Oracle® Enterprise Manager Ops Center

Installation for Linux Operating Systems

12*c* Release 3 (12.3.2.0.0)

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Contents

Preface

The Oracle® Enterprise Manager Ops Center Installation for Linux Operating Systems describes how to install and configure Oracle Enterprise Manager Ops Center software on Linux systems.

Audience

This document is intended for senior system administrators.

Related Documents

For more information, see the following documents in the Oracle Enterprise Manager Ops Center 12*c* documentation set:

- *Oracle Enterprise Manager Ops Center Concepts*

- *Oracle Enterprise Manager Ops Center Readme*

- *Oracle Enterprise Manager Ops Center Release Notes*

- *Oracle Enterprise Manager Ops Center Administration*

- *Oracle Enterprise Manager Ops Center Installation for Oracle Solaris Operating System*

- *Oracle Enterprise Manager Ops Center Configuration Reference*

- *Oracle Enterprise Manager Ops Center Operations Reference*

- *Oracle Enterprise Manager Ops Center Virtualize Reference*

- *Oracle Enterprise Manager Ops Center Operations for Oracle SuperCluster Reference*

- *Oracle Enterprise Manager Ops Center Command Line Interface*

- *Oracle Enterprise Manager Ops Center Cloud Infrastructure API and CLI Reference*

- *Oracle Enterprise Manager Ops Center Certified Systems Matrix*

- *Oracle Enterprise Manager Ops Center Deploy How To Library*

- *Oracle Enterprise Manager Ops Center Operate How To Library*

For more information, see the other documents in the Oracle Enterprise Manager Ops Center 12c Release 3 documentation set, located at this site: http://docs.oracle.com/cd/E59957_01/index.htm

Conventions

The following text conventions are used in this document:

Convention	Meaning
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands, file names, and directories within a paragraph, and code in examples.

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Get Started with Installation

You can install and configure Oracle Enterprise Manager Ops Center.

This chapter includes the following sections:

- Preparing Your Environment: Explains how to prepare an environment for installation, including planning the installation and verifying that prerequisites are met.

- Installing with Enterprise Controller High Availability: Explains how to install and configure an environment with Enterprise Controller High Availability, and how to install Proxy Controllers as part of the Enterprise Controller configuration.

- Installing with a Single Enterprise Controller: Explains how to install and configure a single Enterprise Controller, and how to install Proxy Controllers as part of the Enterprise Controller configuration.

- Installing Proxy Controllers: Explains how to install additional Proxy Controllers through the user interface or from the command line.

- Installing the Java Version Manually: Explains how to install the Java version manually from the command line.

Planning the Installation

Before you start with the installation procedure, you must perform some of the tasks to prepare the system for installation.

The following are typical sequences of tasks when installing Oracle Enterprise Manager Ops Center:

1. Review the system requirements to determine what equipment you need.

2. Prepare a set of systems for software installation, including installing operating systems and verifying that adequate system resources are available.

3. Install and configure an Enterprise Controller. If you are using a High Availability configuration, install and configure at least two Enterprise Controller nodes.

4. Install and configure at least one Proxy Controller. This can be the co-located Proxy Controller, which is installed with the Enterprise Controller.

The first two tasks are described in the Preparing Your Environment chapter. The third task is discussed in the Installing with Enterprise Controller High Availability and Installing with a Single Enterprise Controller chapters. The final task is described in the Installing Proxy Controllers chapter.

Figure 1-1 shows the steps involved in an Oracle Enterprise Manager Ops Center installation.

Figure 1-1 Site Preparation, Installation and Configuration
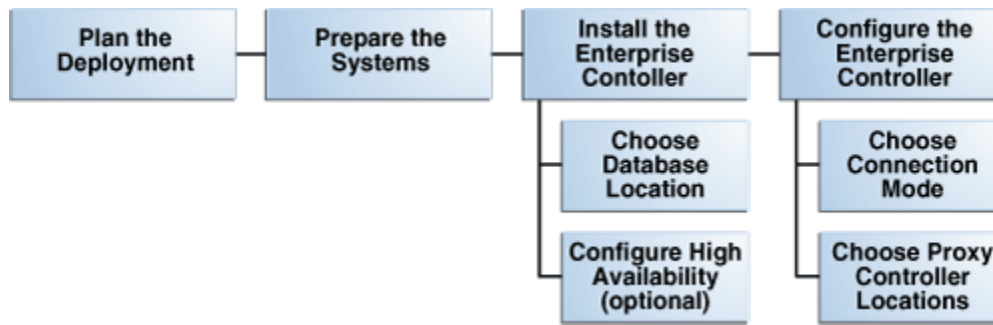
Enterprise Controllers and Proxy Controllers can be installed on Oracle Solaris 10, Oracle Solaris 11, Oracle Linux, or Red Hat Enterprise Linux.

Installing and Configuring Oracle Enterprise Manager Ops Center

Once you have fully prepared the systems, you install and configure Oracle Enterprise Manager Ops Center.

An Oracle Enterprise Manager Ops Center installation has three components:

- An Enterprise Controller: The Enterprise Controller directs Oracle Enterprise Manager Ops Center actions and generates the user interface. If you are using high availability, you install multiple Enterprise Controllers, but only one is active at a time.

- One or more Proxy Controllers: Proxy Controllers store Oracle Enterprise Manager Ops Center data and route jobs to managed systems.

- Agent Controllers for managed systems: Agent Controllers communicate monitoring data, help run jobs, and enable software update support on managed systems. Agent Controllers can be installed when a system is discovered and managed.

You can install and configure Proxy Controllers in one of four ways:

- Configure the co-located Proxy Controller that was automatically installed with the Enterprise Controller

- Remotely deploy one or more Proxy Controllers as part of the Enterprise Controller configuration

- Remotely deploy one or more Proxy Controllers using the Deploy Proxy Wizard

- Manually install and configure one or more Proxy Controllers

Once the Enterprise Controller and Proxy Controllers are installed and configured, Oracle Enterprise Manager Ops Center is functional.

Related Resources for Linux OS Installation

You can view the Oracle Enterprise Manager Ops Center documents for additional information.

For more information, see these Oracle resources:

- For supported OS versions, see *Oracle Enterprise Manager Ops Center Certified Systems Matrix*

- For information on security considerations, see *Oracle Enterprise Manager Ops Center Security*

- The Oracle Enterprise Manager Ops Center Documentation Library is located at http://docs.oracle.com/cd/E59957_01/index.htm

- For more information on product administration, see http://docs.oracle.com/cd/E59957_01/nav/administer.htm

- For end-to-end examples, see the Deploy How To library at http://docs.oracle.com/cd/E59957_01/nav/deploy.htm and the Operate How To library at http://docs.oracle.com/cd/E59957_01/nav/operate.htm

- For more information on Enterprise Manager Ops Center, see the Ops Center blog at https://blogs.oracle.com/opscenter/

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Preparing Your Environment

Before you start with the installation procedure, there are some guidelines to follow for deploying Oracle Enterprise Manager Ops Center in a way that meets your needs, steps needed to verify that your systems meet the prerequisites, and instructions for obtaining the software.

When you have completed the planning and preparation procedures described here, you are ready to install the software.

This chapter includes the following sections:

- Planning the Deployment
- Preparing Systems
- Obtaining the Software
- Related Resources for Preparing Your Environment

Planning the Deployment

Before you prepare the systems for an Oracle Enterprise Manager Ops Center installation, you must plan your deployment. Your network configuration, your Internet connection policies, and the numbers and types of assets you intend to manage all affect the optimum deployment.

Before installing, consider the following questions:

Table 2-1   Deployment Questions

Question	Information in This Chapter	Other Information	Your Answer
How will you use Oracle Enterprise Manager Ops Center?	About Using Oracle Enterprise Manager Ops Center	*Configuration Reference*, *Operations Reference*	-
Will you manage virtual assets?	About Managing Virtual Assets	*Virtualize Reference*	-
How many assets will you manage?	About Scaling Your Environment	*Configuration Reference*, *Administration*	-
Are your systems supported?	About Supported Systems	*Certified Systems Matrix*	-
Will you manage Oracle Solaris 11?	About Oracle Solaris 11	*Operations Reference*	-

Table 2-1 (Cont.) Deployment Questions

Question	Information in This Chapter	Other Information	Your Answer
Will you manage Oracle SuperCluster or other Oracle Engineered Systems?	About Engineered Systems	*Operations for Oracle SuperCluster Reference*	-
What type of network configuration will you use?	About Network Configuration Types	*Configuration Reference*	-
Will you use Connected Mode or Disconnected Mode?	About Connection Modes	Infrastructure chapter of the *Administration*	-
Does your site require High Availability?	About High Availability	High Availability chapter of the *Administration*	-
Will your site use a local or a remote database?	About Database Options	Database Management chapter of the *Administration*	-
Will you integrate with Oracle Enterprise Manager Cloud Control?	About Oracle Enterprise Manager Cloud Control Integration	*System Monitoring Plug-in for Oracle Enterprise Manager Ops Center*	-

About Using Oracle Enterprise Manager Ops Center

The Oracle Enterprise Manager Ops Center software provides management for hardware, operating systems, firmware and OS updates, for both physical and virtual assets. The number of types of assets, the total number of assets, and the methods you use to manage the assets all affect resource utilization.

Although the Enterprise Controller and the Proxy Controller can run on the same server, this is recommended only for a small-scale site. In most cases, your site benefits from running one or more Proxy Controllers on separate systems. At large-scale sites, deploy a Proxy Controller on each subnet.

> **Note:**
>
> If you intend to provision or update Oracle Solaris 11, you must install the Enterprise Controller and at least one Proxy Controller on Oracle Solaris 11. The Oracle Solaris 11 library can only be installed on an Oracle Solaris 11 system.

Hardware Management

To monitor and manage hardware, the Proxy Controller discovers assets and then polls each asset for status and configuration changes.

The Proxy Controller initiates network sessions to the hardware's systems management Ethernet port, using specific server and chassis-type protocols. Using the software to manage only hardware assets has a low resource impact on the system running the software. However, network traffic from the Proxy Controller to the assets can have a high impact. Make sure Proxy Controllers are scaled appropriately.

Hardware Management + OS Provisioning

OS provisioning is executed from the Proxy Controller.

The job management system meters the number of OS provisioning jobs that can occur in parallel, but OS provisioning also creates a load on the Proxy Controllers and network. Configure a Proxy Controller on each subnet to provision the assets on that subnet. In addition, configure an NFS server close to the Proxy Controllers to store the OS images and firmware images.

Hardware Management + OS Provisioning + OS Updates

To update an OS, an Agent Controller must be deployed on the operating system and both update and provisioning jobs must be completed.

The jobs include several transactions to determine the operating system's required updates and to perform the update operation. These operations increase the network utilization of the Enterprise Controller and Proxy Controllers.

Hardware Management + OS Provisioning + OS Updates + Virtualization Management

Beginning with Oracle Solaris 10 assets, you can manage virtual hosts such as Oracle Solaris Zones.

Managing these virtual hosts exposes significantly large operating system metrics and increases the memory utilization of the Enterprise and Proxy Controllers. For information about deployment considerations and scaling guidelines, contact your Oracle representative.

About Managing Virtual Assets

The Oracle Enterprise Manager Ops Center software can manage your virtual assets, such as Oracle Solaris Zones or Oracle VM Server.

The following topics are covered:

- Using Zones

- Using Oracle VM Server

Using Zones

When you use the Oracle Enterprise Manager Ops Center software's user interface to create or discover a zone, the software has full access to the zone configuration data and can manage the zone. Zones are displayed in the Navigation tree and are labeled by type.

Do not use the software to create or manage zones if your site uses Boot Environments to update operating systems of zones. Alternate Boot Environment (ABE) is not supported for zones or for the Enterprise Controller or Proxy Controller systems.

Do not install a Proxy Controller in an Oracle Solaris 10 non-global zone if you intend to use the product to provision operating systems or firmware.

You can install the Enterprise Controller software on a non-global zone, but with these constraints:

> **Note:**
>
> The constraints below are only applicable to Oracle Solaris 10 non-global zone. You can install the Enterprise Controller software on an Oracle Solaris 11 non-global zone without any constraints.

- The non-global zone must be a whole root zone.

- The Proxy Controller cannot be located in the same zone.

- The Proxy Controller cannot be located in the global zone that supports the Enterprise Controller's non-global zone.

- Global zones should not be managed (agent or agentless) if the Enterprise Controller or any Proxy Controllers are installed in non-global zones.

Using Oracle VM Server

Use Oracle VM Server for SPARC or Oracle VM Server for x86 to create multiple virtual machines on one physical hardware system.

Unlike Oracle Solaris Zones that use the same operating system in all non-global zones, virtual machines can run instances of different operating systems, or different versions of the same operating system. Each instance has its own operating system, resources, and identity.

About Scaling Your Environment

Oracle Enterprise Manager Ops Center can be scaled to accommodate a variety of environments. However, the size and layout of your environment can effect the number of Enterprise Controllers and Proxy Controllers that you require.

An Enterprise Controller can manage up to 5,500 hardware assets, or 3,500 mixed assets including hardware, operating systems, virtualization technologies, and other assets. Each Proxy Controller can manage up to 500 assets.

However, installing additional Proxy Controllers beyond the minimum requirements can be beneficial in some environments. Consider installing additional Proxy Controllers in environments with the following characteristics:

- **Remote datacenters**: If some of your assets are in a remote location, installing a Proxy Controller in that location can reduce network latency and cache Oracle Enterprise Manager Ops Center content closer to the assets.

- **Deployment through firewalls**: If you have firewalls between your Enterprise Controller and some managed assets, having a Proxy Controller near the assets can simplify deployment and management.

- **High Availability**: Installing additional Proxy Controllers gives you the ability to migrate assets between Proxy Controllers for maintenance or in case of a Proxy Controller failure

- **Virtualization**: If you intend to manage virtualization technologies like Oracle VM Servers for SPARC, additional Proxy Controllers can help to handle the added asset and job load.

About Supported Systems

Oracle Enterprise Manager Ops Center is supported on a wide variety of hardware, operating systems, and virtualization technologies.

Before you begin the installation, review the list of supported certified systems.

An Enterprise Controller system must meet the following minimum requirements:

- SPARC or x86 platform that is running a supported Oracle Solaris or Linux OS, such as Oracle Solaris 11, Oracle Solaris 10 9/10, or Oracle Linux 5.5.

> **Note:**
>
> To provision and update Oracle Solaris 11 operating systems, the Enterprise Controller and Proxy Controller must be installed on Oracle Solaris 11.

- 200 GB of disk space.

- 16 GB Swap Space.

- 16 GB Memory if you plan to use customer-managed database.

- 24 GB Memory if you plan to use an embedded database.

> **Note:**
>
> The above values are highly recommended. However, starting from version 12.3.2, the absolute minimum memory requirement for an Enterprise Controller installation with a local database is 12 GB.

> **Note:**
>
> Do not upgrade the Java version on Oracle Solaris 10 Control Domains or Logical Domains that have LDOM Manager version 3.2 or earlier installed. If you have upgraded the Java on these systems to version 1.6.0_101 or higher, downgrade to Java 1.6.0_95.

About Oracle Solaris 11

You can provision, update, and manage Oracle Solaris 11 with Oracle Enterprise Manager Ops Center. You can only provision and update Oracle Solaris 11 assets and engineered systems, such as Oracle SuperCluster, when the Enterprise Controller and the Proxy Controllers that manage the assets are installed on Oracle Solaris 11 systems.

If you are using Oracle Solaris 11, it is recommended that you use version 11.1 or greater.

If you are installing your Enterprise Controller on an Oracle Solaris 11 system, you have several options for configuring your Oracle Solaris 11 library.

- If your site already maintains an Oracle Solaris 11 IPS Repository, direct Oracle Enterprise Manager Ops Center to use it instead of initializing a new one. You can do this during the product installation or after the product is installed.

- During installation of the product software, initialize the library. This library downloads content from the `https://pkg.oracle.com/solaris/support` repository and continues to sync with the repository routinely. However, the initialization of the library can take many hours, depending on your site's access.

- After installation, initialize the library using the Initialize Oracle Solaris 11 Software Update Library action. This action performs the same operation as the installation option with the same time requirements.

- At any time, you can create an IPS repository at your site and use it as the Oracle Solaris 11 Software Update Library.

> **Note:**
>
> If you are installing an Enterprise Controller on Oracle Solaris 11, your Oracle Solaris 11 repository must contain the specific version of Oracle Solaris 11 installed on the Enterprise Controller.

About Engineered Systems

Oracle Enterprise Manager Ops Center can discover and manage Oracle SuperCluster and other Oracle engineered systems.

As the Oracle SuperCluster uses Oracle Solaris 11, you must install your Enterprise Controller on Oracle Solaris 11 if you plan to manage Oracle SuperCluster.

About Network Configuration Types

If you intend to provision OS or firmware on target systems on a subnet, configure one Proxy Controller on each subnet and then enable DHCP services on the Proxy Controller. Proxy Controllers provide the DHCP services that support the netboot or PXE boot operations of target systems.

