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Oracle® Database Appliance

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

Release 12.1.2.8.1 for Linux x86-64

E76900-02

October 2016

ORACLE®

Oracle Database Appliance X6-2S/X6-2M/X6-2L Deployment and User's Guide, Release 12.1.2.8.1 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

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

The following documents, along with this document, are published in the Oracle Database Appliance online documentation library, which is available from the following URL:

http://www.oracle.com/goto/oda/docs:

- *Oracle Database Appliance Release Notes for Linux x86-64*

- *Oracle Database Appliance Licensing Information User Manual for Linux x86-64*

- *Oracle Database Appliance X6-2-HA Deployment and User's Guide*

- *Oracle Database Appliance Administration and Reference Guide*

- Oracle Database Appliance Setup Posters (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*

- *Oracle Database Appliance Security Guide*

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

For more information about using Oracle Database, see the following documents in the Oracle Database online documentation library:

- *Oracle Database Concepts*

- *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*

Oracle Database documents are published in the Oracle Database online documentation library, which is available from the following URL: https://docs.oracle.com/en/database/database.html

For more details about other Oracle products that are mentioned in Oracle Database Appliance documentation, such as Oracle Integrated Lights Out Manager, see the Oracle Documentation home page at the following address:

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.
italic	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.

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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

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.

4. 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.

Related Topics:

Preparing for Oracle Database Appliance Installation and Deployment
(page 2-1)
> Use these topics as a checklist to complete setup tasks before Oracle
> Database Appliance is delivered.

Readying Oracle Database Appliance for Deployment (page 3-1)
> Complete these tasks to prepare to deploy Oracle Database Appliance.

Deploying Oracle Software on Oracle Database Appliance (page 4-1)
> Complete these tasks to deploy the Oracle Database Appliance software.

2

Preparing for Oracle Database Appliance Installation and Deployment

Use these topics as a checklist to complete 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)
> > Use these topics to help you to make decisions about your Oracle Database Appliance configuration.
>
> Gathering System Requirement Information (page 2-4)
> > 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

Use these topics to help you to make decisions about your Oracle Database Appliance configuration.

These topics help you to select the correct Oracle Database Appliance and plan for deployment. Record your decisions and the information that you require before you proceed to complete system configuration checklists.

> **Caution:**
>
> 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:

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

See the Oracle Database editions that are available for deployment.

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 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, depart ment-level, and Web applications.

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

2.2.3 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:

> 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:

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

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

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

> 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. VLAN is not supported.

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

RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)

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. The maximum length is 30 characters. Oracle recommends that you use all lowercase characters for the host name.
Domain Name	Your domain name. For example: `example.com`
Master Password	The password set for the root password of the system, OS users, database users, and pdbadmin. The password is also used to set the database `SYS` and `SYSTEM` 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.

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

System Information	Description
Timezone	Select the time zone where you plan to operate the Oracle Database Appliance system.
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 you want: 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 characterset • 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 `odacli 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

3

Readying Oracle Database Appliance for Deployment

Complete these tasks to prepare to deploy Oracle Database Appliance.

Topics:

Attaching Network Cables to Oracle Database Appliance (page 3-1)
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 3-5)
Configure Oracle Integrated Lights Out Manager (Oracle ILOM) to manage Oracle Database Appliance independent of the operating system.

Configuring an Initial Network Connection (page 3-6)
Configure a temporary network configuration framework to build your network information during deployment.

Downloading Oracle Database Appliance Software (page 3-7)
Download the software before deploying Oracle Database Appliance.

3.1 Attaching Network Cables to Oracle Database Appliance

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

Use standard Cat-6 network cables to connect to the on-board 10GBase-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 10GBase-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
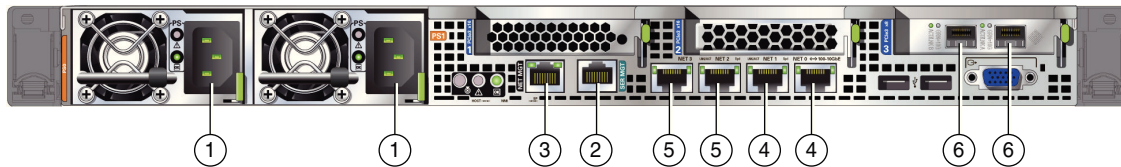
Figure 3-2   Connect the Fiber and Copper Network Cables for Oracle Database Appliance X6-2L
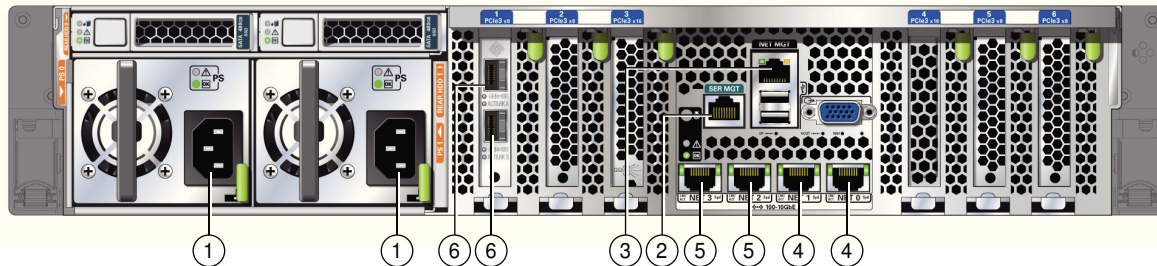
Table 3-1   Location of Network Ports and Power Cabling for Oracle Database Appliance

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

The following sections show the cabling options for 10 GbE SFP+ PCI cards.

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

Related Topics:

Oracle Database Appliance Owner's Guide

3.2 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
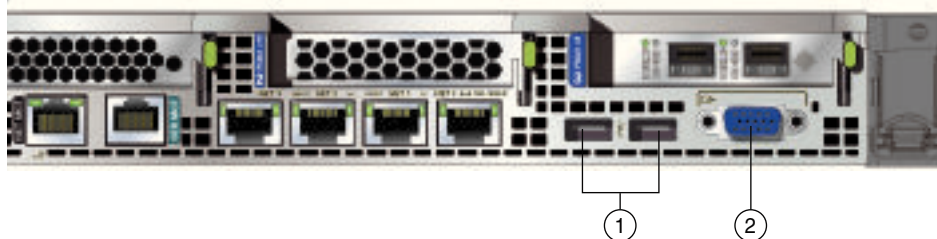
In the figure, callout 1 identifies the ports for the keyboard and mouse. Callout 2 identifies the monitor port.

Table 3-2   Peripheral Device Connections for Oracle Database Appliance

Callout Number	Description
1	USB ports for the keyboard and mouse

Table 3-2   (Cont.) Peripheral Device Connections for Oracle Database Appliance

Callout Number	Description
2	Graphics card port for the monitor

3.3 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 3-4)
Use this procedure the first time you power on Oracle Database Appliance.

3.3.1 Attaching Power Cords and Initializing Components

Attach power cords for Oracle Database Appliance.

> **Caution:**
>
> When you plug in power cords, ensure that the electrical outlets providing the power are grounded before plugging in the power cords.

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*.

3.3.2 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
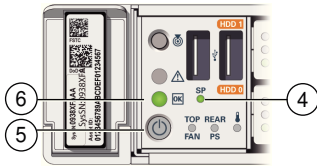
Table 3-3   Description of Callouts for Powering On Oracle Database Appliance

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.

3.4 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.

Refer to Chapter 2, "Overview of Oracle Database Appliance" in *Oracle Database Appliance Owner's Guide* for details about the port used for ILOM on your platform. Also refer to the Oracle Integrated Lights Out Manager Documentation Library to obtain additional information about Oracle ILOM.

> **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.

Related Topics:

> *Oracle Database Appliance Owner's Guide*
>
> http://docs.oracle.com/cd/E19860-01/index.html

3.5 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. Oracle Database Appliance X6-2M and X6-2L each 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.

1. Log in to Oracle Database Appliance as `root`, using the password `welcome1`.

2. Run the command `configure-firstnet` to configure the initial network.

3. Complete the network information, as prompted. Refer to the network configuration information that you collected in preparation for deployment.

