Oracle® Database Appliance

Getting Started Guide

Release 12.1.2.7.0 for Linux x86-64

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Preface

Oracle Database Appliance is an optimized, prebuilt and ready-to-use clustered 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

Documentation Accessibility

Related Documents

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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 and Oracle Real Application Clusters 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 Setup Poster* (a full-size printed copy ships with Oracle Database Appliance)

- *Oracle Database Appliance Administration and Reference Guide*

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

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

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

For more information about using Oracle Database, see the following documents:

- *Oracle Database Concepts*

- *Oracle Database Administrator's Guide*

- *Oracle Database SQL Language Quick Reference*

- *Oracle Database 2 Day + Real Application Clusters Guide*

- *Oracle Real Application Clusters Administration and Deployment Guide*

- *Oracle Clusterware Administration and Deployment Guide*

For more details about other Oracle products that are mentioned in Oracle Database Appliance documentation, such as Oracle VM, Oracle Integrated Lights Out Manager, and so on, 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

Oracle Database Appliance enables you to take advantage of Oracle Database in an easy-to-deploy and manage system that supports virtualization.

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 Capacity-on-Demand Licensing
> Capacity-on-Demand software licensing enables you to deploy as few or as many processors in Oracle Database Appliance as your workload requires.

Oracle Database Appliance Software
> Review this topic to see Oracle software that is installed with or available for download for Oracle Database Appliance.

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

Oracle Database Appliance Capacity-on-Demand Licensing

Capacity-on-Demand software licensing enables you to deploy as few or as many processors in Oracle Database Appliance as your workload requires.

Oracle Database Appliance's Capacity-on-Demand feature enables you to add more processor cores to scale up to increased system demands as you need to, without incurring the excessive costs and downtime usually associated with hardware upgrades.

The following table lists the scaling capacities for Oracle Database Appliance bare metal and virtualized platform deployments. The decision to use bare-metal or Oracle Database Appliance Virtualized Platform depends on your company policies and the benefits that each implementation offers your company.

Table 1-1   Oracle Database Appliance Scaling Capacities

Oracle Database Appliance Platform	Minimum Number Processor Cores	Maximum Number Processor Cores
X5-2	2	72
X4-2	2	48
X3-2	4	32
Version 1	2	24

> **Note:**
>
> For Oracle Database Appliance X3-2 Virtualized Platform, processor cores are licensed for your ODA_BASE only, from a minimum of 2 processor cores to a maximum of 32 processor cores.

Oracle Database Appliance Software

Review this topic to see Oracle software that is installed with or available for download for Oracle Database Appliance.

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

> **Note:**
>
> Some releases may not contain all the items for one or more components listed in the table.

Table 1-2   Software for Oracle Database Appliance

Component	Component Contents	Component Required On	Installed or Downloaded
Oracle Database Appliance Operating System Image	Oracle Appliance Manger command-line interface Oracle Appliance Manager configurator (graphical user interface) Oracle Linux Hardware drivers	All deployments	Installed
Oracle Database Appliance Patch-Set Bundle	Basic input/output system (BIOS) Hardware drivers and management pack and firmware drivers for various components Oracle Appliance Manager Oracle Linux Oracle VM Java Development Kit (JDK) Oracle Integrated Lights Out Manager (Oracle ILOM) Oracle Database Patch Set Update (PSU) Oracle Automated Service Request (ASR) Oracle Grid Infrastructure Oracle Intelligent Platform Management Interface (IPMI) Java Development Kit (JDK)	All deployments	Downloaded
Oracle Database Appliance End-User Bundle	Oracle Database clone binaries Oracle Database templates, customized for Oracle Database Appliance deployments Oracle Grid Infrastructure clone binaries	Bare Metal deployments	Downloaded

Table 1-2   (Cont.) Software for Oracle Database Appliance

Component	Component Contents	Component Required On	Installed or Downloaded
ODA_BASE template	Oracle Database clone binaries Oracle Database templates, customized for Oracle Database Appliance deployments Oracle Grid Infrastructure clone binaries	Virtualized Platform deployments	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.

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.

    Use the Oracle Appliance Manager Configurator to generate the network names and addresses, or to validate your existing network names and addresses. The standalone Configurator is available for download from Oracle Technology Network. You can create a configuration file on a local machine before delivery of your Oracle Database Appliance.

    > **Note:**
    >
    > Refer to topics in this book complete these tasks, and refer to *Oracle Database Appliance Owner's Guide*. You can download the standalone Oracle Appliance Manager Configurator from the following site:
    >
    > http://www.oracle.com/technetwork/database/database-appliance/overview

2. Prepare 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. Create an initial network configuration to load external files.

> **Note:**
>
> Refer to topics in this book to complete these tasks, and refer to *Oracle Database Appliance Owner's Guide*.

3. Install and deploy software on Oracle Database Appliance.

   a. Download and copy the Oracle Database Appliance software package to Oracle Database Appliance.

   b. Run the Oracle Appliance Manager Configurator and select or enter the required information.

   During deployment, you configure a two-node Oracle Grid Infrastructure installation (Oracle Clusterware and Oracle Automatic Storage Management). You also can configure Oracle Database Enterprise Edition, Oracle RAC, or Oracle RAC One Node. After the initial deployment, you can add databases, configure core counts, add instance caging, or add virtual domains.

   > **Note:**
   >
   > Refer to topics in this book to complete these tasks.

4. Complete postinstallation tasks.

   a. Download patches to apply after deployment.

   b. Reset default passwords.

   > **Note:**
   >
   > Refer to topics in this book to complete these tasks.

Oracle Database Appliance Owner's Guide

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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
  You can deploy Oracle Database Appliance with either Bare Metal or Virtualized Platform deployment configurations.

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

Creating an Oracle Appliance Manager Deployment Plan
  Use the standalone Oracle Database Appliance Configurator to create an offline deployment plan and validate your network settings before the actual deployment.

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

You can deploy Oracle Database Appliance with either Bare Metal or Virtualized Platform deployment configurations.

For Bare Metal configurations, you must decide how many CPU cores you want to enable, and decide what database configuration options you need, if any. For Oracle Database Appliance Virtualized Platform installations, review these sections to consider additional configuration options.

Topics:

Selecting Oracle Database Appliance Virtualized Platform Options
Review Virtualized Platform options, and requirements for these
options, such as shared disks and virtual local area networks.

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

Selecting Oracle Database Appliance Virtualized Platform Options

Review Virtualized Platform options, and requirements for these options, such as
shared disks and virtual local area networks.

Before you implement virtual machines, you must decide how and where you want
them to run. Based on your requirements, you can select High Availability options, or
you can select options to reduce interference between competing virtual machines for
CPU and network access. You can also select options to provide more storage space, or
enable automatic startup for virtual machines. Some of these options require
additional network configuration beyond the configuration required for the Oracle
Database Appliance servers.

Oracle Database Appliance by default includes one local repository on each node. The
maximum size of that repository depends on your Oracle Database Appliance
hardware:

- 350 GB on Oracle Database Appliance X5-2 Virtualized Platform

- 350 GB on Oracle Database Appliance X4-2 Virtualized Platform

- 350 GB on Oracle Database Appliance X3-2 Virtualized Platform

- 250 GB on Oracle Database Appliance Version 1

When you create virtual machines in the default repositories, the virtual machines can
run only on the node where they are located. Because they run on only one node, they
have no failover capability.

To obtain the most flexible shared machine environment, use a shared repository with
Virtual Local Area Networks (VLANs). Shared repositories provide High Availability
options, more storage capacity, and reduced local storage use. VLANs help you
partition network traffic for your virtual machines.

When you use a shared repository hosted on shared disks, the virtual machines
consume space in Oracle Automatic Storage Management (Oracle ASM) disk groups,
DATA and RECO. When you use shared disks, you can convert virtual machines to do
the following:

- Start automatically whenever the repository becomes available

- Run on a preferred node

- Start or fail over to the other node, if the preferred node is unavailable

Oracle Database Appliance Virtualized Platform deployments support multiple
VLANs on the same network interface card (NIC) port. Each VLAN is essentially an
independent logical network that operates with other VLANs over the same physical
connection.

Use VLANs to minimize the number of required physical connections and NICs while
concurrently separating traffic. Each VLAN is assigned a distinct VLAN identification
(ID). The network switch uses VLAN IDs to segregate traffic among the different

VLANs operating on the same link. When a VLAN is configured, the VLAN functions exactly like a separate physical connection.

> **Note:**
>
> You must configure virtual LANs on the physical switches before you use them.

Selecting Database Configuration Options

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

These topics help you to select the correct templates for Oracle Real Application Clusters (Oracle RAC), and Oracle RAC One Node databases, and help you to size templates to configure your initial database. This information is relevant to you if you plan to configure an initial database during Bare Metal or Virtualized Platform deployments.

Record your decisions and the information that you require for your database templates 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 Database Deployment Options for Oracle Database Appliance
> If you plan to create an initial database during deployment, then use these lists to select an Oracle Database deployment option, and prepare for the deployment.

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.

Calculating Required Cores
> After you select templates for your planned Oracle Database, identify your workload type, and determine the total number of CPUs that you require to support the templates.

Selecting Database Deployment Options for Oracle Database Appliance

If you plan to create an initial database during deployment, then use these lists to select an Oracle Database deployment option, and prepare for the deployment.

Oracle Appliance Manager installs Oracle Database software on mirrored disks that are internal to Oracle Database Appliance. During the initial deployment with the Oracle Appliance Manager Configurator, you can either create a database or you can defer database creation to a later time.

Options:

- **Enterprise Edition**: Oracle Database 12*c* release 1 Enterprise Edition (no automated failover), with the following characteristics:

  - Single-instance Oracle Database Enterprise Edition home

  - Oracle Database software installation on both nodes

- **Oracle Real Application Clusters (Oracle RAC) One Node**: Oracle RAC One Node 12*c* release 1, with the following characteristics:

  - Oracle RAC One Node has a designated Oracle Database Appliance home node

  - Oracle RAC One Node software is installed on both servers

  - Automated failover is configured

  - Enterprise Edition license is required

  - Oracle RAC One Node license on each server is required

    Exception: If you designate one server as a backup server, then you can use that server without a license, in accordance with the 10-day rule.

    > **Note:**
    >
    > For information about the 10-day rule, see *Oracle Software Investment Guide*:
    >
    > http://www.oracle.com/us/corporate/pricing/sig-070616.pdf

- **Oracle RAC**: Oracle Real Application Clusters 12*c* release 1, with the following characteristics:

  - Oracle RAC home

  - Oracle RAC software is installed on both servers

  - Enterprise Edition license is required

  - Oracle RAC license on each server is required (not eligible for the 10-day rule)

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

1. Refer to the guidelines for Oracle Database sizes in Appendix B (Database Sizing for Oracle Database Appliance), in *Oracle Database Appliance Administration and Reference Guide*

2. Use the following table to determine if the template that you want to use is available for your Oracle Database Appliance hardware model:

Table 2-1   Database Template Names and Availability

Template Name	V1	X3-2	X4-2	X5-2
Odb-01s	Available	Available	Available	Available
Odb-01	Available	Available	Available	Available
Odb-02	Available	Available	Available	Available
Odb-04	Available	Available	Available	Available
Odb-06	Available	Available	Available	Available
Odb-12	Available	Available	Available	Available
Odb-16	Not available	Available	Available	Available
Odb-24	Not available	Not available	Available	Available
Odb-32	Not available	Not available	Not available	Available
Odb-36	Not available	Not available	Not available	Available

> **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.

On Oracle Database Appliance Virtualized Platform, if you only plan to deploy one Oracle Database, then Oracle recommends that you use a template for your ODA_BASE that has the same name as the template that you choose for your Oracle Database.

You do not have to select database templates with the same size category as the ODA_BASE template. For example, you can use a small ODA_BASE template to host two very small databases, and you can use a large ODA_BASE template to host either one large with one small database, or host one medium database with one small and two very small databases.