WAN boot is available for SPARC-based ILOM systems when the Enterprise Controller is running on an Oracle Solaris OS on either a SPARC or X86 platform. Oracle Enterprise Manager Ops Center automatically sets up the WAN boot connection. This is the default connection for SPARC-based platforms and for Oracle Solaris 11.

Depending on your environment's network security, you might need to make changes to your firewall to allow Oracle Enterprise Manager Ops Center to send and receive data normally.

About Network Requirements

You can configure a network switch for a system running the Oracle Enterprise Manager Ops Center software.

Use these guidelines to configure a network switch.

- Use an 8-port or 16-port Virtual LAN (VLAN) switch.

- Discover and manage the switch.

- If your site uses VLAN, create a separate VLAN for management and provisioning networks.

- Disable spanning-tree protocols on the switch.

For Ethernet connectivity:

- The management network must be a 1/10 GB connection.

- The provisioning and data networks must be a 1/10 GB connection.

In Connected Mode, the Enterprise Controller also needs to get access to vendor web sites to download updates or other software.

The following sections describe the communication requirements for the Oracle Enterprise Manager Ops Center software.

Network requirements and data flow:

At least one Proxy Controller must be installed and configured. You use the co-located Proxy Controller installed with the Enterprise Controller software or install one or more Proxy Controllers on separate systems. The following diagram shows a network configuration for a site running the Oracle Enterprise Manager Ops Center software in Connected Mode and with two Proxy Controllers.

Figure 2-1 shows the network ports and protocols for the Enterprise Controller in Connected Mode.

Figure 2-1   Network Ports and Protocols for Enterprise Controller in Connected Mode
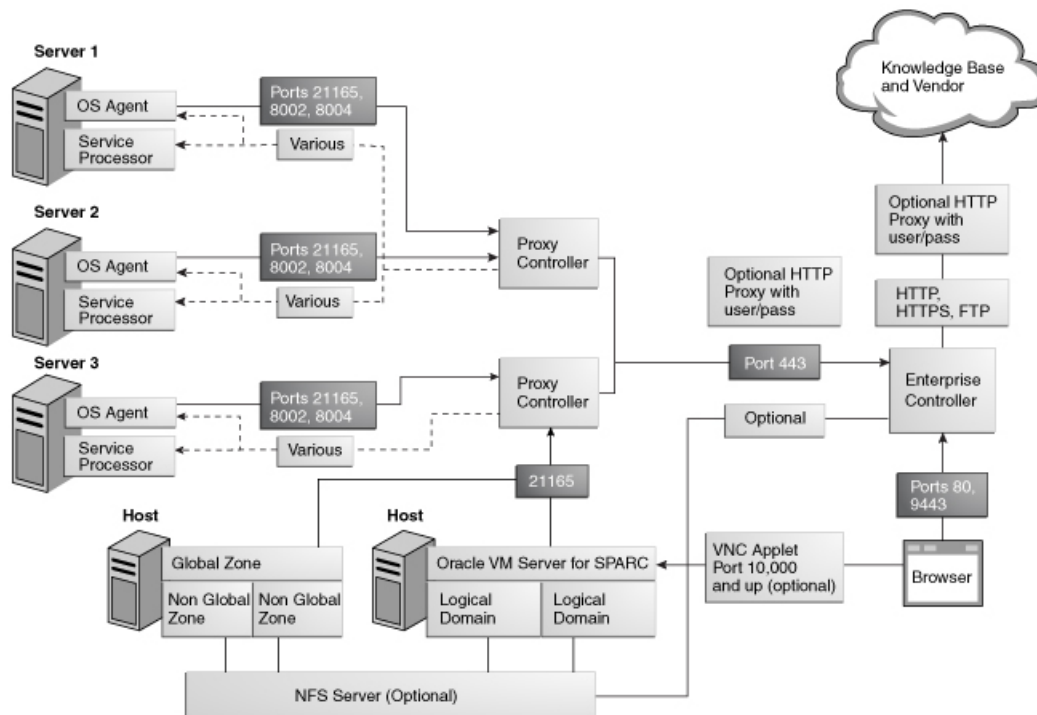
Ports and Protocols:

The Enterprise Controller's default port is 443. If port 443 is in use, the Enterprise Controller uses Port 11175.

Example Network Configuration

You can implement your network using any combination of VLANs and switches. Each network, whether management, provisioning, or data, must be assigned to separate VLANs.

This section provides an example network configuration and connectivity information for Oracle Enterprise Manager Ops Center. Other configurations are possible, such as using separate switches for each network.

Separate Management, Provisioning, and Data Networks:

Network connections are needed for data operations, for management operations, and for provisioning operations. The minimum network configuration, but least secure, is to combine all operations on one network. Separate networks, as shown in Figure 2-2, provide the highest security and the lowest number of points of failure. However, additional network interface cards (NIC) are needed to support this configuration.

Figure 2-2   Example Network Configuration
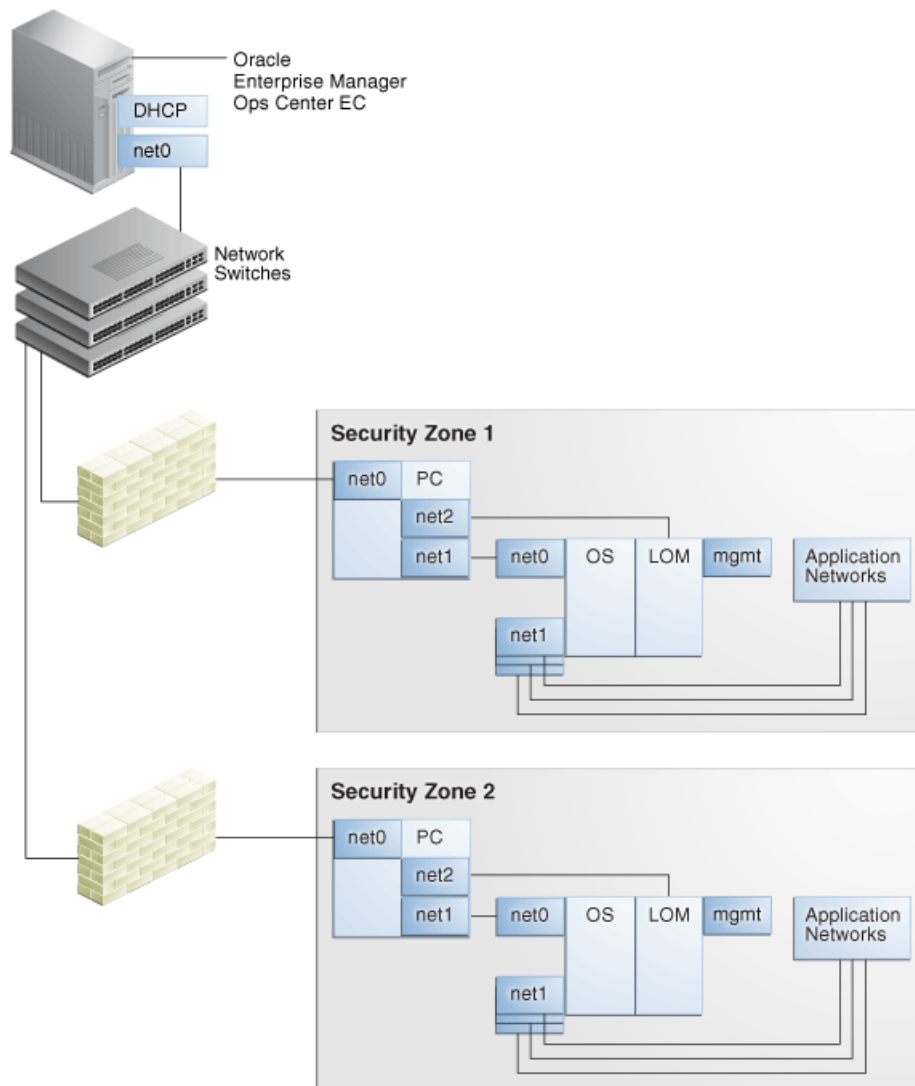
A configuration with separate management, provisioning, and data networks has the following requirements:

- Enterprise Controller or Proxy Controller

  – ETH0 connects the Enterprise Controller/Proxy Controller to the corporate network for external access. Configure the ETH0 IP address, netmask, and gateway to meet corporate connectivity requirements.

  – ETH1 connects the Enterprise Controller/Proxy Controller to the provisioning network, and must be on the same network as the ETH0 connections of the Agent Controllers. Only the Enterprise Controller/Proxy Controller and the Agent Controllers must reside on the provisioning network. ETH1 must be a 1 Gb NIC interface.

  – ETH2 connects the Enterprise Controller/Proxy Controller to the management network, and must be on the same network as the management port connections of the Agent Controllers. Configure the ETH2 IP address, netmask, and gateway to enable connectivity to the Agent Controllers' management port IP addresses. ETH2 must be a 100 MB NIC interface.

  – The DHCP service allocates IP addresses to the Agent Controllers for loading operating systems.

- Agent Controllers

  – Each Agent Controller's management port connects the Agent Controller to the management network, and must be on the same network as the ETH2 connection of the Enterprise Controller/Proxy Controller. The management port must be a 100 MB connection.

  – ETH0 connects the Agent Controller to the provisioning network, and must be on the same network as the ETH1 connection of the Enterprise Controller/ Proxy Controller. ETH0 must be a 1 GB connection.

  – ETH1 connects the Agent Controller to the data network through the switch to provide corporate network access to the Agent Controller. ETH1 must be a 1 GB connection.

About Connection Modes

The Oracle Enterprise Manager Ops Center software operates in either Connected Mode or Disconnected Mode. Because you can change modes easily, you can also consider using a combination of Connected and Disconnected Modes to maintain your data center.

You can run the software in Disconnected Mode until you need to access the Knowledge Base or third-party sites and then change to Connected Mode. For example, to check for OS updates, change the Enterprise Controller to Connected Mode, connect to the Internet to check the Knowledge Base, and then return the Enterprise Controller to Disconnected Mode.

Connected Mode

The Enterprise Controller connects to the Internet to download OS updates, Oracle Solaris images, Firmware images, and updates for the Oracle Enterprise Manager Ops Center software itself. This mode of operation is called Connected Mode and is the default setting.

If your site policy does not allow an Internet connection, use Disconnected Mode.

If your environment uses a web proxy to reach the Internet, you must provide the web proxy information, including the web proxy name, port, and any necessary login credentials, during the Enterprise Controller configuration process.

Operating in Connected Mode gives you the option of filing service requests (SRs) through the user interface. To use this feature, you must supply valid My Oracle Support (MOS) credentials which are associated with a Customer Service Identifier (CSI) with rights over your assets.

Connected Mode also lets you enable the Auto Service Request (ASR) feature, which automatically files SRs based on incidents in Oracle Enterprise Manager Ops Center. You must provide valid MOS credentials and contact information for your assets before enabling ASR.

Figure 2-3 shows the Enterprise Controller in Connected Mode.

Figure 2-3   Enterprise Controller in Connected Mode
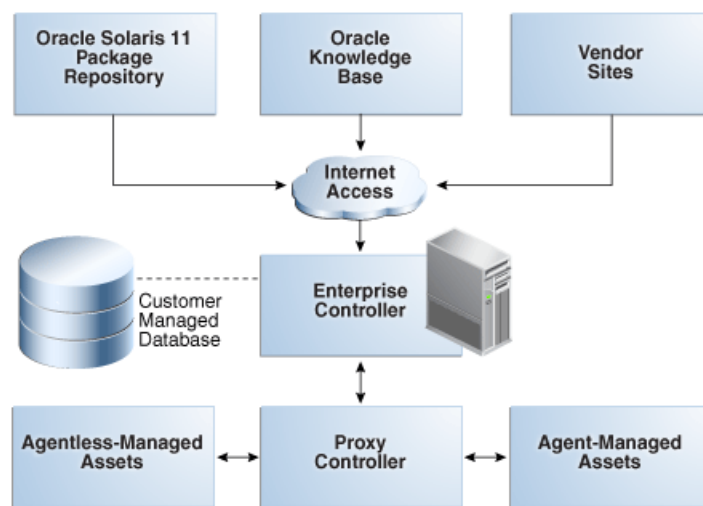
Disconnected Mode

Disconnected Mode enables you to use the Oracle Enterprise Manager Ops Center software in a secured environment without Internet access. To support provisioning and updating functions, you must load images and updates to the Enterprise Controller manually. Because the Enterprise Controller does not download new software automatically, you must plan how and when your site obtains updated software.

To obtain updates, images, and metadata, you run a product script on an Oracle Solaris or Linux system that is allowed to be connected to the Internet, download a static version of the Knowledge Base (KB), and copy it to the Enterprise Controller. For Oracle Solaris 11, you establish a local Oracle Solaris 11 repository. For other supported operating systems, you can obtain software in a media format such as a DVD, and upload the software to the Local Content section of the product's software library.

Figure 2-4 shows the Enterprise Controller in Disconnected Mode.

Figure 2-4   Enterprise Controller in Disconnected Mode
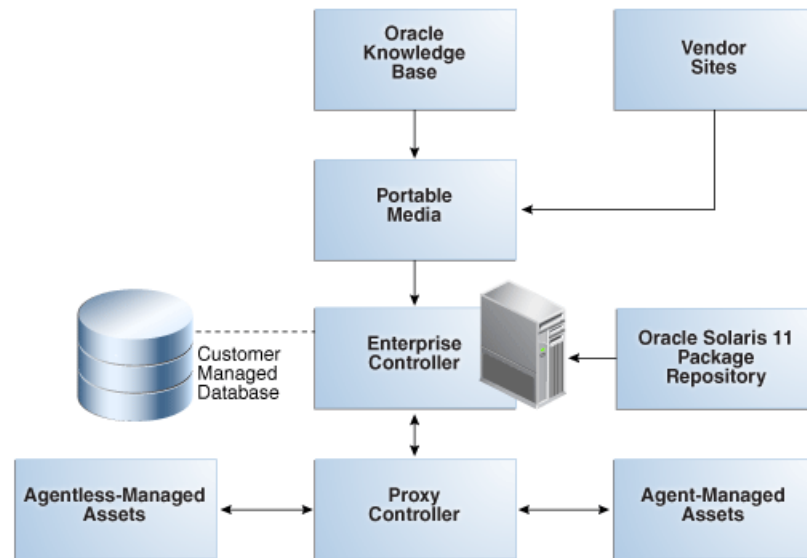
About High Availability

The design for a High Availability (HA) architecture must consider all single points of failure, such as power, storage, and network connectivity in addition to the software.

The following topics are covered:

- About High Availability for the Enterprise Controller

- About High Availability for Proxy Controllers

About High Availability for the Enterprise Controller

You can use Oracle Clusterware to configure high availability for your Enterprise Controller.

Oracle Clusterware lets you configure two or more Enterprise Controller systems and switch between them. The user interface uses a virtual IP address (VIP), which always connects to the active Enterprise Controller.

For more information on managing an Enterprise Controller HA configuration and Oracle Clusterware, see Related Resources for Preparing Your Environment.

Requirements for High Availability:

- Each system in the cluster must be of the same model and configured identically:

    - Processor class

    - Number of cores (at least four)

    - Amount of memory (at least 8 GB)

    - Amount of disk space (at least 100 GB)

    - Amount of swap (at least 16 GB, no less than memory)

    - Oracle Enterprise Manager Ops Center software version, including updates

- Network interfaces that are cabled identically to the same subnets

- The name service used on each system must be the same

- Configure one shared private network. Gigabit speed is recommended.

- Configure at least one shared public network. Gigabit speed is recommended.

- Make the following public network addresses available:

  - **<node#>-vip**: One address of this format should be available for each node.

  - **cluster SCAN address**

- An EC HA environment must use a customer-managed database on a system other than the Enterprise Controller systems.

- The Enterprise Controller libraries must be NFS shares that are accessible by every Enterprise Controller system.

- Configure a shared storage solution. This can be:

  - A shared NFS filesystem configured for root access by each node.

  - Shared SAN storage with at least one FibreChannel LUN connected to each server with identical `/dev/dsk` and `/dev/rdsk` names.

Limitations:

- User accounts and data that are not associated with Oracle Enterprise Manager Ops Center are not part of the failover process. Only Oracle Enterprise Manager Ops Center data is moved between the primary and secondary Enterprise Controllers.

- UI sessions are lost on failover.

- The HA configuration applies only to the Enterprise Controller.

About High Availability for Proxy Controllers

High availability for Proxy Controllers is a feature of the software. This feature is available on all Proxy Controllers regardless of whether Enterprise Controller High Availability is in use.

If a Proxy Controller fails or is uninstalled, you are prompted to migrate assets to another Proxy Controller if one is available. Alternatively, you can enable automatic failover, which automatically migrates assets to another Proxy Controller if their current Proxy Controller becomes unreachable. In either case, you can manually move assets to a new Proxy Controller at any time.

To migrate an asset to a new Proxy Controller, the destination Proxy Controller must either be connected to the networks of the assets being moved, or be associated with those networks and have them enabled. The destination Proxy Controller must also be online and reachable.