   See configure-firstnet (page 10-5) for more information on the `configure-firstnet` command and an example.

3.6 Downloading Oracle Database Appliance Software

Download the software before deploying Oracle Database Appliance.

Perform the following steps to download the software:

1. Go to My Oracle Support note 2144642.1.

2. Follow the instructions to download the Oracle Database Appliance Single Instance software bundle (SIB) files to a local computer on the network.

Related Topics:

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

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

4

Deploying Oracle Software on Oracle Database Appliance

Complete these tasks to deploy the Oracle Database Appliance software.

Topics:

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 Oracle Database Appliance image.

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 `dcs-agent` before running the `update-repository` command.

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

   # rpm -qa | grep dcs-agent

   dcs-agent-12.1.2.7.0_LINUX.X64_*16xxxx-1*.x86_64

2. If the machine is running with `dcs-agent` version 12.1.2.7, then download patch # 24391174 to get the latest version of the `dcs agent` that supports patching.

3. From an external client machine, open My Oracle Support note 2144642.1 and review for notes on updating the `dcs-agent`.

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

4. Download the latest `dcs-agent` patch from My Oracle Support. For example, patch 24391174.

5. Log in to Oracle Database Appliance as a root user.

6. Update the `dcs-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.

4.3 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`.

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.zipdate_1of2.zip to
   root@oda_host

   oda-sm-release number -date-GI_2of2.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 12.1.2.8.0, and you are copying the bundle to `/tmp`:

```
oda-sm-12.1.2.8.0-GI-12.1.0.2.zipdate_1of2.zip to root@oda_host

oda-sm-12.1.2.8.0-GI_2of2.zip to root@oda_host
```

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-12.1.2.8.0-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.

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-12.1.2.8.0-160XXXX-GI-12.1.0.2.zip, /tmp/oda-sm-12.1.2.8.0-160
XXXX-DB-12.1.0.2.zip, /tmp/oda-sm-12.1.2.8.0-160 XXXX-
DB-11.2.0.4.zip
```

4.4 Deploying Oracle Database Appliance

Configure the system, network, 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:

```
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, and click **Next**:

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

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

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

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

   e. (Optional) **DNS Servers**: (Optional) Enter the DNS server.

   f. (Optional) **NTP Servers**: (Optional) Enter the NTP servers.

   g. (Optional) **Database Edition**: Select the Oracle Database edition, either **Enterprise Edition** or **Standard Edition**.

      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. (Optional) **Backup Location**: Select the backup location: **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. Select Custom to define the percentage of storage for DATA, anywhere from 10% to 90%, the remainder is reserved for RECO.

   i. **Percentage of Storage Reserved for Data**: If you select Custom in the previous step, enter a whole number between 10 and 90.

   j. (Optional) **Diskgroup Redundancy**: This field only 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.

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

      The master password is the password set for UNIX users, `root`, `SYS`, `SYSTEM`, and `PDBADMIN`.

Figure 4-1   System Configuration

5. Enter the following information to configure the network, and click **Next**:

   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.

Figure 4-2   Network Configuration

6. Enter the following information to configure the database, and click **Next**:

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 or DSS.

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.

Figure 4-3 Database Configuration

7. (Optional) Configure and enable Oracle ASR on the ASR page:

   • If you do not want to enable Oracle ASR, select **No** and click **Submit**.

   • If you want to enable Oracle ASR, select **Yes** and complete the following 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.

Figure 4-4 Oracle ASR Configuration

8. 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.

5

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 SYSMAN Password After Installation (page 5-1)
> Change the SYSMAN user password after installing Oracle Database Appliance with Oracle Database 11*g*.

Changing the oda-admin User Password (page 5-2)
> Use the `odacli-adm` command to change the `oda-admin` user password to restrict access to the Oracle Appliance Manager Web Console.

Configuring Oracle Auto Service Request (page 5-2)
> Configure Oracle Auto Service Request (Oracle ASR) to automatically generate service requests for specific hardware faults.

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 SYSMAN Password After Installation

Change the SYSMAN user password after installing Oracle Database Appliance with Oracle Database 11*g*.

When you install Oracle Database Appliance with Oracle Database 11g, Oracle Enterprise Manager Console 11.2 (dbconsole) is installed and configured automatically. The SYSMAN user is created as part of the database creation with the default master password.

The SYSMAN account is the default super user account used to set up and administer Enterprise Manager. The SYSMAN account is also the database account that owns the objects stored in the Oracle Management Repository. You can set up additional administrator accounts from this account, and you can set up Enterprise Manager for use in your organization.

See the *Database 2 Day + Security Guide* at https://docs.oracle.com/en/database/database.html for how to secure Oracle Database user accounts.

5.3 Changing the oda-admin User Password

Use the `odacli-adm` 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
   ```

   For more information about the `odacli-adm set-credential` command, refer to odacli-adm set-credential (page 10-54).

5.4 Configuring Oracle Auto Service Request

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 or use Oracle ASR Manager configured on another server in the same network as your appliance.

To support Oracle ASR, your Oracle Database Appliance hardware must be associated with a Support Identifier (SI) in My Oracle Support.

You can configure Oracle ASR during initial deployment in the Oracle Appliance Manager Web Console. An Oracle ASR configuration requires you to enter your My Oracle Support account user name and password. 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.

Related Topics:

Oracle Auto Service Request Installation and Operations Guide

6

Updating Oracle Database Appliance X6-2 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:

6.1 About Updating Oracle Database Appliance X6-2 Software

Review this topic to understand the patching process for 12.1.2.8.0, and to understand the patching options available to you in this patch set release.

About Oracle Database Appliance Software Updates

> **Note:** Oracle Database Appliance release 12.1.2.8.1 release introduces support for Oracle Database Appliance X6-2L and does not contain patches or 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.

Oracle Database Appliance patch bundles are released on a quarterly schedule. My Oracle Support note 2144642.1 and 888888.1 provide information about the latest Oracle Database Appliance patch bundle. See My Oracle Support note 2144642.1 to obtain the most current updates and known issues for the 12.1.2.8.0 Oracle Database Appliance patch bundle installation.

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.

Overview of the 12.1.2.8.0 Patch Upgrade

Oracle Database Appliance patch set release 12.1.2.8.0 includes new enhancements, including a comprehensive patching solution for Oracle Database Appliance X6–2S and X6–2M.

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 `describe-job` command to monitor the progress of each patching job.

Note: Before updating the repository, agent, server, or database, ensure that you do not have any jobs running or pending during the update window.

Related Topics:

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

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

6.2 Step 1: Update the DCS Agent to the Latest Version

Run the `update-image` command to update the `dcs-agent` image to the latest version.

Note: You must update the `dcs-agent` to the latest version before using the patching command–line interface. The 12.1.2.8.0 `dcs-agent` includes information needed to use the command–line interface to install the update bundle and update the agent, server, and databases.

---

1. From an external client machine, open My Oracle Support note 2144642.1 and review for notes on updating the `dcs-agent`.

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

2. Download the 12.1.2.8 patch from My Oracle Support. For example, patch 24391174.

3. Log in to Oracle Database Appliance as a root user.

4. Update the `dcs-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.

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:

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

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

6.3 Step 2: Update the Patch Repository

Use this procedure to download the Oracle Database Appliance patch set bundle from My Oracle Support and update the repository with the new patches.

Before running the `update-repository` command, ensure that your appliance has the latest version of the agent.

1. From an external client machine, open My Oracle Support note 2144642.1:

2. Under **Patch Search**, select **Oracle Database Appliance** from the Product list.

3. Select the patch release number from the Select a Release list.

4. Click **Search**.

5. Select the patch or patches that you want to download, and click **Download**. For example, the 12.1.2.8.0 patch is 24391219.

> **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.

6. Run the `update-repository` command to unpack the patch bundle to the correct locations in the file system. 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
```

Related Topics:

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

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

6.4 Step 3: Update the Agent

Run the `update-dcsagent` command to update the agent to the 12.1.2.8 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.