> **Caution:**
>
> The total requirements for your selected database templates must not exceed the capacity of your ODA_BASE template. You can adjust he size of ODA_BASE after the initial deployment, so can expand ODA_BASE to accommodate more databases in ODA_BASE.

Oracle Database Appliance Administration and Reference Guide

Calculating Required Cores

After you select templates for your planned Oracle Database, identify your workload type, and determine the total number of CPUs that you require to support the templates.

Oracle Database Appliance templates are configured and tuned for specific types of Oracle Database workloads:

- Generic templates

- Online analytic transaction templates (OLTP)

- Decision support services templates (DSS)

- In-Memory database templates

These templates 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.

To select the template for your planned use, refer to Appendix B, "Types of Database Templates for Oracle Database Appliance" in *Oracle Database Appliance Administration and Reference Guide*.

Oracle Database Appliance Administration and Reference Guide

Gathering System Requirement Information

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

Topics:

List of Information You Need Before Deployment
> Collect storage and network information required to prepare for deploying Oracle Database Appliance.

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.

Checklist for Custom Node Network Address Configuration
> Use the checklists in this topic to identify the IP addresses required for Oracle Database Appliance.

List of Information You Need Before Deployment

Collect 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 includes integrated storage for operational files (operating system, Oracle Grid Infrastructure home, Oracle Database homes, tools), user data (database files), and log files (database redo logs). Operational files are stored on mirrored internal system disks in each server.

Data and database redo log files are stored on shared disks:

- On Oracle Database Appliance X5-2, Oracle Database Appliance X4-2, and Oracle Database Appliance X3-2, data files are stored in the storage shelf and the optional storage expansion shelf. Database redo log files are stored on solid-state drives (SSDs) in the storage shelf, and on the optional storage expansion shelf.

- On Oracle Database Appliance Version 1, data files are stored in the shared storage bay, and database redo log files are stored on solid-state drives (SSDs) in the shared storage bay. There is not an option to add a storage expansion shelf.

Oracle Database Appliance X5-2 contains four 400 GB SSDs, which are configured as an ASM disk group, using ACFS for an additional database cache. Also, on Oracle Database Appliance X5-2, four 200 GB SSDs are used for attribute caching, in addition to the database redo logs.

> **Note:**
>
> Oracle Database Appliance X4-2 ships with 900 GB shared disks, and Oracle Database Appliance X5-2 ships with 4 TB shared disks. Disk hardware capacity is measured using the formula that 1 KB equals 1,000 bytes; software storage requirements are based on 1 KB equals 1,024 bytes. This difference of 24 bytes means that a disk that has a rated capacity of 900 GB actually has about 838 GB of available space for software storage, and a 4 TB disk actually has about 3.725 TB of available space for software storage.

Network Administration Requirements

Ensure that the names and addresses that you provide for network configuration are configured in your Domain Name System (DNS) servers. With Patch Set 1 and later, 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.

If you are deploying Oracle Database Appliance X5-2, or Oracle Database Appliance X4-2, then you have the option to connect either to a copper, or to a fiber public network. To connect to a fiber network on Oracle Database Appliance X5-2, you must also replace the InfiniBand cards with 10 GbE SFP+ fiber cards. Ensure that your network planning is based on the correct type of public network.

Oracle recommends that you resolve addresses using a DNS server, so that you can use Single Client Access Names (SCANs). Having a single name to access the cluster enables the client to use the EZConnect client and the simple JDBC thin URL to access any Oracle Database running in the cluster, independent of the active servers in the cluster. The SCAN provides load-balancing and failover for client connections to these databases. The SCAN works as a cluster alias for Oracle Databases in the cluster.

If you deploy without using a DNS server, then you can add a DNS server later, and add SCANs. If you add SCANs, then you must specify additional VIP addresses for those SCANs.

A correctly configured Oracle Database Appliance requires at least six public addresses on the same subnet for the nodes:

- A public IP name and address for each node

- A virtual IP name and address for each node

- Two addresses that resolve to the SCAN for the cluster.

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 for each node. This interface is `bond0`, or `Eth1` on Oracle Database Appliance Virtualized Platform, (a bond of Eth2 and Eth3), which is used for the host IP address for the node.

If you select a Custom installation, then provide names and addresses for the following optional interfaces that you need:

- `bond1` (Ethernet bond): This applies to all Oracle Database Appliance platforms.

- `bond2` (Ethernet bond): This applies only to Oracle Database Appliance Version 1.

- `xbond0` (for high capacity transfers, such as backups): This applies only to Oracle Database Appliance Version 1.

Use `bond1` and `bond2` for management, backup, disaster recovery, or other options where you require a network interface. Be prepared to provide a netmask and a gateway for each interface, as both are required when you configure network connections for Oracle Database Appliance.

Also determine answers to the following questions:

- Do you have a Network Time Protocol (NTP) service configured for each server, so that the local system time for each server is synchronized?

  If you have NTP servers, and you want to synchronize time between Oracle Database Appliance nodes using NTP, then be prepared to provide the addresses for the servers. If you do not provide addresses for NTP servers, then Oracle Grid Infrastructure software configures time synchronization between nodes using Cluster Time Synchronization Service (CTSS).

- Do you want to plug in the public IP address cables to redundant switches, so that you can avoid a single point of failure for Oracle Database Appliance? Oracle recommends that you use redundant switches for High Availability.

IP Address Questions to Ask Your Network Administrator

Confirm with your network administrator that the IP addresses that you configure for Oracle Database Appliance meet these three criteria:

1. They are static IP addresses.

2. They are on the same subnet as all other IP addresses, virtual IP (VIP) addresses (used for Oracle Real Application Clusters communication), and SCAN addresses.

3. They include the following:

   - One public IP address configured on the DNS server for each node and resolvable to that node before installation.

   - A VIP address for each node configured on the DNS server that is not currently in use.

   - SCANs for Oracle Database Appliance with the following characteristics:

     – Configured on the DNS server before installation, so that the two IP addresses are associated with the name provided as the SCAN, and both addresses are returned in random order to the requester by the DNS server

     – Configured on the DNS server before installation to resolve to addresses that are not currently in use

     – Have names that do not begin with a numeral

Caution:

Do not change the IP addresses and subnet for the private network.

Note:

Configuring SCANs in a Network Information Service (NIS) is not supported.

Additional Information

See *Oracle Database Appliance Owner's Guide* for information about replacing the InfiniBand cards with 10 GbE SFP+ fiber cards. For a comprehensive introduction to SCANs, see "Oracle Single Client Access Name (SCAN)", a technical paper on Oracle Technology, and *Oracle Grid Infrastructure Installation Guide for Linux*.

Oracle Database Appliance Release Notes for Linux x86-64

http://www.oracle.com/technetwork/database/clustering/overview/scan-129069.pdf

Oracle Grid Infrastructure Installation Guide for Linux

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

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

System Information	Description
Oracle Database Appliance System Name	Provide the name for the cluster running on Oracle Database Appliance. This name is also used as the default root word for Oracle Database Appliance network addresses. The name should comply with the host name specifications described in the RFC 952 standard. For example, the name should be alphanumeric and not begin with a numeral.
	The name you choose will become the default first part of the names for the following items. The default (generated names) can be changed.
	• Oracle ILOM host names for Nodes 1 and 2 (*systemname*1-ilom and *systemname*2-ilom respectively)
	• SCAN host name (*systemname*-scan)
	• Node 0 and Node 1 Public IP addresses (*systemname*1 and *systemname*2 respectively)
	• Node 0 and Node 1 Virtual IP addresses (*systemname*1-vip and *systemname*2-vip respectively)
Type of Configuration	Typical, which has the most default values
	Custom (recommended by Oracle), which allows you to override default values for any or all of the following:
	• Database block size, language, territory, backup file location, or disk redundancy level for the DATA and RECO disk groups
	• Oracle Integrated Lights Out Manager (Oracle ILOM) server
	• Oracle Auto Service Request (Oracle ASR) configuration
	• Oracle Cloud File System mount point and file system size
	• Network Time Protocol (NTP) service server
Mode	Bare metal or virtualized platform
Region	Select 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.
Initial Database Details (if you want to create one during deployment)	• Database name
	• Normal or container database
	• Class (database template)
	• Database language
	• Database deployment (Oracle Enterprise Edition single instance, Oracle RAC One Node, or Oracle RAC)
	• (Container databases only) Data file size, in gigabytes (GB)
Root password	You are prompted to provide a root password for the system. Ensure that the root password you provide is in compliance with common security practices.

Note:

Do not use a host name with more than 13 characters. Oracle recommends that you use all lowercase characters for the host name. The names are generated from the system name. For example, if you use `mysystem` as the name of your system, then the derived host names are `mysystem0` and `mysystem1`; the derived host virtual IP names are `mysystem0-vip` and `mysystem1-vip`; and the ILOM names are `mysystem0-ilom` and `mysystem1-ilom`.

Checklist for Custom Node Network Address Configuration

Use the checklists in this topic to identify the IP addresses required for Oracle Database Appliance.

By default, names for network interfaces are derived from the Oracle Database Appliance system name, which you provide during installation. Also, when you use Oracle Appliance Manager Configurator, the addresses for the public IP addresses can be automatically assigned in a sequence starting with the address you provide for the public IP address for Node 0. The other IP addresses generated are, in order, the public address for Node 1; the virtual IP address for Node 0; the virtual IP address for Node 1; and the SCAN addresses.

You can retain the default values, or you can use addresses provided by your system administrator to perform a custom configuration. Ensure that all addresses listed as "Yes" in the "Same Subnet" column are on the same subnet as each other.

Table 2-3   Minimum IP Address Requirements for Oracle Database Appliance Bare Metal Deployment

Type of IP	Minimum IP Address Counts	IP Address Default Values	Your Values As Applicable	Same Subnet
Host Public Addresses	2	No default	No default	Yes
Host Private Addresses	4	192.168.16.24 192.168.16.25 192.168.17.24[1] 192.168.17.25[2]	Not applicable: the private addresses are defined during deployment and should not be changed	Yes
Oracle RAC VIP	2	No default	No default	Yes
Single Client Access Name (SCAN)	2	No default	No default	Yes
Oracle Integrated Lights Out Manager (ILOM)	2	No default	No default	No
User Virtual Machine	Not Applicable	No default	No default	No

[1]   This IP address is not used on Oracle Database Appliance X5-2 when using InfiniBand

[2]   This IP address is not used on Oracle Database Appliance X5-2 when using InfiniBand

Table 2-4   Minimum IP Address Requirements for Oracle Database Appliance Virtualized Platform Deployment

Table 2-4   (Cont.) Minimum IP Address Requirements for Oracle Database Appliance Virtualized Platform Deployment

Type of IP	Minimum IP Address Counts	IP Address Default Values	Your Values As Applicable	Same Subnet
Host Public Addresses	2 (for ODA_BASE) 2 (for Dom0) (Total of 4)	192.168.16.24 192.168.16.25 192.168.17.24[1] 192.168.17.25[2]	No default	Yes
Host Private Addresses	2	192.168.16.24 (for Dom0) 192.168.16.25 (for Dom0) 192.168.16.27 (for ODA_BASE) 192.168.16.28 (for ODA_BASE)	Not applicable: the private addresses are defined during deployment and should not be changed	Yes
Oracle RAC VIP	2	No default	No default	Yes
Single Client Access Name (SCAN)	2	No default	No default	Yes
Oracle Integrated Lights Out Manager (ILOM)	2	No default	No default	No
User Virtual Machine	At least 1 for each Virtual Machine	No default	No default	No

[1]   This IP address is not used on Oracle Database Appliance X5-2 when using InfiniBand

[2]   This IP address is not used on Oracle Database Appliance X5-2 when using InfiniBand

Creating an Oracle Appliance Manager Deployment Plan

Use the standalone Oracle Database Appliance Configurator to create an offline deployment plan and validate your network settings before the actual deployment.

If you prefer to configure your system at the time you deploy it, you can wait and use the online Configurator that is part of the base Oracle Database Appliance software. If you want to use the Configurator to create a configuration file before your appliance is delivered, then review these topics.

