATA diskgroup for each database to store datafiles, and an Oracle ACFS file system is created from RECO diskgroup for redo and fast recovery area for all databases.

[About Database File Storage](#) (page B-2)

Understand how database file storage is configured for Oracle Database Appliance X6-2.

[Oracle ACFS Mount Points and Storage Space](#) (page B-3)

Review Oracle ASM Cluster file system (ACFS) mount points for Oracle Database Appliance.

[Displaying Mounted Disk Details](#) (page B-4)

Use the Oracle Automatic Storage Management `lsdg` command to display mounted disk groups and their information for Oracle Database Appliance.

B.1.1 About Database File Storage

Understand how database file storage is configured for Oracle Database Appliance X6-2.

Database file systems are used exclusively for storing database files, and they include a DATA file system for database data files and a RECO file system for storing archive files and backups. Oracle Database Appliance supports Oracle Automatic Storage Management Cluster File System (Oracle ACFS) or Oracle Automatic Storage Management (Oracle ASM) database file storage. You determine the type of database storage when you create the database.

About Oracle ASM Database Storage

Use Oracle ASM with Oracle Database 12c release 1 (12.1.0.2).

With Oracle ASM, database datafiles are stored in DATA diskgroup. Redo and archive files are in RECO diskgroup.

Reserved storage is the amount of Oracle Automatic Storage Management (Oracle ASM) storage required to maintain redundancy in the event of a disk failure. If you use the reserve storage capacity, then the system continues to run, and it is protected through Oracle ASM mirroring. However, in the event of a second disk failure, the system is then running in a non-protected and degraded mode. In this event, you must replace disks immediately.

About Oracle ACFS Database Storage

Use Oracle ACFS with Oracle Database 12c release 1 (12.1.0.2) or Oracle Database 11g release 2 (11.2.0.4).

With Oracle ACFS, an Oracle ACFS file system is created from DATA diskgroup for each database to store datafiles, and an Oracle ACFS file system is created from RECO diskgroup for redo and fast recovery area for all databases.

Storage Configuration Options

When Oracle Database Appliance X6-2 is deployed, you can select one of the following configuration options to divide the storage capacity between DATA diskgroup and RECO diskgroup:

- External: Storage capacity is split between 80% for DATA and 20% for RECO.
- Internal: Storage capacity is split between 40% for DATA and 60% for RECO.
- Custom: Storage capacity is configurable from 10% to 90% for DATA and the remainder for RECO.

When you configure Oracle Database Appliance to use Custom data storage, the amount of usable storage is determined by the percentage configured for DATA.

You can run the `lsdg` command to determine the usable storage on the DATA disk group.

B.1.2 Oracle ACFS Mount Points and Storage Space

Review Oracle ASM Cluster file system (ACFS) mount points for Oracle Database Appliance.

If you select Oracle Automatic Storage Management (Oracle ASM) for database storage when you create a database, then an Oracle ASM Cluster file system (ACFS) is not created. All files are in an Oracle ASM diskgroup.

If you select Oracle ACFS for database storage, then each database has its own Oracle ACFS mount point:

- DATA diskgroup: `/u02/app/oracleuser/oradata/db_name`
- RECO diskgroup: `/u03/app/oracleuser`.

With Oracle ACFS, the following are created:

- A 100G ACFS is created from +DATA diskgroup for each database. This Oracle ACFS automatically extends the space on demand.
- A common Oracle ACFS with 25% of +RECO diskgroup is created with auto extension on. This file system is used for fast recovery area and redo logs for all databases.

Table B-1 Oracle ACFS Mount Points and Related Oracle ASM Disk Groups and Volume Information

File System	Oracle ASM Disk Group	Oracle ASM Dynamic Volume	Mount Point
DATA	+DATA	<code>/dev/asm/datdbname-nnn</code> For example: <code>/dev/asm/datodacn-123</code>	<code>/u02/app/oracleuser/oradata/dbname</code> For example: <code>/u02/app/example/oradata/odacn</code>
RECO	+RECO	<code>/dev/asm/reco-nn</code>	<code>/u03/app/oracleuser</code> This mount point is shared by all databases for fast_recovery_area and redo logs. For fast_recovery_area, the path is: <code>/u03/app/oracleuser/fast_recovery_area/db_name</code> For redo logs, the path is: <code>/u03/app/oracleuser/redo/db_name</code>