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

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

Example 6-1   Updating the DCS Agent to Version 12.1.2.8

Run the following command to update the DCS Agent to version 12.1.2.8:

```
# odacli update-dcsagent -v 12.1.2.8

{
   "jobId" : "11a9dcb7-01bc-44b5-b178-334978ee5faf",
   "status" : "Created",
```

```
    "message" : null,
    "reports" : [ ],
    "createTimestamp" : "August 03, 2016 06:15:00 AM EDT",
    "description" : "DcsAgent patching",
    "updatedTime" : "August 03, 2016 06:15:00 AM EDT"
}
```

Example 6-2   Verifying that the DCS Agent is on Version 12.1.2.8

The following example uses job ID `11a9dcb7-01bc-44b5-b178-334978ee5faf` from the previous example to get the job details.

```
  # odacli describe-job -i "11a9dcb7-01bc-44b5-b178-334978ee5faf"

Job details
----------------------------------------------------------------
                    ID: 11a9dcb7-01bc-44b5-b178-334978ee5faf
           Description: DcsAgent patching
                Status: Success
               Created: August 3, 2016 6:15:00 AM EDT
               Message:
Task Name                    Start Time                           End
Time                                 Status
------------------    -----------------------------  ----------------------------
------
location validation     August 3, 2016 6:15:00 AM EDT    August 3, 2016 6:15:00 AM
EDT Success
Apply patch                  August 3, 2016 6:15:00 AM EDT    August 3, 2016
6:15:01 AM EDT Success
```

6.5 Step 4: Update the Server

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

Before updating the server, patch the DCS Agent to the 12.1.2.7 update version, update the repository with the latest patch bundle, and update the DCS Agent. Before updating the server, 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.

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

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

Example 6-3   Updating the Server to Version 12.1.2.8

Run the following command to update the server to version 12.1.2.8:

```
# /opt/oracle/dcs/bin/odacli update-server -v 12.1.2.8
```

```
{
  "jobId" : "94685c73-55c2-40b1-a02e-265a23c45642",
  "status" : "Created",
  "message" : null,
  "reports" : [ ],
  "createTimestamp" : "August 03, 2016 06:16:19 AM EDT",
  "description" : "GiHome Patching",
  "updatedTime" : "August 03, 2016 06:16:19 AM EDT" }
```

Example 6-4   Verifying that the Server is on Version 12.1.2.8

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: GiHome Patching
            Status: Running
           Created: August 3, 2016 6:16:19 AM EDT
           Message:

Task Name                      Start Time                      End Time
Status
------------------------------ ------------------------------
------------------------------ ------
location validation            August 3, 2016 6:16:19 AM EDT   August 3, 2016
6:16:19 AM EDT  Success
Apply patch                    August 3, 2016 6:16:20 AM EDT   August 3, 2016
6:16:40 AM EDT  Success
Patch application verification August 3, 2016 6:16:40 AM EDT    August 3, 2016
6:16:42 AM EDT  Success
location validation            August 3, 2016 6:16:42 AM EDT    August 3, 2016
6:16:42 AM EDT  Running
```

6.6 Step 5: 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. If you do not download the latest database bundle, you cannot use the Web Console to create an older version of the database. You can use the `odacli create-database` command to create different versions of the database without downloading the latest database end user bundle.

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 dh` *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 12*c* release 1 patch for Oracle Database Appliance (12.1.0.2.160719). For Oracle Database 11.2, the database is patched to 11.2.0.4.160719.

```
# /opt/oracle/dcs/bin/odacli update-dbhome -dh 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.

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

ID                                    Name              DB Version
------------------------------------- ----------------- ----------
89427c39-7f87-43c7-a8bf-0a5f59c3a33a ODB12102_home1    12.1.0.2

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

Example 6-6   Updating the Database Home to Version 12.1.2.8

The following example updates database home ID 89427c39-7f87-43c7-a8bf-0a5f59c3a33a to Oracle Database Appliance version 12.1.2.8.

```
# /opt/oracle/dcs/bin/odacli update-dbhome -dh 89427c39-7f87-43c7-a8bf-0a5f59c3a33a -
v 12.1.2.8

{
  "jobId" : "801c3919-d235-4db1-9b00-6c2f382d8a07",
   "status" : "Created",
   "message" : null,
   "reports" : [ ],
   "createTimestamp" : "August 03, 2016 11:57:27 AM EDT",
   "description" : "DbHome Patching: Home Id is 89427c39-7f87-43c7-
a8bf-0a5f59c3a33a",
   "updatedTime" : "August 03, 2016 11:57:27 AM EDT"
}
```

Example 6-7   Verifying that Database Home is on Version 12.1.2.8

The following example uses job ID 801c3919-d235-4db1-9b00-6c2f382d8a07 from the previous example to get the job details.

```
# /opt/oracle/dcs/bin/odacli describe-job -i "801c3919-d235-4db1-9b00-6c2f382d8a07"
Job details
 ----------------------------------------------------------------
                     ID: 801c3919-d235-4db1-9b00-6c2f382d8a07
            Description: DbHome Patching: Home Id is 89427c39-7f87-43c7-
a8bf-0a5f59c3a33a
                 Status: Running
                Created: August 3, 2016 11:57:27 AM EDT
                Message:

Task Name                        Start Time
-------------------------------- ------------------------------
Patch application verification   August 3, 2016 11:57:27 AM EDT
location validation              August 3, 2016 11:57:29 AM EDT
updateOpatch                     August 3, 2016 11:58:31 AM EDT
analyzing patch                  August 3, 2016 11:58:33 AM EDT

(continued)
End Time                         Status
-------------------------------- --------
August 3, 2016 11:57:29 AM EDT   Success
August 3, 2016 11:57:34 AM EDT   Success
August 3, 2016 11:58:33 AM EDT   Success
August 3, 2016 11:58:33 AM EDT   Running
```

7

Managing Oracle Databases

Manage the Oracle Databases on your Oracle Database Appliance.

Topics:

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)	*grid* is a member	*oracle* 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.

> **See Also:**
>
> • *Oracle Grid Infrastructure Installation and Upgrade Guide for Linux*
>
> • *Oracle Automatic Storage Management Administrator's Guide*

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.

> **See Also:**
>
> - *Oracle Database Backup and Recovery User's Guide*
>
> - *Oracle Database Backup and Recovery Reference*
>
> - *Oracle Database Utilities*
>
> - *Oracle Automatic Storage Management Administrator's Guide*

7.3 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 12*c*. 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)

> **See Also:** *Oracle Database 2 Day DBA*

7.4 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 ODACLI 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. For information about supported releases, refer to My Oracle Support note 888888.1.

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 software installation owner account that owns the Oracle homes.

> **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. See My Oracle Support note 888888.1 and 2144642.1 for more details.

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 a database.

> **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:

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

7.5 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 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.

> **See Also:**
>
> *Oracle Database Administrator's Guide*

8

Managing Storage

Expand storage capacity and replace disks in Oracle Database Appliance.

Topics:

8.1 About Managing Storage

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.

Default Configuration for Oracle Database Appliance X6-2S or X6-2M

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.

In the figure, callout 2 is the location of `NVMe0` and callout 3 is the location of `NVMe1`. If you use an expanded configuration, the additional disks (`NVMe2` and `NVMe3`) are located in callouts 4 and 5. Refer to the figure and table to identify the location of NVMe disks and other devices.