Topics:

About the Standalone Oracle Database Appliance Configurator

Decide if you want to download the standalone Oracle Database Appliance Manager Configurator to create a configuration file for Oracle Database Appliance.

The standalone Oracle Appliance Manager Configurator is a Java-based tool that enables you to generate your deployment plan, and validate your network settings before the actual deployment.

If you want to use this tool before deployment, then you must download and run the Configurator on a local client system. The local client can be a Linux, UNIX, MAC, or Windows system.

At the end of an offline Configurator session, you can save your deployment plan in a configuration file. When you are ready to deploy Oracle Database Appliance, copy this configuration file to the appliance, and run the online Oracle Appliance Manager Configurator to import and deploy your saved plan. You can also print the file's content and use the printout as a checklist for setting up your external network configuration.

Before you save your configuration file, Oracle recommends that you test your network settings. To test the network settings, the client where you run the Configurator must be connected to same network that you intend to use for Oracle Database Appliance.

Running the Standalone Oracle Database Appliance Configurator

Download and run the standalone Configurator to create a configuration file for Oracle Database Appliance.

To obtain the standalone Oracle Appliance Manager Configurator that matches your version of Oracle Database Appliance software, download it from www.oracle.com at the following URL:

http://www.oracle.com/technetwork/database/database-appliance/overview/index.html

All versions of the Configurator are available from the Overview page by clicking the "Oracle Database Appliance Manager Configurator" link.

After you download the Configurator to a client, run it by using the following procedure:

1. Start the Configurator using the command `config.bat` on a Windows client, or the command `./config.sh` on a Linux or UNIX client.

    The Oracle Appliance Manager Welcome page appears.

2. Click **Next**.

3. On the Configuration Type page, select the options for configuration type, environment, and hardware model. If you have an existing configuration file that you want to load and edit, then click **Browse** and locate the file on your client.
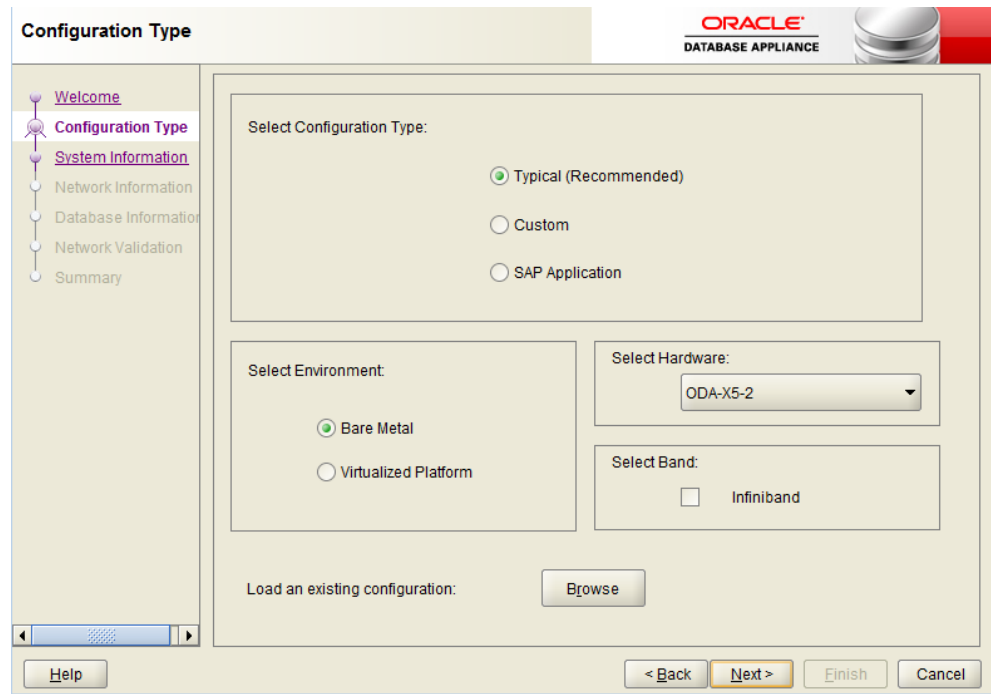
Oracle recommends in most cases that you select the typical configuration. If you intend to deploy SAP applications, then select **SAP Application**. Choose the **Custom** option if you want to configure additional or alternate network interfaces, or if you want to override the default values for one or more of the following:

- Database block size, language, territory, backup file location, or disk redundancy level for the DATA and RECO disk groups

- Oracle Integrated Lights Out Manager (Oracle ILOM) server

- Oracle Auto Service Request (Oracle ASR) configuration

- Oracle Cloud File System mount point and file system size

- Network Time Protocol service server

To see the default values for your version of Oracle Database Appliance software before choosing the **Typical** or **Custom** option, run the Configurator using the **Custom** option.

If you are installing Oracle Database Appliance Virtualized Platform, then select **Virtualized Platform**. Otherwise, leave the default value, **Bare Metal**, as the environment option. If you are installing on X3-2, X4-2, or X5-2 hardware, then select **ODA-X3-2**, **ODA-X4-2** or **ODA-X5-2** respectively, or leave the default value, **ODA V1**, as the hardware option.

If you are using InfiniBand as the interconnect between the two Oracle Database Appliance servers, then select the **InfiniBand** checkbox. This option is only available for Oracle Database Appliance X5-2 systems.

The **Browse** option is not useful during the initial run, because there are no configuration files to load.

In this example, **Typical**, **Virtualized Platform**, and **ODA-X5-2** are the selected options.

> **Note:**
>
> The **SAP Application** option is only valid with the Bare Metal option.

When you have made your selections, click **Next**.

4. On the System Information page, provide the system name, and select the correct value from the lists for your region and time zone.

In the **New Root Password** and **New Root Password (confirm)** fields, enter a new password for the root user. This password is encrypted in the configuration file. It is temporarily decrypted to reset the password during deployment.

5. Click **Next**.

6. On the Network Information page, provide your domain name, DNS server addresses, public and VIP addresses for your two nodes, SCAN name and addresses, and netmask and Gateway addresses.

As you enter data on this page, some fields are automatically filled with values derived from earlier entries. For example, if the address that you provide for the Node 0 public IP address is 192.0.2.18, then the default node addresses generate as follows:

- Node 0 public IP address: 192.0.2.18

- Node 1 public IP address: 192.0.2.19

- Node 0 virtual IP (VIP) address: 192.0.2.20

- Node 1 virtual IP (VIP) address: 192.0.2.21

- SCAN addresses (two addresses resolving to the SCAN VIP name): 192.0.2.22, 192.0.2.23

See Also::

Checklist for Custom Node Network Address Configuration for information about requirements for nonstandard public IP addresses

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7. Click **Next**.

8. On the Database Information page, select if you want to create an initial database. If you check the box to create a database, then you can also provide your database details. These details include the database name, which you must enter, and the following options, selected from the available list values:

   - **Is Container Database** The default is **false**. If you leave the default value, then the Configurator builds a non-container database

   - **Database Type** The default type is **OLTP**. You can also select **DSS**, or select **In-Memory**.

   - **Database Class** Select the database class that you want to deploy. Not all options are available for all models of Oracle Database Appliance; the default class is **odb-06**

   See Also::

   Selecting Database Templates for Oracle Database Appliance for guidelines to help you choose the appropriate template

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   - **Database Language** The default language is **AMERICAN**

   - **Database Deployment** Select one of the following, where **RAC** is the default:

     – Oracle RAC

     – Oracle RAC One Node

     – Oracle Database Enterprise Edition (no Oracle RAC)

   - **Data File Size (GB)** If you indicate that you want to build a container database, then provide a database data file size in the final field on this page. (This field does not accept input unless the **Is Container Database selection** is **True**.) If you do not want to create an initial database, then do not select the checkbox for **Create Initial Database**.

- **Data Files on Flash Storage** Select **true** if you plan to store your entire database in flash storage (400 GB SSDs); otherwise, leave the selection **false**. This option is only available on Oracle Database Appliance X5-2 systems.

Click **Next**.

9. On the Network Validation page, either validate the network settings and save the validation output in a file, or bypass the validation step by selecting **Skip Network Validations**.

Oracle recommends that you validate your network before you use the configuration file to configure an appliance. However, you must run Oracle Appliance Manager Configurator on a server attached to the network subnet that is configured for your appliance. If you do not do this, then the validation fails, regardless of whether or not you have completed required configuration.

If the network validation fails, and you want to continue with the configuration, then select **Skip Network Validations**, and then click **Next**. After you review the results, if you are ready to proceed, then click **Next**. If the validation fails, then save the validation output to review these results with your network administrator. To save the configuration information that you have entered and correct the network addresses later, select **Skip Network Validations** and click **Next** to continue to the next page.

10. On the Summary page, review the configuration options that you have selected. Click **Save** to save the configuration file, or click **Back** to modify your selections.

You can print the contents of the configuration file and use the printout to review your configuration entries for deployment planning purposes. You can also load the configuration file later when you run the Configurator again.
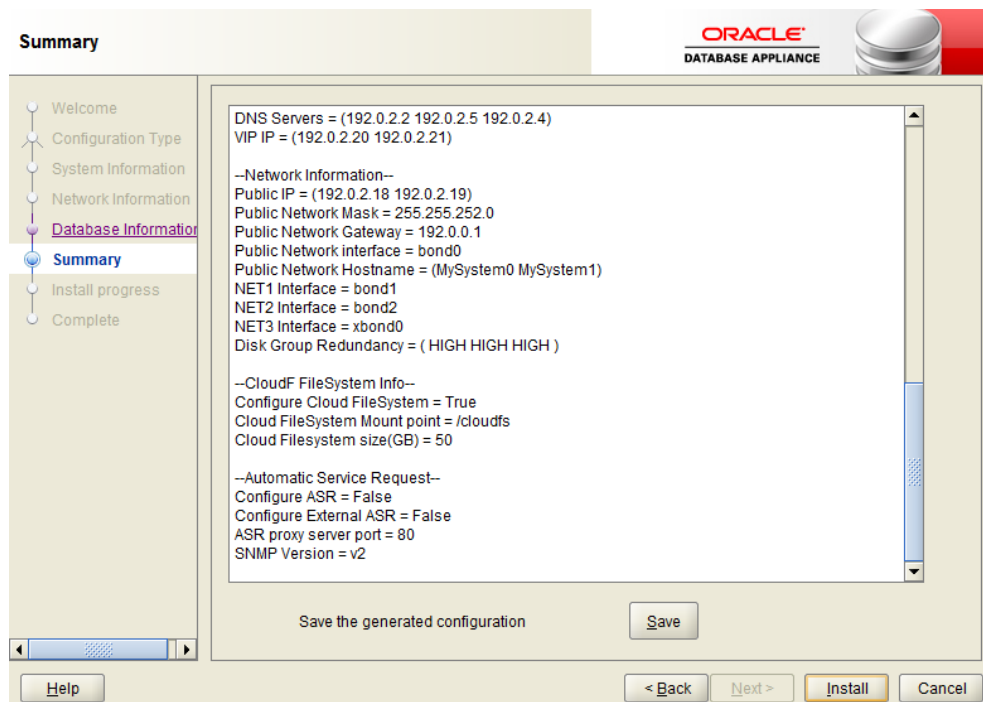
If you are running the Configurator on Oracle Database Appliance, and you have completed the preliminary steps to configure your initial network and install the End-User Bundle or deploy ODA_BASE, then you can click **Install** to deploy the configuration. If you are not ready to complete the deployment, then first click **Save**, and then click **Finish**. Note the name and location of the configuration file. You can copy this configuration file to your Oracle Database Appliance for deployment. If you need to make corrections before deployment, then rerun the standalone Oracle Appliance Manager Configurator, load your configuration file, make the changes, and save the file again.

Deploying Oracle Software on Oracle Database Appliance

3

Readying Oracle Database Appliance for Deployment

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

Topics:

Attaching Supplied Cables for Oracle Database Appliance
> Use these topics to assist you to attach interconnect cables. If you are using Oracle Database Appliance Version 1, then intterconnect cabling is already done for you.