Example B-1 Oracle ACFS Storage Space

When the Oracle ACFS file systems are created, they do not initially consume all of the storage in the appliance. Space is preserved for additional repositories, or in some cases, database files stored directly in Oracle ASM. You can check for available storage space in your file systems by running the operating system command `df -k` as shown in the following example.

```
# df -k
Filesystem                1K-blocks    Used   Available Use%
```

Mounted on					
/dev/mapper/VolGroupSys-LogVolRoot	30963708	14203568	15187276	49%	/
tmpfs	65952292	647800	65304492		
1% /dev/shm					
/dev/sda1	495844	43872	426372	10%	/
boot					
/dev/mapper/VolGroupSys-LogVol0pt	61927420	18594420	40187272	32%	/
opt					
/dev/mapper/VolGroupSys-LogVolU01	103212320	49621560	48347880	51%	/
u01					
/dev/asm/reco-62	76546048	1469676	75076372		
2% /u03/app/oracle					
/dev/asm/datrd2-268	104857600	3872368	100985232		
4% /u02/app/oracle/oradata/rdb2					
/dev/asm/datndb11-268	104857600	247160	104610440		
1% /u02/app/oracle/oradata/ndb11					
/dev/asm/datndb12-268	104857600	247160	104610440		
1% /u02/app/oracle/oradata/ndb12					

B.1.3 Displaying Mounted Disk Details

Use the Oracle Automatic Storage Management `lsdg` command to display mounted disk groups and their information for Oracle Database Appliance.

To display information about a specific disk group, specify the disk group in the command.

1. Log in as a `grid` user.
2. Run the Oracle Automatic Storage Management `lsdg` command.

Example B-2 Determining Storage on the DATA Disk Group

```
ASMCMD [+] > lsdg data
```

State	Type	Rebal	Sector	Block	AU	Total_MB	Free_MB	Req_mir_free_MB
Usable_file_MB								
MOUNTED	NORMAL	N	512	4096	4194304	12288	8835	
1117		3859						

(continued)

Offline_disks	Voting_files	Name
0	N	DATA

B.2 Determining Usable Disk Capacity on Oracle Database Appliance for X6-2S, X6-2M, and X6-2L

Review the usable disk capacity available for Oracle Database Appliance X6-2S, X6-2M, and X6-2L and how capacity is derived.

Oracle Database Appliance X6-2S, X6-2M, and X6-2L use 3.2 TB raw NVMe flash Solid-State Drives. The usable data capacity in the following tables varies because it is derived by converting terabytes reported in decimal (based on 1 kilobyte equals 1,000 bytes) into terabytes reported in binary (based on 1 kilobyte equals 1,024 bytes) and splitting the usable capacity into Oracle Automatic Storage Management (Oracle ASM) disk groups.

In summary, each NVMe SSD usable storage is approximately 2.91TB. This is calculated by the storage usable capacity of the drive converted to TB. 3.2 TB divided by $1.024^4 = 2.91\text{TB}$.

Usable Disk Capacity on Oracle Database Appliance X6-2S and X6-2M

The following table provides the approximate amount of usable space for the Oracle Database Appliance X6-2S and X6-2M.

Table B-2 Usable Disk Capacity on Oracle Database Appliance X6-2S and X6-2M

Description	Sizing for X6-2S and X6-2M with 2 NVMe Drives	Sizing for X6-2S and X6-2M with 4 NVMe Drives
Number of NVMe Drives	2	4
Total Usable Space	5.8TB	11.6TB
Total Usable Normal (Double Mirror) Oracle ASM Redundancy	2.9TB	5.8TB
DATA Disk Group (90% Usable)	2.6TB	5.2TB
RECO Disk Group (10% Usable)	0.3TB	0.6TB
Total Usable High (Triple Mirror) Oracle ASM Redundancy	NA. Triple mirroring is not applicable for the X6-2S and X6-2M.	3.9TB
DATA Disk Group (90% usable)	NA. Triple mirroring is not applicable for the X6-2S and X6-2M.	3.5TB
RECO Disk Group (10% usable)	NA. Triple mirroring is not applicable for the X6-2S and X6-2M.	0.4TB

Usable Disk Capacity on Oracle Database Appliance X6-2L

Based on the calculations of the capacity of the storage drives and including the reserved space for redundancy, the following table reflects the approximate usable storage of the Oracle Database Appliance X6-2L.