The following drives are available:

- Default configuration: `NVMe0` and `NVMe1`

- Expanded configuration:`NVMe0` , `NVMe1`, `NVMe2`, and `NVMe3`

Figure 8-1   NVMe Storage Device Locations for X6-2S or X6-2M
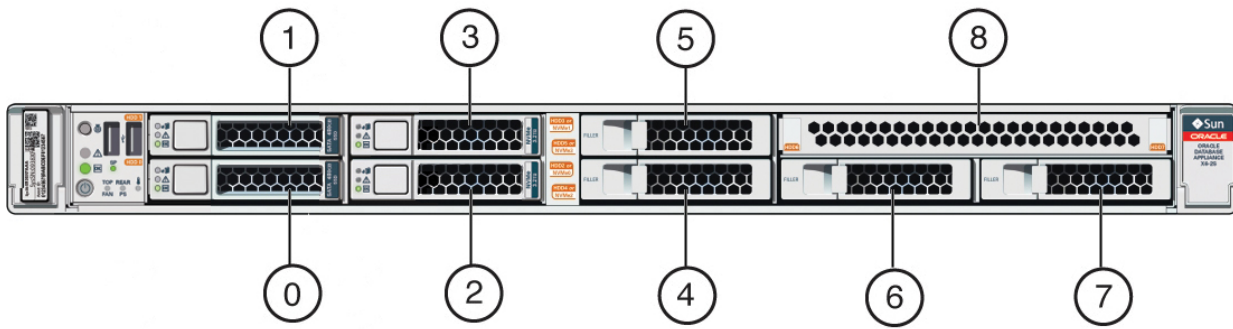
Table 8-1   Storage Connections for Oracle Database Appliance X6-2S or X6-2M

Callout Number	Description
0	HDD/SSD 0
1	HDD/SSD 1
2	NVMe0
3	NVMe1
4	Filler panel (optional NVMe2)
5	Filler panel (optional NVMe3)
6	Filler panel
7	Filler panel
8	Filler panel

Default Configuration for Oracle Database Appliance X6-2L

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.

The drive numbers start with `NVMe0`. Slots NVMe2 (callout 3), NVMe5 (callout 6) and NVMe8 (callout 9) are available for storage expansion on base configuration models.

> **Note:** You cannot add drives to `NVMe9` (callout 10), `NVMe10` (callout 10), or `NVMe11` (callout 12).

The following drives are available:

- Default configuration: `NVMe0`, `NVMe1`, `NVMe3`, `NVMe04`, `NVMe6`, and `NVMe7`

- Expanded configuration: `NVMe0`, `NVMe1`, `NVMe3`, `NVMe04`, `NVMe6`, `NVMe7`, `NVMe2`, `NVMe5`, and `NVMe8`
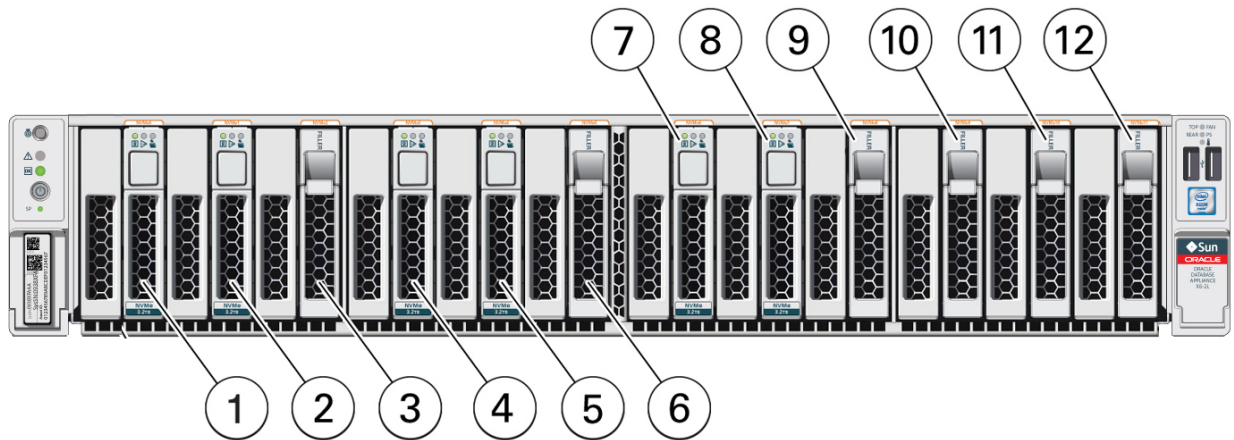
In the figure, callout 1 is the location of NVMe0, callout 2 is the location of NVMe1, callout 4 is the location of NVMe3, callout 5 is the location of NVMe4, callout 7 is the location of NVMe6, and callout 8 is the location of NVMe7. If you use an expanded configuration, the additional disks (NVMe2, NVMe5, and NVMe8) are located in callouts 3, 6, and 9. Refer to the figure and table to identify the location of NVMe disks.

Table 8-2   Storage Connections for Oracle Database Appliance X6-2L

Callout Number	Description
1	NVMe0
2	NVMe1
3	Filler panel (optional NVMe2)
4	NVMe3
5	NVMe4
6	Filler panel (optional NVMe5)
7	NVMe6
8	NVMe7
9	Filler panel (optional NVMe8)
10	Filler panel
11	Filler panel
12	Filler panel

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 save 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.

> **Caution:** The power off command is valid only for that session. When the system is restarted, all of the disks are automatically powered on.

8.2 Replacing NVMe Disks

Replace NVM Express (NVMe) disks on Oracle Database Appliance.

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.

> **Warning:** Pulling a drive before powering it off will crash the kernel, which can lead to data corruption.

> **Caution:** Do not pull the drive when the LED is an **amber** or **green** color.

Refer to About Managing Storage (page 8-1) for where pd_00, pd_01, pd_02 and pd_03 are located.

Perform the following steps to replace an NVMe disk:

1. Identify the resource name (*n*) of the disk to replace. For example: pd_01.

2. Power off the disk.

   ```
   # odaadmcli power disk off n
   ```

3. Confirm that the disk is powered off. The LED is blue when the disk is powered off.

4. Pull the disk from the slot and insert a new formatted disk into the same slot.

5. Power on the disk. It takes a few minutes for disk replacement operation to complete.

   ```
   # odaadmcli power disk on n
   ```

6. Confirm that the LED is turned **GREEN**

7. Check the status of disk replacement.

   ```
   # odaadmcli show disk
   ```

8.3 Expanding NVMe Storage

Add NVM Express (NVMe) disks on Oracle Database Appliance X6-2M or X6-2L to expand storage.

You must add all expansion disks and expand storage on a all disks at the same time. Once you expand storage, you cannot revert to the default configuration

> **Caution:** Do not run attempt to expand storage on one disk and then expand storage on the second disk. When you expand storage, insert both disks, turn all disks on, and then expand the storage.

See About Managing Storage (page 8-1) for the location of the disk slots.

Example 8-1   Adding 2 NVMe Disks to an Oracle Database Appliance X6-2M

Perform the following steps to add 2 NVMe disks to an Oracle Database Appliance X6-2M:

1. Insert the new disks `pd_02` and `pd_03` in their respective disk slots.

2. Turn the disks ON by issuing the following command :

    ```
    $ odaadmcli power disk on pd_02 $ odaadmcli power disk on pd_03
    ```

3. Execute the `odaadmcli expand storage` command.

    ```
    $ odaadmcli expand storage
    ```

    It can take up to five minutes for the operation to complete. The green LED indicator light appears when the disks are available.

9

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 9-1)
> Use the Oracle Appliance Manager Web Console to view and create databases and to view job activity.

Creating Databases with the Web Console (page 9-2)
> Use the Oracle Appliance Manager Web Console to create databases in Oracle Database Appliance.

Viewing Job Activity (page 9-3)
> Use the Oracle Appliance Manager Web Console to view job activity, the status of tasks in a job, and job status.

9.1 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 databases

- View job activity

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

Refer to Oracle Appliance Manager Command-Line Interface (page 10-1) for the lifecycle tasks that you can perform with the command-line interface.

Refer to "Optimal Flexible Architecture" in *Oracle Database Installation Guide for Linux* for more information about Optimal Flexible Architecture.

9.2 Creating Databases with the Web Console

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

You cannot use the Web Console to create a database on an existing (ORACLE_HOME). When you use the Web Console to create databases, a new database home is created for each database. To create a database using an existing Oracle Database Home (ORACLE_HOME), use the `odacli create-database --dbhomeid` command. See odacli create-database (page 10-15) for more information about using the command-line to create a database.

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 **Databases** tab.

4. Click **Create Database**.

5. Enter the following information to configure the database, then click **Next**:

   a. DB Name: Enter a name for the database.

