Oracle® Database Appliance

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

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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 Setup Poster* (a full-size printed copy ships with Oracle Database Appliance)
- *Oracle Database Appliance Administration and Reference Guide*
- *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 Administrator's Guide*
- *Oracle Database SQL Language Quick Reference*

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.

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About Oracle Database Appliance

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

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

Review this topic to see Oracle software that is installed with or is available for download for Oracle Database Appliance X6-2S and X6-2M.

Oracle Database Appliance components can include the software listed in the following table.

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 manage command-line interface Oracle Appliance Manager software	Downloaded

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.

Overview of Oracle Database Appliance Deployment

Review this overview to understand the order of steps you must complete to deploy Oracle Database Appliance.

The following is an overview of how 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 that you collected earlier.

d. Click **Submit** to start the deployment.

e. Monitor the progress on the **Activities** tab.

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

Planning Oracle Database Appliance Configuration Options
: Use these topics to help you to make decisions about your Oracle Database Appliance configuration.

Gathering System Requirement Information
: Use these checklists to collect information before deploying Oracle Database Appliance.

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.

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:

Selecting an Oracle Database Appliance Configuration

Compare and select an Oracle Database Appliance X6-2S or X6-2M 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. You cannot expand or reconfigure Oracle Database Appliance X6-S to Oracle Database Appliance X6-2M. For Oracle Database Appliance X6–2S and X6–2M configuration details, see the *Oracle Database Appliance Owner's Guide*.

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 12*c* release 1 (12.1.0.2) Enterprise Edition, Oracle Database 11*g* release 2 (11.2.0.4).

  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 12*c* release 1 (12.1.0.2) Standard Edition 2

  Oracle Database Standard Edition 2 delivers unprecedented ease of use, power, and performance for workgroup, department-level, and Web applications.

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

Selecting Database Templates for Oracle Database Appliance

Oracle Database Appliance software includes preconfigured templates 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 templates are not supported on all models.

Each Oracle Database template 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 templates 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 templates. These templates implement best practices, and are configured specifically for Oracle Database Appliance.

See Database Templates for Oracle Database Appliance for information about database templates, what to consider when choosing a template, and sizing details for each template.

Gathering System Requirement Information

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

Topics:

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 and X6-2M 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 in each server.
- 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 in each server.

You can configure for External, Internal, or Custom backup location. Depending on backup location, you can divide storage capacity between DATA diskgroup and RECO diskgroup in different ways:

- 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.

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`

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`

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 cannot begin with a numeral.
Domain Name	Your domain name. For example: `example.com`

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

System Information	Description
Master Password	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. Ensure that the password you provide is in compliance with common security practices.
DNS Server	(Optional) DNS server details.
NTP Server	(Optional) Network Time Protocol (NTP) service details.
Region	The region where you plan to operate the Oracle Database Appliance system.
Timezone	Select the time zone where you plan to operate the Oracle Database Appliance system.
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 (mandatory) • (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 language • DB version • Shape (for example: odb1, odb2, or odb3) • Storage (Oracle ASM or Oracle ACFS) • Configure EM console

Note:

Oracle recommends that you use all lowercase characters for the host name.

Checklist for Custom Network Address Configuration

Use the checklists in this topic 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` to update the private network before using the Web Console to deploy the appliance, or use the `odacli create-appliance` command to change the Host Private Address. You must create a JSON file to use the `odacli create-appliance` command.

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 during deployment and should not be changed

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Readying Oracle Database Appliance for Deployment

This chapter describes tasks that you must complete before deploying Oracle Database Appliance.

Topics:

Attaching Network Cables to Oracle Database Appliance

You can connect Oracle Database Appliance X6-2S and Oracle Database Appliance X6-2M to 10GBase-T (copper) or 10GbE SFP+ (fiber) networks.

Use standard Cat-6 network cables to connect to the on-board 10GBase-T (copper) network ports. The following section sections show the cabling options for 10GbE SFP + (fiber) network ports. In the figure, 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

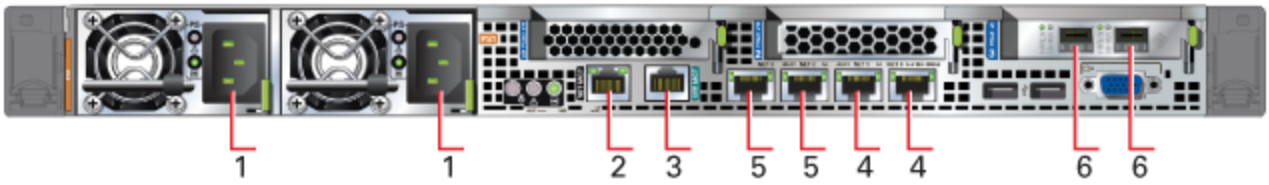

Table 3-1 Location of Network Ports and Power Cabling for Oracle Database Appliance

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) This port is only available on Oracle Database Appliance X6-2M
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	Oracle Sun 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 Sun. These cables have built-in SFP+ connectors:

Name	Length	Oracle Sun Part Number
TwinAx 1m	1m	X2130-1M-N
TwinAx 3m	3m	X2130-3M-N
TwinAx 5m	5m	X2130-3M-N

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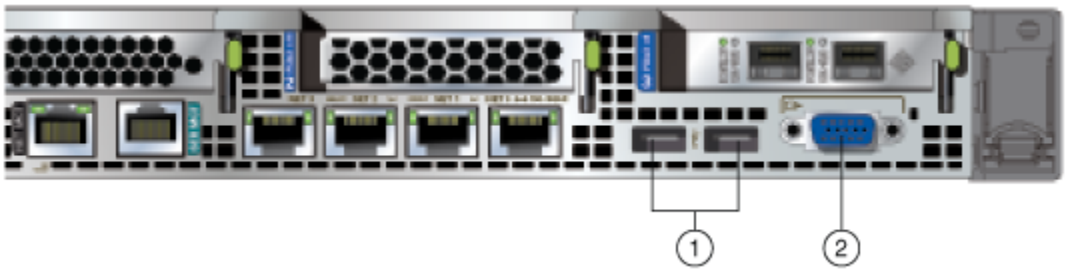
Attaching Peripheral Devices

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 3-2 Peripheral Device Connections for Oracle Database Appliance



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

Table 3-2 Peripheral Device Connections for Oracle Database Appliance

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

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 switching on the process server.

Topics:

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*.

Powering On Oracle Database Appliance the First Time

Use this procedure to 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.

Refer to the figures and to the following callout table to identify the power button and the system initialization status indicator lights.

Figure 3-3 Front of Oracle Database Appliance Power Panel

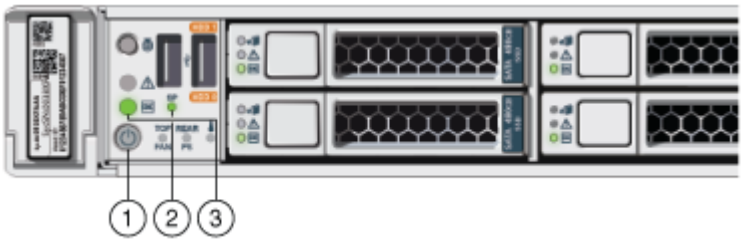


Table 3-3 Description of Callouts for Powering On Oracle Database Appliance

Callout	Function
1	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.
2	SP OK LED light, located on the front panel of the appliance.
3	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 (callout 3) on the front of the system remains steadily on.