Table B-3 Usable Storage on Oracle Database Appliance X6-2L

Description	Sizing for X6-2L with 6 NVMe Drives	Sizing for X6-2L with 9 NVMe Drives
Number of NVMe Drives	6	9
Total Usable Space	17.4TB	26.1TB
Reserved Space Normal Redundancy	2.9TB	2.9TB
Total Usable Normal (Double Mirror) Oracle ASM Redundancy	7.2TB	11.6TB
DATA Disk Group (90% usable)	6.5TB	10.4TB
RECO Disk Group (10% usable)	0.7TB	1.2TB

Table B-3 (Cont.) Usable Storage on Oracle Database Appliance X6-2L

Description	Sizing for X6-2L with 6 NVMe Drives	Sizing for X6-2L with 9 NVMe Drives
Reserved Space High Redundancy	5.8TB	5.8TB
Total Usable High (Triple Mirror) Oracle ASM Redundancy	3.8TB	6.8TB
DATA Disk Group (90% usable)	3.4TB	6.1TB
RECO Disk Group (10% usable)	0.4TB	0.7TB

The Reserved Space values represent the amount of storage required to maintain full redundancy in case of disk failure.

Oracle ASM Calculations

When Oracle ASM calculates usable Free Space, it determines the amount of space to reserve in the case of a disk failure. For Oracle Database Appliance X6-2S or X6-2M with 2 or 4 NVMe drives, this reserved space is not required. When you query Oracle ASM or Oracle Database Appliance commands to view the amount of storage available, the `usable_File_MB` value may report a negative number.

Table B-4 Oracle ASM Calculations

Number of Drives	Redundancy	Total_MB	Free_MB	Req_mir_free_MB	Usable_file_MB	Name
2	NORMAL	4894016	4893372	0	1220644	RECO/
4	NORMAL	1231176	1230996	610468	305150	RECO/

Note: Note: 1TB = MB divided by 1024²

The following table describes how capacity terms are defined by Oracle ASM and Oracle Database Appliance.

Table B-5 Definition of Terminology

Term	Oracle ASM Definition	Oracle Database Appliance Definition
Total_MB	Size of the disk group in MB	Total usable storage. For example, for 2 NVMe drives, total usable storage is 5.8TB.
Free_MB	Free space in the disk group in MB, without regard to redundancy.	Total usable storage after formatting to Oracle ASM disk groups. For example, for 2 NVMe drives, total usable storage is 5.8TB.

Table B-5 (Cont.) Definition of Terminology

Term	Oracle ASM Definition	Oracle Database Appliance Definition
Req_mir_free_MB	Amount of space that must be available in the disk group to restore full redundancy after the worst failure that can be tolerated by the disk group.	Total usable storage after formatting to Oracle ASM disk groups. For example, for 2 NVMe drives, total usable storage is 5.8TB.
Usable_file_MB	Amount of free space, adjusted for mirroring, that is available for new files.	Total usable space taking into consideration the mirroring level. Oracle ASM also calculates the amount of space required.

Command-Line Interface Reference

Review this section to understand the `odaccli create-appliance` command and see an example JSON file.

Topics:

[Readme for the odaccli create-appliance Command](#) (page C-1)

Use the readme and example JSON file to create a JSON file to use the command-line interface to create the appliance.

[Example JSON Files for the odaccli create-appliance Command](#) (page C-3)

Use these JSON file examples and the readme to create a JSON file that you can use to create the appliance with the command-line interface.

C.1 Readme for the odaccli create-appliance Command

Use the readme and example JSON file to create a JSON file to use the command-line interface to create the appliance.

Readme

Review this readme carefully along with the provided JSON example files. Create a JSON file with the necessary changes based on your environment and requirements. The examples on this page and the readme are also located in the `/opt/oracle/dcs/sample` directory.

Note: It is important to review the readme and the examples carefully before creating your JSON file. If you do not enter your network and Oracle ILOM information correctly based on your setup, you will lose network access to both the host and Oracle ILOM.