      The name must contain alphanumeric characters and cannot exceed 8 characters. If you have multiple databases, the value of this parameter should match the Oracle instance identifier of each one to avoid confusion with other databases running on the system.

   b. DB Version: Select a version.

   c. CDB: Select **Yes** or **No**, depending on whether or not you want the database to be a container database (CDB).

   d. 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. 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.

f. Characterset: Select a characterset.

g. National Characterset: Select a national characterset.

h. Language: Select the database language.

i. Territory: Select a territory or location for the database from the list.

j. Class: Select a database class from the list, OLTP, DSS, or IMDB.

k. Shape: Select a database shape from the list.

l. Storage Type: Select ACFS or ASM

m. Password: Enter a password.

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

n. Confirm Password: Enter the password again to confirm.

6. Click **Submit**. 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.

9.3 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, status, and details. Click the job name to display greater details about the job, including the tasks that make up the job.

10

Oracle Appliance Manager Command-Line Interface

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

Topics:

10.1 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 `odacli` commands to perform database and system administration tasks for the appliance. The `odacli` 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 in-frequent 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 `odacli` 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 `odaadmcli` commands:

- Show storage, disks, diskgroups, and controllers

- Display storage diagnostics for disks and NVM Express (NVMes)

- 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 `odacli` 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 `odacli` help command: `odacli -h`.

ODACLI Command Location and Path Configuration

The Oracle Appliance Manager command-line interface is in the following directory:

```
/opt/oracle/dcs/bin/odacli
```

Configure the root user account on your Oracle Database Appliance servers to have the PATH variable defined to search for `odacli` commands in the path `/opt/oracle/oda/bin/odacli`.

ODACLI Syntax

Oracle Appliance Manager command-line interface commands and parameters are case-sensitive.

An odacli command uses the following command syntax:

```
odacli 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 ODACLI command. Options can consist of one or more options that extend the use of the `odacli` 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. 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 10-1   Command-Line Interface Syntax

```
# odacli 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        Default: false
   --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        Default: false
         --dbhomeid, -dh
             Database Home ID (Use Existing DB Home)
         --dblanguage, -l
             Datbase 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        Default: false
         --instanceonly, -io
             Create Instance Only (For Standby)        Default: false
         --json, -j
             json output        Default: false
         --nlscharacterset, -ns
             NLS Character Set (default:AL16UTF16)        Default: AL16UTF16
         --pdbadmin, -d
             Pluggable Database Admin User
         --pdbname, -p
             Pluggable Database Name
         --version, -v
             Database Version        Default: 12.1.0.2
```

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
```

10.2 Configure and Update Commands

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

Topics:

> 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.

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.

10.2.1 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 10-2   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. 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 btbond1:
```

10.2.2 update-image

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.

Syntax

To update an image:

```
update-image --image-files  absolute file names
```

Parameters

Parameter	Description
`--image-files` `file1,file2,file3`	Identifies the file names. Use a comma separated list of absolute file names. Ensure that there are no spaces after the comma.

Parameter	Description
`--help,-h`	(Optional) Displays help for using the command.

Example 10-3   Updating the Image

To update the Single Instance Software Bundle:

```
#  update-image --image-files file1,file2,file3
```

10.3 odacli Apply Patch and Update Commands

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

Topics:

Use the `odacli update-repository` command to update the repository with the new patches.

Use the `odacli update-dcsagent` command to update the agent.

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

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

10.3.1 odacli update-repository

Use the `odacli update-repository` command to 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
`--filename,-f`	Defines the zip filename of patch bundle or RDBMS clones downloaded from My Oracle Support. Provide a comma-separated list of absolute file paths.
`--json,-j`	(Optional) Displays JSON output. The default is false.

Parameter	Description
--help,-h	(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 10-4   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",
  "updatedTime" : "August 08, 2016 03:45:39 AM EDT"
}
```

10.3.2 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
--version, -v	Defines the Oracle Database Appliance version after update. For 12.1.2.8.0, the version is 12.1.2.8.
--help, -h	(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 10-5   Updating the Agent

To update the dcs-agent to version 12.1.2.8:

```
# /opt/oracle/dcs/bin/odacli update-dcsagent -v 12.1.2.8
```

10.3.3 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 10-6   Updating the Server

To update the server to version 12.1.2.8:

```
# update-server -v 12.1.2.8
```

10.3.4 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 -dh dbhomeid -v version [-j] [-h]`

Parameters

Parameter	Description
`--dbhomeid, -dh`	Defines the Oracle Database Home to update.
`--json, -j`	(Optional) Displays JSON output. The default is false.
`--version, -v`	Defines the Oracle Database Appliance version to update. For example, 12.1.2.8.
`--help-h`	(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.

Example 10-7   Updating an Oracle Database Home

To apply the latest patch bundle to update an Oracle Database:

`# odacli update-dbhome dh ad6c7326-e460-411e-94df-230dedbef743 -v 12.1.2.8`

10.4 odacli Appliance Commands

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

Topics:

odacli create-appliance (page 10-10)
> Use the `odacli create-appliance` command in a JSON file format to provision Oracle Database Appliance.

odacli describe-appliance (page 10-10)
> Use the `odacli describe-appliance` command to display appliance details.

10.4.1 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
--requestjson, -r	JSON input for appliance creation.
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

10.4.2 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 [-j] [-h]
```

Parameters

Parameter	Description
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Example 10-8   Displaying Appliance Details

To display the appliance details:

```
# odacli describe-appliance

Appliance Information
----------------------------------------------------------------
ID: 18911fba-dc46-499e-a565-ec52c8fe3b96
Platform: OdaliteS
Data Disk Count: 2
CPU Core Count: 8
Created: July 22, 2016 12:07:12 PM SGT

System Information
----------------------------------------------------------------
Name: rwsoda6s002
Domain Name:
Time Zone: Asia/Singapore
DB Edition: EE
DNS Servers: 10.246.6.65
NTP Servers:

Disk Group Information
----------------------------------------------------------------
DG Name     Redundancy     Percentage
----------- ------------- ------------
Data        Normal         80
Reco        Normal         20
```

10.5 odacli CPU Core Commands

Use the CPU Core commands to enable CPU cores and display current and historical CPU core configurations.

Topics:

Use the `odacli list-cpucores` command lists the history of core configuration changes in the system.

Use the `odacli describe-cpucore` command to display the current core configuration and the modification date and time.

Use the `odacli update-cpucore` command to enable the number of CPU cores in the system.

10.5.1 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
--help,-h	(Optional) Displays help for using the command.

Example 10-9   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
```

10.5.2 odacli describe-cpucore

Use the `odacli describe-cpucore` command to display the current core configuration and the modification date and time.

File Path

$ORACLE_HOME/opt/oracle/dcs/bin/odacli

Syntax

```
 odacli describe-cpucore  [-h]
```

Parameters

Parameter	Description
--help,-h	(Optional) Displays help for using the command.

Example 10-10   Displaying the Current Core Configuration

```
# odacli describe-cpucore

Node  Cores  Modified                     Job Status
-----  -----  ---------------------------  --------------
0      8     July 25, 2016 9:39:59 AM SGT  Configured
```

10.5.3 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
`--cores,-c`	Defines the number of cores to be enabled in the system.
`--help,-h`	(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 10-11   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",
"updatedTime" : 1469410799194
}
```

10.6 odacli Database Commands

Use the `odacli database` commands to perform database lifecycle operations.

Topics:

10.6.1 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
--help, -h	(Optional) Displays help for using the command.

Example 10-12   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
```