Attaching a Storage Expansion Shelf to Oracle Database Appliance
> Review these topics to install and cable a storage expansion shelf for Oracle Database Appliance. If you are using Oracle Database Appliance Version 1, then you cannot attach a shelf.

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.

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, or after you add new hardware, such as a storage expansion shelf.

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

Configuring an Initial Network Connection
> Configure a temporary network configuration framework to build your network information during deployment.

Validating Oracle Appliance Manager Software Version
> Before deploying Oracle Database Appliance, you should have the current version of the Oracle Appliance Manager software installed.

Attaching Supplied Cables for Oracle Database Appliance

Use these topics to assist you to attach interconnect cables. If you are using Oracle Database Appliance Version 1, then intterconnect cabling is already done for you.

These topics assist you to attach cables for Oracle Database Appliance models with a single storage shelf.

See Also::

Oracle Database Appliance Owner's Guide for details about cabling with the supplied Cable Management Arm

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Topics:

Attaching Cables for Oracle Database Appliance X5-2
> Use the diagram in this topic to understand how to attach cable connections between ports on Oracle Database Appliance model X5-2 with a single storage shelf:

Attaching Cables for Oracle Database Appliance Models X4-2 and X3-2
> Use the diagram in this topic to understand how to attach cable connections between ports on Oracle Database Appliance model X4-2 or X3-2.

Cabling Oracle Database Appliance to Connect to Fiber Public Networks (Optional)
> You can configure X5-2, X4-2, and X3-2 appliances to use fiber connections for the public network.

Attaching Cables for Oracle Database Appliance X5-2

Use the diagram in this topic to understand how to attach cable connections between ports on Oracle Database Appliance model X5-2 with a single storage shelf:

Figure 3-1   Interconnects and Cables for a Single Storage Shelf on Oracle Database Appliance X5-2
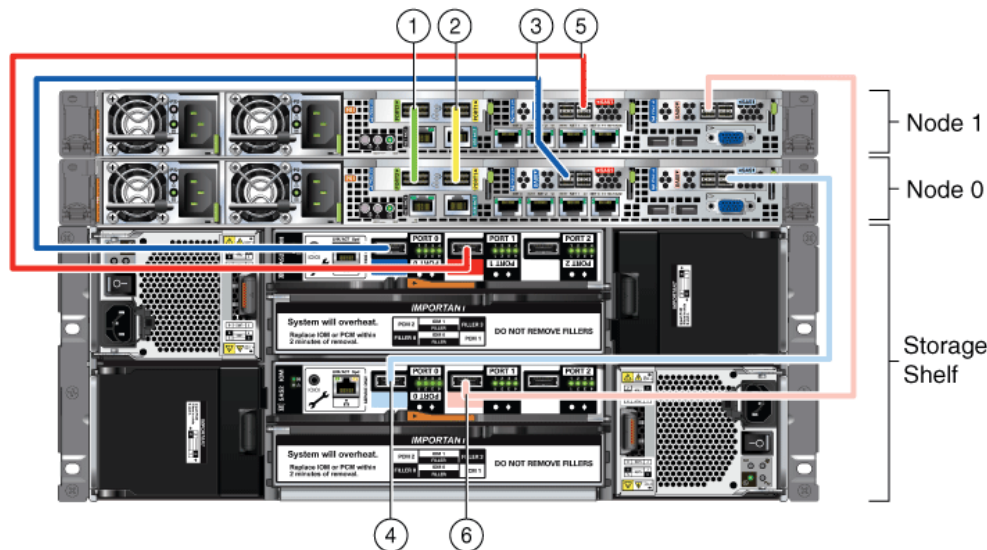

Table 3-1   Description of Callouts for Cabling Oracle Database Appliance X5-2 With Single Storage Shelf

Table 3-1   (Cont.) Description of Callouts for Cabling Oracle Database Appliance X5-2 With Single Storage Shelf

Callout Number	Description
1	Green InfiniBand Cable (Oracle Database Appliance X5-2) • From: Node 0, PCIe slot 1, PORT2 • To: Node 1, PCIe slot 1, PORT2
2	Yellow InfiniBand Cable (Oracle Database Appliance X5-2) • From: Node 0, PCIe slot 1, PORT1 • To: Node 1, PCIe slot 1, PORT1
3	Dark blue SAS cable: • From: Node 0, PCIe slot 2, SAS0 • To: Storage shelf, top I/O port 0
4	Light blue SAS cable: • From: Node 0, PCIe slot 3, SAS1 • To: Storage shelf, bottom I/O port 0
5	Dark red SAS cable: • From: Node 1, PCIe slot 2, SAS1 • To: Storage shelf, top I/O port 1
6	Light red SAS cable: • From: Node 1, PCIe slot 3, SAS0 • To: Storage shelf, bottom I/O port 1

Note:

The back panel of each node contains three PCIe generation 3 terminal slots, with two sockets in each slot. The PCIe slots are labeled *X* **PCIe3**, where *X* is the PCIe slot number.

Attaching Cables for Oracle Database Appliance Models X4-2 and X3-2

Use the diagram in this topic to understand how to attach cable connections between ports on Oracle Database Appliance model X4-2 or X3-2.

The following figure illustrates the cable connections between ports on Oracle Database Appliance model X4-2 and model X3-2 in a single storage shelf.

Figure 3-2   Interconnects and Cables for Single Storage Shelf on Oracle Database Appliance X4-2 and X3-2

Table 3-2   Description of Callouts for Cabling Oracle Database Appliance X4-2 or X3-2 With Single Storage Shelf

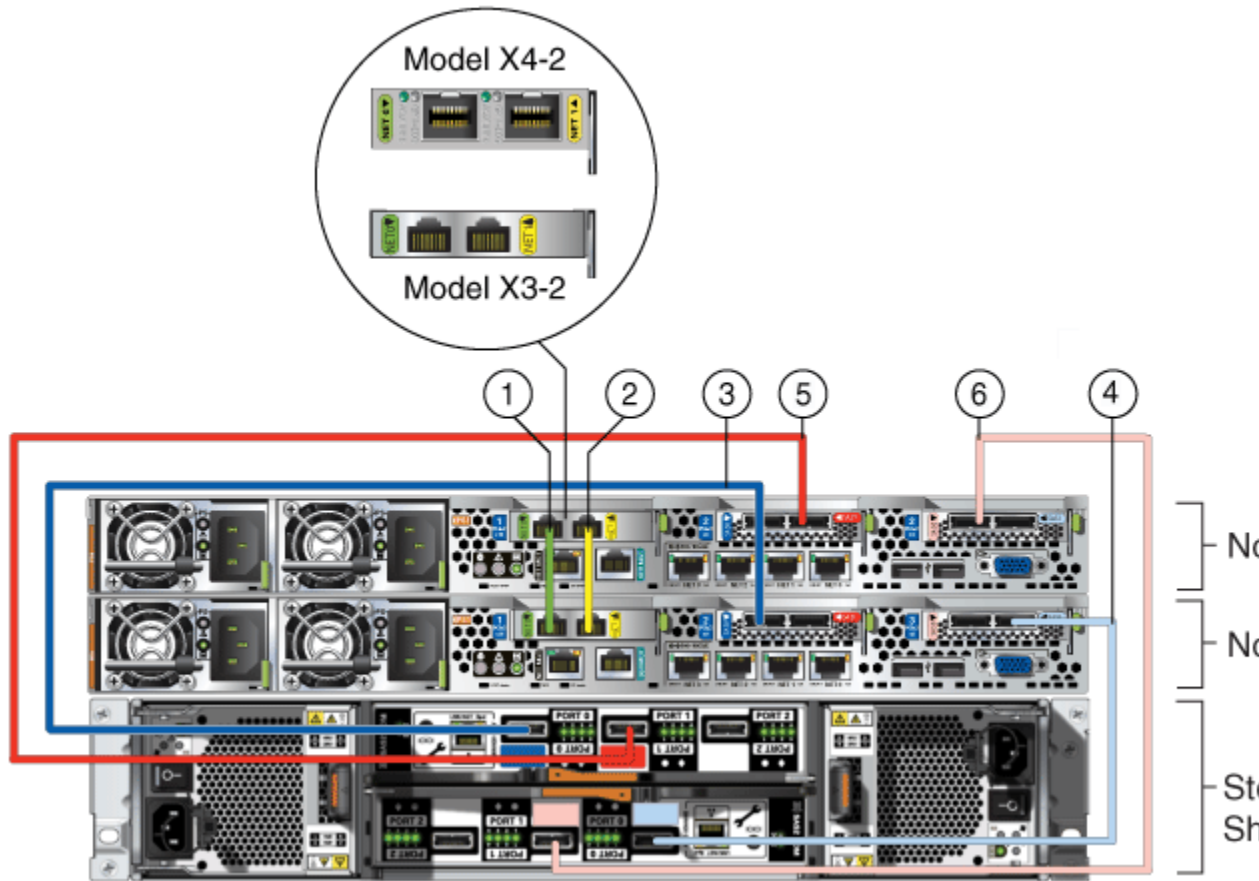| Callout Number	Description
1	Green Cat 6 cable (Oracle Database Appliance X3-2) or green-labelled twinax cable (Oracle Database Appliance X4-2): • From: Node 0, PCIe slot 1, NET0 • To: Node 1, PCIe slot 1, NET0
2	Yellow Cat 6 cable (Oracle Database Appliance X3-2) or yellow-labeled twinax cable (Oracle Database Appliance X4-2) • From: Node 0, PCIe slot 1, NET1 • To: Node 1, PCIe slot 1, NET1
3	Dark blue SAS cable: • From: Node 0, PCIe slot 2, SAS0 • To: Storage shelf, top I/O port 0
4	Light blue SAS cable: • From: Node 0, PCIe slot 3, SAS1 • To: Storage shelf, bottom I/O port 0

Table 3-2   (Cont.) Description of Callouts for Cabling Oracle Database Appliance X4-2 or X3-2 With Single Storage Shelf

Callout Number	Description
5	Dark red SAS cable: • From: Node 1, PCIe slot 2, SAS1 • To: Storage shelf, top I/O port 1
6	Light red SAS cable: • From: Node 1, PCIe slot 3, SAS0 • To: Storage shelf, bottom I/O port 1

Caution:

Do not attach cables to ethernet ports in the I/O modules labeled "SERVICE ONLY" when cabling the system. These ports are intended for use by service engineers only. You must use Oracle Appliance Manager to manage Oracle Database Appliance storage.

Note:

The back panel of each node contains three PCIe generation 3 terminal slots, with two sockets in each slot. The PCIe slots are labeled *X* **PCIe3**, where *X* is the PCIe slot number.

Cabling Oracle Database Appliance to Connect to Fiber Public Networks (Optional)

You can configure X5-2, X4-2, and X3-2 appliances to use fiber connections for the public network.

For Oracle Database Appliance X4-2 and X5-2 installations, if you want to use fiber connections between Oracle Database Appliance and your public network, then you must cable the interconnect by using the green and yellow copper ports (onboard ports net0 and net1). The green and yellow Category 6 (Cat 6) interconnect cables for these ports ship with the base system.

Oracle Database Appliance X4-2 includes fiber ports as part of the base configuration. However, for Oracle Database Appliance X5-2, if you want to use a fiber port connection, then you must replace the InfiniBand cards with 10 GbE SFP+ (fiber) cards. Fiber ports do not exist in the base configuration for X5-2. You must re-image Oracle Database Appliance X5-2 after you replace the PCIe cards. After you replace the cards, Oracle Database Appliance auto-detects the network configuration changes.

Caution:

If you replace the InfiniBand interconnect cards on Oracle Database Appliance X5-2, then you disable the Oracle Database Appliance in-memory fault tolerance feature. Also, interconnect bandwidth is reduced from 40 GB to 10 GB. If you have Oracle RAC databases, then you may experience slower intercommunication speeds, depending on the system workload.