Definitions

instance:

- name: display name for the appliance instance resource
- instanceBaseName: This is the base name used for the service to derive the names for the other entities
- dbEdition: Enter "EE" for enterprise edition, or "SE" for standard edition
- timeZone: OS timeZone
- ntpServers: IP address for ntp server configured in `/etc/ntp.conf`, enter null if NTP is not configured
- dnsServers: IP address for DNS server configured in `/etc/resolv.conf`, enter null if dns is not configured.
- domainName: domain name (for example, `example.com`)
- isRoleSeperated: true|false
 - set `isRoleSeperated=true` if role separation is required during the installation.

need to specify 6 groups and two users. `groupName` and `userName` can be

```

customized
    Set isRoleSeperated=false if role separation is not required.
    Need to specify 2 groups and one user. groupName and userName can be
customized
nodes:
    nodeNumber: 0 (Use 0 for ODA S|M|L)
    nodeName: the Name used to configure the host name.
    network:
        nicName: the NIC name used for the network.
            For ODA S: btbond1, sfpbond1
            For ODA M: btbond1, btbond2, sfpbond1
            For ODA L: btbond1, btbond2, sfpbond1
        ipAddress: IP address for this network
        subNetMask: subnet mask for this network
        gateway: gateway address for this network
        networkType: Public|Backup|Other
        isDefaultNetwork: true|false
    ilom:
        ilomName: ilom name
        ipAddress: ilom ip address
        subNetMask: subnet mask for the ilom network
        gateway: gateway for ilom network

grid:
    diskGroup: (ODA S|M|L contains DATA and RECO Diskgroups)
        diskgroupName: DATA|RECO
        redundancy: Normal|High (for 2 NVMEs, only Normal is supported, for 4 NVMEs,
both Normal and High is supported)
        diskPercentage: Percentage of NVMe drive capacity is used for this
particular diskgroup.
        language: language used for GI installation

database:
    dbName: dbname for the database
    dbVersion: Use "12.1.0.2" for 12c database, "11.2.0.4" for 11.2 database.
    instanceOnly:
        true: only database instance is created without any data files
        false: create a complete database (with datafiles, redo logs, etc)
    isCdb: "true" if this database is container DB. Only valid for 12.1.0.2
database. "False" if this is non-cdb
    pdbName: pdbName if isCdb is "true", use "null" if isCdb is "false"
    pdbAdminUserName: pdb admin user name, use "null" if isCdb is "false"
    adminPassword: master password for the database.
    dbType: use "SI" , single instance database for ODA S|M|L
    dbTargetNodeNumber: use "0" for ODA S|M
    dbClass: OLTP|DSS|IMDB. For SE, only OLTP is supported. For EE, OLTP, DSS,
IMDB(12c db only) are supported
    dbShape: database shape, decide which database template to use for this database.
    dbStorage: ACFS|ASM. Only ACFS is supported for 11.2.0.4. Both ACFS and ASM are
supported for 12.1.0.2.
    dbCharacterSet: Characterset for this database.
    dbConsoleEnable: true|false. Whether or not to create dbconsole (11.2.0.4) or EM
express (12.1.0.2)

asr:
    userName/password: username/password for the ASR
    proxyServerName/proxyPort/proxyUserName/proxyPassword: information about proxy
server.
    snmpVersion: use "v3"

```

C.2 Example JSON Files for the odacli create-appliance Command

Use these JSON file examples and the readme to create a JSON file that you can use to create the appliance with the command-line interface.

You must create a JSON file to use the `odacli create-appliance` command. You can use the example JSON files that are located here and the information located in the readme as a template to create a file for your environment. The examples on this page and the readme are also located in the `/opt/oracle/dcs/sample` directory.

Note: It is important to review the readme and the examples carefully before creating your JSON file. If you do not enter your network and Oracle ILOM information correctly based on your setup, then network access is lost to both the host and Oracle ILOM.