10.6.2 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
--dbid, -i	Identifies the database home identifier (ID) to display.
	Use the odacli list-databases command to obtain the dbid.
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Example 10-13 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
```

10.6.3 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 nlscharacterset -d pdbadmin -p pdbname -v version
[-u databaseUniqueName] [-dh Database Home ID] [-co dbconsole]
[-c cdb] [-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. The default is false.
--characterset, -cs	Defines the character set. The default is AL32UTF8.

Parameter	Description
--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 or DSS
--dbconsole,-co	(Optional) Enables the Database Console. The default is false.
--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). For example, odb1 and odb2. The default is odb1.
--dbstorage,-r{ACFS|ASM}	Defines the Database Storage, either ACFS or 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.
--instanceonly,-io	(Optional) Creates only the instance for standby. The default is false.
--json,-j	(Optional) Displays JSON output. The default is false.
--nlscharacterset,-ns	Defines the NLS Character Set. The default is AL16UTF16.
--pdbadmin,-d	Defines the Pluggable Database (PDB) Admin User.
--pdbname,-p	Defines the Pluggable Database (PDB) name. The default value is pdb1.
--version,-v	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, (12.1.0.2.160419).
--help,-h	(Optional) Displays help for using the command.

Usage Notes

• You cannot mix Oracle Database Standard Edition and Enterprise Edition databases on the same appliance.

- 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.

- 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

  - 12.1.0.2.160719

  - 12.1.0.2.160419

  - 11.2.0.4

  - 11.2.0.4.160719

  - 11.2.0.4.160419

Example 10-14   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 true -m -cl OLTP -s odb2 -p pdb1

Password for SYS,SYSTEM and PDB Admin:
{
    "jobId" : "f12485f2-dcbe-4ddf-aee1-de24d37037b6",
    "status" : "Created",
    "message" : null,
    "reports" : [ ],
    "createTimestamp" : "August 08, 2016 03:54:03 AM EDT",
    "description" : "Database service creation with db name: hrdb",
    "updatedTime" : "August 08, 2016 03:54:03 AM EDT"
}
```

Example 10-15   Creating a Database in Non-Interactive Mode

This example creates an 12.1.0.2 OLTP container 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.

```
# odacli create-database -n crmdb -hm WelCome__12 -cl OLTP -s odb2
{
    "jobId" : "30b5e2a6-493b-4461-98b8-78e9a15f8cdd",
    "status" : "Created",
    "message" : null,
    "reports" : [ ],
    "createTimestamp" : "August 08, 2016 03:59:22 AM EDT",
    "description" : "Database service creation with db name: crmdb",
    "updatedTime" : "August 08, 2016 03:59:22 AM EDT"
}
```

Example 10-16   Creating a Database Against a Different Version

Either of the following statements creates a database against a home with July
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
```

10.6.4 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] -a dbshape -t dbtypeSI
-o hostname -sn servicename -p syspassword [-h]
```

Parameters

Parameter	Description
--dbclass, -c [OLTP|DSS|IMDB]	Specifies the database class. The database class setting determines the database SGA memory and instance PGA memory configuration.
--dbshape, -a	Determines the total memory allocated to the database.
--dbtype, -t [SI]	Defines the type of database. The database type is Single Instance. The default is SI.
--hostname, -o	Defines the host name. Default : localhost
--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.
--help, -h	(Optional) Displays help for using the command.

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 12*c* : 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.

Example 10-17   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",
  "updatedTime" : "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
```

10.6.5 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
--dbid, -i	Identifies the database home identifier (ID) to display. Use the odacli list-databases command to obtain the --dbid.
--help, -h	(Optional) Displays help for using the command.
--json, -j	(Optional) Displays JSON output.

Usage

> **Note:** The `delete-database` command deletes the database, the file system, and the underlying `advm` volumes assigned to the database. For example, deleting a database named `hrdb` also deletes the file system `/u02/app/oracle/oradata/hrdb`. Do not keep any other files on this database file location.

Example 10-18   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-bad7-898afcf9de46      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-bad7-898afcf9de46
```

10.7 odacli DBHome Commands

Use the odacli DBHome commands to manage database Home operations.

Topics:

10.7.1 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 [-v] [-h] [-j]
```

Parameters

Parameter	Description
--help,-h	(Optional) Displays help for using the command.
--json,-j	(Optional) Displays JSON output.
--version,-v	(Optional) Identifies the Database Home Version.

Example 10-19   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
```

10.7.2 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
-i *dbhomeid*	Identifies the database home ID. Use the `odacli list-dbhomes` command to get the *dbhomeid*.
--help, -h	(Optional) Displays help for using the command.
--json, -j	(Optional) Displays JSON output. The default is false.
-v*dbversion*	(Optional) Identifies the Database Home Version. Use the `odacli list-dbhomes —v` command to get the *dbversion*.

Example 10-20   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
```

10.7.3 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
`-v version number`	Defines the database bundle patch number.
`--json, -j`	(Optional) Displays JSON output.
`--help, -h`	(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, 12.1.0.2.160419. 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

- 12.1.0.2.160719

- 12.1.0.2.160419

- 11.2.0.4

- 11.2.0.4.160719

- 11.2.0.4.160419

Example 10-21   Creating an Oracle Database Home

The following example creates an Oracle Database Home version 12.1.0.2 that installs the latest version, 12.1.0.2.160719.

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

10.7.4 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
--id, -i	Identifies the database home using a database identifier (ID).
--help, -h	(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 10-22   Deleting an Empty Database Home

```
# odacli delete-dbhome -i 0ce547ca-3df2-4178-a7e6-eefa613aeab4
```

10.8 odacli Database Storage Commands

Use the Database Storage commands to list, describe, create, and delete Oracle database storage.

Topics:

odacli list-dbstorages (page 10-25)
> Use the odacli list-dbstorages command to display a list of all of the database storage configured in the appliance.

odacli describe-dbstorage (page 10-26)
> Use the odacli describe-dbstorage command to display storage configuration details.

odacli create-dbstorage (page 10-27)
> Use the odacli create-dbstorage command to create the file system for database migrations.

odacli delete-dbstorage (page 10-29)
> Use the odacli delete-dbstorage command to delete database storage that is not associated with a database.

10.8.1 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 10-23   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
```

10.8.2 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 10-24 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 10-25 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
```

10.8.3 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: `/u02/app/oracle/oradata/db unique name`
`--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 10-26   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 WSST",
   "description" : "Database storage service creation with db name: APPSDB",
   "updatedTime" : "August 09, 2016 06:19:35 AM WSST"
}
```

10.8.4 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
--id, -i	Identifies the database storage using a database identifier (ID).
--help, -h	(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 10-27   Deleting Empty Database Storage

odacli delete-dbstorage -i 9fe39332-cc1a-4b4b-8393-165524a6ef6b

10.9 odacli Job Commands

Use the `odacli list-jobs` and `odacli describe-job` commands to display job details.

Topics:

odacli list-jobs (page 10-29)
> 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 10-30)
> 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.

10.9.1 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
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Example 10-28   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
```

10.9.2 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
--jobid, -i *jobid*	Identifies the job. To get the job identifier (jobid), run the `list-jobs` command.
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Example 10-29   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
```

10.10 odacli Network Commands

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

Topics:

> [odacli list-networks](#) (page 10-31)
> > Use the `odacli list-networks` command to display networks.
>
> [odacli describe-network](#) (page 10-32)
> > Use the `odacli describe-network` command to display the details of a specific network.
>
> [odacli create-network](#) (page 10-32)
> > Use the `odacli create-network` command to create a network.
>
> [odacli update-network](#) (page 10-33)
> > Use the `odacli update-network` command to update an existing network configuration.
>
> [odacli delete-network](#) (page 10-34)
> > Use the `odacli delete-network` command to delete a network.

10.10.1 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
`--json`, `-j`	(Optional) Displays JSON output.
`--help`, `-h`	(Optional) Displays help for using the command.

Example 10-30   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
```

10.10.2 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 `odacli list-networks` command to obtain the `id`.
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Example 10-31   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
```

10.10.3 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 defaultnetwork -n interface -p ipaddress
 -w {Public|Private|Dataguard|Backup|Other} -s subnetmask -g gateway [-j] [-h]
```

Parameters

Parameter	Description
--defaultnetwork, -d	Identifies the default network.
--gateway, -g	Defines the network gateway.
--interface, -n	Defines the name of the network interface.
--ipaddress, -p	Defines the network IP address.
--json, -j	(Optional) Displays JSON output.
--networktype, -w	Defines the type of network. Options are: {Public|Private| Dataguard|Backup|Other}
subnetmask, -s	Defines the Network Subnet Mask.
--help, -h	(Optional) Displays help for using the command.

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 10-32   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.