About Database Options

Oracle Enterprise Manager Ops Center stores product data in an Oracle Database Enterprise Edition database. This database can be an embedded database installed on

the same system as the Enterprise Controller, or a customer-managed database that is accessible to the Enterprise Controller system.

If you plan to implement high availability for the Enterprise Controller, you must use a customer-managed database.

You can back up an environment with either an embedded or a customer-managed database. If you are using a customer-managed database, you can also back up the database schema using the existing backup and recovery processes implemented by your database administrator.

> **Note:**
>
> Running any database other than the Oracle Enterprise Manager Ops Center database on the Enterprise Controller system is not recommended.

Preparing for an Installation with an Embedded Database

To prepare for an installation with an embedded database, you must verify that the Enterprise Controller system meets the requirements for an Oracle Database Enterprise Edition installation.

You must also download the installation bundles for Oracle Database Enterprise Edition.

- Download the installation bundles for Oracle Database Enterprise Edition version 11.2.0.4 if you are installing Oracle Enterprise Manager Ops Center version 12.3.0.

- Download the installation bundles for Oracle Database Enterprise Edition version 12.1.0.2 if you are installing Oracle Enterprise Manager Ops Center version 12.3.1 or later.

The procedure for downloading these files is included in the installation chapters.

Preparing for an Installation with a Customer-Managed Database

To prepare for an installation with a customer-managed database, you must verify that the Enterprise Controller and the database system meet the requirements for an Oracle Database Enterprise Edition installation.

Use the following initialization parameters for the database:

- locale=UTF8

- character set=AL32UTF8

- sql92_security=TRUE

- NFS_LENGTH_SEMANTICS=BYTE

If you are implementing high availability, the remote database system must be accessible for all of the Enterprise Controller nodes.

About Oracle Enterprise Manager Cloud Control Integration

You can use the Infrastructure Stack plug-in to connect the monitoring capabilities of Oracle Enterprise Manager Cloud Control and Oracle Enterprise Manager Ops Center.

The plug-in module extends the Oracle Enterprise Manager Cloud Control monitoring features to include the additional infrastructure layers below the operating system that are provided by Oracle Enterprise Manager Ops Center, including:

- Virtual assets, including Oracle Solaris Zones and Oracle Solaris VM Server for SPARC domains and guests

- Service processors

- Server containers (chassis)

- Oracle SPARC Enterprise M3000/M4000/M5000/M8000/M9000 Server domains

For more information about using the plug-in to integrate Oracle Enterprise Manager Ops Center and Oracle Enterprise Manager Cloud Control, see *Oracle Enterprise Manager System Monitoring Plug-in for Oracle Enterprise Manager Ops Center*.

Preparing Systems

Once you have planned your installation, you must prepare the systems for installation. Verify that your Enterprise Controller and Proxy Controller systems meet the system requirements, verify that you have the required account access, and verify that your directories are properly configured for Oracle Enterprise Manager Ops Center storage.

The following topics are covered:

- Checking the System Requirements

- Verifying Account Access

- Configuring Storage

Checking the System Requirements

Before installing Oracle Enterprise Manager Ops Center, verify that the Enterprise Controller and Proxy Controller systems meet the prerequisites.

The OC Doctor utility can check a system to verify that it meets all of the prerequisites for an Enterprise Controller or Proxy Controller system. See Checking the Enterprise Controller System for more information.

The Oracle Enterprise Manager Ops Center software requires a full installation of Oracle Linux or Red Hat Enterprise Linux. When you install the operating system, install all optional software components in every software category except the Language category. Set the SELinux security setting to Disabled.

You can install Agent Controllers on a wide set of operating systems, including Oracle Enterprise Linux, Red Hat Enterprise Linux, and Oracle Solaris.

Review the list of supported operating systems for Agent Controller installation and management, hardware and other technologies supported for management, and browsers supported for accessing the UI before the installation procedure.

Checking the Enterprise Controller System

The OC Doctor can check the system on which you plan to install the Enterprise Controller to verify that it meets the prerequisites.

This procedure describes the steps to check the Enterprise Controller.

1. Download the OC Doctor utility. See Related Resources for Preparing Your Environment for the link to download `OCDoctor-LATEST.zip` file.

2. Transfer the zipped file to the Enterprise Controller system.

3. Extract the OC Doctor utility.

4. Run the OC Doctor utility with the `--ec-prereq` option.

   For example:

   ```
   # ./OCDoctor.sh --ec-prereq
   Ops Center Doctor 4.05  [OC 12.1.0.1988,SunOS10]
   ========== Checking 12c Enterprise Controller Requirements ...
   ====================
   OK: This prerequisites script is for 12c EC. Run --ec-prereq-11g if you need the
   old version
   OK: Size of Main Memory: 8192 MB
   OK: Size of swap space is good for local or remote database installation:  8197 MB
   OK: Found enough disk space on /var/opt/sun/xvm (117G)
   OK: Found enough disk space on /opt (117G)
   OK: Found enough disk space on /tmp (14G)
   OK: Installed Solaris Package Cluster: SUNWCall
   OK: Solaris 10 u10 found
   <Output omitted>
   ```

   The OC Doctor displays a warning and a suggested solution for each issue.

5. Correct any issues discovered by the OC Doctor utility.

Checking the Proxy Controller System

The OC Doctor can check the system on which you plan to install a Proxy Controller to verify that it meets the prerequisites.

This procedure describes the steps to check the Proxy Controller system.

1. Download the OC Doctor utility. See Related Resources for Preparing Your Environment for the link to download `OCDoctor-LATEST.zip` file.

2. Transfer the zipped file to the Proxy Controller system.

3. Extract the OC Doctor utility.

4. Run the OC Doctor utility with the `--proxy-prereq` option.

   For example:

   ```
   # ./OCDoctor.sh --proxy-prereq
   Ops Center Doctor 4.05  [OC 12.1.0.1988,SunOS10]
   ========== Checking 12c Proxy Controller Requirements ... ====================
   OK: This prerequisites script is for 12c Proxy. Run --proxy-prereq-11g if you
   need the old version
   OK: Size of Main Memory: 8192 MB
   OK: Size of swap space: 8197 MB
   ```

```
OK: Found enough disk space on /var/opt/sun/xvm (117G)
OK: Installed Solaris Package Cluster: SUNWCall
OK: Solaris 10 u10 found
<Output omitted>
```

The OC Doctor displays a warning and a suggested solution for each issue.

5. Correct any issues discovered by the OC Doctor utility.

Checking Cache Requirements

The Oracle Enterprise Manager Ops Center software uses a central file cache for the different types of content.

Following are the different types of content:

- For provisioning hardware or an OS:

  - Firmware

  - OS Images

- For updating assets:

  - Knowledge Base metadata that specifies the updates for an OS distribution

  - Packages, patches, and RPM files that are a standard part of an OS update distribution

  - Custom content for a site such as software bundles, configuration files, or scripts.

The software propagates content from the cache. For example, a Proxy Controller downloads content from the Enterprise Controller, and an Agent Controller downloads content from the Proxy Controller. After content is cached, it can be re-used without additional download operations.

Cache recommendations for Connected Mode configurations:

The minimum cache size is 74 GB on Enterprise Controllers and Proxy Controllers. Increase the minimum cache size based on the following guidelines:

- 2 GB for software installation (in `/opt` and `/var/tmp`)

- 4 GB for each OS image used for provisioning

- 10 GB for each distribution for updates

Because Agent Controllers store only update content for their OS instance, they have reduced caching requirements. Allow 2 GB for both the software and the update cache.

Example 2-1   Updating Several Operating System Assets

A user runs a job which updates five Oracle Solaris 10 SPARC OS Agent Controllers managed by a single Proxy Controller. The Proxy Controller downloads and caches all of the patches required by the Agent Controllers. Each Agent Controller downloads and caches the patches it requires. If an Agent Controller has cached several updates already, it re-uses those updates and downloads only what it needs from the Proxy Controller.

Example 2-2   Provisioning an Operating System Asset on Several Servers

A user runs a job to provision an OS image to three systems which are managed by two Proxy Controllers. Each Proxy Controller downloads and caches the image. The three systems do not cache the OS image, because they download and install the images from their respective Proxy Controllers.

The installations can use the co-located Proxy Controller, installed on the same OS instance as the Enterprise Controller. The Proxy and Enterprise Controllers share a global file cache so no additional disk space is required for the Proxy Controller's cache.

Example 2-3   Provision and Update Different Operating Systems on Several Servers

A site uses an Enterprise Controller with a co-located Proxy Controller and one other Proxy Controller, which together do the following:

- Provision Oracle Solaris 10 X86 and SPARC 10/08 and Oracle Linux 5.5, using one ISO image for each distribution.

- Update the Oracle Solaris 10 X86, Oracle Solaris 10 SPARC and Oracle Linux 5 32-bit X86 distributions. The remote Proxy Controller provisions and updates Oracle Solaris 10 systems on both SPARC and X86 architectures.

Both the Enterprise Controller with its co-located Proxy Controller and the remote Proxy Controller need a cache size of 74 GB, with 2 GB in `/var/tmp` and `/opt`, and 72 GB in `/var/opt/sun/xvm`. No additional caching is required on the Enterprise Controller because the co-located Proxy Controller shares its cache. The Enterprise Controller must have a minimum cache size of 44 GB:

- 30 GB for the three OS update distributions in `/var/opt/sun/xvm`

- 12 GB for the three OS images in `/var/opt/sun/xvm`

- 2 GB for the software in `/var/tmp` and `/opt`

The remote Proxy Controller must have a minimum cache of 30 GB:

- 20 GB for the two Oracle Solaris OS update distributions in `/var/opt/sun/xvm`

- 8 GB for the two Oracle Solaris OS images in `/var/opt/sun/xvm`

- 2 GB for the Oracle Enterprise Manager Ops Center software in `/var/tmp` and `/opt`

Cache requirements for Disconnected Mode configurations:

In Disconnected Mode, the Oracle Enterprise Manager Ops Center software performs without an Internet connection. Images are managed in the same way as in Connected Mode except it is not possible to download Oracle Solaris OS images. Administrators must cache images manually. For OS updates content, administrators must obtain and upload the content:

- The Knowledge Base content is available as an archive file, which users can obtain by running the `harvester` script. Depending on the settings, users can download the KB content only, or they can obtain content for one or more Oracle Solaris baselines.

- Patches, packages, or RPMs must be uploaded to the Enterprise Controller.

Proxy Controllers and Agent Controllers function the same way in both Connected and Disconnected Modes and their cache requirements are the same.

Checking Disk and Swap Space

You can check the disk and swap space for the Oracle Enterprise Manager Ops Center.

Review the information on minimum values for disk and swap space required by the Oracle Enterprise Manager Ops Center software.

- **Note:**

  The swap requirement might be higher if you are using an embedded database. The requirements for a embedded database are documented in the Preparing for an Installation with an Embedded Database section.

Checking Values for kernel.shmall and kernel.shmmax

You can check values for `kernel.shmall` and `kernel.shmmax`.

If the `/etc/sysctl.conf` file has been modified, the values of `kernel.shmall` and `kernel.shmmax` might be too small, which causes the product installation to fail. The following values are recommended:

- `kernel.shmall`: 268435456

- `kernel.shmmax`: 4294967295

Editing Kernel Settings

When you install Linux, the Xen kernel is set as the default kernel. Setting the standard kernel as the default kernel improves performance.

Perform the following procedure on each Enterprise Controller and Proxy Controller system.

1. Edit the `/boot/grub/menu.lst` file.

   ```
   # vi /boot/grub/menu.lst
   ```

2. Set the value of default to 1.

   ```
   default=1
   ```

3. Save the file.

4. Shut down the system.

   ```
   # shutdown -r now
   ```

   The system now uses the standard kernel by default.

Verifying Account Access

You can verify your account access by logging into MOS.

Log into My Oracle Support or register for an account and log in.

To update SUSE Linux systems, you must have a Novell account. Verify that your Novell account allows access to software updates.

Configuring Storage

The `/var/opt/sun/xvm/osp/share/allstart` directory is configured as an NFS share.

If you use ZFS to provide the file system that mounts as `/var/opt/sun/xvm`, do not use the ZFS `sharenfs` command to share `/var/opt/sun/xvm/osp/share/allstart` so that the Oracle Enterprise Manager Ops Center software can use legacy NFS sharing tools to share the `/var/opt/sun/xvm/osp/share/allstart` directory.

Obtaining the Software

You can download Oracle Enterprise Manager Ops Center installation bundles from the Oracle Technology Network or from the Oracle Software Delivery Cloud.

The next chapter explains how to install and configure the software once you have downloaded it.

The following topics are covered:

- Downloading the Software From the Oracle Technology Network

- Downloading the Software From the Oracle Software Delivery Cloud

Downloading the Software From the Oracle Technology Network

You can download installation bundles for the Enterprise Controller and Proxy Controller from the Oracle Technology Network.

This procedure describes the steps to download the software from the Oracle Technology Network.

> **Note:**
>
> The Oracle Technology Network provides the checksum and md5 values for Oracle Enterprise Manager Ops Center bundles. You can use these values to verify your downloads.

1. Log in to the Oracle Technology Network Oracle Enterprise Manager Ops Center page. See Related Resources for Preparing Your Environment for the link to log in.

2. Click Enterprise Manager Ops Center in the Enterprise Manager Downloads sidebar.

3. Select Accept License Agreement.

4. Click the Enterprise Controller bundle with the correct operating system and architecture to download the full installation bundle.

    This bundle contains the Enterprise Controller and Proxy Controller installation files for the selected architecture and operating system, and Agent Controller installation files for every supported operating system and architecture.

5. Click the Proxy Controller bundle with the correct operating system and architecture to download the Proxy Controller installation bundle.

This bundle is used to manually install remote Proxy Controllers.

Downloading the Software From the Oracle Software Delivery Cloud

You can download installation bundles for the Enterprise Controller and Proxy Controller from the Oracle Software Delivery Cloud.

This procedure describes the steps to download the software from the Oracle Software Delivery Cloud.

1. Log in to the Oracle Software Delivery Cloud. See Related Resources for Preparing Your Environment for the link to log in.

2. Read and accept the Software License Agreement and Export Restrictions, then click **Continue**.

3. Select the Oracle Enterprise Manager product pack and the correct platform for your environment, then click **Go**.

   The list of download packs is displayed.

4. Select the Oracle Enterprise Manager Ops Center 12*c* Release 3 Media Pack and click **Continue**.

   The list of available bundles is displayed.

5. Click **Download** next to the appropriate bundle to download it, then save the downloaded bundle locally.

Related Resources for Preparing Your Environment

You can view the Oracle Enterprise Manager Ops Center documents for additional information.

For more information, see these Oracle resources:

- To verify that the Enterprise Controller and the database meets the requirements and for information on minimum values for disk space and swap space, see *Oracle Enterprise Manager Ops Center Sizing and Performance*

- For more information on using an alternate IPS repository as the Oracle Solaris 11 software update library, see the following:

  - For information on using an existing IPS repository in the site, see `Using an Alternate IPS Repository as the Oracle Solaris 11 Software Update Library`

  - For information on using the an IPS repository as the Oracle Solaris 11 Software Update Library, see `Copying and Creating Oracle Solaris 11 Package Repositories`

- For information on creating and managing Oracle Solaris 11 libraries, see *Oracle Enterprise Manager Ops Center Configuration Reference*

- For information on network security considerations, see *Oracle Enterprise Manager Ops Center Security*

- For information on required ports and protocols for an Enterprise Controller, see *Oracle Enterprise Manager Ops Center Ports and Protocols*

- See the following chapters of the *Oracle Enterprise Manager Ops Center Administration* :

  - For information on managing Enterprise HA, Proxy HA and asset migration, see Manage High Availability

  - For information on ASR, see Manage Auto Service Request

  - For information on backup options, see Perform Backup and Recovery

- For information on using disconnected mode, see *Oracle Enterprise Manager Ops Center Use Disconnected Mode* or *Oracle Enterprise Manager Ops Center Administration*

- For information about Oracle Clusterware, go to `http://www.oracle.com/pls/db112/portal.portal_db?selected=16`

- For information on certified systems, supported operating systems for Agent Controller installation and management, hardware and other technologies supported for management, and browsers supported for accessing the UI, see *Oracle Enterprise Manager Ops Center Certified Systems Matrix*

- To download the OCDoctor, go to `https://updates.oracle.com/OCDoctor/OCDoctor-latest.zip`

- For downloading the software from the Oracle Technology Network page, go to `http://www.oracle.com/technetwork/oem/ops-center/index.html`

- For downloading the software from Oracle Software Delivery Cloud, go to `http://edelivery.oracle.com`

- The Oracle Enterprise Manager Ops Center Documentation Library is located at `http://docs.oracle.com/cd/E59957_01/index.htm`

- For more information on product administration, see `http://docs.oracle.com/cd/E59957_01/nav/administer.htm`

- For end-to-end examples, see the Deploy How To library at `http://docs.oracle.com/cd/E59957_01/nav/deploy.htm` and the Operate How To library at `http://docs.oracle.com/cd/E59957_01/nav/operate.htm`

- For more information on Enterprise Manager Ops Center, see the Ops Center blog at `https://blogs.oracle.com/opscenter/`

3

Installing with Enterprise Controller High Availability

You can install and configure an Enterprise Controller High Availability environment on Linux systems.