Example C-1 JSON File to Create an Oracle Database Appliance X6-2 with Role Separation

The following is an example of a JSON file that creates an Oracle Database Appliance X6-2S, X6-2M, or X6-2L. The example uses role separation.

```
$ cat create-appliance.json
{
  "instance" : {
    "name" : "odambox",
    "instanceBaseName" : "odambox",
    "dbEdition" : "EE",
    "timeZone" : "UTC",
    "ntpServers" : ["10.0.3.14"],
    "dnsServers" : ["10.0.4.10", "10.0.4.11", "10.0.4.12"],
    "domainName" : "example.com",
    "isRoleSeparated" : true,
    "osUserGroup" : {
      "groups" : [ {
        "groupId" : 1001,
        "groupName" : "oinstall",
        "groupRole" : "oinstall"
      }, {
        "groupId" : 1002,
        "groupName" : "dbaoper",
        "groupRole" : "dbaoper"
      }, {
        "groupId" : 1003,
        "groupName" : "dba",
        "groupRole" : "dba"
      }, {
        "groupId" : 1004,
        "groupName" : "asmadmin",
        "groupRole" : "asmadmin"
      }, {
        "groupId" : 1005,
        "groupName" : "asmoper",
        "groupRole" : "asmoper"
      }, {
        "groupId" : 1006,
        "groupName" : "asmdba",
        "groupRole" : "asmdba"
      }
    ]
  }
}
```

```

    } ],
    "users" : [ {
      "userId" : 1000,
      "userName" : "oracle",
      "userRole" : "oracleUser"
    }, {
      "userId" : 1001,
      "userName" : "grid",
      "userRole" : "gridUser"
    } ]
  }
},
"nodes" : [ {
  "nodeNumber" : "0",
  "nodeName" : "odambox",
  "network" : [ {
    "nicName" : "btbond1",
    "ipAddress" : "10.0.1.11",
    "subNetMask" : "255.255.255.0",
    "gateway" : "10.0.1.1",
    "networkType" : [ "Public" ],
    "isDefaultNetwork" : true
  },
  {
    "nicName" : "btbond2",
    "ipAddress" : "192.168.18.24",
    "subNetMask" : "255.255.255.0",
    "gateway" : "192.168.18.1",
    "networkType" : [ "Backup" ],
    "isDefaultNetwork" : false
  }
],
  "ilom" : {
    "ilomName": "odambox-c",
    "ipAddress": "10.0.2.10",
    "subNetMask": "255.255.255.0",
    "gateway": "10.0.2.1"
  }
} ],
"grid" : {
  "diskGroup" : [ {
    "diskGroupName" : "DATA",
    "redundancy" : "NORMAL",
    "diskPercentage" : 70
  }, {
    "diskGroupName" : "RECO",
    "redundancy" : "NORMAL",
    "diskPercentage" : 30
  } ],
  "language" : "en"
},
"database" : {
  "dbName" : "db1",
  "dbVersion" : "12.1.0.2",
  "instanceOnly" : false,
  "isCdb" : true,
  "pdbName" : "pdb1",
  "pdbAdminuserName" : "pduser",
  "adminPassword" : "welcome1",
  "dbType" : "SI",
  "dbTargetNodeNumber" : "0",

```

```

    "dbClass" : "OLTP",
    "dbShape" : "odb1",
    "dbStorage" : "ACFS",
    "dbCharacterSet" : {
        "characterSet" : "AL32UTF8",
        "nlsCharacterSet" : "AL16UTF16",
        "dbTerritory" : "AMERICA",
        "dbLanguage" : "AMERICAN"
    },
    "dbConsoleEnable" : false
  },
  "asr" : {
    "userName" : "john.smith@example.com",
    "password" : "xxxxx",
    "proxyServerName" : "www-proxy.example.com",
    "proxyPort" : "80",
    "proxyUserName" : "",
    "proxyPassword" : "",
    "snmpVersion" : "v3"
  }
}

```

Example C-2 JSON File to Create an Oracle Database Appliance X6-2 without Role Separation

The following is an example of a JSON file that creates an Oracle Database Appliance X6-2S, X6-2M, or X6-2L without using role separation. This example creates two groups (oinstall and dba) and one user ("oracle").

```

$ cat create-appliance.json
{
  "instance" : {
    "name" : "odambox",
    "instanceBaseName" : "odambox",
    "dbEdition" : "EE",
    "timeZone" : "UTC",
    "ntpServers" : ["10.0.3.14"],
    "dnsServers" : ["10.0.4.10", "10.0.4.11", "10.0.4.12"],
    "domainName" : "example.com",
    "isRoleSeparated" : false,
    "osUserGroup" : {
      "groups" : [ {
        "groupId" : 1001,
        "groupName" : "oinstall",
        "groupRole" : "oinstall"
      }, {
        "groupId" : 1002,
        "groupName" : "dba",
        "groupRole" : "dba"
      } ],
      "users" : [ {
        "userId" : 1000,
        "userName" : "oracle",
        "userRole" : "oracleUser"
      } ]
    }
  },
  "nodes" : [ {