Configuring Oracle Integrated Lights Out Manager

Oracle Integrated Lights Out Manager (ILOM) provides alternate ways to restart and troubleshoot Oracle Database Appliance.

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

Although not required, 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:
3. 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.

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http://docs.oracle.com/cd/E19860-01/index.html

Configuring an Initial Network Connection

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

Oracle Database Appliance X6-2S has two highly available networks and Oracle Database Appliance X6-2M has 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 for more information on the `configure-firstnet` command and an example.

Downloading Oracle Database Appliance Software

Before deploying Oracle Database Appliance, you must download the software.

Perform the following steps to download the software:

1. Go to https://support.oracle.com/CSP/main/article?cmd=show&type=NOT&id=888888.1.
2. Follow the instructions to download the Oracle Database Appliance Single Instance software bundle (SIB) files to a local computer on the network.

4

Deploying Oracle Software on Oracle Database Appliance

This chapter describes the steps to deploy Oracle software after you have established connectivity to Oracle Database Appliance.

Topics:

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 (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.

Copy the Oracle Database Appliance Software

Copy the software bundle to the system and update the bundle 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 file, you must format it first as `FAT32`, `ext3`, or `ext4`. NTFS file formats are not supported.

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.

   For example, if you use the `scp` 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`:

   ```
   scp odasm-db-bundle-12.1.2.7-date_1of2.zip to root@oda_host
   ```

   ```
   scp odasm-db-bundle-12.1.2.7-date_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 odasm-db-bundle-12.1.2.7-date.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`:

   ```
   #update-image --image-file /path/oda-sm-12.1.2.7.0-160518-
   GI-12.1.0.2.zip,/path/oda-sm-12.1.2.7.0-160518-DB-12.1.0.2.zip,/
   path/oda-sm-12.1.2.7.0-160518-DB-11.2.0.4.zip
   ```

Deploying Oracle Database Appliance

Complete this procedure to 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. See Configuring an Initial Network Connection for more information.

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. **Domain Name**: Enter the domain name.
   c. **Region**: (Optional) Select the region of the world where the Oracle Database Appliance is located.
   d. **Timezone**: (Optional) Select the time zone where the Oracle Database Appliance is located.
   e. **DNS Server**: (Optional) Enter the DNS server.
   f. **NTP Server**: (Optional) Enter the NTP server.
   g. **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.

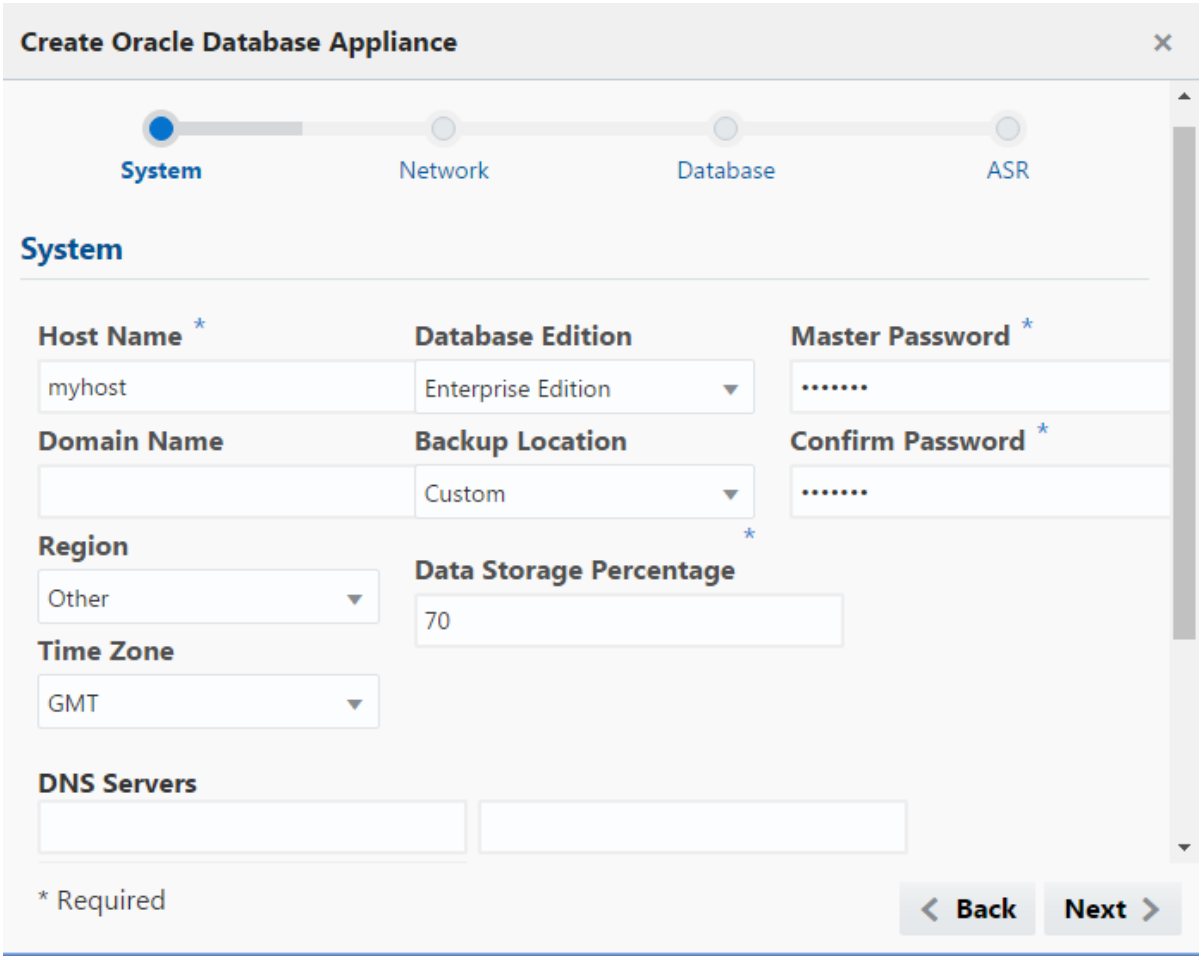
   h. **Backup Location**: Select the backup location: **External**, **Internal**, or **Custom**.

      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. **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`, `oracle`, `grid` , 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.

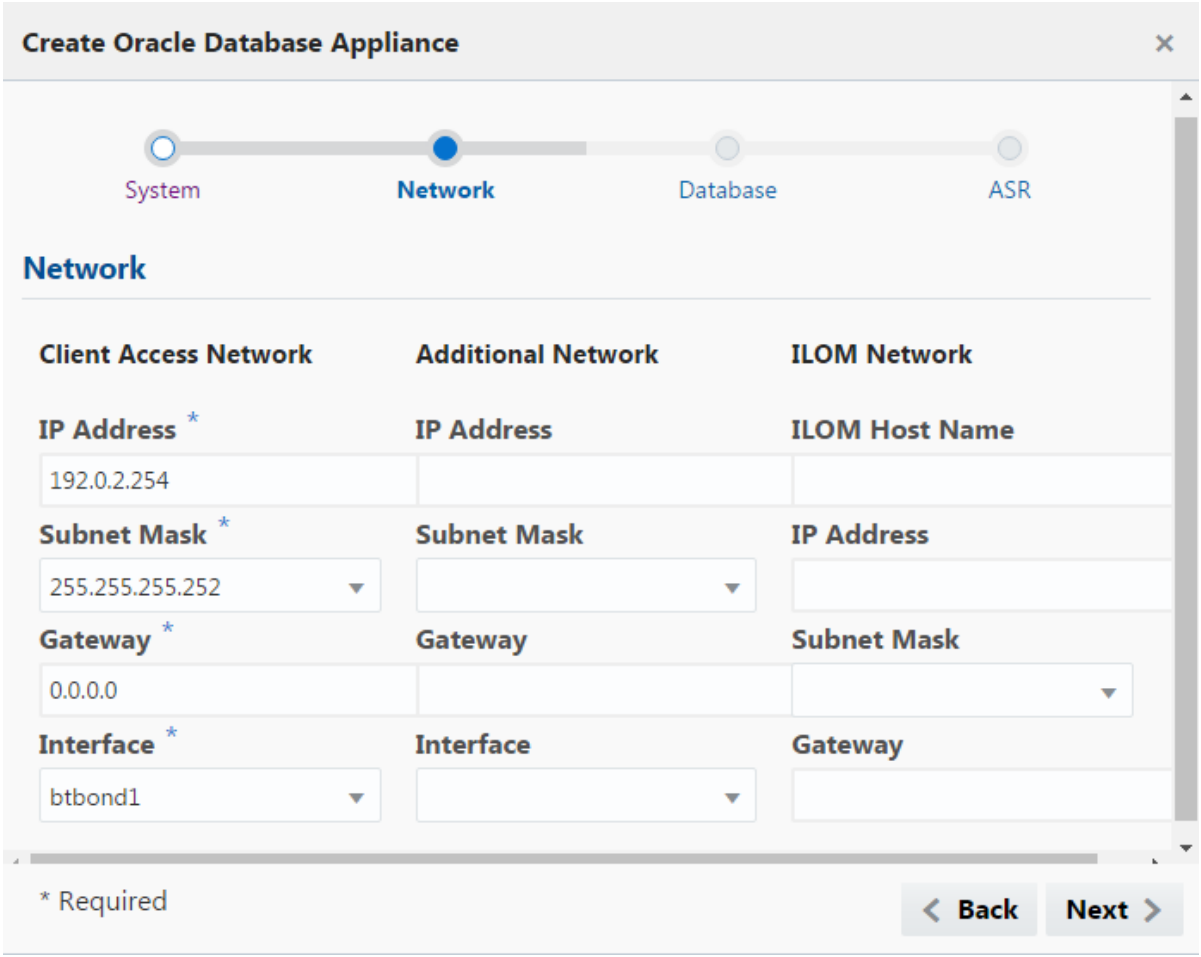
i. (Optional) **ILOM Host Name**: Enter the name of the Oracle ILOM host.

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. **DB Version**: Select a database version.

c. **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 (_).

d. **Container Database**: Select **Yes** or **No**.

e. **Characterset**: Select a characterset.

f. **National Characterset**: Select a national characterset.

g. **Language**: Select the database language.

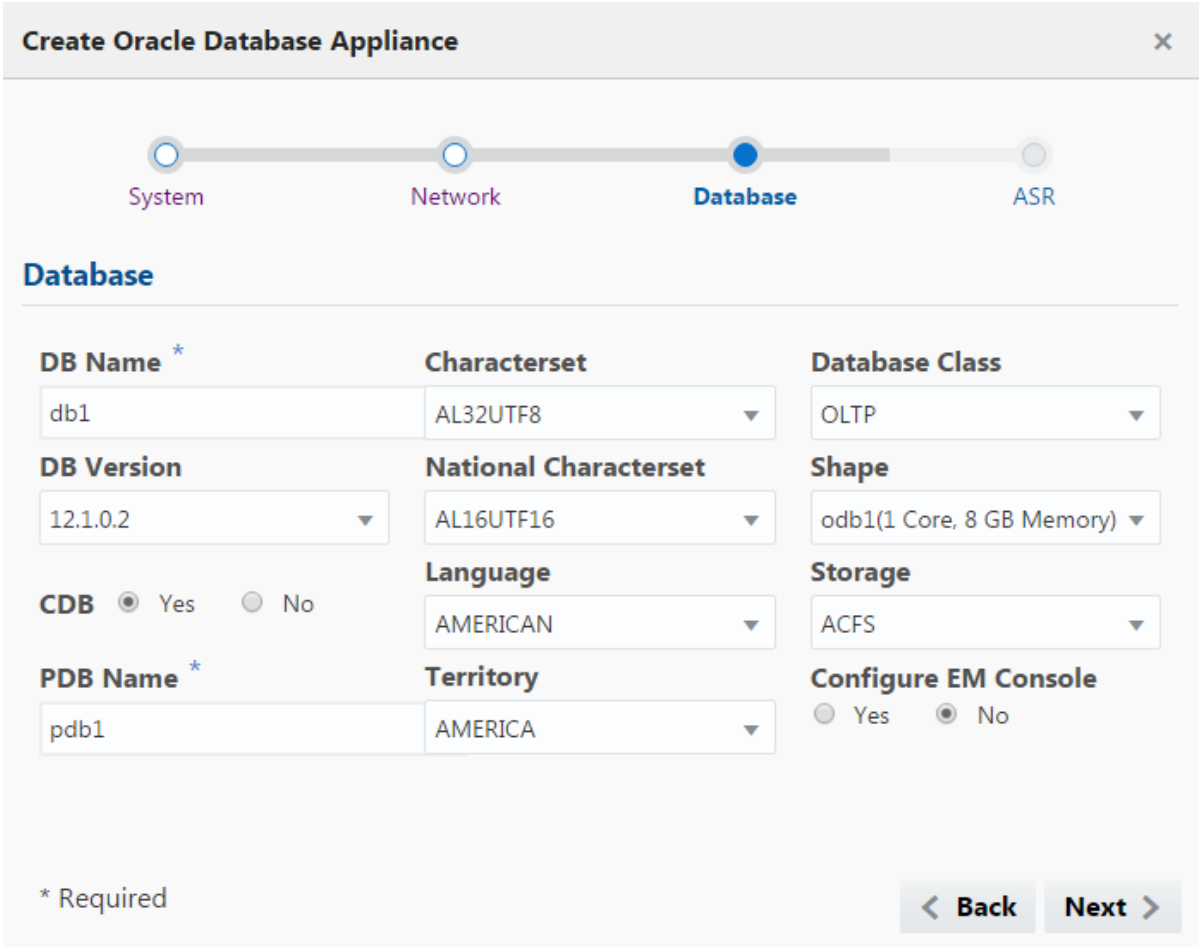