The first step in this process is to install the Enterprise Controller nodes, using a customer-managed remote database and Oracle Clusterware.

Once you have installed the Enterprise Controllers, you configure the primary Enterprise Controller through the user interface. The configuration process specifies many characteristics of the Enterprise Controller, and can install and configure one or more Proxy Controllers based on your choice of deployment:

- A simple deployment configures the co-located Proxy Controller on the Enterprise Controller system.

- An advanced deployment remotely installs and configures one or more Proxy Controllers on remote systems.

- Installing Proxy Controllers outside of the configuration wizard lets you install and configure Proxy Controllers remotely or manually after configuring the Enterprise Controller.

- Manual configuration lets you create a configuration file with the configuration details. You can enable the co-located Proxy Controller using manual configuration, but other Proxy Controllers must be configured separately.

If you decided to install Proxy Controllers outside of the configuration wizard, or if you need to install Proxy Controllers at a later date, use the procedures in the Installing Proxy Controllers chapter.

This chapter includes the following sections:

- Installing the Enterprise Controllers

- Configuring the Enterprise Controllers

- Related Resources for Enterprise Controller High Availability

Installing the Enterprise Controllers

You can install Enterprise Controller software on systems that are running the Linux OS, with one Enterprise Controller configured as the primary and one or more Enterprise Controllers configured as standby systems. This enables you to switch to a different node to perform maintenance or avoid a loss of service if one node fails.

This installation installs, or upgrades to, Java Development Kit (JDK) 7 Update 101 for the use of the Enterprise Controller and Proxy Controllers. If the system already has a later version of JDK installed, then the later version of JDK is used.

> **Note:**
>
> If your environment includes Oracle VM Servers for x86, the Proxy Controllers that manage these systems must be modified to use JDK 6. This procedure is described in the Installing Proxy Controllers chapter.

> **Note:**
>
> Do not upgrade the Java version on Oracle Solaris 10 Control Domains or Logical Domains that have LDOM Manager version 3.2 or earlier installed. If you have upgraded the Java on these systems to version 1.6.0_101 or higher, downgrade to Java 1.6.0_95.

If you need a Java version greater than the version that the Enterprise Controller software installs, you must manually install the desired Java version before the Enterprise Controller software installation. For more information on manually installing Java, see Installing the Java Version Manually.

This procedure configures the software to use a remote Oracle Database. The customer-managed database must be installed and configured separately.

The script that installs the Enterprise Controller also automatically installs a Proxy Controller on the same system, but it does not enable the Proxy Controller. In the configuration steps performed as part of the primary Enterprise Controller installation, you can choose to enable this Proxy Controller.

> **Note:**
>
> The installation procedure requires database user name, password, and URL information. Work with your database administrator if you do not have access to this information.

> **Note:**
>
> If you have already installed and configured a single Enterprise Controller, you can convert to Enterprise Controller High Availability.

Preparing for High Availability with Oracle Clusterware

Installing and configuring Oracle Clusterware is the first step in setting up High Availability in your environment.

This procedure describes the steps to configure systems with High Availability.

1. Install Oracle Clusterware in your environment. See Related Resources for Enterprise Controller High Availability for information on Oracle Clusterware documentation.

2. Identify an existing Oracle Database Enterprise Edition database to use, or install and configure a customer-managed database according to the Oracle Database Enterprise Edition installation documentation.

> **Note:**
>
> Each node must use the same name service for validating local users and groups.

3. Identify or create NFS shares that are accessible to every Enterprise Controller node. These shares are used for the Enterprise Controller libraries.

4. Create a directory on the database system that can be used as the Oracle Enterprise Manager Ops Center dump directory. This directory must be owned by the Oracle user. If you are using Oracle RAC, this directory must be shared between all Oracle RAC nodes.

> **Note:**
>
> If you are using Oracle Real Application Cluster (Oracle RAC) on the database system, the dump directory must be mounted over NFS using the following NFS settings:
>
> ```
> rw,bg,hard,nointr,rsize=131072,wsize=131072,tcp,vers=3, suid
> ```

Installing the Enterprise Controller on the First Node

You must install the Enterprise Controller on each cluster node before configuring the software. The first node is initially configured as the active node.

This procedure describes the steps to install the Enterprise Controllers on the first node.

1. Create a temporary directory on your system, then copy or move the appropriate Oracle Enterprise Manager Ops Center archive for your system from delivery media to the temporary directory that you created. For example:

```
# mkdir /var/tmp/OC
# cp enterprise-controller.Linux.i686.12.3.0.604.tar.gz /var/tmp/OC
```

The installation archive consumes about 3.5 GBytes of disk space.

2. Change to the directory where the installation archive is located on your system.

```
# cd /var/tmp/OC
#
```

3. Expand the installation archive, then list the contents of the expanded directory.

   - If your installation archive has the `.zip` extension, use the `unzip` command to uncompress the archive. For example:

   ```
   # unzip enterprise-controller.Linux.i686.12.3.0.604.zip
   # ls
   enterprise-controller.Linux.i686.12.3.0.604.zip
   xvmoc_full_bundle
   #
   ```

   - If your installation archive has the `.tar.zip` extension, use the `unzip` and `tar` commands to uncompress and un-tar the archive, then list the contents of the temporary directory. The following command example retains the original

compressed archive file. The data extracted from the archive consumes about 1.5 GB of additional space. For example:

```
# unzip enterprise-controller.Linux.i686.12.3.0.604.tar.zip | tar xf -
# ls
enterprise-controller.Linux.i686.12.3.0.604.tar.zip
xvmoc_full_bundle
#
```

4. Identify an existing Oracle Database Enterprise Edition database to use, or install and configure a customer-managed database according to the Oracle Database Enterprise Edition installation documentation.

5. Create the following tablespaces on the database:

   - **Default tablespace**: This is the default tablespace for the Oracle Enterprise Manager Ops Center user.

   - **Report tablespace**: This is the tablespace used for report data. Create this tablespace with the name OC_RM_RESOURCE_TS.

   - **Temporary tablespace**: This is the temporary tablespace for the Oracle Enterprise Manager Ops Center user.

6. Copy the createOCSchema.sql script from the Enterprise Controller to the customer-managed database server. This script is in the /var/tmp/OC/xvmoc_full_bundle/Linux_i686/Product/installer/scripts directory.

   For example, on the customer-managed database server:

```
# scp root@EnterpriseController:/var/tmp/OC/xvmoc_full_bundle/Linux_i686/Product/
installer/scripts/createOCSchema.sql .
Password:
createOCSchema.sql  100% |********************| 1486     00:00
```

> **Note:** If you are using an Oracle 12CDB customer-managed database, use the createOCSchema_remotePDB.sql script. See Related Resources for Enterprise Controller High Availability for more information on preparing the Oracle 12CDB customer-managed database for Oracle Enterprise Manager Ops Center installation.

7. As the customer-managed database administrator, run the createOCSchema_remote.sql script. This script creates the Oracle Enterprise Manager Ops Center users, assigns the default and temporary tablespaces, and assigns the dump directory. The script prompts you for the following information:

   - **Oracle Enterprise Manager Ops Center user name**: This is a database user that is created by the script, which Oracle Enterprise Manager Ops Center uses to access the database.

   - **Oracle Enterprise Manager Ops Center password**: This is the password for the database user.

   - **Oracle Enterprise Manager Ops Center read-only user name**: This is a read-only database user, which Oracle Enterprise Manager Ops Center uses to view the database.

- **Oracle Enterprise Manager Ops Center read-only password**: This is the password for the read-only database user.

- **Default tablespace**: This is the default tablespace for the Oracle Enterprise Manager Ops Center user.

- **Report tablespace**: This is the tablespace used for report data.

- **Temporary tablespace**: This is the temporary tablespace for the Oracle Enterprise Manager Ops Center user.

- **Oracle Enterprise Manager Ops Center dump directory**: This directory must exist and must be owned by the `oracle` user. If you are using Oracle RAC, this directory must be shared between all Oracle RAC nodes.

When you enter all of the required information, the `createOCSchema_remote.sql` script indicates completion and exits.

For example:

```
$ sqlplus / as sysdba @createOCSchema_remote.sql

SQL*Plus: Release 12.1.0.2.0 Production on Mon Jul 27 13:11:20 2015

Copyright (c) 1982, 2014, Oracle. All rights reserved.


Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, Real Application Clusters, OLAP, Advanced Analytics and
Real Application Testing options

Enter username for Ops Center database login: TESTSCHEMA
Enter password for Ops Center database login:
Enter username for read only Ops Center database login: TESTSCHEMA_RO
Enter password for read only Ops Center database login:
Enter default tablespace for Ops Center user: USERS
Enter report tablespace for Ops Center user: OC_RM_RESOURCE_TS
Enter temporary tablespace for Ops Center user: TEMP
Enter Oracle Data Pump destination directory: /var/tmp/ocdumpdir

"Done creating OC_SYSTEM_ROLE and OC_RO_ROLE"
"Done creating Schema 'TESTSCHEMA'. Roles and privileges have been granted."
"Done creating Schema 'TESTSCHEMA_RO'. Roles and privileges have been granted."
"Done creating OC_DUMP_DIR at /var/tmp/ocdumpdir"
"Done granting privs to users and profiles"
"Testing connectivity to the new schema: 'TESTSCHEMA'"
Connected.
"Testing connectivity to the new read only schema: 'TESTSCHEMA_RO'"
Connected.

"Create is Complete. OC can now be used with the new schema: 'TESTSCHEMA'"


Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 -
64bit Production
With the Partitioning, Real Application Clusters, OLAP, Advanced Analytics and
Real Application Testing options
$
```

If you are reinstalling your Enterprise Controller as part of a restore, use the `--preserveDB` option to preserve the existing Oracle Enterprise Manager Ops Center database application schema.

For example:

```
# cd xvmoc_full_bundle
# ./install --preserveDB --remoteDBprops=/var/tmp/RemoteDBProps.txt
```

10. The Oracle Configuration Manager installation text is displayed. Enter the My Oracle Support user name or email address that you want to associate with Oracle Enterprise Manager Ops Center.

```
Provide your email address to be informed of security issues, install and
initiate Oracle Configuration Manager. Easier for you if you use your My
Oracle Support Email address/User Name.
Visit http://www.oracle.com/support/policies.html for details.
Email address/User Name:
```

11. If you want security updates to appear on your My Oracle Support page, enter your My Oracle Support password.

```
Provide your My Oracle Support password to receive security updates via your My
Oracle Support account.
Password (optional):
```

The screen clears, then the install script displays a list of installation tasks that automatically updates as the installation proceeds. For example:

```
Ops Center Enterprise Controller Installer
(version 12.3.0.604 on Linux)

1. Check for installation prerequisites.                       [Not Completed]
2. Configure file systems.                                     [Not Completed]
3. Install prerequisite packages.                              [Not Completed]
4. Install Agent components.                                    [Not Completed]
5. Create Deployable Proxy Bundles.                            [Not Completed]
6. Install application packages.                               [Not Completed]
7. Run postinstall tasks.                                      [Not Completed]
8. Install Expect.                                             [Not Completed]
9. Install IPMI tool.                                          [Not Completed]
10. Set database credentials.                                  [Not Completed]
11. Install and Configure Oracle Database.                     [Not Completed]
12. Seed Ops Center Database Schema                            [Not Completed]
13. Install Service container components.                      [Not Completed]
14. Install Core Channel components.                           [Not Completed]
15. Install Proxy Core components.                             [Not Completed]
16. Set Proxy database credentials.                            [Not Completed]
17. Install Enterprise Controller components.                  [Not Completed]
18. Install Update Connection - Enterprise.                    [Not Completed]
19. Install Ops Center BUI components.                         [Not Completed]
20. Install OS provisioning components.                        [Not Completed]
21. Initialize and start services.                            [Not Completed]
Executing current step:  Check for installation prerequisites...
(version 12.3.0.604 on Linux)
```

12. Review and correct any problems when the `install` script checks for installation prerequisites that are not met. For example, this `install` script detected insufficient disk space:

```
Warning for Step: Check for installation prerequisites.
The following is a portion of the installer
```

```
log which may indicate the cause of the warning.
If this does not indicate the cause of the
warning, you will need to view the full log
file. More information on how to do that is
available below.
You may choose to ignore this warning by selecting to continue.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Ignoring job: 01checkRPMs.pl
Ignoring job: 03removeEmptyDirs.pl


Executing job: jobs/00checkPrereqs.pl --install

WARNING: Installation prerequisites not met:
Disk: / 72G needed, 24G available.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
Please fix the problem and then try this step again.
For a full log of the failed install see the file: /var/tmp/installer.log.9361.

t. Try this step again (correct the failure before proceeding)
c. Continue (ignore the warning)
x. Exit
Enter selection: (t/c/x)
```

You can enter t to try again, c to continue and ignore the warning, or x to exit the install script. You should exit the install script, correct the problem, and then run the install script again, which resumes from where it stopped. Choose to continue and ignore the warning only if you accept the impact that the error condition will have on your installation. Entering t typically produces the same error, unless you are able to correct the problem before trying the step again. If the install script finds that all prerequisites have been satisfied, or if you choose to continue despite the warning, the install script continues and installs all Enterprise Controller and Proxy Controller components.

When complete, the install script displays a confirmation that all components have been installed. The /var/tmp/installer.log.latest file contains the installation log.

13. Delete the database properties file that you created on the Enterprise Controller system.

For example:

```
# rm /var/tmp/RemoteDBProps.txt
```

Installing the Enterprise Controller on the Standby Nodes

Once you have installed the Enterprise Controller on the primary node, you can install on standby nodes.

This procedure describes the steps to install the Enterprise Controller on standby nodes.

1. Create a temporary directory on your system, then copy or move the appropriate Oracle Enterprise Manager Ops Center archive for your system from delivery media to the temporary directory that you created. For example:

```
# mkdir /var/tmp/OC
# cp enterprise-controller.Linux.i686.12.3.0.604.tar.gz /var/tmp/OC
```

The installation archive consumes about 3.5 GBytes of disk space.

2. Change to the directory where the installation archive is located on your system.

```
# cd /var/tmp/OC
#
```

3. Expand the installation archive, then list the contents of the expanded directory.

- If your installation archive has the `.zip` extension, use the `unzip` command to uncompress the archive. For example:

```
# unzip enterprise-controller.Linux.i686.12.3.0.604.zip
# ls
enterprise-controller.Linux.i686.12.3.0.604.zip
xvmoc_full_bundle
#
```

- If your installation archive has the `.tar.zip` extension, use the `unzip` and `tar` commands to uncompress and un-tar the archive, then list the contents of the temporary directory. The following command example retains the original compressed archive file. The data extracted from the archive consumes about 1.5 GB of additional space. For example:

```
# unzip enterprise-controller.Linux.i686.12.3.0.604.tar.zip | tar xf -
# ls
enterprise-controller.Linux.i686.12.3.0.604.tar.zip
xvmoc_full_bundle
#
```

4. Create a database properties file on the Enterprise Controller system. The database properties file must contain the location of the customer-managed database and a user name and password that can access the database.

For example:

```
# vi /var/tmp/RemoteDBProps.txt
mgmtdb.appuser=user
mgmtdb.password=userpass
mgmtdb.roappuser=user
mgmtdb.ropassword=userpass
mgmtdb.dburl=jdbc:oracle:thin:@<database host name>:<port>/<database service name>
```

The `mgmtdb.dburl` property can be entered in any of these formats:

```
mgmtdb.dburl=jdbc:oracle:thin:@<database host name>:<port>/<database service name>
mgmtdb.dburl=jdbc:oracle:thin:@<database host name>:<port>:<SID>
mgmtdb.dburl=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCPS)(HOST=<host>)
(PORT=<port>))(CONNECT_DATA=(SERVICE_NAME=<service>)))
```

> **Note:** If you are using an Oracle 12CDB customer-managed database, then the database service name should point to the pluggable database service name. For example: `mgmtdb.dburl=jdbc:oracle:thin:@<database host name>:<port>/<Pluggable database service name>`. See Related Resources for Enterprise Controller High Availability for more information on preparing the Oracle 12CDB customer-managed database for Oracle Enterprise Manager Ops Center installation.