In the following figure, callouts 1 and 2 show how to cable the interconnect between Node 1 and Node 0 using the green and yellow copper ports (onboard ports `net0` and `net1`) to use a fiber public network. Note that the illustration shows the rear panel of an Oracle Database Appliance X4-2. The rear panel of the Oracle Database Appliance X5-2 is slightly different, but the interconnect cabling is the same.

Figure 3-3   Interconnects When Using Fiber Connections to the Public Network on Oracle Database Appliance Models X5-2 and X4-2
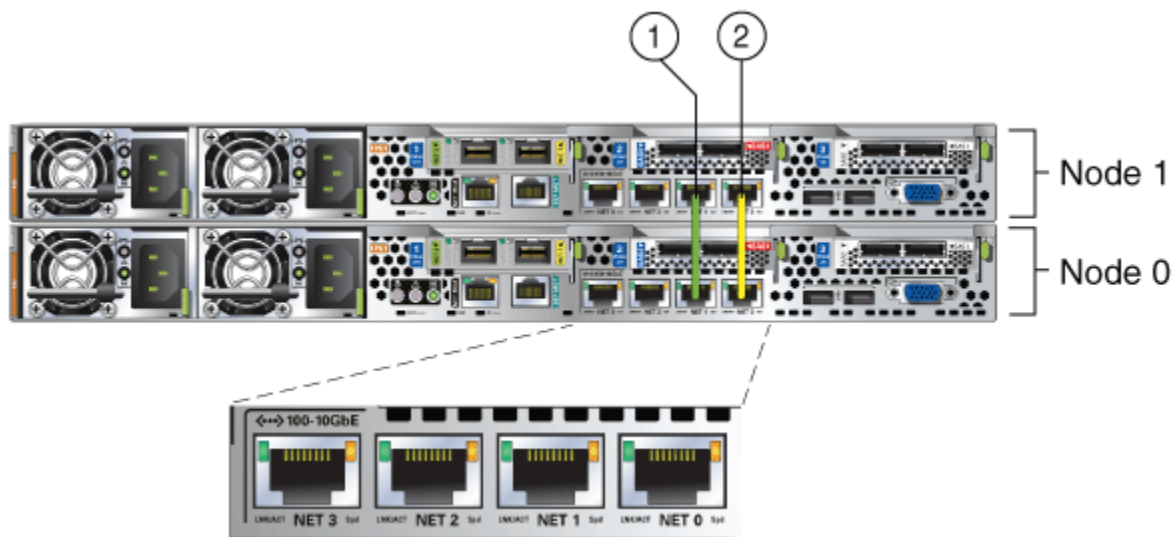
The following sections show the cabling options for 10 GbE SFP+ PCI cards.

See Also::   *Oracle Database Appliance Owner's Guide* for instructions to replace PCIe cards for Oracle Database Appliance

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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

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

Oracle Database Appliance Owner's Guide

Attaching a Storage Expansion Shelf to Oracle Database Appliance

Review these topics to install and cable a storage expansion shelf for Oracle Database Appliance. If you are using Oracle Database Appliance Version 1, then you cannot attach a shelf.

Topics:

About Attaching and Cabling Storage Shelves
> Review these options and best practices for adding storage shelves for Oracle Database Appliance X3-2, X4-2 and X5-2.

Installing and Cabling a Storage Expansion Shelf
> Use this procedure to install and cable a storage expansion shelf for Oracle Database Appliance

About Attaching and Cabling Storage Shelves

Review these options and best practices for adding storage shelves for Oracle Database Appliance X3-2, X4-2 and X5-2.

Storage Shelf Options for Oracle Database Appliance X3-2, X4-2 and X5-2

Oracle Database Appliance models X3-2, X4-2, and X5-2 can be shipped with one or two storage shelves. You can obtain the second shelf at a later time to double your storage capacity.

If you originally deployed Oracle Database Appliance with one storage shelf, then you can add a storage expansion shelf at any time without having to shut down your databases or applications.

Best Practice Guidelines for Adding Storage Expansion Shelves

Oracle recommends that you add a storage expansion shelf when you have relatively little activity on your databases. When the system discovers the new storage, Oracle ASM automatically rebalances the disk groups. The rebalance operation may degrade database performance until the operation completes.

> **Caution:**
>
> Review cabling instructions to ensure that you have carried out cabling correctly. Incorrect connections can cause data loss when adding a storage expansion shelf to Oracle Database Appliance with existing databases.
>
> Do not attach cables to Ethernet ports in the I/O modules labeled "SERVICE ONLY" when cabling the system. These ports are intended for use by service engineers only.

Installing and Cabling a Storage Expansion Shelf

Use this procedure to install and cable a storage expansion shelf for Oracle Database Appliance

1. Place the storage expansion shelf below your Oracle Database Appliance, if possible, or else close enough to connect the provided cables.

   The storage expansion shelf normally sits at the bottom of Oracle Database Appliance, beneath the storage shelf. However, because racks should always be provisioned from the bottom up, that space may be unavailable. In that case, to avoid re-rack mounting the entire system, you can position the storage expansion shelf above the server nodes, or in a different, but adjacent, rack.

2. Install the extension storage shelf in exactly the same manner as the original storage shelf. To review information about installing optional components for Oracle Database Appliance, see the section "Optional Component Installation" in Chapter 4 of *Oracle Database Appliance Owner's Guide*.

3. Use the figures in this topic to assist you to cable the storage expansion shelf for your Oracle Database Appliance model.

   Caution:

   Incorrect connections can cause data loss when adding a storage expansion shelf to Oracle Database Appliance with existing databases.

4. Attach the supplied power cords. Refer to the section "Attaching Power Cords and Initializing Components" to obtain information and see figures showing how to attach power cords.

   See Also::

   Attaching Power Cords and Initializing Components

Figures Showing How to Cable a Storage Expansion Shelf

The following figures show you how to insert the required cables into the storage expansion shelf of Oracle Database Appliance. The cables for the two nodes and the original storage shelf are included in the illustration for reference.

The cables are color-coded. Match the colors of the labels at the ends of each cable with the colored line shown in the following illustration. Also match the cable colors to the background colors of the socket identification labels.

You can also use the callouts in the diagrams to identify the cables and ports Use the callout table that follows the diagrams. cabling of the storage expansion shelf. Because all cables with the same terminations are interchangeable, you can ignore the color coding.

Note:

The back panel of each node contains three PCIe generation 3 terminal slots, with two sockets in each slot. The PCIe slots are labeled **X PCIe3**, where *X* is the PCIe slot number. Review the callout table that follows the figures for more information.

See Also::

Oracle Database Appliance Owner's Guide for details about cabling with the supplied Cable Management Arm

Figure 3-4   Cables for Storage Expansion Shelf on Oracle Database Appliance X5-2
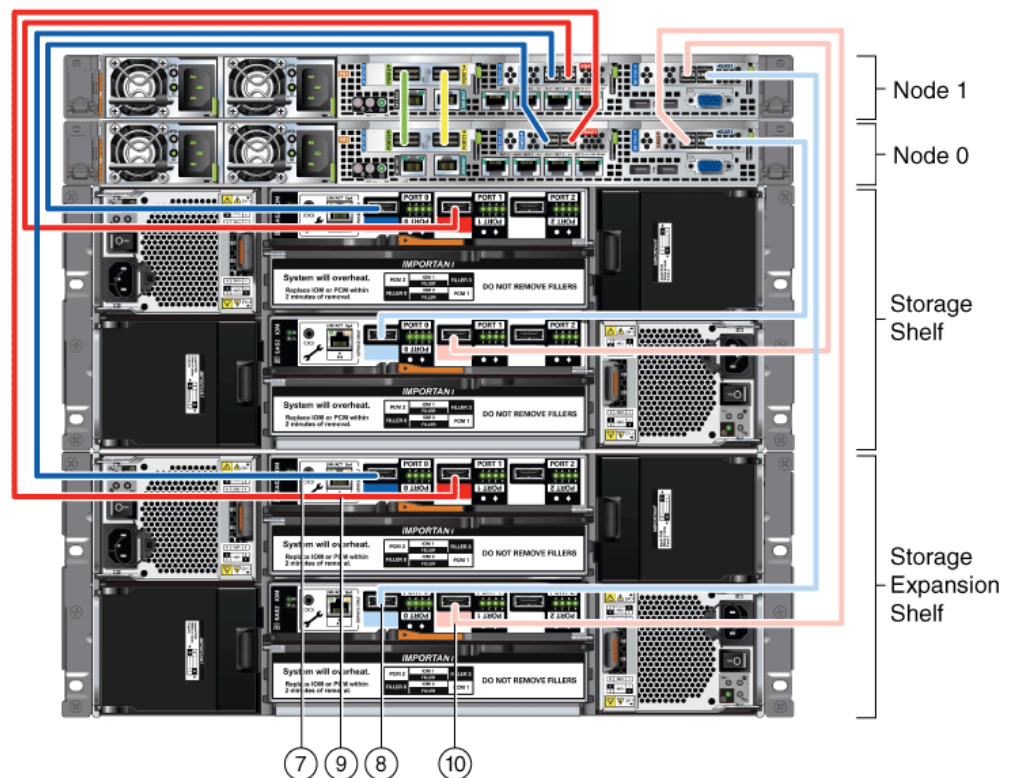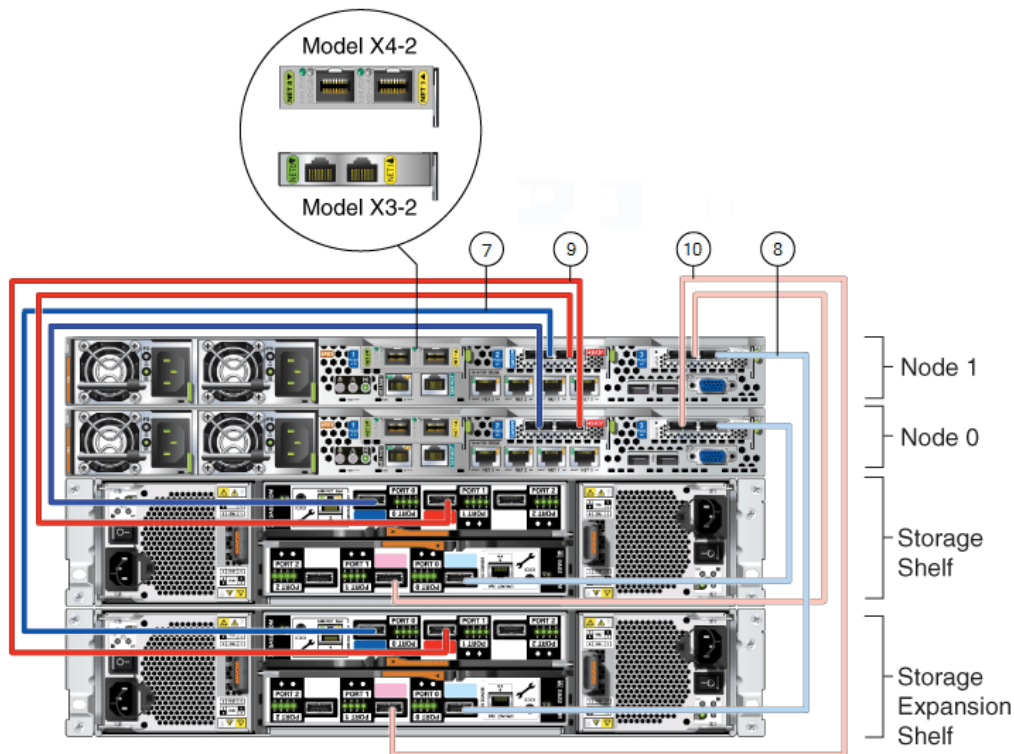
Figure 3-5   Cables for Storage Expansion Shelf on Oracle Database Appliance X3-2 and X4-2

The cables identified with callout numbers in the preceding figures are included with each shipped Oracle Database Appliance storage expansion shelf. These cables are all black, but have colored labels at each end that match the references to cable colors in the text and the label colors on the back panels.