h. **Territory**: Select a territory or location from the list.

i. **Shape**: Select a database shape from the list.

j. **Storage**: Select **ACFS** or **ASM**.

k. Configure EM Console: Select **Yes** or **No**.

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 your My Oracle Support account.

b. **Password**: Enter the password associated with your My Oracle Support account.

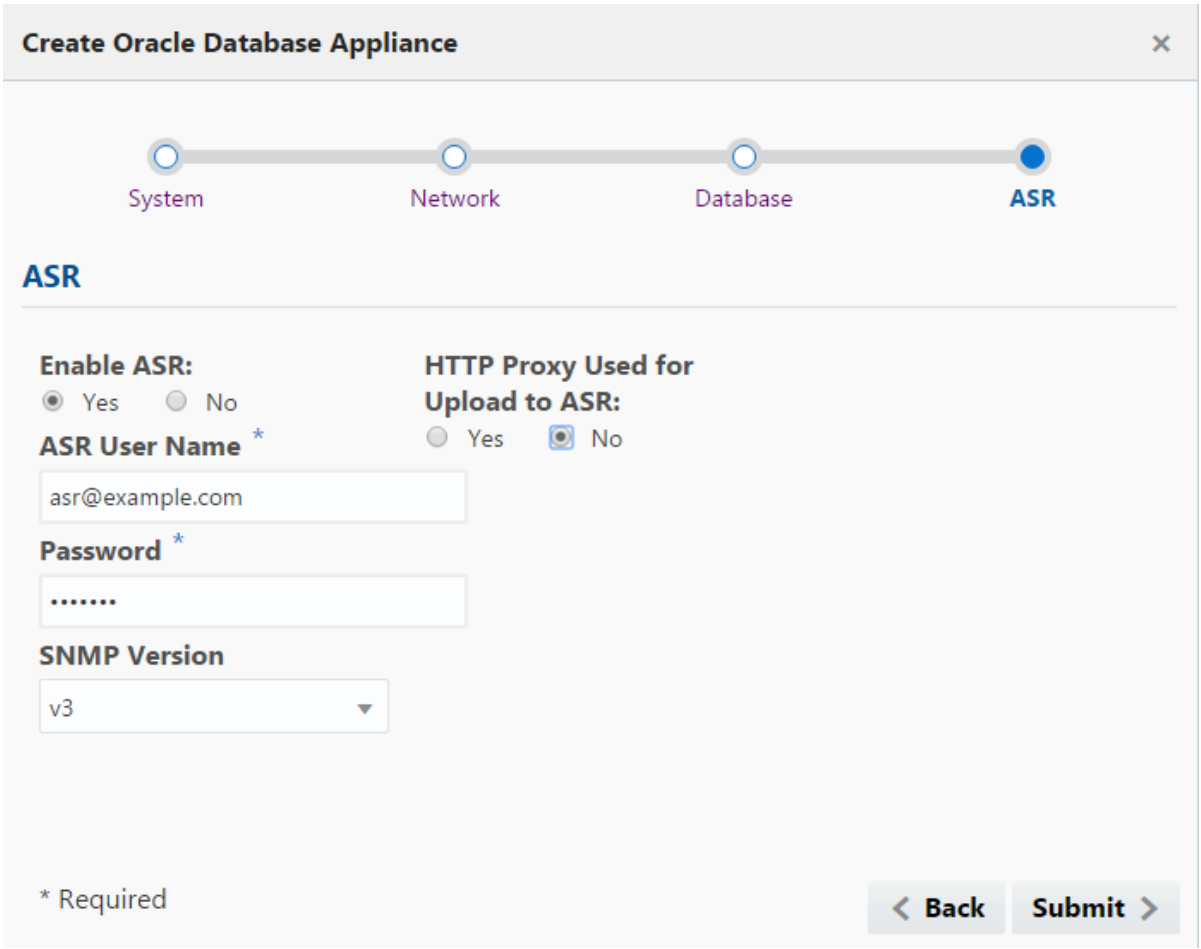
c. **SNMP Version**: Select **V2** or **V3**.

d. **HTTP Proxy used for Upload to ASR**: Select **Yes** or **No**.

e. **(Optional) Proxy User Name**: If you are using a proxy for upload, enter the proxy user name.

f. **(Optional) Proxy Password**: If you are using a proxy for upload, 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`, `oracle`, `grid` and database users `SYS`, `SYSTEM` and `PDBADMIN` are set to the master password. 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

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

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

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

Oracle Database Appliance Security Guide

Oracle Database Appliance Concepts Guide

Oracle Database Security Guide

Changing the odacli-adm User Password

Change the `odacli-adm` user password to restrict access to the Oracle Appliance Manager Web Console.

Oracle Database Appliance X6-2S and X6-2M are configured with a default user name, `odacli-adm`, and password `welcome1`. The credentials enable access to the Web Console. After deploying the appliance, Oracle recommends resetting the `odacli-adm` user password.

Note: Only `root` user can reset the `odacli-adm` user credentials.

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

   ```
   # odacli-adm set-credential --password welcome2 --username odacli-adm
   ```

   For more information about the `odacli-adm set-credential` command, refer to odacli-adm set-credential.

Configuring Oracle Auto Service Request

Oracle Auto Service Request (Oracle ASR) is a secure support feature that automatically generates a service request for specific hardware faults. Oracle ASR 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.

See "Validate ASR Systems in My Oracle Support" in *Oracle Auto Service Request Installation and Operations Guide* to confirm that you have a working Oracle ASR configuration.

Oracle Auto Service Request Installation and Operations Guide

6

Managing Oracle Databases

This chapter describes how to manage databases.

Topics:

Oracle Database Features and Oracle Database Appliance

These topics describe Oracle Database features that are available with Oracle Database Appliance.

Topics:

Oracle Enterprise Manager Database Express and Oracle Database Appliance

You can use Oracle Enterprise Manager Database 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 optionally installed with Oracle Database on the Oracle Database Appliance. See *Oracle Database 2 Day DBA* for an introduction to Oracle Enterprise Manager Database Express.

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*

Oracle Database Features and Oracle Database Appliance
: These topics describe Oracle Database features that are available with Oracle Database Appliance.

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:

- 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*

Oracle Database Features and Oracle Database Appliance
These topics describe Oracle Database features that are available with Oracle Database Appliance.

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 6-1 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 Guide for Linux*
- *Oracle Automatic Storage Management Administrator's Guide*

Oracle Database Features and Oracle Database Appliance
: These topics describe Oracle Database features that are available with Oracle Database Appliance.

About Managing Multiple Databases on Oracle Database Appliance

Review this topic to understand Oracle requirements for multiple Oracle home support.