5. Change directory to `xvmoc_full_bundle`, and run the `install` script with the `--remoteDBprops <path to database properties file>` and `--standbyEC` options. For example:

```
# cd xvmoc_full_bundle
# ./install --remoteDBprops=/var/tmp/remoteDBProps.txt --standbyEC
```

6. The Oracle Configuration Manager installation text is displayed. Enter the My Oracle Support user name or email address that you want to associate with Oracle Enterprise Manager Ops Center.

```
Provide your email address to be informed of security issues, install and
initiate Oracle Configuration Manager. Easier for you if you use your My
Oracle Support Email address/User Name.
Visit http://www.oracle.com/support/policies.html for details.
Email address/User Name:
```

7. If you want security updates to appear on your My Oracle Support page, enter your My Oracle Support password.

```
Provide your My Oracle Support password to receive security updates via your My
Oracle Support account.
Password (optional):
```

The screen clears, then the install script displays a list of installation tasks that automatically updates as the installation proceeds. For example:

```
Ops Center Enterprise Controller Installer
(version 12.3.0.604 on Linux)

1. Check for installation prerequisites.                   [Not Completed]
2. Configure file systems.                                 [Not Completed]
3. Install prerequisite packages.                          [Not Completed]
4. Install Agent components.                               [Not Completed]
5. Create Deployable Proxy Bundles.                        [Not Completed]
6. Install application packages.                           [Not Completed]
7. Run postinstall tasks.                                  [Not Completed]
8. Install Expect.                                         [Not Completed]
9. Install IPMI tool.                                      [Not Completed]
10. Set database credentials.                              [Not Completed]
11. Install and Configure Oracle Database.                 [Not Completed]
12. Seed Ops Center Database Schema                        [Not Completed]
13. Install Service container components.                  [Not Completed]
14. Install Core Channel components.                       [Not Completed]
15. Install Proxy Core components.                         [Not Completed]
16. Set Proxy database credentials.                        [Not Completed]
17. Install Enterprise Controller components.              [Not Completed]
18. Install Update Connection - Enterprise.                [Not Completed]
19. Install Ops Center BUI components.                     [Not Completed]
20. Install OS provisioning components.                    [Not Completed]
21. Initialize and start services.                         [Not Completed]
Executing current step:  Check for installation prerequisites...
(version 12.3.0.604 on Linux)
```

8. Review and correct any problems when the `install` script checks for installation prerequisites that are not met. For example, this `install` script detected insufficient disk space:

```
Warning for Step: Check for installation prerequisites.
The following is a portion of the installer
log which may indicate the cause of the warning.
```

```
If this does not indicate the cause of the
warning, you will need to view the full log
file. More information on how to do that is
available below.
You may choose to ignore this warning by selecting to continue.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Ignoring job: 01checkRPMs.pl
Ignoring job: 03removeEmptyDirs.pl


Executing job: jobs/00checkPrereqs.pl --install

WARNING: Installation prerequisites not met:
Disk: / 72G needed, 24G available.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
Please fix the problem and then try this step again.
For a full log of the failed install see the file: /var/tmp/installer.log.9361.

t. Try this step again (correct the failure before proceeding)
c. Continue (ignore the warning)
x. Exit
Enter selection: (t/c/x)
```

You can enter t to try again, c to continue and ignore the warning, or x to exit the install script. You should exit the install script, correct the problem, and then run the install script again, which resumes from where it stopped. Choose to continue and ignore the warning only if you accept the impact that the error condition will have on your installation. Entering t typically produces the same error, unless you are able to correct the problem before trying the step again. If the install script finds that all prerequisites have been satisfied, or if you choose to continue despite the warning, the install script continues and installs all Enterprise Controller and Proxy Controller components.

When complete, the install script displays a confirmation that all components have been installed. The /var/tmp/installer.log.latest file contains the installation log.

9. Delete the database properties file that you created on the Enterprise Controller system.

For example:

```
# rm /var/tmp/RemoteDBProps.txt
```

Configuring the Enterprise Controllers

Once you have installed the Enterprise Controller nodes, you configure them. This process includes configuring one Enterprise Controller as the primary node, configuring the user interface, and configuring the remaining Enterprise Controllers as standby nodes.

The following topics are covered:

- Configuring the Primary Enterprise Controller

- Configuring the Enterprise Controller User Interface

- Configuring the Standby Enterprise Controllers

Configuring the Primary Enterprise Controller

Once you have installed the primary and standby Enterprise Controllers, configure the primary Enterprise Controller to act as the primary.

This procedure describes the steps to configure the primary Enterprise Controller.

1. Use the /opt/sun/xvmoc/bin/ecadm command with the ha-configure-primary subcommand to configure the system as the active Enterprise Controller.

   If the clusterware crsctl command is not in the /u01 directory, use the --crsctl_basepath <location> option to specify its location.

   For example:

   ```
   # /opt/sun/xvmoc/bin/ecadm ha-configure-primary
   INFO: HAECClusterwareAdapter/doConfigurePrimary() Stopping Ops Center ...
   INFO: HAECClusterwareAdapter/doConfigurePrimary() Ops Center stopped
   INFO: HAECClusterwareAdapter/createActionScript() created Resource Action
   Script='/var/opt/sun/xvm/ha/EnterpriseController'
   INFO: HAECClusterwareAdapter/doConfigurePrimary() created Clusterware Action
   Script='/var/opt/sun/xvm/ha/EnterpriseController'
   INFO: HAECClusterwareAdapter/doConfigurePrimary() created Clusterware
   Resource='EnterpriseController'
   INFO: HAECClusterwareAdapter/doHAStart() starting resource='EnterpriseController'
   on node='primary-system'
   INFO: HAECClusterwareAdapter/doHAStart()statusSB='CRS-2672: Attempting to start
   'EnterpriseController' on 'primary-system'
   CRS-2676: Start of 'EnterpriseController' on 'primary-system' succeeded'
   INFO: HAECClusterwareAdapter/doHAStart() started resource='EnterpriseController'
   on node='primary-system'
   INFO: HAECClusterwareAdapter/doConfigurePrimary() Ops Center started on
   node='primary-system'
   ecadm:    --- Enterprise Controller successfully configured HA primary node
   #
   ```

2. Use the /opt/sun/xvmoc/bin/ecadm command with the status option to check the status of the Enterprise Controller services. For example:

   ```
   # /opt/sun/xvmoc/bin/ecadm status
   online
   #
   ```

3. Use the /opt/sun/xvmoc/bin/ecadm command with the ha-status -d option to check the status of the standby Enterprise Controller. For example:

   ```
   # /opt/sun/xvmoc/bin/ecadm ha-status -d
   INFO: HAECClusterwareAdapter/doHAStatus() Status:
   # HAEC Cluster Info: Thu Sep 29 15:49:09 MDT 2011
   haec.cluster.active.node=active
   haec.cluster.nodes=active
   haec.ec.public.nics=nge1
   haec.ec.status=ONLINE
   <output omitted>
   haec.cluster.script=/var/opt/sun/xvm/ha/EnterpriseController
   haec.cluster.crsctl=/u01/app/11.2.0/grid/bin/crsctl
   # End of Cluster Info
   ecadm:    --- Enterprise Controller ha-status command succeeded
   Status stored in file: /var/opt/sun/xvm/ha/HAECStatus
   #
   ```

4. Go to Configuring the Enterprise Controller User Interface and follow the steps to configure the active Enterprise Controller.

Configuring the Enterprise Controller User Interface

After you install the Enterprise Controller, you must configure it. During the configuration process, you specify how Oracle Enterprise Manager Ops Center operates.

The following tasks are part of the configuration process:

- Supplying Enterprise Controller information

- Deploying one or more Proxy Controllers (optional in this wizard, but must be performed before using the software)

- Registering the Enterprise Controller (optional)

- Creating libraries

- Choosing a connection mode and configuring services (optional in this wizard, but must be performed before using the software)

This procedure describes the complete Enterprise Controller configuration process, including Proxy Controller deployment, asset discovery, connection mode selection, and registration.

Four types of configuration are described in this section:

- **Simple deployment**: A simple deployment configures the co-located Proxy Controller on the Enterprise Controller system. This deployment is effective for small environments.

- **Advanced deployment**: An advanced deployment installs and configures one or more Proxy Controllers on remote systems. This deployment is effective for larger environments.

- **Deploy without installing a Proxy Controller**: This deployment configures the Enterprise Controller without installing or configuring any Proxy Controllers. This deployment is appropriate if you intend to install and configure Proxy Controllers after configuration. Oracle Enterprise Manager Ops Center cannot function without at least one Proxy Controller.

- **Configuring an Enterprise Controller manually**: This deployment configures the Enterprise Controller according to a configuration profile that you create. You can enable the co-located Proxy Controller using manual configuration, but other Proxy Controllers must be configured separately.

> **Note:**
>
> You should not install a Proxy Controller in an environment where there is a web proxy which requires authentication between the Enterprise Controller and the Proxy Controller. Many OS update functions are not usable for systems managed by such a Proxy Controller.

> **Note:**
>
> Oracle Enterprise Manager Ops Center has self-signed certificates that it uses for authentication between its components. If you prefer to use certificates authenticated by a Certificate Authority, perform the Substitute Certificates procedure before you install any Proxy Controllers.

Configuring the Enterprise Controller with a Simple Deployment

A simple deployment configures the co-located Proxy Controller on the Enterprise Controller system.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

  1. Download `https://updates.oracle.com/OCDoctor/harvester_bundle-latest.zip` on an Internet-facing system.

  2. Unzip the bundle.

  3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

     ```
     # ./harvester --user <MOS user name> --password-file <password file
     location> --kb-only
     Directory /export/home/public not found. This directory will be created.
     Setting up local directory structure at: /export/home/public
     Initialization: Downloading channels.xml
     Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
     Distributions:
     Identifying and Downloading the Notifications and Seeker scripts
     Creating tarball...

     Tarball successfully created at /discon/standalone-0127.tar.gz

     Start time: Tue Jan 17 05:08:00 MST 2012
     Completion time: Tue Jan 17 05:08:01 MST 2012
     <output omitted>
     ```

     4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Enterprise Controller High Availability for the link to log in.

To configure an Enterprise Controller with a Simple Deployment:

1. In a browser, navigate to `https://<Enterprise Controller>:9443/emoc`.

   The Login page is displayed.

2. Enter the system's root user name and password and select Ops Center as the source, then click **Log In**.

3. If the configuration detects any prerequisites that are not met, the Prerequisite Checklist page is displayed. If the Prerequisite Checklist is not displayed, skip this step.

If the Prerequisite Checklist is displayed, review the prerequisites. If necessary, cancel the configuration and make changes to the system as suggested by the checklist. Click **Next**.

The Enterprise Controller Setup page is displayed.

4. Enter the Enterprise Controller setup information, then click **Next**. Configuration information includes:

- **Enterprise Controller name**: The Enterprise Controller name that is displayed in the masthead.

- **Administrative User**: The Administrative User is given the Enterprise Controller Admin and All Assets Admin roles. Until other users are added, the Administrative User is the only user recognized by Oracle Enterprise Manager Ops Center. Select **Set the Currently Logged In User as Administrative User** to make the current user the Administrative User, or select **Set the Following User as the Administrative User** and enter a user name and password to make that user the Administrative User.

- **Proxy Controller Setup**: This option sets the initial Proxy Controller configuration. Select **Co-located Proxy**.

  A popup is displayed indicating that the local Proxy Controller is being configured. Click **Close** to close the popup, then click **Next**.

The Proxy Controller Status page is displayed.

5. View the status of the configured Proxy Controller and verify that the Proxy Controller you installed and configured is online.

(Optional) Click **Check**, then enter a host name or IP address. The connectivity and status of the specified host is checked.

Click **Next**.

The Connection Mode page is displayed.

6. Select a connection mode option:

- **Connected Mode**: Oracle Enterprise Manager Ops Center downloads patches from Oracle and other vendors. The Enterprise Controller must be able to access the Internet, either directly or through an HTTP Proxy, to use Connected Mode.

  If you select Connected Mode, you can also enable or disable Auto Service Request (ASR).

- **Disconnected Mode**: Oracle Enterprise Manager Ops Center operates autonomously, and patches must be manually downloaded and supplied to the Enterprise Controller.

Click **Next**.

7. If you selected Connected Mode, the Connecting to My Oracle Support page is displayed. Enter your My Oracle Support (MOS) user name and password. You must have a valid MOS Account. If the Enterprise Controller requires an HTTP

Proxy to reach the Internet, check **Use HTTP Proxy** and enter the HTTP Proxy information:

- Server: The HTTP Proxy server.

- Port: The port used to access the HTTP Proxy server.

- (Optional) Authorized user name: The authorized user name is required if the HTTP Proxy can only be accessed by an authorized user.

- (Optional) Password: The password is required if the HTTP Proxy can only be accessed by an authorized user.

Click **Next**.

8. If you enabled Auto Service Request (ASR), the Auto Service Request Contact page is displayed. Enter the default contact information for ASR:

- First Name: The first name of the ASR contact.

- Last Name: The last name of the ASR contact.

- Phone: The phone number for the ASR contact.

- Email: The email address for the ASR contact.

- Country: The country where the assets are located.

- Address 1: The address where the assets are located.

- (Optional) Address 2: The second line of the address where the assets are located.

- City: The city where the assets are located.

- State/Province: The state or province where the assets are located.

- (Optional) Zip/Postal Code: The zip or postal code where the assets are located.

- Time Zone: The time zone where the assets are located.

Click **Next**.

9. The Create Software Libraries page is displayed. Oracle Enterprise Manager Ops Center either creates the libraries or connects to NAS libraries in the locations that you specify. If you are using High Availability for the Enterprise Controller, these libraries must not be created locally.

Enter a location for each library:

- **Software Library**: This library stores firmware images, ISOs, and flash archives.

- **Linux and Oracle Solaris 8-10 Library**: This library stores Linux and Oracle Solaris 8-10 OS images.

Click **Next**.

10. If you are configuring in Disconnected Mode, the Linux/Oracle Solaris 8-10 Software Bundle page is displayed. Enter the location of the update bundle that you downloaded before beginning this procedure.

Click **Next**.

11. The Configure DHCP for OS Provisioning page is displayed. Some OS provisioning, particularly on older hardware, requires DHCP to be configured on the Proxy Controller.

    To configure DHCP for a Proxy Controller, select a Proxy Controller, then select a DHCP type from the drop-down list. Add one or more interfaces to the list of selected interfaces, then click **Configure DHCP**.

    The Summary page is displayed.

12. Click **Finish**.

    Oracle Enterprise Manager Ops Center is configured, and you are logged in to the UI.

Configuring the Enterprise Controller with an Advanced Deployment

An Advanced Deployment installs and configures one or more Proxy Controllers on remote systems.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

    1. Download `https://updates.oracle.com/OCDoctor/harvester_bundle-latest.zip` on an Internet-facing system.

    2. Unzip the bundle.

    3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

    ```
    # ./harvester --user <MOS user name> --password-file <password file
    location> --kb-only
    Directory /export/home/public not found. This directory will be created.
    Setting up local directory structure at: /export/home/public
    Initialization: Downloading channels.xml
    Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
    Distributions:
    Identifying and Downloading the Notifications and Seeker scripts
    Creating tarball...

    Tarball successfully created at /discon/standalone-0127.tar.gz

    Start time: Tue Jan 17 05:08:00 MST 2012
    Completion time: Tue Jan 17 05:08:01 MST 2012
    <output omitted>
    ```

    4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Enterprise Controller High Availability for the link to log in.

To configure an Enterprise Controller with an Advanced Deployment:

1. In a browser, navigate to `https://<Enterprise Controller>:9443/emoc`.

   The Login page is displayed.

2. Enter the system's root user name and password and select Ops Center as the source, then click **Log In**.

3. If the configuration detects any prerequisites that are not met, the Prerequisite Checklist page is displayed. If the Prerequisite Checklist is not displayed, skip this step.

   If the Prerequisite Checklist is displayed, review the prerequisites. If necessary, cancel the configuration and make changes to the system as suggested by the checklist. Click **Next**.

   The Enterprise Controller Setup page is displayed.

4. Enter the Enterprise Controller setup information, then click **Next**. Configuration information includes:

   - **Enterprise Controller name**: The Enterprise Controller name that is displayed in the masthead.

   - **Administrative User**: The Administrative User is given the Enterprise Controller Admin and All Assets Admin roles. Until other users are added, the Administrative User is the only user recognized by Oracle Enterprise Manager Ops Center. Select **Set the Currently Logged In User as Administrative User** to make the current user the Administrative User, or select **Set the Following User as the Administrative User** and enter a user name and password to make that user the Administrative User.

   - **Proxy Controller Setup**: This option sets the initial Proxy Controller configuration. Select **Remote Proxies**.

5. The Remote Proxy Controllers page is displayed. Enter credentials for one or more remote systems, then click **Next**. Proxy Controllers are installed and configured on these systems.

   - **Hostname or IP address**: The host names or IP addresses of the Proxy Controller systems.

   - **SSH User name**: The SSH user name to be used to log into the systems. If root SSH access is allowed on the target system, enter the root user name and password in the SSH User and SSH Password fields.

   - **SSH Password**: The password associated with the SSH user name.

   - (Optional) **Privileged User name**: The privileged user name to be used to log in. If root SSH access is not allowed on the target system, enter the login user name and password in the SSH User and SSH Password fields, then enter the root user name and password in the Privileged Role and Role Password fields.

   - (Optional) **Privileged Password**: The password associated with the Privileged user name. Click Add to add fields for another Proxy Controller, then enter credentials for it.

   The Proxy Controller Status page is displayed.

6. View the status of the configured Proxy Controllers and verify that the Proxy Controllers you installed and configured are online.

(Optional) Click **Check**, then enter a host name or IP address. The connectivity and status of the specified host is checked.

Click **Next**.

The Connection Mode page is displayed.