```
# odacli create-network -n sfpbond1 -p 192.0.2.15 -w Backup -s 255.255.255.0
```

10.10.4 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
--id, -i	Defines the network identity.
--gateway, -g	(Optional) Defines the network gateway.
--ipaddress, -p	(Optional) Defines the network IP address.
--json, -j	(Optional) Displays JSON output.
--networktype, -w [Public|Private| Dataguard|Backup|Other]	(Optional) Defines the type of network.
subnetmask, -s	(Optional) Defines the Network Subnet Mask.
--help,-h	(Optional) Displays help for using the command.

Usage Notes

You cannot modify the Public and Private-interfaces after the system is deployed.

Example 10-33   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
```

10.10.5 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 10-34   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",
    "updatedTime" : "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",
    "updatedTime" : "July 30, 2016 23:14:32 PM EDT"   } ],
  "createTimestamp" : "July 30, 2016 23:14:32 PM EDT",
  "description" : "Network service delete",
  "updatedTime" : "July 30, 2016 23:14:32 PM EDT"
 }
```

10.11 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:

10.11.1 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 [-r proxyserver] [-t proxyport]
[-y proxyuser] [-ppwd proxypassword] [-s snmpversion] [-h]
```

Parameters

Parameter	Description
--username, -u	Defines the Oracle ASR user name. The user name is the My Oracle Support user name under which the server is registered.
--asrpassword, -a	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 -ha option instead of the -a option.
--proxyserver, -r	(Optional) Defines the Proxy Server Address.
--proxyport, -t	(Optional) Defines the proxy server port.
--proxyuser, -y	(Optional) Defines the proxy user name needed to authenticate the proxy server.
--proxypassword, -ppwd	(Optional) Defines the proxy user password.
--snmpversion, -s [V2|V3]	(Optional) Defines Simple Network Management Protocol (SNMP) Version 2 or SNMP Version 3. The default is V3.
--help, -h	(Optional) Displays help for using the command.

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.

Example 10-35   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.smithl@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
 --------------- --------------- ---------------- ----------
```

10.11.2 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 [-r proxyserver] [-t proxyport] [-y proxyuser [-ppwd
proxypassword] [-s snmpversion] [-h]
```

Parameters

Parameter	Description
--username,-u	Defines the Oracle ASR user name. The user name is the My Oracle Support user name under which the server is registered.
--asrpassword,-a	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 -ha option instead of the -a option.
--proxyserver,-r	(Optional) Defines the Proxy Server Address.
--proxyport,-t	(Optional) Defines the proxy server port.
--proxyuser,-y	(Optional)Defines the proxy user name needed to authenticate the proxy server.
--proxypassword,-ppwd	(Optional) Defines the proxy user password.

Parameter	Description
`--snmpversion,-s [V2│V3]`	(Optional) Defines Simple Network Management Protocol (SNMP) Version 2 or SNMP Version 3. The default is V3.
`--help,-h`	(Optional) Displays help for using the command.

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.

Example 10-36   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
---------------- ---------------- ----------------- ----------
```

10.11.3 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 10-37   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
```

10.11.4 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 10-38   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
---------------------------- --------------------- ---------------- ----------
```

10.11.5 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
`--help, -h`	(Optional) Displays help for using the command.

Example 10-39   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",
"updatedTime" : 1469409622458
}
```

10.12 odaadmcli Storage Commands

Use the `odaadmcli storage` commands to perform storage diagnostics.

Topics:

10.12.1 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
--help, -h	(Optional) Displays help for using the command.

10.12.2 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 [-n] [-h]
```

Parameters

Parameter	Description
–n *disk_name*	(Optional) Defines the disk resource name. The resource name format is pd_[0..3].
--help, –h	(Optional) Displays help for using the command.

Example 10-40   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 10-41   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 : MS1PC2DD3ORA3.2T
 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
```

10.12.3 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 10-42   Listing All Diskgroups

To list all diskgroups:

```
# odaadmcli show diskgroup

DiskGroups
----------
DATA
RECO
```

Example 10-43   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
```

10.12.4 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
controller_id, *id*	Defines the controller.
--help, -h	(Optional) Displays help for using the command.

Example 10-44   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 = MS1PC2DD3ORA3.2T
        pci-slot-number = 11
        nvme-power-control = 1
        sun-nac-name = /SYS/DBP/NVME1
```

10.12.5 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
--help, -h	(Optional) Displays help for using the command.

Example 10-45   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 MS4SC2JH2ORA480G
4.230.40-3739     RAID1        Optl MS4SC2JH2ORA480G

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
```

10.12.6 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
--help, -h	(Optional) Displays help for using the command.

Example 10-46   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%
```

10.12.7 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
--errors	(Optional) Shows storage errors.
--help, -h	(Optional) Displays help for using the command.

Example 10-47 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 = MS1PC2DD3ORA3.2T
  FwVers = KPYA7R3Q
  strId = nvme:19:00.00
     Pci Address = 19:00.0

     Id = 1
     Pci Slot = 11
     Serial Num = S2LHNAAH101008
     Vendor = Samsung
  Model = MS1PC2DD3ORA3.2T
  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 =========
```

10.12.8 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
–n *disk_name*	Defines the disk resource name. The resource name format is pd_[0..3].
--help, -h	(Optional) Displays help for using the command.

Example 10-48   Displaying NVMe Details

To display detailed information for NVMe `pd_00`:

```
# odaadmcli stordiag pd_00
```

10.12.9 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
--storage	Collects storage logs.
--help, -h	(Optional) Displays help for using the command.

Example 10-49   Collecting Storage Logs

```
# odaadmcli manage diagcollect --storage

Logs are collected to : /opt/oracle/oak/log/rwsoda6s002/oakdiag/oakStorage-
rwsoda6s002-20160607_1505.tar.gz
```

10.12.10 odaadmcli power

Use the odaadmcli power 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 {on|off|status} disk_name [-h]
```

Parameters

Parameter	Description
disk_name	Defines the disk resource name. The resource name format is pd_[0..3].
{on|off|status}	Power on a disk, power off a disk, display status.
--help, -h	(Optional) Displays help for using the command.

Example 10-50   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 10-51   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
```

10.13 odaadmcli Hardware Monitoring Commands

Use the hardware monitoring commands to display hardware configurations.

Topics:

> [odaadmcli show cooling](#) (page 10-49)
> > Use the odaadmcli show cooling command to show cooling details.

10.13.1 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
--help, -h	(Optional) Displays help for using the command.

10.13.2 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 10-52   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
```

10.13.3 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 10-53   Displaying Filesystem Details

```
# odaadmcli show fs

Type    Total Space    Free Space     Total DG Space  Free DG Space   Diskgroup
Mount Point
ext3    30237M         7763M          -         -         /
ext3    484M           416M           -         -         /boot
ext3    60475M         38149M         -         -          /opt
ext3    100793M        22060M         -         -          /u01

acfs    102400M        102158M        4894016M  2418668M   DATA /u02/app/oracle/
oradata/ACFSDB1
acfs    102400M        100501M        4894016M  2418668M   DATA /u02/app/oracle/
oradata/ACFSDB2
acfs    102400M        100601M        4894016M  2418668M   DATA /u02/app/oracle/
oradata/EE12NCDB
```

10.13.4 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
--help, -h	(Optional) Displays help for using the command.

Example 10-54   Display Memory Details

```
# odaadmcli show memory

NAME      HEALTH     HEALTH_DETAILS    PART_NO.      SERIAL_NO.          LOCATION
DIMM_0    OK         -        3A4K40BB1-CRC   00CE01154602EADA96    P0/D0
DIMM_11   OK         -        3A4K40BB1-CRC   00CE01154602EADADA    P0/D1
DIMM_3    OK         -        3A4K40BB1-CRC   00CE01154602EADBC7    P0/D3
DIMM_8    OK         -        3A4K40BB1-CRC   00CE01154602EADBA0    P0/D8

(Continued)
MANUFACTURER    MEMORY_SIZE    CURR_CLK_SPEED    ECC_Errors
Samsung         32 GB          2400 MHz     0
Samsung         32 GB          2400 MHz     0
Samsung         32 GB          2400 MHz     0
Samsung         32 GB          2400 MHz     0
```

10.13.5 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 10-55   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)      -
```

10.13.6 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 10-56 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
```

10.13.7 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
--help, -h	(Optional) Displays help for using the command.