The Oracle home is the directory in which you install Oracle Database binaries, and from which Oracle Database runs. 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.

Oracle Database Appliance supports multiple Oracle homes, including support of different release Oracle Database homes. 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:

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

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

Use ODACLI commands to create, list, describe, and delete databases on Oracle Database Appliance. The command `odacli create-database` 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 `odacli --dbhomeid` command. 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 and be required to roll back and then re-applied.

Only use the command-line interface or the Oracle Database Appliance Web Console to create new databases. To create databases on an existing Oracle Database Home, use the command-line interface. When you use the Web Console to create databases, a new home is created for each database.

Managing Oracle Databases
This chapter describes how to manage databases.

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 no plan is specified with this parameter, then the Resource Manager is not enabled and instance caging will not be 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.

For more information about enabling and configuring instance caging and the Resource Manager, see *Oracle Database Administrator's Guide*.

See Also::

Oracle Database Administrator's Guide

Managing Oracle Databases
This chapter describes how to manage databases.

7

Managing Storage

Expand storage capacity and replace NVMe disks in Oracle Database Appliance.

Topics:

About Managing Storage

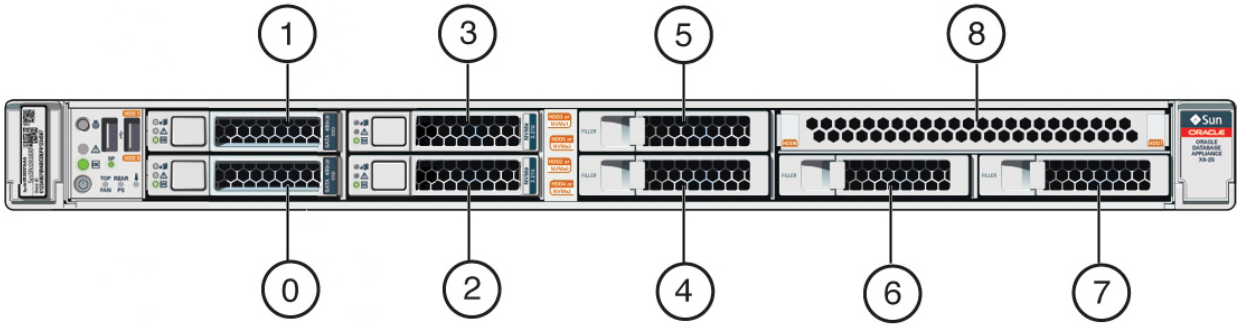
Depending on the available drives, you can expand Oracle Database Appliance X6–2S or X6–2M storage to 4 NVME or replace existing NVMe disks.

The default configuration includes two (2) NVMe disks. You can expand storage by adding two (2) additional disks for a total of four (4) NVMe disks.

The following drives are available:

- Default configuration: `pd_00` and `pd_01`
- Expanded configuration: `pd_02` and `pd_03`

Figure 7-1 NVMe Storage Device Locations



In the figure, callout 2 is the location of `pd_00` and callout 3 is the location of `pd_01`. If you use an expanded configuration, the additional disks (`pd_02` and `pd_03`) are located in callouts 4 and 5. Refer to the figure and table to identify the location of NVMe disks and other devices.

Table 7-1 Storage Connections for Oracle Database Appliance

Table 7-1 (Cont.) Storage Connections for Oracle Database Appliance

Callout Number	Description
0	HDD/SSD 0
1	HDD/SSD 1
2	NVMe0 - pd_00
3	NVMe1 - pd_01
4	Filler panel (optional NVMe2 - pd_02)
5	Filler panel (optional NVMe3 - pd_03)
6	Filler panel
7	Filler panel
8	Filler panel

You can perform the following appliance maintenance tasks with ODAADMCLI commands:

- Show storage, disks, diskgroups, and controllers
- Show server, memory, processor, power, cooling, and network

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.

Determining Usable Storage

To review usable storage, log in as a grid user and run the `asmcmd lsdg` command. For more information, see the Oracle Automatic Storage Management Administrator's Guide.

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. Pulling a drive before powering it off will crash

the kernel, which can lead to data corruption. If you have more than one disk to replace, complete the replacement of one disk before starting replacement of the next disk. Refer to About Managing Storage for where `pd_00` , `pd_01`, `pd_02` and `pd_03` are located.

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

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 will take 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
   ```