Table 3-3   Description of Callouts for Cabling Oracle Database Appliance Storage Expansion Shelf

Callout Number	Description
7	Dark blue SAS cable: • From: Node 1, PCIe slot 2, SAS0 • To: Storage expansion shelf, top I/O port 0
8	Light blue SAS cable: • From: Node 1, PCIe slot 3, SAS1 • To: Storage expansion shelf, bottom I/O port 0
9	Dark red SAS cable: • From: Node 0, PCIe slot 2, SAS1 • To: Storage expansion shelf, top I/O port 1
10	Light red SAS cable: • From: Node 0, PCIe slot 3, SAS0 • To: Storage expansion shelf, bottom I/O port 1

Caution:

Do not attach cables to Ethernet ports in the I/O modules labeled "SERVICE ONLY" when cabling the system. These ports are intended for use by service engineers only.

Oracle Database Appliance Owner's Guide

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 to Node 0.

Attach a monitor to the graphics card port, and attach a keyboard and a mouse to the USB ports on Node 0. Refer to the figure for your monitor, and to the callout table to identify the ports. The figure "Peripheral Device Connections for Oracle Database Appliance (Node 0) on X3-2, X4-2" shows Oracle Database Appliance models X3-2 and X4-2. For X5-2, the rear panel is slightly different; however, the peripheral device connections are the same as X3-2 and X4-2. The figure "Peripheral Device Connections for Oracle Database Appliance Version 1 (Node 0)" shows connection points for Oracle Database Appliance Version 1.

Figure 3-6   Peripheral Device Connections for Oracle Database Appliance (Node 0) on X3-2, X4-2
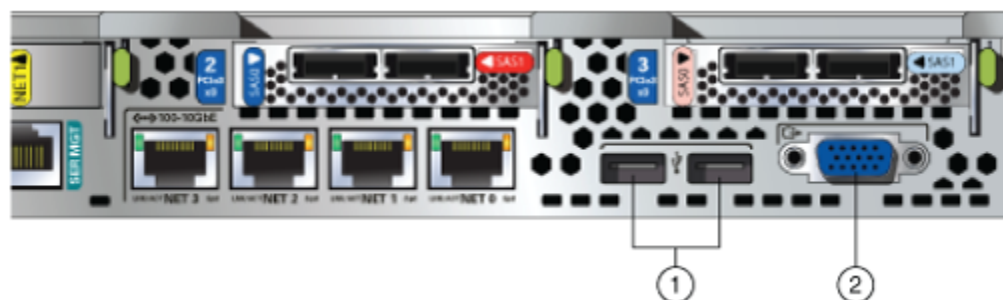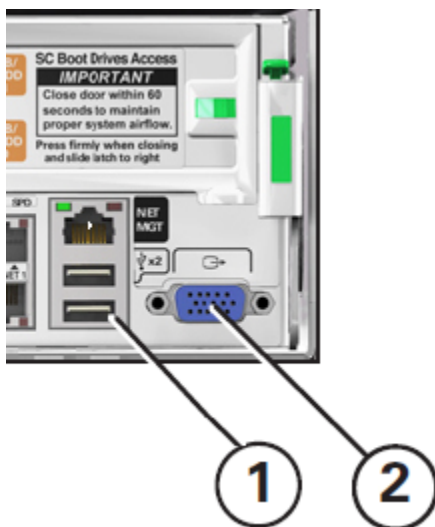
Figure 3-7   Peripheral Device Connections for Oracle Database Appliance Version 1 (Node 0)

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

Table 3-4   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, or after you add new hardware, such as a storage expansion shelf.

To ready Oracle Database Appliance for the powering on the first time, you need to attach all of the required power cords, which differ between models and options, and confirm that initialization completes successfully. You can then start up the system by switching on the process server nodes.

Topics:

Attaching Power Cords and Initializing Components
> Refer to the figure for your appliance and the callouts table to identify where to attach power cords for Oracle Database Appliance models with external storage shelves.

Powering On Oracle Database Appliance the First Time
> Use this procedure to power on Oracle Database Appliance.

Defining Your Public Network Interface Type (X4-2)
> For Oracle Database Appliance X4-2, after system startup, you are prompted to indicate if you are using copper or fiber network interfaces for your public network.

Attaching Power Cords and Initializing Components

Refer to the figure for your appliance and the callouts table to identify where to attach power cords for Oracle Database Appliance models with external storage shelves.

Note:

In the callouts, the two separate AC circuits required for N+1 redundancy are denoted by AC1 and AC2.

Caution:

Before you insert any power cables, ensure that the power supply On/Off switch on the storage shelf is in the Off position. If a storage expansion shelf is installed, then ensure that the power supply switches on both storage shelves are in the Off position.

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

Figure 3-8   Power Cord Connections on Oracle Database Appliance X5-2
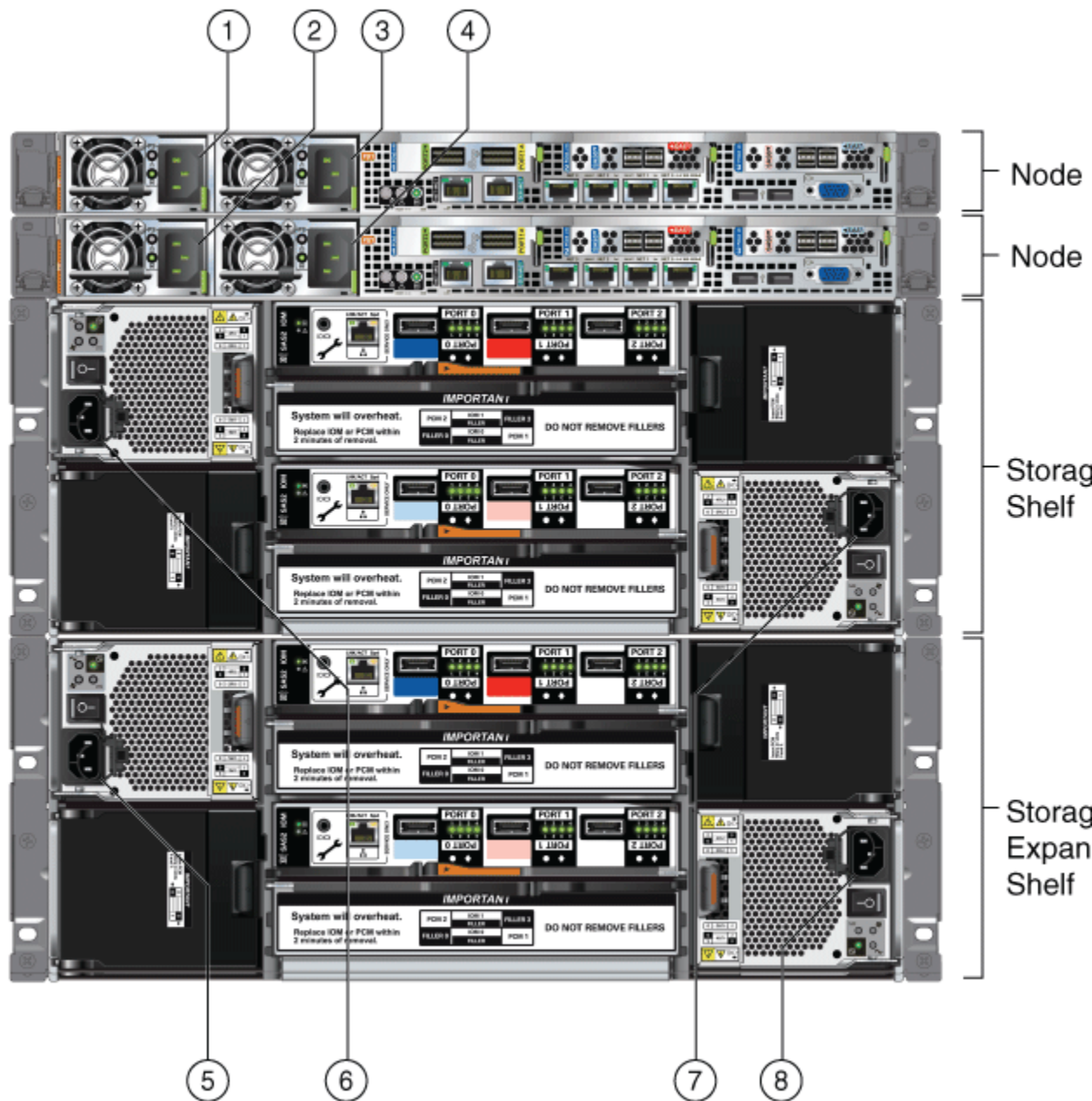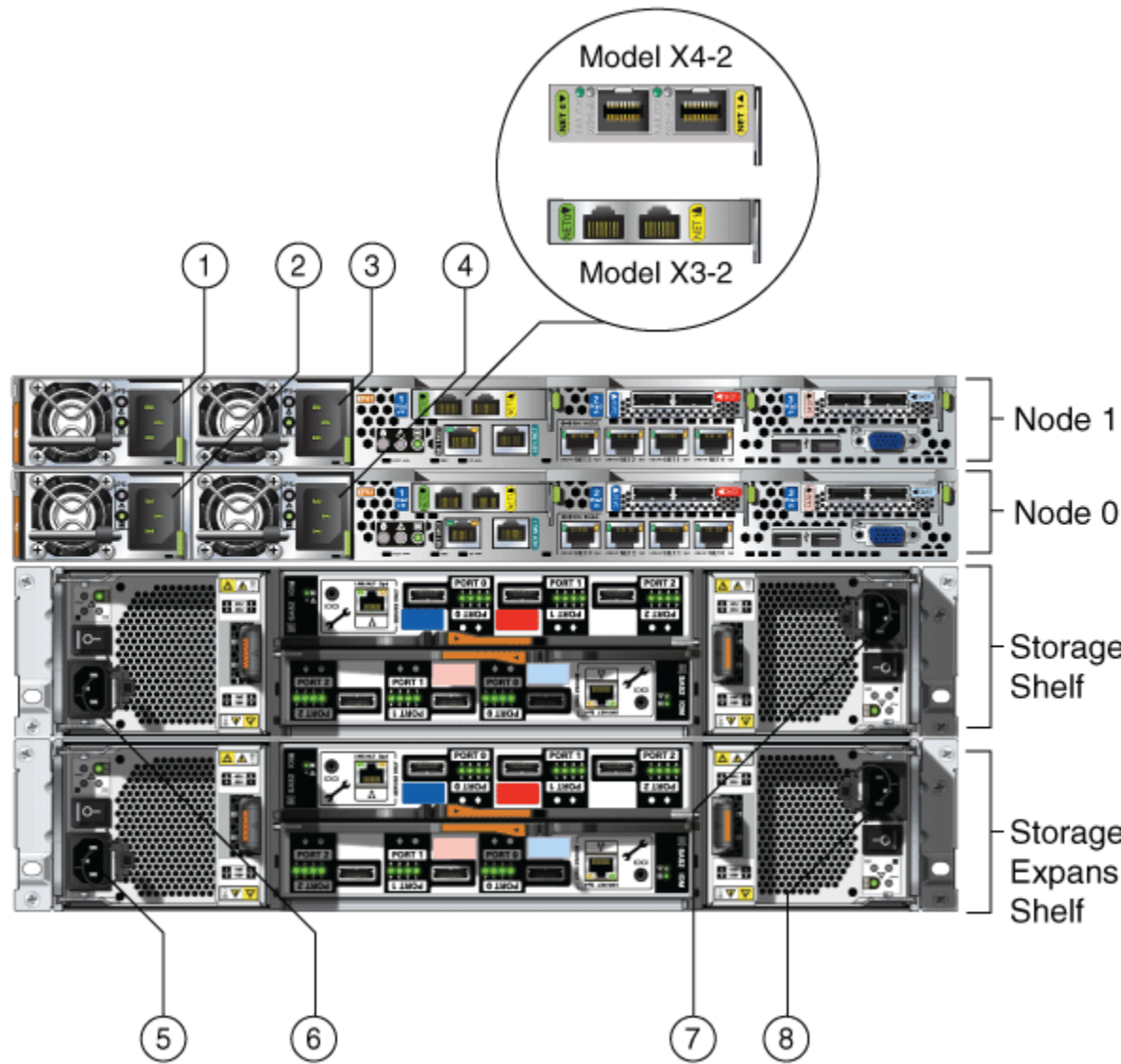
Figure 3-9   Power Cord Connections on Oracle Database Appliance X4-2 and X3-2

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: Node 0, Node 1, and the storage shelf or shelves. Refer to the callout table below the images for the labels for each callout in the image.