7. Select a connection mode option:

   - **Connected Mode**: Oracle Enterprise Manager Ops Center downloads patches from Oracle and other vendors. The Enterprise Controller must be able to access the Internet, either directly or through an HTTP Proxy, to use Connected Mode.

     If you select Connected Mode, you can also enable or disable Auto Service Request (ASR).

   - **Disconnected Mode**: Oracle Enterprise Manager Ops Center operates autonomously, and patches must be manually downloaded and supplied to the Enterprise Controller.

   Click **Next**.

8. If you selected Connected Mode, the Connecting to My Oracle Support page is displayed. Enter your My Oracle Support (MOS) user name and password. You must have a valid MOS Account. If the Enterprise Controller requires an HTTP Proxy to reach the Internet, check **Use HTTP Proxy** and enter the HTTP Proxy information:

   - Server: The HTTP Proxy server.

   - Port: The port used to access the HTTP Proxy server.

   - (Optional) Authorized user name: The authorized user name is required if the HTTP Proxy can only be accessed by an authorized user.

   - (Optional) Password: The password is required if the HTTP Proxy can only be accessed by an authorized user.

   Click **Next**.

9. If you enabled Auto Service Request (ASR), the Auto Service Request Contact page is displayed. Enter the default contact information for ASRs:

   - First Name: The first name of the ASR contact.

   - Last Name: The last name of the ASR contact.

   - Phone: The phone number for the ASR contact.

   - Email: The email address for the ASR contact.

   - Country: The country where the assets are located.

   - Address 1: The address where the assets are located.

   - (Optional) Address 2: The second line of the address where the assets are located.

   - City: The city where the assets are located.

   - State/Province: The state or province where the assets are located.

- (Optional) Zip/Postal Code: The zip or postal code where the assets are located.

- Time Zone: The time zone where the assets are located.

Click **Next**.

10. The Create Software Libraries page is displayed. Oracle Enterprise Manager Ops Center either creates the libraries or connects to NAS libraries in the locations that you specify. If you are using High Availability for the Enterprise Controller, these libraries must not be created locally.

Enter a location for each library:

- **Software Library**: This library stores firmware images, ISOs, and flash archives.

- **Linux and Oracle Solaris 8-10 Library**: This library stores Linux and Oracle Solaris 8-10 OS images.

Click **Next**.

11. If you are configuring in Disconnected Mode, the Linux/Oracle Solaris 8-10 Software Bundle page is displayed. Enter the location of the update bundle that you downloaded before beginning this procedure.

Click **Next**.

12. The Configure DHCP for OS Provisioning page is displayed. Some OS provisioning, particularly on older hardware, requires DHCP to be configured on the Proxy Controller.

To configure DHCP for a Proxy Controller, select a Proxy Controller, then select a DHCP type from the drop-down list. Add one or more interfaces to the list of selected interfaces, then click **Configure DHCP**.

The Summary page is displayed.

13. Click **Finish**.

Oracle Enterprise Manager Ops Center is configured, and you are logged in to the UI.

Configuring the Enterprise Controller Without Installing a Proxy Controller

You can configure the Enterprise Controller without installing or configuring a Proxy Controller. You can either provision one or more Proxy Controllers through the user interface or manually install and configure one or more Proxy Controllers. You must install and configure at least one Proxy Controller before using the software to manage assets.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

    1. Download `https://updates.oracle.com/OCDoctor/` `harvester_bundle-latest.zip` on an Internet-facing system.

    2. Unzip the bundle.

3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

```
# ./harvester --user <MOS user name> --password-file <password file
location> --kb-only
Directory /export/home/public not found. This directory will be created.
Setting up local directory structure at: /export/home/public
Initialization: Downloading channels.xml
Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
Distributions:
Identifying and Downloading the Notifications and Seeker scripts
Creating tarball...

Tarball successfully created at /discon/standalone-0127.tar.gz

Start time: Tue Jan 17 05:08:00 MST 2012
Completion time: Tue Jan 17 05:08:01 MST 2012
<output omitted>
```

4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Enterprise Controller High Availability for the link to log in.

To configure an Enterprise Controller without installing a Proxy Controller:

1. In a browser, navigate to `https://<Enterprise Controller>:9443/emoc`.

   The Login page is displayed.

2. Enter the system's root user name and password and select Ops Center as the source, then click **Log In**.

3. If the configuration detects any prerequisites that are not met, the Prerequisite Checklist page is displayed. If the Prerequisite Checklist is not displayed, skip this step.

   If the Prerequisite Checklist is displayed, review the prerequisites. If necessary, cancel the configuration and make changes to the system as suggested by the checklist. Click **Next**.

   The Enterprise Controller Setup page is displayed.

4. Enter the Enterprise Controller setup information, then click **Next**. Configuration information includes:

   - **Enterprise Controller name**: The Enterprise Controller name that is displayed in the masthead.

   - **Administrative User**: The Administrative User is given the Enterprise Controller Admin and All Assets Admin roles. Until other users are added, the Administrative User is the only user recognized by Oracle Enterprise Manager Ops Center. Select **Set the Currently Logged In User as Administrative User** to make the current user the Administrative User, or select **Set the Following User as the Administrative User** and enter a user name and password to make that user the Administrative User.

   - **Proxy Controller Setup**: This option sets the initial Proxy Controller configuration. Select **Manual Setup**.

The Connection Mode page is displayed.

5. Select a connection mode option:

- **Connected Mode**: Oracle Enterprise Manager Ops Center downloads patches from Oracle and other vendors. The Enterprise Controller must be able to access the Internet, either directly or through an HTTP Proxy, to use Connected Mode.

  If you select Connected Mode, you can also enable or disable Auto Service Request (ASR).

- **Disconnected Mode**: Oracle Enterprise Manager Ops Center operates autonomously, and patches must be manually downloaded and supplied to the Enterprise Controller.

  Click **Next**.

6. If you selected Connected Mode, the Connecting to My Oracle Support page is displayed. Enter your My Oracle Support (MOS) user name and password. You must have a valid MOS Account. If the Enterprise Controller requires an HTTP Proxy to reach the Internet, check **Use HTTP Proxy** and enter the HTTP Proxy information:

- Server: The HTTP Proxy server.

- Port: The port used to access the HTTP Proxy server.

- (Optional) Authorized user name: The authorized user name is required if the HTTP Proxy can only be accessed by an authorized user.

- (Optional) Password: The password is required if the HTTP Proxy can only be accessed by an authorized user.

  Click **Next**.

7. If you enabled Auto Service Request (ASR), the Auto Service Request Contact page is displayed. Enter the default contact information for ASRs:

- First Name: The first name of the ASR contact.

- Last Name: The last name of the ASR contact.

- Phone: The phone number for the ASR contact.

- Email: The email address for the ASR contact.

- Country: The country where the assets are located.

- Address 1: The address where the assets are located.

- (Optional) Address 2: The second line of the address where the assets are located.

- City: The city where the assets are located.

- State/Province: The state or province where the assets are located.

- (Optional) Zip/Postal Code: The zip or postal code where the assets are located.

- Time Zone: The time zone where the assets are located.

Click **Next**.

8. The Create Software Libraries page is displayed. Oracle Enterprise Manager Ops Center either creates the libraries or connects to NAS libraries in the locations that you specify. If you are using High Availability for the Enterprise Controller, these libraries must not be created locally.

Enter a location for each library:

- **Software Library**: This library stores firmware images, ISOs, and flash archives.

- **Linux and Oracle Solaris 8-10 Library**: This library stores Linux and Oracle Solaris 8-10 OS images.

Click **Next**.

9. If you are configuring in Disconnected Mode, the Linux/Oracle Solaris 8-10 Software Bundle page is displayed. Enter the location of the update bundle that you downloaded before beginning this procedure.

Click **Next**.

10. The Configure DHCP for OS Provisioning page is displayed. Some OS provisioning, particularly on older hardware, requires DHCP to be configured on the Proxy Controller.

To configure DHCP for a Proxy Controller, select a Proxy Controller, then select a DHCP type from the drop-down list. Add one or more interfaces to the list of selected interfaces, then click **Configure DHCP**.

The Summary page is displayed.

11. Click **Finish**.

Oracle Enterprise Manager Ops Center is configured, and you are logged in to the UI.

Configuring the Enterprise Controller Manually

You can configure the Enterprise Controller using a configuration file.

You must specify the configuration parameters, including MOS credentials, ASR status, co-located Proxy Controller activation, and HTTP proxy settings.

Note:

The manual configuration process does not configure libraries. If you configure your Enterprise Controller manually, you must configure libraries through the UI.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

1. Download `https://updates.oracle.com/OCDoctor/ harvester_bundle-latest.zip` on an Internet-facing system.

2. Unzip the bundle.

3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

```
# ./harvester --user <MOS user name> --password-file <password file
location> --kb-only
Directory /export/home/public not found. This directory will be created.
Setting up local directory structure at: /export/home/public
Initialization: Downloading channels.xml
Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
Distributions:
Identifying and Downloading the Notifications and Seeker scripts
Creating tarball...

Tarball successfully created at /discon/standalone-0127.tar.gz

Start time: Tue Jan 17 05:08:00 MST 2012
Completion time: Tue Jan 17 05:08:01 MST 2012
<output omitted>
```

4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Enterprise Controller High Availability for the link to log in.

To configure an Enterprise Controller manually:

1. As root, log on to the Enterprise Controller system.

2. Change to the directory used for the installation and create a configuration file. For example:

```
# cd /var/tmp/OC
# touch EC-config
```

3. Edit the configuration file to contain the parameters of your environment. The allowed parameters are:

   - `username=<user name>`: This user is configured as the Oracle Enterprise Manager Ops Center administrative user. The user must be present on the local file system.

   - `update.username=<MOS user name>`: This MOS user name is used to download update content in connected mode.

   - `update.password=<password>`: The password for the update MOS user. This parameter is required if the `update.username` parameter is set.

   - `register.username=<MOS user name>`: This MOS user name is used to register the Enterprise Controller with Oracle.

   - `register.password=<password>`: The password for the registration MOS user. This parameter is required if the `register.username` parameter is set.

- `mos.username=<MOS user name>`: This MOS user name is used to connect to Oracle, download product updates and other content, and enable service request creation.

- `mos.password=<password>`: The password for the primary MOS user. This parameter is required if the `mos.username` parameter is set.

- `asr.mode=<enabled | disabled>`: Specifies whether Auto Service Request (ASR) should be enabled or disabled. ASR is disabled by default.

- `httpproxy.hostname=<host name>`: If your environment requires an HTTP proxy to reach the internet, enter the HTTP proxy host name.

- `httpproxy.port=<port>`: If your environment requires an HTTP proxy to reach the internet, enter the HTTP proxy port number.

- `httpproxy.username=<user name>`: If your environment requires an HTTP proxy to reach the internet, and the HTTP proxy requires authentication, enter a user name for the HTTP proxy.

- `httpproxy.password=<password>`: The password for the HTTP proxy user. This parameter is required if the `httpproxy.username` parameter is set.

- `local.controlproxy=<enabled | disabled>`: This setting enables or disables the co-located Proxy Controller on the Enterprise Controller system.

- `local.controlproxy.ip=<IP>`: This IP address is used by the co-located Proxy Controller if it is enabled. This parameter is required if the `local.controlproxy` parameter is set to enabled.

- `local.controlproxy.wait=<true | false>`: This variable specifies whether the configuration process should wait until the co-located Proxy Controller is enabled before completing.

Here is an example configuration file:

```
# Configuration file
username=root
update.username=user@company.com
update.password=companypass
register.username=user@company.com
register.password=companypass
mos.username=user@company.com
mos.password=companypass
asr.mode=enabled
httpproxy.hostname=http.proxy.company.com
httpproxy.port=80
local.controlproxy=enabled
local.controlproxy.ip=10.10.24.28
local.controlproxy.wait=true
```

4. Run the `/opt/sun/xvmoc/bin/ecadm` command with the `configure` subcommand and the `--config <configuration file>` option. For example:

```
./ecadm configure --config /var/tmp/EC-config
ecadm:    --- Enterprise Controller registered
#
```

The Enterprise Controller is configured. If you plan to use remote Proxy Controllers, you can install and configure them manually or through the UI.

5. Delete the configuration file. For example:

```
# cd /var/tmp/OC
# rm EC-config
```

Configuring the Standby Enterprise Controllers

Once you have configured the primary Enterprise Controller, configure the standby Enterprise Controllers to act as standbys.

This procedure describes the steps to configure the standby Enterprise Controllers.

1. Create a password file containing the root user name and password for the primary Enterprise Controller. For example:

```
# touch /tmp/creds.props
# chmod 400 /tmp/creds.props
# vi /tmp/creds.props
# cat /tmp/creds.props
username:root
password:XXXXX
```

2. Use the `/opt/sun/xvmoc/bin/ecadm` command with the `ha-configure-standby` and `-p <password file>` subcommands to configure the system as a standby Enterprise Controller.

   If the clusterware `crsctl` command is not in the `/u01` directory, use the `--crsctl_basepath <location>` option to specify its location.

   For example:

```
# /opt/sun/xvmoc/bin/ecadm ha-configure-standby -p /tmp/creds.props
INFO: HAECClusterwareAdapter/doConfigureStandby() Stopping Ops Center ...
INFO: HAECClusterwareAdapter/doConfigureStandby() Ops Center stopped
INFO: remoteFileCopy() copied '/etc/passwd' from remoteHostname='primary-system'
to local file='/tmp/activeNodepw'
<output omitted>
ecadm:    --- Enterprise Controller successfully configured HA standby node
```

3. Use the `/opt/sun/xvmoc/bin/ecadm` command with the `ha-status -d` option to check the status of the standby Enterprise Controller. For example:

```
# /opt/sun/xvmoc/bin/ecadm ha-status -d
INFO: HAECClusterwareAdapter/doHAStatus() Status:
# HAEC Cluster Info: Thu Sep 29 15:49:09 MDT 2011
haec.cluster.active.node=primary
haec.cluster.nodes=standby, primary
haec.ec.public.nics=nge1
haec.ec.status=ONLINE
<output omitted>
haec.cluster.script=/var/opt/sun/xvm/ha/EnterpriseController
haec.cluster.crsctl=/u01/app/11.2.0/grid/bin/crsctl
# End of Cluster Info
ecadm:    --- Enterprise Controller ha-status command succeeded
Status stored in file: /var/opt/sun/xvm/ha/HAECStatus
#
```

Related Resources for Enterprise Controller High Availability

You can view the Oracle Enterprise Manager Ops Center documents for additional information.

For more information, see these Oracle resources:

- For information on supported database versions and database options, see *Oracle Enterprise Manager Ops Center Certified Systems Matrix*

- For information on preparing the Oracle 12CDB customer-managed database for Oracle Enterprise Manager Ops Center installation, see *Oracle Enterprise Manager Ops Center Administration*

- For information about site administration, to convert to Enterprise Controller High Availability, and for High Availability management, see the High Availability chapter of *Oracle Enterprise Manager Ops Center Administration*

- For Oracle Clusterware installation documentation, go to `http://www.oracle.com/pls/db112/portal.portal_db?selected=16`

- For more information on Oracle RAC, see Configuring Storage for Oracle Grid Infrastructure for a Cluster and Oracle RAC chapter of *Oracle Grid Infrastructure Installation Guide*

- For information on certificates authenticated by a Certificate Authority, see *Oracle Enterprise Manager Ops Center Security*

- For information on downloading the KB bundle while operating in disconnected mode, see *Oracle Enterprise Manager Ops Center Use Disconnected Mode* or *Oracle Enterprise Manager Ops Center Administration*

- For My Oracle Support (MOS) page, go to `https://support.oracle.com/`

- For information on installing Agent Controllers and discovering and managing assets and for Configuring Storage, see *Oracle Enterprise Manager Ops Center Configuration Reference*

- The Oracle Enterprise Manager Ops Center Documentation Library is located at `http://docs.oracle.com/cd/E59957_01/index.htm`

- For more information on product administration, see `http://docs.oracle.com/cd/E59957_01/nav/administer.htm`

- For end-to-end examples, see the Deploy How To library at `http://docs.oracle.com/cd/E59957_01/nav/deploy.htm` and the Operate How To library at `http://docs.oracle.com/cd/E59957_01/nav/operate.htm`

- For more information on Enterprise Manager Ops Center, see the Ops Center blog at `https://blogs.oracle.com/opscenter/`

4

Installing with a Single Enterprise Controller

You can install and configure a single Enterprise Controller and one or more Proxy Controllers on Linux systems.

The first step in this process is to install the Enterprise Controller, using either a customer-managed remote database or an embedded database.

Once you have installed the Enterprise Controller, you configure it. The configuration process specifies many characteristics of the Enterprise Controller, and can install and configure one or more Proxy Controllers based on your choice of deployment:

- A simple deployment configures the co-located Proxy Controller on the Enterprise Controller system.

- An advanced deployment remotely installs and configures one or more Proxy Controllers on remote systems.

- Installing Proxy Controllers outside of the configuration wizard lets you install and configure Proxy Controllers remotely or manually after configuring the Enterprise Controller.

- Manual configuration lets you create a configuration file with the configuration details. You can enable the co-located Proxy Controller using manual configuration, but other Proxy Controllers must be configured separately.