```

```

"nodeNumber" : "0",
"nodeName" : "odambox",
"network" : [ {
  "nicName" : "btbond1",
  "ipAddress" : "10.0.1.11",
  "subNetMask" : "255.255.255.0",
  "gateway" : "10.0.1.1",
  "networkType" : [ "Public" ],
  "isDefaultNetwork" : true
},
{
  "nicName" : "btbond2",
  "ipAddress" : "192.168.18.24",
  "subNetMask" : "255.255.255.0",
  "gateway" : "192.168.18.1",
  "networkType" : [ "Backup" ],
  "isDefaultNetwork" : false
}
],
"ilom" : {
  "ilomName": "odambox-c",
  "ipAddress": "10.0.2.10",
  "subNetMask": "255.255.255.0",
  "gateway": "10.0.2.1"
}
],
"grid" : {
  "diskGroup" : [ {
    "diskGroupName" : "DATA",
    "redundancy" : "NORMAL",
    "diskPercentage" : 70
  }, {
    "diskGroupName" : "RECO",
    "redundancy" : "NORMAL",
    "diskPercentage" : 30
  }
],
  "language" : "en"
},
"database" : {
  "dbName" : "db1",
  "dbVersion" : "12.1.0.2",
  "instanceOnly" : false,
  "isCdb" : true,
  "pdbName" : "pdb1",
  "pdbAdminuserName" : "pdbuser",
  "adminPassword" : "welcome1",
  "dbType" : "SI",
  "dbTargetNodeNumber" : "0",
  "dbClass" : "OLTP",
  "dbShape" : "odb1",
  "dbStorage" : "ACFS",
  "dbCharacterSet" : {
    "characterSet" : "AL32UTF8",
    "nlsCharacterSet" : "AL16UTF16",
    "dbTerritory" : "AMERICA",
    "dbLanguage" : "AMERICAN"
  },
  "dbConsoleEnable" : false
},
"asr" : {
  "userName": "john.smith@example.com",

```

```
    "password": "xxxxx",
    "proxyServerName": "www-proxy.example.com",
    "proxyPort": "80",
    "proxyUserName": "",
    "proxyPassword": "",
    "snmpVersion": "v3"
  }
}
```

Oracle Database Appliance Cleanup Script

Use the cleanup deploy script tool to perform clean up tasks.

Use the Oracle Database Appliance cleanup deploy script, `cleanup.pl` for the following activities:

- Uninstall Oracle Auto Service Request (Oracle ASR)
- Uninstall Oracle Trace File Analyzer (TFA)
- Delete Oracle Database Console (dbconsole) files
- Uninstall GI and Oracle stack
- Reset the Oracle Linux udev rules
- Delete Oracle Linux udev rules
- Delete users and groups that were created when the appliance was created. For default users and groups, use the `DROP USER` statement. If you used a custom user name and group name when you deployed the appliance, use `-griduser`, `-dbuser`, `-groups` arguments to pass to the `cleanup.pl` script.

The script removes the firstnet config and the client access VLAN UNIX_DB, but does not delete any other VLANs.

Syntax

```
/opt/oracle/oak/onecmd/cleanup.pl [-griduser grid_user] [-dbuser db_user] [-groups  
comma separated list of groups]
```

Parameters

Parameter	Description
<code>-griduser <i>grid_user</i></code>	Defines the grid user name. The default user is <code>grid</code> .
<code>-dbuser <i>db_user</i></code>	Defines the database user name. The default user is <code>oracle</code> .
<code>-groups <i>comma separated list of groups</i></code>	Lists the groups in a comma separated list. The default groups are <code>oinstall</code> , <code>dba</code> , <code>asmadmin</code> , <code>asmoper</code> , <code>asmdba</code> .

Usage

When the `grid_user` and `db_user` are the same (`roleSeparation=false`), you must still run the script for each user.

As part of the cleanup script, any disabled CPU cores are reset and all of the cores are re-enabled.

Example D-1 Cleanup Script to Delete the Grid and Database Users

Run the following command to delete the grid user and database user when both are named `oracle`:

```
# /opt/oracle/oak/onecmd/cleanup.pl -griduser oracle -dbuser oracle
```

Database Shapes for Oracle Database Appliance

Use the information in this appendix to select database shapes, or templates, for your planned databases.