Table 3-5   Electrical Power Cord Connections for Oracle Database Appliance with Storage Shelves

Callout Number	Component	AC Circuit
1	Node 1	AC1
2	Node 0	AC1
3	Node 1	AC2

Table 3-5   (Cont.) Electrical Power Cord Connections for Oracle Database Appliance with Storage Shelves

Callout Number	Component	AC Circuit
4	Node 0	AC2
5	Storage expansion shelf (Not required for single storage shelf implementations)	AC1
6	Storage shelf	AC1
7	Storage shelf	AC2
8	Storage expansion shelf (Not required for single storage shelf implementations)	AC2

Oracle Database Appliance Version 1 hardware has only one power socket for each node. The power sockets are at the lower left corner of the rear panels.

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

[Oracle Database Appliance Owner's Guide](#)

Powering On Oracle Database Appliance the First Time

Use this procedure to power on Oracle Database Appliance.

Before starting to power on the appliance, make sure that all of the required power cables are attached to both Oracle Database Appliance nodes, and to all storage shelves, if they are included with your 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. Power on the storage shelves. If attached, switch each storage shelf storage power supply On/Off switch to the On position.

   Each storage shelf has two power switches on the rear panel. One switch is on the right side, and one switch is on the left side. Turn on both power switches.

   The storage disks begin to initialize, which can take several minutes.

2. Check the Green SP OK LEDs on the storage shelves and the server nodes to see if they are fully initialized. When they are all fully initialized, push the recessed power button on each node to turn it on.

> **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 nodes and on any attached storage nodes are still blinking. then wait for them to complete their initialization steps. Do not power on the server nodes (Node 0 and Node 1) until the storage shelves are fully initialized.

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

Table 3-6   Description of Callouts for Powering On Oracle Database Appliance

Callout	Function
1	SP OK LED light, located on the front panel of each node.
2	Recessed On/Off power button, which is located on the front panel for each node (Node 0 and Node 1). Push this button only once. Do not repeatedly push the power button.
3	Green Power OK LED for a node, located on the node's front panel. These lights must be in the steady ON position (Green light does not blink) before you log on to the system.

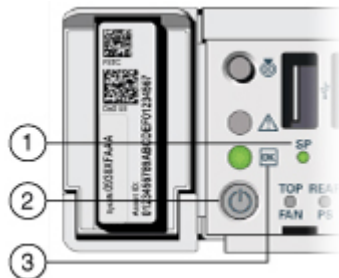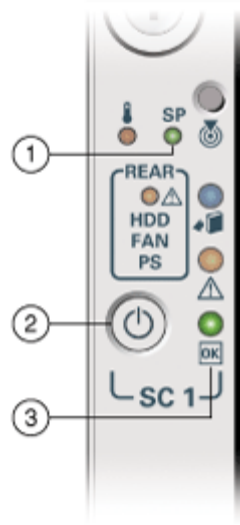*Figure 3-10   Front of Oracle Database Appliance Models X3-2, X4-2, and X5-2: Power Panel*

Figure 3-11   Front of Oracle Database Appliance Version 1: Power Panel

3. 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 both system nodes remain steadily on.

4. For X5-2, X4-2, and X3-2 models of Oracle Database Appliance: To ensure that the
   storage and interconnect is properly configured, log into the console as root, using
   the password welcome1 and run the following oakcli validate command:

   ```
   /opt/oracle/oak/bin/oakcli validate -c storagetopology
   ```

Defining Your Public Network Interface Type (X4-2)

For Oracle Database Appliance X4-2, after system startup, you are prompted to
indicate if you are using copper or fiber network interfaces for your public network.

After you power on Oracle Database Appliance X4-2 for the first time, a short script
runs on each node. Use an attached keyboard to answer questions that the script
displays on the local monitor.

   Note:

   This procedure applies only to Oracle Database Appliance X4-2. When you
   power on 5-2 for the first time, the system automatically defines your public
   network interface based on the interconnect. On Oracle Database Appliance
   X5-2, the InfiniBand network is used for the interconnect if InfiniBand cards
   are used. If InfiniBand cards are replaced with 10 GbE SFP+ (fiber) cards, then
   the onboard 10GBase-T (Copper) ports are used for the interconnect.

1. Oracle Database Appliance displays the following message to prompt you to indicate your public interface connection type:

   ```
   Do you want to use Fiber or Copper card for public network?
   Please Choose [C]opper or [F]iber.
   ```

   If you are connecting to a copper-based public network, then enter C. If you are connecting to a fiber-based public network, then enter F. The script then prompts you to confirm your choice.

2. Proceed with system configuration.

   If you make a mistake, or if you want to change your public interface type later, then you can do the following to change your public network interface type:

   a. Log into Node 0 as root.

   b. Run the following script:

   ```
   /opt/oracle/oak/lib/setupX4network.pl
   ```

   c. Repeat steps a and b on Node 1.

   Note:

   If you have already deployed the End-User Bundle (Bare Metal installation) or the ODA_BASE template (Virtualized Platform installation), then you must redeploy that software after running setupX4network.pl.

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 for each node (Node 0, Node 1)

- 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 ports of each Oracle Database Appliance node 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 each node. To determine the IP address or host name assigned by the DHCP server to the nodes, 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.

   Oracle Database Appliance Owner's Guide

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

   Deploying Oracle Software on Oracle Database Appliance
   This chapter provides a checklist of tasks to deploy Oracle software after you have established connectivity to Oracle Database Appliance

Configuring an Initial Network Connection

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

To manage your Oracle Database Appliance deployment across a network, you must configure an initial network connection. Use this network to transfer deployment software to Oracle Database Appliance.

If you have physical access to your Oracle Database Appliance, then you can use a USB storage device to transfer deployment software to the appliance. In that case, you do not need to set up an initial network configuration.

> **Note:**
>
> The initial network configuration is temporary. It is replaced during the final image deployment.

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

   On Bare Metal installations, log in to a console.

   On Oracle Database Appliance Virtualized Platforms, log in to Dom0.

2. On Bare Metal installations, if you have one or more storage shelves, then run the command `oakcli validate` with the `storageTopology` option to perform a validity check of cabling.

   For example:

   ```
   oakcli validate -c storageTopology
   ```

   On Virtualized Platform installations, you perform this check as part of the Oracle Software deployment process.

3. Run the command `oakcli configure firstnet` to configure the initial network.

   As needed, refer to the network configuration information that you previously collected in preparation for deployment.

   To use the global option, accept the default value in the first prompt, and then provide the required data for the remaining prompts. You do not need to enter anything to accept the default values that are shown in square brackets at the end of prompts.

   Use the following example to help you to respond to prompts. In this example, default values are always selected. 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.

   In the preceding example, the prompt for the `net1` gateway address includes a default value, shown as `gateway-IP-address`. The program derives this gateway address using the network information you provided for the other IP addresses. Accept this value, unless your network administrator provides an alternative gateway address that is different from the default that the appliance command-line interface detects:

   ```
   oakcli configure firstnet
   Configure the network for the node(s)(local, global) [global]:
   The network configuration for both nodes:
   Domain Name:  my-organization-domain-name
   DNS Server(s):  Primary Dns Server:  my-primary-DNS-server
                   Secondary Dns Server:  my-secondary-DNS-server
                   Tertiary Dns Server:  my-tertiary-DNS-server
   Node Name       Host Name
   0               my-Node-0-host-name
   1               my-Node-1-host-name
   Choose the network interface to configure (net1, net2, net3, net4) [net1]:
   Configure DHCP on net1 (yes/no) [no]:
   You have chosen static configuration on net1
   Enter the IP address for net1 on Node 0: my-Node-0-IP-address
   Enter the IP address for net1 on Node 1: my-Node-1-IP-address
   ```

```
Netmask for net1: your-netmask
Gateway Address for net1 [gateway-IP-address]:
Plumbing the IPs now on Node 0 …
::::::::::::::::::::::::::::::::::::::::::::::::::::
Plumbing the IPs now on Node 1 …
::::::::::::::::::::::::::::::::::::::::::::::::::::
```

Caution:

Oracle recommends using the `oakcli 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.

Validating Oracle Appliance Manager Software Version

Before deploying Oracle Database Appliance, you should have the current version of the Oracle Appliance Manager software installed.

Run the following command to find the installed version on your appliance:

```
oakcli show version
```

Check My Oracle Support Note 888888.1 to confirm that you have the most current version of Oracle Appliance Manager, and to obtain information about what to do if you have an earlier version installed. You can access the note at the following URL:

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

If necessary, use the instructions in the note to re-image your system with he current Oracle Appliance Manager version.

Deploying Oracle Software on Oracle Database Appliance

> This chapter provides a checklist of tasks to deploy Oracle software after you have established connectivity to Oracle Database Appliance

4

Deploying Oracle Software on Oracle Database Appliance

This chapter provides a checklist of tasks to deploy Oracle software after you have established connectivity to Oracle Database Appliance

Topics:

About Deploying Oracle Database Appliance Software Using OAKCLI
Review this information to understand the steps required for different deployments, where log files are placed, and how to change deployment types.

Deploying Virtualized Platform Oracle Database Appliance Software
Complete this procedure to deploy a Virtualized Platform configuration on Oracle Database Appliance

Deploying Bare Metal Platforms on Oracle Database Appliance
Complete this procedure to deploy Oracle software directly on the appliance, also known as a Bare Metal configuration of Oracle Database Appliance.

About Deploying Oracle Database Appliance Software Using OAKCLI

Review this information to understand the steps required for different deployments, where log files are placed, and how to change deployment types.

Tasks in this chapter are marked to indicate if they apply to Bare Metal deployments, Virtualized Platform deployments, or both. Perform only the tasks designated for a deployment on your platform.

Deploying Oracle Database Appliance software requires approximately 1 hour to complete for Bare Metal installations, and about 3 hours for Virtualized Platform deployments.

> **Note:**
>
> If you are planning to convert from Oracle Database Appliance Virtualized Platform to a bare metal deployment, first check with My Oracle Support to confirm that you have a compatible image installed.

Recovering from Failed Deployments, Or Changing Deployments

You can use the cleanup script `cleanupDeploy.sh` described in this chapter to reset your system. Use the cleanup script if you want to do the following tasks:

- Repeat a failed deployment

- Convert from a Bare Metal deployment to a Virtualized Platform deployment

- Convert from a Virtualized Platform deployment to a Bare Metal deployment

About OAKCLI Deploy Command Log Files

The oakcli deploy command creates log files in the following filepath:

`/opt/oracle/oak/onecmd/tmp/`

Log files are prefaced with the string STEP. For example:

`/opt/oracle/oak/onecmd/tmp/STEP-6-20160226103534.log`

Deploying Virtualized Platform Oracle Database Appliance Software

Complete this procedure to deploy a Virtualized Platform configuration on Oracle Database Appliance

The procedure to deploy software in a Virtualized Platform configuration consists of the following steps:

1. Check Oracle Database Appliance hardware to see if it is configured with a virtual machine (VM).

2. Install the ODA_BASE template on Oracle Database Appliance.

3. Prepare the appliance to run Oracle Appliance Manager Configurator.

4. Deploy your configuration using Oracle Appliance Manager.

You must complete the deployment tasks in the order that they are listed.