Example 10-57   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
```

10.13.8 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
--help, -h	(Optional) Displays help for using the command.

Example 10-58   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
```

10.14 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
--password, -p	Agent password. The Agent password is needed to access the Oracle Appliance Manager Web Console. The default password is `welcome1`. To define the password in non-interactive mode, use `--hp` instead of `--password`.
--username, -u	User name required to access the Oracle Appliance Manager Web Console. The default user name is `oda-admin`.
--json, -j	(Optional) Displays JSON output.
--help, -h	(Optional) Displays help for using the command.

Usage Notes

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

Example 10-59   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 10-60   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
```

A

Oracle Database Appliance Software Configuration Defaults

Oracle Database Appliance software configuration defaults.

Topics:

> Oracle homes on Oracle Database Appliance follow Optimal Flexible Architecture guidelines.

> 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.

> Understand how database file storage is configured for Oracle Database Appliance X6-2.

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`*`/grid`
Grid base	`/u01/app/grid`
Oracle home	`/u01/app/oracle/product/dbhome_`*`release-specific_namesequence_number`*
Oracle base	`/u01/app/oracle`
Oracle Inventory	`/u01/app/oraInventory`

A.2 Oracle Groups and Users Configuration 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.

Oracle Groups and Users Configurations When Using the Web Console

Table A-2   Oracle 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 Users Configurations When Using the Command-line Interface

When you use `odacli create-appliance` and a JSON file to deploy the appliance, the following options are supported:

- Role separation: Enables you to create six (6) groups and two (2) users. You can customize `groupname`, `username`, and `UID`.

- Without role separation: Enables you to create two (2) groups and one (1) user. You can customize `groupname`, `username`, and `UID`.

For information about job role separation, see https://docs.oracle.com/database/121/CWSOL/usrgrps.htm#CWSOL763.

A.3 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.

> **See Also::**
>
> *Oracle Automatic Storage Management Administrator's Guide* for more information about Oracle ASM disk group capacity.

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.

    Use Oracle Automatic Storage Management Cluster File System (Oracle ACFS) or Oracle Automatic Storage Management (Oracle ASM) for database files storage.

    This topic describes the Oracle ASM Cluster file system (ACFS) mount points for Oracle Database Appliance.

> Use the Oracle Automatic Storage Management `lsdg` command to display mounted disk groups and their information for Oracle Database Appliance.

A.3.1 About Oracle Database Appliance Storage

Use Oracle Automatic Storage Management Cluster File System (Oracle ACFS) or Oracle Automatic Storage Management (Oracle ASM) 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.

A.3.2 Oracle ACFS Mount Points and Storage Space

This topic describes the 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 A-3   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	`/dev/asm/datdbname-nnn` For example: `/dev/asm/datodacn-123`	`/u02/app/oracleuser/oradata/dbname` For example: `/u02/app/example/oradata/odacn`
RECO	+RECO	`/dev/asm/reco-nn`	`/u03/app/oracleuser` This mount point is shared by all databases for `fast_recovery_area` and `redo` logs. For `fast_recovery_area`, the path is: `/u03/app/oracleuser/fast_recovery_area/db_name` For redo logs, the path is: `/u03/app/oracleuser/redo/db_name`

Example A-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-LogVolOpt   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/datrdb2-268                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
```

A.3.3 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 A-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
```

Related Topics:

Oracle Automatic Storage Management Administrator's Guide

A.4 System Configuration for Oracle Database Appliance

Table A-4   System Configuration for Oracle Database Appliance

Item	Value
Oracle Linux with the Red Hat-compatible kernel	Oracle Linux 6.7 with kernel-uek-2.6.39-400.276.1.el6uek.x86_64
Oracle Grid Infrastructure and Oracle Database release (initial release)	Release 12.1.2.7: Oracle Database Standard Edition 2 (12.1.0.2), Oracle Database Enterprise Edition (12.1.0.2 , 11.2.0.4)
Oracle Enterprise Manager Express	1158 To access Oracle Enterprise Manager, enter the following URL string, where *hostname* is the name of the Oracle Database Appliance server: `https://`*hostname*`:1158/em`

B

Storage on Oracle Database Appliance

Review this section to understand Oracle Database Appliance storage architecture and options and how to determine usable storage.

Topics:

B.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.

See Also::

Oracle Automatic Storage Management Administrator's Guide for more information about Oracle ASM disk group capacity.

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.2 Oracle ACFS Mount Points and Storage Space

This topic describes the 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	`/dev/asm/dat`*dbname*`-nnn`
		
		For example: `/dev/asm/`
		`datodacn-123`
			`/u02/app`*oracleuser*`/`
			`oradata/`*dbname*
			
			For example: `/u02/app/example/`
			`oradata/odacn`

RECO	+RECO	`/dev/asm/reco-`*nn*	`/u03/app/`*oracleuser* This mount point is shared by all databases for `fast_recovery_area` and `redo` logs. For `fast_recovery_area`, the path is: `/u03/app/`*oracleuser*`/` `fast_recovery_area/`*db_name* For redo logs, the path is: `/u03/app/` *oracleuser*`/redo/`*db_name*

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-LogVolOpt   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/datrdb2-268                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.3 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 = 2.91TB.

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 with 2 NVMe Drives	Sizing for X6-2S 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.	3.9TB
DATA Disk Group (90% Uusable)	NA. Triple mirroring is not applicable for the X6-2S.	3.5TB
RECO Disk Group (10% Uusable)	NA. Triple mirroring is not applicable for the X6-2S.	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

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
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
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	2441888	1220644	DATA/
4	NORMAL	1231176	1230996	610468	305150	RECO/

Note: Note: 1TB = MB divided by 1024^2

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

Table B-5   (Cont.) Definition of Terminology

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.
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.	Usable space required to restore full redundancy. In the case of X6-2S and X6-2M, this storage is not required to be reserved. When storage is consumed higher than the usable_file_MB value, this number will report a negative value.
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

B.4 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
```

Related Topics:

[Oracle Automatic Storage Management Administrator's Guide](#)

C

Readme for the odacli 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"
```

D

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 D-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" : "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"
        }
}
```

Example D-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"
    }
}
```

E

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.

Syntax

```
perl cleanup.pl [-griduser grid_user] [-dbuser db_user] [-groups comma separated
list of groups]
```

Parameters

Parameter	Description
`-griduser` *grid_user*	Defines the grid user name. The default user is `grid`.
`-dbuser` *db_user*	Defines the database user name. The default user is `oracle`.
`-groups` *comma separated list of groups*	Lists the groups in a comma separated list. The default groups are `oinstall,dba,asmadmin,asmoper,asmdba`.

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 E-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`:

```
# cleanup.pl -griduser oracle -dbuser oracle
```

F

Database Shapes for Oracle Database Appliance

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

Topics:

F.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.

F.2 OLTP Database Shapes

Use Oracle Database Appliance OLTP Database Shapes if your database workload is primarily online transaction processing (OLTP).

Table F-1   Oracle Database Appliance OLTP Database Shape Sizes

Shape	CPU Cores	SGA (GB)	PGA (GB)	Processes	Redo log file size (GB)	Redo Log File Size (GB)	LOG buffer (MB)
odb1s	1	2	1	200	1	1	16
odb1	1	4	2	200	1	1	16
odb2	2	8	4	400	1	1	16

Table F-1 (Cont.) Oracle Database Appliance OLTP Database Shape Sizes

Shape	CPU Cores	SGA (GB)	PGA (GB)	Processes	Redo log file size (GB)	Redo Log File Size (GB)	LOG buffer (MB)
odb4	4	16	8	800	1	1	32
odb6	6	24	12	1200	2	2	64
odb8	8	32	16	1600	2	2	64
odb10	10	40	20	2000	2	2	64
odb12 (X6-2M and X6-2L only)	12	48	24	2400	4	4	64
odb16 (X6-2M and X6-2L only)	16	64	32	3200	4	4	64
odb20 (X6-2M and X6-2L only)	20	80	40	4000	4	4	64

F.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 F-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

F.4 DSS Database Shapes

Use DSS database shapes if your database workload is primarily decision support services (DSS) or data warehousing.

Table F-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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