Topics:

[About Database Shapes](#) (page E-1)

Review this information to help determine the database shape to use.

[OLTP Database Shapes](#) (page E-2)

Use Oracle Database Appliance OLTP Database Shapes if your database workload is primarily online transaction processing (OLTP).

[In-Memory Database Shapes](#) (page E-3)

Use Oracle Database Appliance In-Memory (IMDB) database shapes if your database workload can fit in memory, and can benefit from in-memory performance capabilities.

[DSS Database Shapes](#) (page E-3)

Use DSS database shapes if your database workload is primarily decision support services (DSS) or data warehousing.

E.1 About Database Shapes

Review this information to help determine the database shape to use.

Oracle Database Appliance shapes define databases with parameters selected specifically to optimize performance on Oracle Database Appliance. In addition, these shapes help you to set up appropriate instance caging and to acquire an appropriate license.

Oracle Database Appliance enables you to consolidate many databases into a single system. Consolidation can minimize idle resources, maximize efficiency, and lower costs. By using instance caging in conjunction with Oracle Database Resource Manager (the Resource Manager), you can provide desired levels of service across multiple instances on a single Oracle Database Appliance.

Oracle Database Appliance shapes are already tuned for the size of each database instance workload. They are designed to run on a specific number of cores. Caging ensures that each database workload is restricted to the set of cores allocated by the shape, enabling multiple databases to run concurrently with no performance degradation, up to the capacity of Oracle Database Appliance. You can select database shape sizes larger than your current needs to provide for planned growth, which you accommodate later by adjusting System Global Area (SGA) and Program Global Area (PGA) sizes as well as the number of cores.

The Oracle Appliance Manager Configurator refers to the database sizing shapes as *classes* of databases.

Note:

Oracle strongly recommends that you use the Oracle Database Appliance shapes, because they implement best practices and are configured specifically for Oracle Database Appliance.

Choosing a Database Shape

Database shapes are configured specifically for the type of database workload that you want to carry out on your databases on Oracle Database Appliance. Choose the shape that best matches the common workload your databases perform (OLTP, DSS, In-Memory).

The database sizing tables provide shape names and sizing based on the number of CPUs and memory attributes for each type of database workload.

Identify the shape type that is appropriate to your database workload and hardware:

- Use Oracle Database Appliance OLTP Database Shapes if your database workload is primarily online transaction processing (OLTP).
- Use Oracle Database Appliance DSS database shapes if your database workload is primarily decision support services (DSS) or data warehousing.
- Use Oracle Database Appliance In-Memory (IMDB) database shapes if your database workload can fit in memory, and can benefit from in-memory performance capabilities.

Use the database shape tables to help select the best shapes for your databases. When using these tables remember that:

- The information in the tables assumes that you are creating disk backups. The information in the tables assume that you are creating local disk backups. Consider the space requirements for your database and the policy for local disk backups versus external backups. Typically, external backups have more space available for the database than local backups.
- The log file size assumes three (3) REDO log groups for each instance with a log switch every 15 minutes when the system is running at full capacity.

E.2 OLTP Database Shapes

Use Oracle Database Appliance OLTP Database Shapes if your database workload is primarily online transaction processing (OLTP).

Table E-1 Oracle Database Appliance OLTP Database Shape Sizes

Shape	CPU Cores	SGA (GB)	PGA (GB)	Processes	Redo log file size (GB)	Log buffer (MB)
odb1s	1	2	1	200	1	16
odb1	1	4	2	200	1	16
odb2	2	8	4	400	1	16

Table E-1 (Cont.) Oracle Database Appliance OLTP Database Shape Sizes

Shape	CPU Cores	SGA (GB)	PGA (GB)	Processes	Redo log file size (GB)	Log buffer (MB)
odb4	4	16	8	800	1	32
odb6	6	24	12	1200	2	64
odb08	8	32	16	1600	2	64
odb10	10	40	20	2000	2	64
odb12 (X6-2M and X6-2L only)	12	48	24	2400	4	64
odb16 (X6-2M and X6-2L only)	16	64	32	3200	4	64
odb20 (X6-2M and X6-2L only)	20	80	40	4000	4	64

E.3 In-Memory Database Shapes

Use Oracle Database Appliance In-Memory (IMDB) database shapes if your database workload can fit in memory, and can benefit from in-memory performance capabilities.