Expanding NVMe Storage

Add NVMe disks on Oracle Database Appliance to expand storage.

If you have the default configuration of two NVMe disks (`pd_00` and `pd_01`), then you can expand storage by adding two (2) NVMe disks.

Note: If you expand storage, then you must add two (2) disks and expand storage on both disks at the same time. Once you expand storage to four (4) NVMe disks, you cannot revert to the default configuration of two (2) NVMe disks.

Refer to About Managing Storage for the location of `pd_02` and `pd_03` disk slots.

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 both disks on, and then expand the storage.

Perform the following steps to add 2 NVMe disks:

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.

8

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

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 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.

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 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 Console: 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.

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.

9

Oracle Appliance Manager Command-Line Interface

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

Topics:

About Oracle Appliance Manager Command-line Interface

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:

- Configure: Use the configuration commands as part of the initial deployment of the appliance and to configure CPU cores

- Lifecycle management: Use `odacli` to perform database and system administration tasks for the appliance
- Administrative tasks: Use `odaadmcli` to perform hardware administration tasks

You can perform the following 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 maintenance 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 ODACLI commands are supported on your version of Oracle Appliance Manager and your hardware, run the help command for ODACLI :`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 9-1 ODACLI Syntax

```
# odacli create-database -h

Usage: create-database [options]
Options:
--adminpassword, -m  Password for SYS,SYSTEM and PDB Admin
--cdb, -c            Create Container Database        Default: false
--dbclass, -cl       Database Class OLTP/DSS/IMDB     Default: OLTP
--dbconsole, -co     Enable Database Console          Default: false
--dbhomeid, -dh      Database Home ID (Use Existing DB Home)
--dbname, -n         Database Name
--dbshape, -s        Database Shape{odb1,odb2,odb3 etc.} Default: odb1
--dbstorage, -r      Database Storage {ACFS|ASM}       Default: ACFS
--dbtype, -y         Database Type {SI|RAC}            Default: SI
--help, -h           get help                          Default: false
--instanceonly, -io  Create Instance Only (For Standby)Default: false
--json, -j           json output                       Default: false
--pdbadmin, -d       Pluggable Database Admin User     Default: pdbadmin
--pdbname, -p        Pluggable Database Name           Default: pdb1
--targetnode, -g     Node Number (for single-instance databases) Default: 0
--version, -v        Database Version                  Default: 12.1.0.2
```

Oracle 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 the`odacli` *`command`* `-h` command or `odacliadm` *`command`* `-h` to see detailed help about a specific command. For example:

```
odacli describe-dbhome -h
```

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

configure commands

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

Topics:

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

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.

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.

configure-cpucore
: (Optional) Use the `configure-cpucore` command to set the number of CPU Cores the system should be configured with for the database.