If you decided to install Proxy Controllers outside of the configuration wizard, or if you need to install Proxy Controllers at a later date, use the procedures in the Installing Proxy Controllers chapter.

This chapter includes the following sections:

- Installing an Enterprise Controller
- Configuring an Enterprise Controller
- Related Resources for Single Enterprise Controller

Installing an Enterprise Controller

In a typical initial installation, you install and configure an Enterprise Controller first, and install and configure Proxy Controllers as part of the configuration process. A Proxy Controller is automatically installed on the system where you install the Enterprise Controller, but you choose whether or not to enable it.

On linux systems, the installation installs, or upgrades to, Java Development Kit (JDK) 7 Update 101 for the use of the Enterprise Controller and Proxy Controllers. If the system already has a later version of JDK installed, then the later version of JDK is used.

> **Note:**
>
> If your environment includes Oracle VM Servers for x86, the Proxy Controllers that manage these systems must be modified to use JDK 6. This procedure is described in the Installing Proxy Controllers chapter.

> **Note:**
>
> Do not upgrade the Java version on Oracle Solaris 10 Control Domains or Logical Domains that have LDOM Manager version 3.2 or earlier installed. If you have upgraded the Java on these systems to version 1.6.0_101 or higher, downgrade to Java 1.6.0_95.

If you need a Java version greater than the version that the Enterprise Controller software installs, you must manually install the desired Java version before the Enterprise Controller software installation. For more information on manually installing Java, see Installing the Java Version Manually.

Installing an Enterprise Controller with an Embedded Database

You can install Enterprise Controller software with an embedded database on a system that is running the Linux OS.

This procedure describes the steps required to install Enterprise Controller and also the steps to install an embedded database.

The script that installs the Enterprise Controller also automatically installs a Proxy Controller on the same system, but it does not enable the Proxy Controller. In the configuration steps that follow this software installation procedure, you can choose to enable this Proxy Controller.

Before you begin:

Before you install Oracle Enterprise Manager Ops Center with an embedded database, you must download the correct Oracle Database Enterprise Edition installation bundles for your environment.

- Oracle Enterprise Manager Ops Center 12.3.0 uses Oracle Database 11g Enterprise Edition version 11.2.0.4 installation bundles.

- Oracle Enterprise Manager Ops Center 12.3.1 or later uses Oracle Database 12c Enterprise Edition version 12.1.0.2 installation bundles.

To download Oracle Database 12c Release 1 (12.1.0.2.0) Enterprise Edition version installation bundles:

1. Create a `/var/tmp/downloads` directory on the Enterprise Controller system.

2. Download the Oracle Database 12c Enterprise Edition files from `http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index-092322.html`.

3. Copy or move the downloaded installation bundles to the `/var/tmp/downloads` directory on the Enterprise Controller system.

To download Oracle Database 11g Enterprise Edition version installation bundles:

> **Note:**
>
> This procedure requires a valid My Oracle Support (MOS) account, which must be associated with a Customer Service Identifier (CSI) with a software contract.

1. Create a `/var/tmp/downloads` directory on the Enterprise Controller system.

2. Navigate to My Oracle Support page, click Sign In, and sign in with your MOS credentials. See Related Resources for Single Enterprise Controller for the link to log in.

3. Click the Patches & Updates tab.

4. Enter the patch number for your version in the field next to Patch Name or Number. For Oracle Database 11g Enterprise Edition version 11.2.0.4, enter 13390677.

5. Click the Add Filter icon, then select your Enterprise Controller system's operating system and architecture in the drop-down menu next to Platform.

6. Click Search.

   The Oracle Database 11g Enterprise Edition patch set of the appropriate version is displayed.

7. Click Download.

   The file download popup is displayed.

8. Download the first two files. These files end with `_1of7.zip` and `_2of7.zip`.

9. Copy or move the downloaded installation bundles to the `/var/tmp/downloads` directory on the Enterprise Controller system.

To install an Enterprise Controller with an Embedded Database:

This procedure installs the Enterprise Controller, co-located Proxy Controller, and embedded database.

1. Create a temporary directory on your system, then copy or move the appropriate Oracle Enterprise Manager Ops Center archive for your system from delivery media to the temporary directory that you created. For example:

```
# mkdir /var/tmp/OC
# cp enterprise-controller.Linux.i686.12.3.0.604.zip /var/tmp/OC
```

   The installation archive consumes about 3.5 GBytes of disk space.

2. Change to the directory where the installation archive is located on your system.

```
# cd /var/tmp/OC
#
```

3. Expand the installation archive, then list the contents of the expanded directory.

   • If your installation archive has the `.zip` extension, use the `unzip` command to uncompress the archive. For example:

```
# unzip enterprise-controller.Linux.i686.12.3.0.604.zip
# ls
```

```
enterprise-controller.Linux.i686.12.3.0.604.zip
xvmoc_full_bundle
#
```

- If your installation archive has the `.tar.zip` extension, use the `unzip` and `tar` commands to uncompress and un-tar the archive, then list the contents of the temporary directory. The following command example retains the original compressed archive file. The data extracted from the archive consumes about 1.5 GB of additional space. For example:

```
# unzip enterprise-controller.Linux.i686.12.3.0.604.tar.zip | tar xf -
# ls
enterprise-controller.Linux.i686.12.3.0.604.tar.zip
xvmoc_full_bundle
#
```

4. Change directory to `xvmoc_full_bundle`, and run the `install` script. For example:

```
# cd xvmoc_full_bundle
# ./install
```

5. The Oracle Configuration Manager installation text is displayed. Enter the My Oracle Support user name or email address that you want to associate with Oracle Enterprise Manager Ops Center.

```
Provide your email address to be informed of security issues, install and
initiate Oracle Configuration Manager. Easier for you if you use your My
Oracle Support Email address/User Name.
Visit http://www.oracle.com/support/policies.html for details.
Email address/User Name:
```

6. If you want security updates to appear on your My Oracle Support page, enter your My Oracle Support password.

```
Provide your My Oracle Support password to receive security updates via your My
Oracle Support account.
Password (optional):
```

The screen clears, then the install script displays a list of installation tasks that automatically updates as the installation proceeds. For example:

```
Ops Center Enterprise Controller Installer
(version 12.3.0.604 on Linux)

1. Check for installation prerequisites.                   [Not Completed]
2. Configure file systems.                                 [Not Completed]
3. Install prerequisite packages.                          [Not Completed]
4. Install Agent components.                               [Not Completed]
5. Create Deployable Proxy Bundles.                        [Not Completed]
6. Install application packages.                           [Not Completed]
7. Run postinstall tasks.                                  [Not Completed]
8. Install Expect.                                         [Not Completed]
9. Install IPMI tool.                                      [Not Completed]
10. Set database credentials.                              [Not Completed]
11. Install and Configure Oracle Database.                 [Not Completed]
12. Seed Ops Center Database Schema                        [Not Completed]
13. Install Service container components.                  [Not Completed]
14. Install Core Channel components.                       [Not Completed]
15. Install Proxy Core components.                         [Not Completed]
16. Set Proxy database credentials.                        [Not Completed]
```

```
17. Install Enterprise Controller components.           [Not Completed]
18. Install Update Connection - Enterprise.             [Not Completed]
19. Install Ops Center BUI components.                  [Not Completed]
20. Install OS provisioning components.                 [Not Completed]
21. Initialize and start services.                      [Not Completed]
Executing current step:  Check for installation prerequisites...
(version 12.3.0.604 on Linux)
```

7. Review and correct any problems when the `install` script checks for installation prerequisites that are not met. For example, this `install` script detected insufficient disk space:

```
Warning for Step: Check for installation prerequisites.
The following is a portion of the installer
log which may indicate the cause of the warning.
If this does not indicate the cause of the
warning, you will need to view the full log
file. More information on how to do that is
available below.
You may choose to ignore this warning by selecting to continue.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *


Ignoring job: 01checkRPMs.pl
Ignoring job: 03removeEmptyDirs.pl


Executing job: jobs/00checkPrereqs.pl --install

WARNING: Installation prerequisites not met:
Disk: / 72G needed, 24G available.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
Please fix the problem and then try this step again.
For a full log of the failed install see the file: /var/tmp/installer.log.9361.

t. Try this step again (correct the failure before proceeding)
c. Continue (ignore the warning)
x. Exit
Enter selection: (t/c/x)
```

You can enter t to try again, c to continue and ignore the warning, or x to exit the install script. You should exit the install script, correct the problem, and then run the install script again, which resumes from where it stopped. Choose to continue and ignore the warning only if you accept the impact that the error condition will have on your installation. Entering t typically produces the same error, unless you are able to correct the problem before trying the step again. If the install script finds that all prerequisites have been satisfied, or if you choose to continue despite the warning, the install script continues and installs all Enterprise Controller and Proxy Controller components.

When complete, the install script displays a confirmation that all components have been installed. The `/var/tmp/installer.log.latest` file contains the installation log.

8. Use the `/opt/sun/xvmoc/bin/ecadm` command to check the status of the Enterprise Controller services. If the installation has completed successfully, the services should be online. For example:

```
# /opt/sun/xvmoc/bin/ecadm status
online
#
```

When the installation is complete, configure the Enterprise Controller using one of the procedures in the Configuring the Enterprise Controller User Interface section.

Installing an Enterprise Controller with a Customer-Managed Database

You can install an Enterprise Controller software with a customer-managed database on a system that is running the Linux OS.

This procedure describes the steps required to install Enterprise Controller software on a system that is running the Linux OS and also the procedure to configure the software to use a customer-managed Oracle Database Enterprise Edition database. The customer-managed database must be installed and configured separately prior to the Oracle Enterprise Manager Ops Center installation.

The script that installs the Enterprise Controller also automatically installs a Proxy Controller on the same system, but it does not enable the Proxy Controller. In the configuration steps that follow this software installation procedure, you can choose to enable this Proxy Controller.

If you are reinstalling your Enterprise Controller as part of a restore, several steps related to the database have alternate procedures or must be skipped. These steps are indicated in the procedure.

> **Note:**
>
> The installation procedure requires database user name, password, and URL information. Work with your database administrator if you do not have access to this information.

Before you begin:

Complete this procedure before beginning the installation.

1. Identify an existing Oracle Database Enterprise Edition database to use, or install and configure a customer-managed database according to the Oracle Database Enterprise Edition installation documentation.

2. Create a directory on the database system that can be used as the Oracle Enterprise Manager Ops Center dump directory. This directory must be owned by the Oracle user. If you are using Oracle RAC, this directory must be shared between all Oracle RAC nodes.

> **Note:**
>
> If you are using Oracle Real Application Cluster (Oracle RAC) on the database system, the dump directory must be mounted over NFS using the following NFS settings:
>
> ```
> rw,bg,hard,nointr,rsize=131072,wsize=131072,tcp,vers=3, suid
> ```

To install an Enterprise Controller with a Customer-Managed Database:

This procedure installs the Enterprise Controller and co-located Proxy Controller, and configures the software to use a customer-managed database.

1. Create a temporary directory on your system, then copy or move the appropriate Oracle Enterprise Manager Ops Center archive for your system from delivery media to the temporary directory that you created. For example:

```
# mkdir /var/tmp/OC
# cp enterprise-controller.Linux.i686.12.3.0.604.tar.gz /var/tmp/OC
```

The installation archive consumes about 3.5 GBytes of disk space.

2. Change to the directory where the installation archive is located on your system.

```
# cd /var/tmp/OC
#
```

3. Expand the installation archive, then list the contents of the expanded directory.

- If your installation archive has the `.zip` extension, use the `unzip` command to uncompress the archive. For example:

```
# unzip enterprise-controller.Linux.i686.12.3.0.604.zip
# ls
enterprise-controller.Linux.i686.12.3.0.604.zip
xvmoc_full_bundle
#
```

- If your installation archive has the `.tar.zip` extension, use the `unzip` and `tar` commands to uncompress and un-tar the archive, then list the contents of the temporary directory. The following command example retains the original compressed archive file. The data extracted from the archive consumes about 1.5 GB of additional space. For example:

```
# unzip enterprise-controller.Linux.i686.12.3.0.604.tar.zip | tar xf -
# ls
enterprise-controller.Linux.i686.12.3.0.604.tar.zip
xvmoc_full_bundle
#
```

4. Copy the `createOCSchema.sql` script from the Enterprise Controller to the customer-managed database server. This script is in the `/var/tmp/OC/xvmoc_full_bundle/Linux_i686/Product/installer/scripts` directory.

For example, on the customer-managed database server:

```
# scp root@EnterpriseController:/var/tmp/OC/xvmoc_full_bundle/Linux_i686/Product/
installer/scripts/createOCSchema.sql .
Password:
createOCSchema.sql  100% |*********************| 1486     00:00
```

If you are reinstalling your Enterprise Controller as part of a restore, skip this step.

> **Note:** If you are using an Oracle 12CDB customer-managed database, use the `createOCSchema_remotePDB.sql` script. See Related Resources for Single Enterprise Controller for more information on preparing the Oracle 12CDB customer-managed database for Oracle Enterprise Manager Ops Center installation.

5. Create the following tablespaces on the database:

- **Default tablespace**: This is the default tablespace for the Oracle Enterprise Manager Ops Center user.

- **Report tablespace**: This is the tablespace used for report data. Create this tablespace with the name `OC_RM_RESOURCE_TS`.

- **Temporary tablespace**: This is the temporary tablespace for the Oracle Enterprise Manager Ops Center user.

If you are reinstalling your Enterprise Controller as part of a restore, skip this step.

6. As the customer-managed database administrator, run the `createOCSchema_remote.sql` script. This script creates the Oracle Enterprise Manager Ops Center users, assigns the default and temporary tablespaces, and assigns the dump directory.

If you are reinstalling your Enterprise Controller as part of a restore, skip this step.

The script prompts you for the following information:

- **Oracle Enterprise Manager Ops Center user name**: This is a database user that is created by the script, which Oracle Enterprise Manager Ops Center uses to access the database.

- **Oracle Enterprise Manager Ops Center password**: This is the password for the database user.

- **Oracle Enterprise Manager Ops Center read-only user name**: This is a read-only database user, which Oracle Enterprise Manager Ops Center uses to view the database.

- **Oracle Enterprise Manager Ops Center read-only password**: This is the password for the read-only database user.

- **Default tablespace**: This is the default tablespace for the Oracle Enterprise Manager Ops Center user.

- **Report tablespace**: This is the tablespace used for report data.

- **Temporary tablespace**: This is the temporary tablespace for the Oracle Enterprise Manager Ops Center user.

- **Oracle Enterprise Manager Ops Center dump directory**: This directory must exist and must be owned by the `oracle` user. If you are using Oracle RAC, this directory must be shared between all Oracle RAC nodes.

When you enter all of the required information, the `createOCSchema_remote.sql` script indicates completion and exits.

For example:

```
$ sqlplus / as sysdba @createOCSchema_remote.sql

SQL*Plus: Release 12.1.0.2.0 Production on Mon Jul 27 13:11:20 2015

Copyright (c) 1982, 2014, Oracle. All rights reserved.


Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, Real Application Clusters, OLAP, Advanced Analytics and
```

```
Real Application Testing options

Enter username for Ops Center database login: TESTSCHEMA
Enter password for Ops Center database login:
Enter username for read only Ops Center database login: TESTSCHEMA_RO
Enter password for read only Ops Center database login:
Enter default tablespace for Ops Center user: USERS
Enter report tablespace for Ops Center user: OC_RM_RESOURCE_TS
Enter temporary tablespace for Ops Center user: TEMP
Enter Oracle Data Pump destination directory: /var/tmp/ocdumpdir

"Done creating OC_SYSTEM_ROLE and OC_RO_ROLE"
"Done creating Schema 'TESTSCHEMA'. Roles and privileges have been granted."
"Done creating Schema 'TESTSCHEMA_RO'. Roles and privileges have been granted."
"Done creating OC_DUMP_DIR at /var/tmp/ocdumpdir"
"Done granting privs to users and profiles"
"Testing connectivity to the new schema: 'TESTSCHEMA'"
Connected.
"Testing connectivity to the new read only schema: 'TESTSCHEMA_RO'"
Connected.

"Create is Complete. OC can now be used with the new schema: 'TESTSCHEMA'"


Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 -
64bit Production
With the Partitioning, Real Application Clusters, OLAP, Advanced Analytics and
Real Application Testing options
$
```

> **Note:** If you are using an Oracle 12CDB customer-managed database, use the `createOCSchema_remotePDB.sql` script. See Related Resources for Single Enterprise Controller for more information on preparing the Oracle 12CDB customer-managed database for Oracle Enterprise Manager Ops Center installation..

7. Create a database properties file on the Enterprise Controller system. Within the file, specify the location of the customer-managed database and the same user and read-only user credentials supplied in the schema creation script. The following properties must be specified:

   - **mgmtdb.appuser=<user name>**: This is a database user that Oracle Enterprise Manager Ops Center uses to access the database.

   - **mgmtdb.password=<password>**: This is the password for the database user. See the Oracle Database Enterprise Edition documentation for information about password length and character restrictions.