Table E-2 Oracle Database Appliance In-Memory Database Shape Size

Shape	CPU Cores	SGA (GB)	PGA (GB)	In-Memory (GB)	Processes	Redo log file size (GB)	Log buffer (MB)
odb1s	1	2	1	1	200	1	16
odb1	1	4	2	2	200	1	16
odb2	2	8	4	4	400	1	16
odb4	4	16	8	8	800	1	32
odb6	6	24	12	12	1200	2	64
odb08	8	32	16	16	1600	2	64
odb10	10	40	20	20	2000	2	64
odb12 (X6-2M and X6-2L only)	12	48	24	24	2400	4	64
odb20 (X6-2M and X6-2L only)	20	80	40	40	4000	4	64

E.4 DSS Database Shapes

Use DSS database shapes if your database workload is primarily decision support services (DSS) or data warehousing.

Table E-3 Oracle Database Appliance DSS Database Shape Sizes

Shape	CPU Cores	SGA (GB)	PGA (GB)	Processes	Redo log file size (GB)	Log buffer (MB)
odb1s	1	1	2	200	1	16
odb1	1	2	4	200	1	16
odb2	2	4	8	400	1	16
odb4	4	8	16	800	1	32
odb6	6	12	24	1200	2	64
odb8	8	16	32	1600	2	64
odb10	10	20	40	2000	2	64
odb12 (X6-2M and X6-2L only)	12	24	48	2400	4	64
odb20 (X6-2M and X6-2L only)	20	40	80	4000	4	64

Glossary

Backup location

Determine the backup location you want: External, Internal, or Custom.

Bare metal

A non-virtualized Oracle Database Appliance configuration.

Custom backup location

Enables you to determine the amount of reserves for DATA storage. Storage capacity is configurable from 10% to 90% for DATA and the remainder for RECO. The percentage for DATA must be a whole number between 10 and 90. Other backup location options are Internal and External.

Data Storage Percentage

Defines the percentage of storage assigned to DATA. The percentage is based on the type of backup location selected: Internal, External, or Custom.

Oracle Database Edition

Oracle Database Appliance supports Oracle Database Enterprise Edition and Standard Edition. You cannot mix editions. The database edition you select determines the database editions that you create in the appliance. To change editions, you must redeploy Oracle Database Appliance.

EM Express

If you choose the option when you deploy Oracle Database Appliance, you can use the Oracle Enterprise Manager Database Express (EM Express) console for Oracle Database 12.1.0.2 or the Database Control Console for Oracle Database 11.2.0.4 to manage the database. See Oracle Enterprise Manager Cloud Control documentation for more information about the console.

External backup location

Storage capacity is split between 80% for DATA and 20% for RECO. Other backup location options are Internal and Custom.

Internal backup location

Storage capacity is split between 40% for DATA and 60% for RECO. Other backup location options are External and Custom.

Master Password

During system configuration, the master password is the password set for UNIX users, oracle, and grid. The password is also used to set the database SYS and SYSTEM passwords and the root password of the system.

Oracle Appliance Manager

The Oracle Database Appliance Web Console. Use the Web Console to deploy Oracle Database Appliance and create databases.

Oracle Database Appliance Operating System Image

Contains the components typically installed and available on Oracle Database Appliance. The following components are typically included:

- Oracle Appliance Manager command-line interface
- Oracle Appliance Manager (Web Console)
- Oracle Linux
- Hardware drivers

Support Identifier (SI)

A hardware Support Identifier (SI) is supplied when you purchase Oracle Database Appliance. To obtain software and support from Oracle, you must register the SI with My Oracle Support.

Oracle Database Appliance Single Instance Bundle (SIB) file

Contains the latest Grid Infrastructure and relational database management system (RDBMS) software components needed to deploy Oracle Database Appliance X6-2S, X6-2M, or X6-2L. Components include:

- Oracle Database clone binaries
- Oracle Database shapes (templates), customized for Oracle Database Appliance deployments
- Oracle Grid Infrastructure clone binaries
- Oracle Appliance Manager Web Console
- Oracle Appliance manage command-line interface
- Oracle Appliance Manager software

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