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 9-2 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:
```

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

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

Example 9-3 Updating the Image

To update the Single Instance Software Bundle:

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

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

configure-cpucore

(Optional) Use the `configure-cpucore` command to set the number of CPU Cores the system should be configured with for the database.

Syntax

To configure the number of CPU cores:

```
configure-cpucore -cores numberOfCores [-h]
```

To enable the maximum number of CPU cores:

```
configure-cpucore -cores ALL [-h]
```

Parameters

Parameter	Description
`-cores` *`numberOfCores`*	Defines the number of cores to enable on the system. Specify `All` to enable the maximum number of cores.
`-h`	(Optional) Displays help for using the command.

Example 9-4 Configuring CPU Cores

To set the number of CPU cores to 4:

```
# configure-cpucore -cores 4
```

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

odacli appliance commands

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

Topics:

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

odacli create-appliance
: Use the `odacli create-appliance` command in a JSON file format to provision Oracle Database Appliance.

odacli describe-appliance
: Use the `odacli describe-appliance` command to display appliance details.

odacli create-appliance

Use the `odacli create-appliance` command in a JSON file format to provision Oracle Database Appliance.

Syntax

To view help for the `odacli create-appliance` command:

```
odacli create-appliance  -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.
`-h`	(Optional) Displays help for using the command.

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

odacli describe-appliance

Use the `odacli describe-appliance` command to display appliance details.

Syntax

To display appliance details:

```
odacli describe-appliance
```

Parameters

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

Example 9-5 Displaying Appliance Details

To display the appliance details:

```
# odacli describe-appliance
```

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

odacli database commands

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

Topics:

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

odacli list-databases
: Use the `odacli list-databases` command to list all databases on the appliance.

odacli describe-database
: Use the `odacli describe-database` command to display database details.

odacli create-database
: Use the `odacli create-database` command to create a new database.

odacli delete-database
: Use the `odacli delete-database` command to delete a database.

odacli list-databases

Use the `odacli list-databases` command to list all databases on the appliance.

Syntax

To display a list of all databases:

```
odacli  list-databases
```

Parameters

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

Example 9-6 Displaying a List of Databases

Display a list of databases:

```
# odacli  list-databases
```

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

odacli describe-database

Use the `odacli describe-database` command to display database details.

Syntax

To display database details:

```
odacli  describe-database -i dbid [-j] [-h]
```

Parameters

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

Example 9-7 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
```

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

odacli create-database

Use the `odacli create-database` command to create a new database.

Syntax

To create a database with a new Oracle Database Home:

```
odacli  create-database
```

To create a database using an existing Oracle Database Home:

```
odacli  create-database -dbhomeid Database Home ID
```

Parameters

Parameter	Description
`-m`	Defines the password for `SYS`, `SYSTEM`, and `PDB Admin`.
`-c`	(Optional) Create a Container Database.
`-cl OLTP|DSS|IMDB`	Defines the database class. The options are: OLTP, DSS, or IMDB. The default is OLTP.
`-co`	(Optional) Enables the Database Console.
`-dh`	Identifies the existing Database Home ID.
`-n`	Defines the name given to the new database (`dbname`.)
`-s` *`dbshape`*	Identifies the database shape (dbshape). For example, odb1, odb2, and odb3. The default is odb1.
`-ACFS|ASM`	Defines the Database Storage, either ACFS or ASM. The default value is ACFS.
`-y SI|RAC`	Defines the Database Type (dbtype), either SI or RAC. The default value is SI.
`-io`	Creates a standby instance.
`-j`	(Optional) Displays JSON output.
`--pdbadmin`, `-d`	Defines the name of the Pluggable Database (PDB) Admin User. The default value is `pdbadmin`.
`-p pdbname`	Defines the name of the PDB. The default value is `pdb1`.
`-g` *`n`*	Defines the Node Number (for single-instance databases). The default is 0.
`-v`*`version`*	Defines the database version. The default version is 12.1.0.2.
`-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 will create 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`.
- 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 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 name`. The default size of this mount point is 100G.
- 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.

Example 9-8 Creating a Database

To create a 12.1.0.2 OLTP container database named `hrdb` with shape `odb-6`:

```
# odacli create-database -n hrdb -c -m welcome1 -cl OLTP -s odb6 -p pdb1 -v 12.1.0.2
```

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

odacli delete-database

Use the `odacli delete-database` command to delete a database.

Syntax

To delete a database:

```
odacli  delete-database -i dbid
```

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

Example 9-9 Deleting a Database

To delete a database:

```
# odacli  delete-database -i my-database-ID
```

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

odacli dbhome commands

Use the `odacli dbhome` commands to manage database Home operations.

Topics:

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

odacli list-dbhomes
: Use the `odacli list-dbhomes` command to display a list of Oracle Home directories.

odacli describe-dbhome
: Use the `odacli describe-dbhome` command to display Oracle Database Home details.

odacli create-dbhome
: Use the `odacli create-dbhome` command to create an Oracle Database Home.

odacli list-dbhomes

Use the `odacli list-dbhomes` command to display a list of Oracle Home directories.

Syntax

To display a list of Oracle Home directories:

```
odacli  list-dbhomes  [-v] [-j] [-h]
```

Parameters

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

Example 9-10 Displaying a List of Oracle Home Directories

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
```

odacli dbhome commands
Use the `odacli dbhome` commands to manage database Home operations.

odacli describe-dbhome

Use the `odacli describe-dbhome` command to display Oracle Database Home details.

Syntax

To display details about Oracle Database Home:

```
odacli  describe-dbhome -i dbhomeid
```

Parameters

Parameter	Description
`-i`*`dbhomeid`*	Identifies the database home ID. Use the `odacli list-dbhomes` command to get the *dbhomeid*.
`-j`	(Optional) Displays JSON output.
`-v`*`dbversion`*	(Optional) Identifies the Database Home Version. Use the `odacli list-dbhomes –v` command to get the *dbversion*.
`-h`	(Optional) Displays help for using the command.

Example 9-11 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
```

odacli dbhome commands
Use the `odacli dbhome` commands to manage database Home operations.

odacli create-dbhome

Use the `odacli create-dbhome` command to create an Oracle Database Home.

Syntax

To create an Oracle Database Home:

```
odacli  create-dbhome -v version [-j] [-h]
```

Parameters

Parameter	Description
`-v version number`	Defines the Database Home Version.
`-j`	(Optional) Displays JSON output.
`-h`	(Optional) Displays help for using the command.

Example 9-12 Creating an Oracle Database Home

The following example creates an Oracle Database Home version 12.1.0.2.

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

odacli dbhome commands
Use the `odacli dbhome` commands to manage database Home operations.

odacli network commands

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

Topics:

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

odacli list-networks
Use the `odacli list-networks` command to display networks.

odacli describe-network
Use the `odacli describe-network` command to display the details of a specific network.

odacli create-network
Use the `odacli create-network` command to create a network.

odacli list-networks

Use the `odacli list-networks` command to display networks.

Syntax

To display a list of networks:

```
odacli  list-networks  [-j] [-h]
```

Parameters

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

Example 9-13 Displaying a List of Networks

To display a list of networks:

```
# odacli  list-networks

 ID                                       Name              NIC      IP Address
Subnet   Mask          Gateway
-------------------------------------  ------------------ --------
----------------- -------------- ------------
1282bdd4-fcd3-46ba-aadc-b71a76307a6d    Private-network   priv0
10.0.2.24         255.255.255.0   10.0.2.1
9e5ba92b-3f64-4ca7-9067-48be0952510a    btbond1
10.209.13.110     255.255.252.0   10.209.12.1
```

odacli network commands

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

odacli describe-network

Use the `odacli describe-network` command to display the details of a specific network.

Syntax

To display the details of a specific network:

```
odacli  describe-network -i id [-j][-h]
```

Parameters

Parameter	Description
`-j`	(Optional) Displays JSON output.
`-i`	Identifies the network ID. Use the `odacli list-networks` command to obtain the `id`.
`-h`	(Optional) Displays help for using the command.

Example 9-14 Displaying Network Details

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:
NIC: btbond1
IP Address: 192.0.2.1
Subnet Mask: 255.255.252.0
Gateway: 10.100.10.1
Type: Public
Default: true
Created: Jun 2, 2016 10:19:23 AM
```

odacli network commands

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

odacli create-network

Use the `odacli create-network` command to create a network.