1. Log in as `root` with the password `welcome1`.

2. Enter the command `oakcli show env_hw`

   This command displays the Oracle Database Appliance hardware on which you are deploying. If the output of this command is prefixed with the string `VM-ODA_BASE`, then the system is configured with a virtual machine (`dom0/oda_base`).

   For example, the output of each of the following commands shows both the hardware platform, and that the platform is configured with a virtual machine environment:

   [root@oda1n1 ~]# oakcli show env_hw VM-ODA_BASE ODA V1

   [root@oda2n1 ~]# oakcli show env_hw VM-ODA_BASE ODA X3-2

   [root@oda3n1 ~]# oakcli show env_hw VM-ODA_BASE ODA X4-2

   [root@oda3n1 ~]# oakcli show env_hw VM-ODA_BASE ODA X5-2

   If you do not have a virtual machine deployed on your appliance, then refer to My Oracle Support note 1520579.1 for the procedure to install a virtual machine:

   https://support.oracle.com/epmos/faces/DocumentDisplay?cmd=show&type=NOT&id=1520579.1

3. Log in to My Oracle Support, and download and install the ODA_BASE Template.

   Complete the following steps to download the appropriate ODA_BASE template to an external client, and then copy the template to your Oracle Database Appliance.

a. From an external client machine, log on to My Oracle Support and access note 888888.1:

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

b. In the Latest Releases section, under OS ISO Image / Bare Metal - Virtualized Platform, find the link to the patch number that is described as "VM Template (ODA_BASE), and click the link.

c. From the Patch Search Results page, download the current Oracle Database Appliance ODA_BASE template onto your external client.

d. Use either a Secure Copy (scp) command or a USB storage device to copy the ODA_BASE template from the external client to `Dom0` on Node 0. Use the `/scp` or `/OVS` directory as the target location.

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

e. Log in to `Dom0` as `root` on Node 0 of Oracle Database Appliance Virtualized Platform, and copy the ODA_BASE template to the `/OVS` directory on `Dom0` if it is not already there. Remain logged in to `Dom0` while you complete the remaining steps in this task.

f. Run the command `oakcli deploy oda_base`, and provide the template location, core licensing options, and select the base domain memory allocation.

The `deploy oda_base` option automatically deploys ODA_BASE on both nodes. If your ODA_BASE template is in the `/OVS` directory, then your deployment dialog should look similar to the following example (values, such as the number of available CPU cores, differ between Oracle Database Appliance Virtualized Platform hardware platforms):

```
# oakcli deploy oda_base
Enter the template location: /OVS/templateBuild-2012-12-22-12-05.tar.gz
Core Licensing Options:
        1.  2 CPU Cores
                 2.  4 CPU Cores
3.  6 CPU Cores
4.  8 CPU Cores
5.  10 CPU Cores
6.  12 CPU Cores
7.  14 CPU Cores
8.  16 CPU Cores
9.  24 CPU Cores
10. 36 CPU Cores
                 Selection [1 : 6] : 3
                 ODA base domain memory in GB (min 16, max 244)(Current Memory
150G)[default 192]  : 32
```

Continue configuration choices in the next step.

g. Assign additional virtual local area networks (VLANs) to your ODA_BASE.

To assign VLANs, respond with `y` when you are prompted for VLAN networks, and respond with `n` if you do not want to deploy another VLAN, or if you have completed assigning additional VLANs.

```
Additional vlan networks to be assigned to oda_base ? (y/n) : y
Select the network to assign [Test00,Test01,Test02,Test03]: Test00
Additional vlan networks to be assigned to oda_base ? (y/n) : y
Select the network to assign [Test00,Test01,Test02,Test03]: Test01
Additional vlan networks to be assigned to oda_base ? (y/n) : n
```

h. When the command completes, verify that your deployment of ODA_BASE is valid by running the command `show oda_base`, and confirming that ODA_BASE is configured.

For Example:

```
# oakcli show oda_base
ODA base domain
ODA base CPU cores :2
ODA base domain memory :16
ODA base template :/tmp/oda_base_2.10.tar.gz
ODA base vlans :['priv1', 'net1', 'net2', 'net3', 'net4', 'db_mgmt']
ODA base current status :Running
```

> **Note:**
>
> If you encounter problems, and need to clean up and start again with a new ODA_BASE deployment, then first run the following command from `Dom0` on Node 0:
>
> `/opt/oracle/oak/tools/cleanOdabase.py`
>
> This command removes ODA_BASE, so that you can try a fresh deployment.

i. For Oracle Database Appliance X3-2, Oracle Database Appliance X4-2, or Oracle Database Appliance X5-2, Oracle recommends that you check the storage cabling before continuing with deployment.

To perform this check, connect to ODA_BASE on Node 0 using `root` for the user name and `welcome1` for the password. After connecting, run the following command:

`# oakcli validate -c storagetopology`

The command displays errors if the cables between the two nodes and the storage shelf or shelves are not in the correct sockets.

4. Log in to Node 0 as `root`, and log in to ODA_BASE by starting VNC, using hostname: `dom0`, and port: 5900.

5. From the VNC session, run the command `startx` to start an X Window System Xterm session.

6. Start the deployment using `oakcli deploy`. Either use an existing configuration file that you created earlier, or build a new one.

For example, to start the deployment using an existing configuration, enter a command similar to the following, substituting your file's name and directory path:

```
# oakcli deploy -conf /tmp/onecommand.param
```

If the command `oakcli deploy` fails to open the Oracle Appliance Manager Welcome window, then check to make sure that your DISPLAY variable is set to display to your terminal.

Note:

Do not use a configuration file created for an earlier version of Oracle Appliance Manager Configurator. If you do not have a current configuration file, then complete a real-time configuration and deployment, as described in the following step.

To initiate a real-time configuration and deployment, enter the following command:

```
# oakcli deploy
```

Follow the instructions to complete the Oracle Appliance Manager Configurator screens, as described in "Running the Standalone Oracle Database Appliance Configurator." Select the **Install** option on the Configurator Summary page to complete the deployment.

Running the Standalone Oracle Database Appliance Configurator

Deploying Bare Metal Platforms on Oracle Database Appliance

Complete this procedure to deploy Oracle software directly on the appliance, also known as a Bare Metal configuration of Oracle Database Appliance.

The procedure to deploy software in a bare-metal configuration consists of the following steps:

1. Install the end-user bundle for Bare Metal platform deployments

2. Prepare the appliance to run Oracle Appliance Manager Configurator

3. Deploy your configuration using Oracle Appliance Manager.

You must install the end-user bundle on Oracle Database Appliance before you deploy any other software. To install the end-user bundle, download the appropriate patch file to an external client. Copy the patch from your client to Oracle Database Appliance, and install the patch.

You must complete the steps in the order listed.

1. Log on to My Oracle Support from an external client, and access My Oracle Support note 888888.1.

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

2. In the Latest Releases section, under `OS ISO Image / Bare Metal - Virtualized Platform`, find the link to the current patch numbers that are described as `Oracle Database Appliance End User Bundle (GI+RDBMS)` and `Oracle Database Appliance Bare Metal ISO Image`, and click the link to download the patches.

3. Copy the patches from the external client to Oracle Database Appliance.

You can copy the file either by using a Secure Copy command (`scp`), or by using 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.

To use secure copy, you must first set up a static IP address (for example. `oda_host`) and configure Oracle Database Appliance with that address by using the `oakcli configure firstnet` command.

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 p12978712_121260_Linux-x86-64_1of2.zip root@odahost:/tmp

scp p12978712_121260_Linux-x86-64_2of2.zip root @odahost:/tmp
```

4. Use the command syntax `oakcli unpack -package /directory_path/package_name` to unpack the Oracle Database Appliance software, where *directory_path* is the path where the end-user bundle patch file is located, and *package_name* is the name of the package.

For example, if the end-user bundle patch files for Oracle Database Appliance Release 12.1.2.6.0 are in `/tmp`, and the patch names are `p12978712_121260_Linux-x86-64_1of2.zip` and `p12978712_121260_Linux-x86-64_2of2.zip`, then enter the following commands:

```
# oakcli unpack -package /tmp/p12978712_121260_Linux-x86-64_1of2.zip
# oakcli unpack -package /tmp/p12978712_121260_Linux-x86-64_2of2.zip
```

The command `oakcli unpack` unpacks the bundle patch, and places the extracted files in the directory locations required for deployment.

5. Log in to Node 0 of Oracle Database Appliance as the `root` user using the default password.

6. Run the command `startx` start an X Window System `Xterm` session.

7. (Optional) If you want to deploy from a configuration file that you created offline, then use `scp` or a USB drive to copy the configuration file to Oracle Database Appliance.

8. Run a configuration using Oracle Appliance Manager Configurator.

To run a configuration using a configuration file, run the following command:

```
oakcli deploy -conf /tmp/onecommand.param.
```

This command opens the Oracle Appliance Manager Configurator using an existing configuration file.

Do not use a configuration file created for an earlier version of Oracle Appliance Manager Configurator. If you do not have a current configuration file, then complete a real-time configuration and deployment.

To run a real-time configuration and deployment, enter the following command:

```
oakcli deploy
```

This command opens Oracle Appliance Manager Configurator graphic user interface, which prompts you to provide information for the deployment.

Note:

If the command `oakcli deploy` fails to open the Welcome window in Oracle Appliance Manager Configurator, then set the user DISPLAY variable to display to your terminal window.

---

9. Refer to the step-by-step procedure for Oracle Appliance Manager Configurator, as described in the section "Running the Standalone Oracle Database Appliance Configurator"

Running the Standalone Oracle Database Appliance Configurator

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.

Changing the IPMI User Name and Password
> If you completed a custom deployment and configured IPMI, then change the default user name and password.

Configuring Oracle Auto Service Request

Changing the Oracle Installation Owner Passwords

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

During deployment, Oracle strongly recommends that you change the `root` user password. After deployment, change the Oracle Grid Infrastructure installation owner (`grid`) and Oracle Database installation owner (`oracle`) default passwords (`welcome1`) to passwords that comply with your enterprise user security protocols.

If you created an initial database during deployment, then change the default passwords for open database accounts, such as the SYS, SYSTEM, and DBSNMP users, and other system privilege roles. The default password for the SYS and SYSTEM users is `welcome1`.

Note:

Change account passwords on both nodes. Use the same passwords for these users on both nodes.

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 IPMI User Name and Password

If you completed a custom deployment and configured IPMI, then change the default user name and password.

Oracle Clusterware supports the Intelligent Platform Management Interface (IPMI), an industry-standard protocol that can isolate a failed node from the rest of the cluster. IPMI can restart a problematic node without cooperation from either Oracle Clusterware or from the operating system.

Configuring IPMI is an option when performing a custom deployment of Oracle Database Appliance. Change the default user name and password using the following procedure:

1. Log in as the user `grid`.

2. Enter the command `crsctl set css ipmiadmin` *username*, where *username* is the new name for the IPMI administrator account. Provide a new password when prompted. You must enable IPMI version 1.5 first. For example:

```
$ ipmitool -I open sunoem cli "set /SP/services/ipmi v1_5_sessions=enabled"
$ /u01/app/12.1.0.2/grid/bin/crsctl set css ipmiadmin racadm
$ IPMI BMC password:CRS-4229: The IPMI information change was successful $
ipmitool -I open sunoem cli "set /SP/services/ipmi v1_5_sessions=disabled"
$ IPMI BMC password:
CRS-4229: The IPMI information change was successful
```

> **Caution:**
>
> Do not change the default passwords until after you deploy software on Oracle Database Appliance. If you change the passwords before deployment completes, then you may encounter configuration errors.

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 by choosing the Custom configuration option. You can also configure Oracle ASR after deployment (either Typical or Custom) using the `oakcli configure asr` command. The command prompts for input and, after you provide all of the required information, completes the Oracle ASR configuration.

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.

To confirm that you have a working Oracle ASR configured, run the command `oakcli test asr`. Review your Oracle ASR configuration with the command `oakcli show asr`.

For details, see "Validate ASR Systems in My Oracle Support" in *Oracle Auto Service Request Installation and Operations Guide*.

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