Syntax

To create a network:

```
   odacli  create-network -n network interface name -p IP address -w [Public|Private|
Dataguard|Backup|Other] -s  network subnet mask -g network gateway [-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.
`-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 9-15 Creating a Network

The following example creates a new network, `sfpbond1`, with IP address `192.0.2.15`. The network is an additional network that uses subnet mask `255.255.255.0` and gateway `192.0.2.1`.

```
# odacli create-network -n sfpbond1 -p 192.0.2.15 -w Backup -s 255.255.255.0 -g
192.0.2.1
```

odacli job commands

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

Topics:

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.

Syntax

To list jobs and view job details and status:

```
odacli list-jobs [-j] [-h]
```

Parameters

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

Example 9-16 Displaying a List of Jobs

To display a list of jobs:

```
# odacli list-jobs

ID                           Description            Created
Status
---------------------------- --------------------  ------------------------
----------
a6084067-72a1-4625-bea7-efd  Provisioning service  creation Jun 2, 2016 10:19:23 AM
Success
```

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

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.

Syntax

To view a specific job, status, and tasks:

```
odacli describe-job   -i jobid [-j] [-h]
```

Parameters

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

Example 9-17 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
```

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

odaadmcli storage commands

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

Topics:

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

odaadmcli expand storage
: Use the `odaadmcli expand storage` command to expand storage.

odaadmcli show disk
: Use the `odaadmcli show disk` command to display the status of a single disk or of all disks on the system.

odaadmcli show diskgroup
: Use the `odaadmcli show diskgroup` command to list configured diskgroups or display a specific diskgroup configuration.

odaadmcli show controller
: Use the `odaadmcli show controller` command to display details of the controller.

odaadmcli show iraid
: Use the `odaadmcli show iraid` command to display details of the internal RAID sub-system.

odaadmcli show raidsyncstatus
: Use the `odaadmcli show raidsyncstatus` command to display the RAID SYNC status.

odaadmcli show storage
: Use the `odaadmcli show storage` command to show the storage controllers, expanders, and disks.

odaadmcli stordiag
: Use the `odaadmcli stordiag` command to collect detailed information for each disk or NVMe.

odaadmcli manage diagcollect
: Use the `odaadmcli manage diagcollect` command to collect diagnostic logs for storage components.

odaadmcli power
: Use the `odaadmcli power` command to power a disk on or off.

odaadmcli expand storage

Use the `odaadmcli expand storage` command to expand storage.

Syntax

To expand storage:

```
odaadmcli expand storage [-h]
```

Parameters

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

odaadmcli show disk

Use the `odaadmcli show disk` command to display the status of a single disk or of all disks on the system.

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	Defines the disk resource name. The resource name format is `pd_[0..3]`.
`-h`	(Optional) Displays help for using the command.

Example 9-18 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 9-19 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
```

odaadmcli storage commands

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

odaadmcli show diskgroup

Use the `odaadmcli show diskgroup` command to list configured diskgroups or display a specific diskgroup configuration.

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.

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

Example 9-20 Listing All Diskgroups

To list all diskgroups:

```
# odaadmcli show diskgroup

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

Example 9-21 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
```

odaadmcli storage commands

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

odaadmcli show controller

Use the `odaadmcli show controller` command to display details of the controller.

Syntax

To display details of the controller:

```
odaadmcli show controller [-h]
```

Parameters

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

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

odaadmcli show iraid

Use the `odaadmcli show iraid` command to display details of the internal RAID sub-system.

Syntax

To display details of the internal RAID subsystem:

```
odaadmcli show iraid [-h]
```

Parameters

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

Example 9-22 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
```

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

odaadmcli show raidsyncstatus

Use the `odaadmcli show raidsyncstatus` command to display the RAID SYNC status.

Syntax

To display the status of RAID SYNC:

```
odaadmcli show raidsyncstatus [-h]
```

Parameters

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

Example 9-23 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%
```

odaadmcli storage commands

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

odaadmcli show storage

Use the `odaadmcli show storage` command to show the storage controllers, expanders, and disks.

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

Example 9-24 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 =========
```

odaadmcli storage commands

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

odaadmcli stordiag

Use the `odaadmcli stordiag` command to collect detailed information for each disk or NVMe.

Syntax

To collect storage diagnostics for disks and NVM Express (NVMe):

```
odaadmcli stordiag n [-h]
```

Parameters

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

Example 9-25 Displaying NVMe Details

To display detailed information for NVMe `pd_00`:

```
# odaadmcli stordiag pd_00
```

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

odaadmcli manage diagcollect

Use the `odaadmcli manage diagcollect` command to collect diagnostic logs for storage components.

Syntax

To collect diagnostic logs for storage components:

```
odaadmcli manage diagcollect --storage [-h]
```

Parameters

Parameter	Description
`--storage`	Collects storage logs.
`-h`	(Optional) Displays help for using the command.

Example 9-26 Collecting Storage Logs

To collect storage logs:

```
# odaadmcli manage diagcollect --storage

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

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

odaadmcli power

Use the `odaadmcli power` command to power a disk on or off.

Syntax

To power a disk on or off:

```
odaadmcli  power [on|off] n [-h]
```

Parameters

Parameter	Description
n	Defines the disk resource name. The resource name format is pd_[0..3].
`-on`	Power on a disk
`-off`	Power off a disk
`-h`	(Optional) Displays help for using the command.

odaadmcli hardware monitoring commands

Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

Topics:

odaadmcli show cooling

Use the `odaadmcli show cooling` command to show cooling details.

Syntax

To show cooling details:

```
odaadmcli show cooling [-h]
```

Parameters

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

odaadmcli hardware monitoring commands
Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

odaadmcli show env_hw

Use the `odaadmcli show env_hw` command to display information about the environment and hardware.

Syntax

To display environment and hardware details:

```
odaadmcli show env_hw [-h]
```

Parameters

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

Example 9-27 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
```

odaadmcli hardware monitoring commands
Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

odaadmcli show fs

Use the `odaadmcli show fs` command to display filesystem details.

Syntax

To display filesystem details:

```
odaadmcli show fs [-h]
```

Parameters

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

odaadmcli hardware monitoring commands
Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

odaadmcli show memory

Use the `odaadmcli show memory` command to display memory details.

Syntax

To show memory details:

```
odaadmcli show memory [-h]
```

Parameters

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

odaadmcli hardware monitoring commands
Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

odaadmcli show network

Use the `odaadmcli show network` command to show network details.

Syntax

To show network details:

```
odaadmcli show network [-h]
```

Parameters

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

odaadmcli hardware monitoring commands
Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

odaadmcli show power

Use the `odaadmcli show power` command to display power supply details.

Syntax

To show power supply details:

```
odaadmcli show power [-h]
```

Parameters

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

odaadmcli hardware monitoring commands
Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

odaadmcli show processor

Use the `odaadmcli show processor` command to display processor details.

Syntax

To show processor details:

```
odaadmcli show processor  [-h]
```

Parameters

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

odaadmcli hardware monitoring commands
Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

odaadmcli show server

Use the `odaadmcli show server` command to display server details.

Syntax

To show server details:

```
odaadmcli show server [-h]
```

Parameters

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

odaadmcli hardware monitoring commands

Use the `odaadmcli hardware monitoring` commands to display hardware configurations.

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:

```
odacli-adm set-credential --password password --username user name [-j] [-h]
```

Parameters

Parameter	Description
password	Password required to access the Oracle Appliance Manager Web Console. The default password is `welcome1`.
username	User name required to access the Oracle Appliance Manager Web Console. The default user name is `oda-admin`.
`-j`	(Optional) Displays JSON output.
`-h`	(Optional) Displays help for using the command.

Usage Notes

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

Example 9-28 Resetting the oda-admin Password

To reset the `oda-admin` user password to `welcome2`:

```
# odacli-adm set-credential --password welcome2 --username oda-admin
```

Oracle Appliance Manager Command-Line Interface

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

A

Oracle Database Appliance Software Configuration Defaults

This appendix provides the Oracle Database Appliance software configuration defaults.

Topics:

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`

Oracle Groups and Users Configuration for Oracle Database Appliance

The table shows 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.

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.

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

Table A-3 (Cont.) 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
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
```

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

Table A-4 (Cont.) System Configuration for Oracle Database Appliance

Item	Value
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

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)
    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
        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 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
    dbTargetNodeNumber: use "0" for ODA S|M
    dbClass: OLTP|DSS|IMDB. For SE, only OLTP is supported. For EE, OLTP, DSS,
IMDB(12c db only) are supported
    dbShape: database shape, decide which database template to use for this database.
    dbStorage: ACFS|ASM. Only ACFS is supported for 11.2.0.4. Both ACFS and ASM are
supported for 12.1.0.2.
    dbCharacterSet: Characterset for this database.
    dbConsoleEnable: true|false. Whether or not to create dbconsole (11.2.0.4) or EM
express (12.1.0.2)

asr:
    userName/password: username/password for the ASR
    proxyServerName/proxyPort/proxyUserName/proxyPassword: information about proxy
server.
    snmpVersion: use "v3"
```

C

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, you will lose network access to both the host and Oracle ILOM.

Example C-1 JSON File to Create an Oracle Database Appliance X6-2S or X6-2M with Role Separation

The following is an example of a JSON file used to create an Oracle Database Appliance X6-2S or X6-2M. 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 C-2 JSON File to Create an Oracle Database Appliance X6–2S or X6–2M without Role Separation

The following is an example of a JSON file used to create an Oracle Database Appliance X6–2S or X6–2M 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"
  }
}
```

D

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.

E

Database Templates for Oracle Database Appliance

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

Topics:

About Database Templates

Review this information to help determine the database template to use.

Oracle Database Appliance templates define databases with parameters selected specifically to optimize performance on Oracle Database Appliance. In addition, these templates 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 templates 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 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, 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 templates as *classes* of databases.

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.

Choosing a Database Template

Database templates are configured specifically for the type of database workload that you want to carry out on your databases on Oracle Database Appliance. Choose the template that best matches the common workload your databases perform (OLTP, DSS, In-Memory).

The database sizing tables provide template names and sizing based on the number of CPUs and memory attributes for each type of database workload.

Identify the template type that is appropriate to your database workload and hardware:

- Use Oracle Database Appliance OLTP Database Templates if your database workload is primarily online transaction processing (OLTP).
- Use Oracle Database Appliance DSS database templates if your database workload is primarily decision support services (DSS) or data warehousing.
- Use Oracle Database Appliance In-Memory (IMDB) database templates if your database workload can fit in memory, and can benefit from in-memory performance capabilities.

Use the database template tables to help select the best templates 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.

OLTP Database Templates

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

Table E-1 Oracle Database Appliance OLTP Database Template Sizes

Template	CPU Cores	SGA (GB)	PGA (GB)	Processors	Redo Log File Size (GB)	LOG buffer (MB)
odb-01s	1	2	1	200	1	16
odb-01	1	4	2	200	1	16
odb-02	2	8	4	400	1	16

Table E-1 (Cont.) Oracle Database Appliance OLTP Database Template Sizes

Template	CPU Cores	SGA (GB)	PGA (GB)	Processors	Redo Log File Size (GB)	LOG buffer (MB)
odb-04	4	16	8	800	1	32
odb-06	6	24	12	1200	2	64
odb-08	8	32	16	1600	2	64
odb-10	10	40	20	2000	2	64
odb-12 (X6-2M Only)	12	48	24	2400	4	64
odb-20 (X6-2M Only)	20	80	40	4000	4	64

In-Memory Database Templates

Use Oracle Database Appliance In-Memory (IMDB) database templates if your database workload can fit in memory, and can benefit from in-memory performance capabilities.

Table E-2 Oracle Database Appliance In-Memory Database Template Size

Template	CPU Cores	SGA (GB)	PGA (GB)	In-Memory (GB)	Processors	Redo log file size (GB)	Log buffer (MB)
odb-01s	1	2	1	1	200	1	16
odb-01	1	4	2	2	200	1	16
odb-02	2	8	4	4	400	1	16
odb-04	4	16	8	8	800	1	32
odb-06	6	24	12	12	1200	2	64
odb-08	8	32	16	16	1600	2	64
odb-10	10	40	20	20	2000	2	64
odb-12 (X6-2M Only)	12	48	24	24	2400	4	64
odb-20 (X6-2M Only)	20	80	40	40	4000	4	64

DSS Database Templates

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

Table E-3 Oracle Database Appliance DSS Database Template Sizes

Table E-3 (Cont.) Oracle Database Appliance DSS Database Template Sizes

Template	CPU Cores	SGA (GB)	PGA (GB)	Processors	Redo log file size (GB)	Log buffer (MB)
odb-01s	1	1	2	200	1	16
odb-01	1	2	4	200	1	16
odb-02	2	4	8	400	1	16
odb-04	4	8	16	800	1	32
odb-06	6	12	24	1200	2	64
odb-08	8	16	32	1600	2	64
odb-10	10	20	40	2000	2	64
odb-12 (X6-2M Only)	12	24	48	2400	4	64
odb-20 (X6-2M Only)	20	40	80	4000	4	64

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