   - **mgmtdb.roappuser=<read-only user name>**: This is a read-only database user that Oracle Enterprise Manager Ops Center uses to view the database.

   - **mgmtdb.ropassword=<read-only password>**: This is the password for the read-only database user.

   - **mgmtdb.dburl=jdbc:oracle:thin:@<database access data>**: This is the URL, port, and service name for the database. You can use any of these formats for this information:

```
mgmtdb.dburl=jdbc:oracle:thin:@<database host name>:<port>/<database service
name>
mgmtdb.dburl=jdbc:oracle:thin:@<database host name>:<port>:<SID>
mgmtdb.dburl=jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS=(PROTOCOL=TCPS)
(HOST=<host>)(PORT=<port>))(CONNECT_DATA=(SERVICE_NAME=<service>)))
```

For example:

```
# vi /var/tmp/RemoteDBProps.txt
mgmtdb.appuser=user
mgmtdb.password=userpass
mgmtdb.roappuser=user
mgmtdb.ropassword=userpass
mgmtdb.dburl=jdbc:oracle:thin:@hostname:1521/OCDB
```

> **Note:** If you are using an Oracle 12CDB customer-managed database, then the database service name should point to the pluggable database service name. For example: `mgmtdb.dburl=jdbc:oracle:thin:@<database host name>:<port>/<Pluggable database service name>`. See Related Resources for Single Enterprise Controller for more information on preparing the Oracle 12CDB customer-managed database for Oracle Enterprise Manager Ops Center installation.

8. Change directory to `xvmoc_full_bundle`, and run the `install` script with the `--remoteDBprops=<path to database properties file>` option.

   For example:

   ```
   # cd xvmoc_full_bundle
   # ./install --remoteDBprops=/var/tmp/RemoteDBProps.txt
   ```

   If you are reinstalling your Enterprise Controller as part of a restore, use the `--preserveDB` option to preserve the existing Oracle Enterprise Manager Ops Center database application schema.

   For example:

   ```
   # cd xvmoc_full_bundle
   # ./install --preserveDB --remoteDBprops=/var/tmp/RemoteDBProps.txt
   ```

9. The Oracle Configuration Manager installation text is displayed. Enter the My Oracle Support user name or email address that you want to associate with Oracle Enterprise Manager Ops Center.

   ```
   Provide your email address to be informed of security issues, install and
   initiate Oracle Configuration Manager. Easier for you if you use your My
   Oracle Support Email address/User Name.
   Visit http://www.oracle.com/support/policies.html for details.
   Email address/User Name:
   ```

10. If you want security updates to appear on your My Oracle Support page, enter your My Oracle Support password.

    ```
    Provide your My Oracle Support password to receive security updates via your My
    Oracle Support account.
    Password (optional):
    ```

    The screen clears, then the install script displays a list of installation tasks that automatically updates as the installation proceeds. For example:

```
Ops Center Enterprise Controller Installer
(version 12.3.0.604 on Linux)

1. Check for installation prerequisites.              [Not Completed]
2. Configure file systems.                            [Not Completed]
3. Install prerequisite packages.                     [Not Completed]
4. Install Agent components.                           [Not Completed]
5. Create Deployable Proxy Bundles.                   [Not Completed]
6. Install application packages.                      [Not Completed]
7. Run postinstall tasks.                             [Not Completed]
8. Install Expect.                                    [Not Completed]
9. Install IPMI tool.                                 [Not Completed]
10. Set database credentials.                         [Not Completed]
11. Install and Configure Oracle Database.            [Not Completed]
12. Seed Ops Center Database Schema                   [Not Completed]
13. Install Service container components.             [Not Completed]
14. Install Core Channel components.                  [Not Completed]
15. Install Proxy Core components.                    [Not Completed]
16. Set Proxy database credentials.                   [Not Completed]
17. Install Enterprise Controller components.         [Not Completed]
18. Install Update Connection - Enterprise.           [Not Completed]
19. Install Ops Center BUI components.                [Not Completed]
20. Install OS provisioning components.               [Not Completed]
21. Initialize and start services.                    [Not Completed]
Executing current step:  Check for installation prerequisites...
(version 12.3.0.604 on Linux)
```

11. Review and correct any problems when the `install` script checks for installation prerequisites that are not met. For example, this `install` script detected insufficient disk space:

```
Warning for Step: Check for installation prerequisites.
The following is a portion of the installer
log which may indicate the cause of the warning.
If this does not indicate the cause of the
warning, you will need to view the full log
file. More information on how to do that is
available below.
You may choose to ignore this warning by selecting to continue.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

Ignoring job: 01checkRPMs.pl
Ignoring job: 03removeEmptyDirs.pl


Executing job: jobs/00checkPrereqs.pl --install

WARNING: Installation prerequisites not met:
Disk: / 72G needed, 24G available.
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
Please fix the problem and then try this step again.
For a full log of the failed install see the file: /var/tmp/installer.log.9361.

t. Try this step again (correct the failure before proceeding)
c. Continue (ignore the warning)
x. Exit
Enter selection: (t/c/x)
```

You can enter t to try again, c to continue and ignore the warning, or x to exit the install script. You should exit the install script, correct the problem, and then run the install script again, which resumes from where it stopped. Choose to continue

and ignore the warning only if you accept the impact that the error condition will have on your installation. Entering t typically produces the same error, unless you are able to correct the problem before trying the step again. If the install script finds that all prerequisites have been satisfied, or if you choose to continue despite the warning, the install script continues and installs all Enterprise Controller and Proxy Controller components.

When complete, the install script displays a confirmation that all components have been installed. The `/var/tmp/installer.log.latest` file contains the installation log.

12. Use the `/opt/sun/xvmoc/bin/ecadm` command to check the status of the Enterprise Controller services. If the installation has completed successfully, the services should be online. For example:

```
# /opt/sun/xvmoc/bin/ecadm status
online
#
```

13. Delete the database properties file that you created on the Enterprise Controller system.

For example:

```
# rm /var/tmp/RemoteDBProps.txt
```

When the installation is complete, configure the Enterprise Controller using one of the procedures in the Configuring the Enterprise Controller User Interface section.

Configuring an Enterprise Controller

After you install the Enterprise Controller, you must configure it. During the configuration process, you specify how Oracle Enterprise Manager Ops Center operates.

The following tasks are part of the configuration process:

- Supplying Enterprise Controller information

- Deploying one or more Proxy Controllers (optional in this wizard, but must be performed before using the software)

- Registering the Enterprise Controller (optional)

- Creating libraries

- Choosing a connection mode and configuring services (optional in this wizard, but must be performed before using the software)

This procedure describes the complete Enterprise Controller configuration process, including Proxy Controller deployment, asset discovery, connection mode selection, and registration.

Four types of configuration are described in this section:

- **Simple deployment**: A simple deployment configures the co-located Proxy Controller on the Enterprise Controller system. This deployment is effective for small environments.

- **Advanced deployment**: An advanced deployment installs and configures one or more Proxy Controllers on remote systems. This deployment is effective for larger environments.

- **Deploy without installing a Proxy Controller**: This deployment configures the Enterprise Controller without installing or configuring any Proxy Controllers. This deployment is appropriate if you intend to install and configure Proxy Controllers after configuration. Oracle Enterprise Manager Ops Center cannot function without at least one Proxy Controller.

- **Configuring an Enterprise Controller manually**: This deployment configures the Enterprise Controller according to a configuration profile that you create. You can enable the co-located Proxy Controller using manual configuration, but other Proxy Controllers must be configured separately.

> **Note:**
>
> You should not install a Proxy Controller in an environment where there is a web proxy which requires authentication between the Enterprise Controller and the Proxy Controller. Many OS update functions are not usable for systems managed by such a Proxy Controller.

> **Note:**
>
> Oracle Enterprise Manager Ops Center has self-signed certificates that it uses for authentication between its components. If you prefer to use certificates authenticated by a Certificate Authority, perform the Substitute Certificates procedure before you install any Proxy Controllers.

Configuring an Enterprise Controller with a Simple Deployment

A simple deployment configures the co-located Proxy Controller on the Enterprise Controller system.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

  1. Download `https://updates.oracle.com/OCDoctor/ harvester_bundle-latest.zip` on an Internet-facing system.

  2. Unzip the bundle.

  3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

```
# ./harvester --user <MOS user name> --password-file <password file
location> --kb-only
Directory /export/home/public not found. This directory will be created.
Setting up local directory structure at: /export/home/public
Initialization: Downloading channels.xml
Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
```

```
                    Distributions:
                    Identifying and Downloading the Notifications and Seeker scripts
                    Creating tarball...

                    Tarball successfully created at /discon/standalone-0127.tar.gz

                    Start time: Tue Jan 17 05:08:00 MST 2012
                    Completion time: Tue Jan 17 05:08:01 MST 2012
                    <output omitted>
```

4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Single Enterprise Controller for the link to log in.

To configure an Enterprise Controller with a Simple Deployment:

1. In a browser, navigate to `https://<Enterprise Controller>:9443/emoc`.

The Login page is displayed.

2. Enter the system's root user name and password and select Ops Center as the source, then click **Log In**.

3. If the configuration detects any prerequisites that are not met, the Prerequisite Checklist page is displayed. If the Prerequisite Checklist is not displayed, skip this step.

If the Prerequisite Checklist is displayed, review the prerequisites. If necessary, cancel the configuration and make changes to the system as suggested by the checklist. Click **Next**.

The Enterprise Controller Setup page is displayed.

4. Enter the Enterprise Controller setup information, then click **Next**. Configuration information includes:

- **Enterprise Controller name**: The Enterprise Controller name that is displayed in the masthead.

- **Administrative User**: The Administrative User is given the Enterprise Controller Admin and All Assets Admin roles. Until other users are added, the Administrative User is the only user recognized by Oracle Enterprise Manager Ops Center. Select **Set the Currently Logged In User as Administrative User** to make the current user the Administrative User, or select **Set the Following User as the Administrative User** and enter a user name and password to make that user the Administrative User.

- **Proxy Controller Setup**: This option sets the initial Proxy Controller configuration. Select **Co-located Proxy**.

  A popup is displayed indicating that the local Proxy Controller is being configured. Click **Close** to close the popup, then click **Next**.

  The Proxy Controller Status page is displayed.

5. View the status of the configured Proxy Controller and verify that the Proxy Controller you installed and configured is online.

(Optional) Click **Check**, then enter a host name or IP address. The connectivity and status of the specified host is checked.

Click **Next**.

The Connection Mode page is displayed.

6. Select a connection mode option:

   - **Connected Mode**: Oracle Enterprise Manager Ops Center downloads patches from Oracle and other vendors. The Enterprise Controller must be able to access the Internet, either directly or through an HTTP Proxy, to use Connected Mode.

     If you select Connected Mode, you can also enable or disable Auto Service Request (ASR).

   - **Disconnected Mode**: Oracle Enterprise Manager Ops Center operates autonomously, and patches must be manually downloaded and supplied to the Enterprise Controller.

   Click **Next**.

7. If you selected Connected Mode, the Connecting to My Oracle Support page is displayed. Enter your My Oracle Support (MOS) user name and password. You must have a valid MOS Account. If the Enterprise Controller requires an HTTP Proxy to reach the Internet, check **Use HTTP Proxy** and enter the HTTP Proxy information:

   - Server: The HTTP Proxy server.

   - Port: The port used to access the HTTP Proxy server.

   - (Optional) Authorized user name: The authorized user name is required if the HTTP Proxy can only be accessed by an authorized user.

   - (Optional) Password: The password is required if the HTTP Proxy can only be accessed by an authorized user.

   Click **Next**.

8. If you enabled Auto Service Request (ASR), the Auto Service Request Contact page is displayed. Enter the default contact information for ASRs:

   - First Name: The first name of the ASR contact.

   - Last Name: The last name of the ASR contact.

   - Phone: The phone number for the ASR contact.

   - Email: The email address for the ASR contact.

   - Country: The country where the assets are located.

   - Address 1: The address where the assets are located.

   - (Optional) Address 2: The second line of the address where the assets are located.

   - City: The city where the assets are located.

   - State/Province: The state or province where the assets are located.

- (Optional) Zip/Postal Code: The zip or postal code where the assets are located.

- Time Zone: The time zone where the assets are located.

Click **Next**.

9. The Create Software Libraries page is displayed. Oracle Enterprise Manager Ops Center either creates the libraries or connects to NAS libraries in the locations that you specify. If you are using High Availability for the Enterprise Controller, these libraries must not be created locally.

Enter a location for each library:

- **Software Library**: This library stores firmware images, ISOs, and flash archives.

- **Linux and Oracle Solaris 8-10 Library**: This library stores Linux and Oracle Solaris 8-10 OS images.

Click **Next**.

10. If you are configuring in Disconnected Mode, the Linux/Oracle Solaris 8-10 Software Bundle page is displayed. Enter the location of the update bundle that you downloaded before beginning this procedure.

Click **Next**.

11. The Configure DHCP for OS Provisioning page is displayed. Some OS provisioning, particularly on older hardware, requires DHCP to be configured on the Proxy Controller.

To configure DHCP for a Proxy Controller, select a Proxy Controller, then select a DHCP type from the drop-down list. Add one or more interfaces to the list of selected interfaces, then click **Configure DHCP**.

The Summary page is displayed.

12. Click **Finish**.

Oracle Enterprise Manager Ops Center is configured, and you are logged in to the UI.

Configuring an Enterprise Controller with an Advanced Deployment

An Advanced Deployment installs and configures one or more Proxy Controllers on remote systems.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

    1. Download `https://updates.oracle.com/OCDoctor/ harvester_bundle-latest.zip` on an Internet-facing system.

    2. Unzip the bundle.

3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

```
# ./harvester --user <MOS user name> --password-file <password file
location> --kb-only
Directory /export/home/public not found. This directory will be created.
Setting up local directory structure at: /export/home/public
Initialization: Downloading channels.xml
Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
Distributions:
Identifying and Downloading the Notifications and Seeker scripts
Creating tarball...

Tarball successfully created at /discon/standalone-0127.tar.gz

Start time: Tue Jan 17 05:08:00 MST 2012
Completion time: Tue Jan 17 05:08:01 MST 2012
<output omitted>
```

4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Single Enterprise Controller for the link to log in.

To configure an Enterprise Controller with an Advanced Deployment:

1. In a browser, navigate to `https://<Enterprise Controller>:9443/emoc`.

   The Login page is displayed.

2. Enter the system's root user name and password and select Ops Center as the source, then click **Log In**.

3. If the configuration detects any prerequisites that are not met, the Prerequisite Checklist page is displayed. If the Prerequisite Checklist is not displayed, skip this step.

   If the Prerequisite Checklist is displayed, review the prerequisites. If necessary, cancel the configuration and make changes to the system as suggested by the checklist. Click **Next**.

   The Enterprise Controller Setup page is displayed.

4. Enter the Enterprise Controller setup information, then click **Next**. Configuration information includes:

   - **Enterprise Controller name**: The Enterprise Controller name that is displayed in the masthead.

   - **Administrative User**: The Administrative User is given the Enterprise Controller Admin and All Assets Admin roles. Until other users are added, the Administrative User is the only user recognized by Oracle Enterprise Manager Ops Center. Select **Set the Currently Logged In User as Administrative User** to make the current user the Administrative User, or select **Set the Following User as the Administrative User** and enter a user name and password to make that user the Administrative User.

   - **Proxy Controller Setup**: This option sets the initial Proxy Controller configuration. Select **Remote Proxies**.

5. The Remote Proxy Controllers page is displayed. Enter credentials for one or more remote systems, then click **Next**. Proxy Controllers are installed and configured on these systems.

   - **Hostname or IP address**: The host names or IP addresses of the Proxy Controller systems.

   - **SSH User name**: The SSH user name to be used to log into the systems. If root SSH access is allowed on the target system, enter the root user name and password in the SSH User and SSH Password fields.

   - **SSH Password**: The password associated with the SSH user name.

   - (Optional) **Privileged User name**: The privileged user name to be used to log in. If root SSH access is not allowed on the target system, enter the login user name and password in the SSH User and SSH Password fields, then enter the root user name and password in the Privileged Role and Role Password fields.

   - (Optional) **Privileged Password**: The password associated with the Privileged user name. Click Add to add fields for another Proxy Controller, then enter credentials for it.

   The Proxy Controller Status page is displayed.

6. View the status of the configured Proxy Controllers and verify that the Proxy Controllers you installed and configured are online.

   (Optional) Click **Check**, then enter a host name or IP address. The connectivity and status of the specified host is checked.

   Click **Next**.

   The Connection Mode page is displayed.

7. Select a connection mode option:

   - **Connected Mode**: Oracle Enterprise Manager Ops Center downloads patches from Oracle and other vendors. The Enterprise Controller must be able to access the Internet, either directly or through an HTTP Proxy, to use Connected Mode.

     If you select Connected Mode, you can also enable or disable Auto Service Request (ASR).

   - **Disconnected Mode**: Oracle Enterprise Manager Ops Center operates autonomously, and patches must be manually downloaded and supplied to the Enterprise Controller.

   Click **Next**.

8. If you selected Connected Mode, the Connecting to My Oracle Support page is displayed. Enter your My Oracle Support (MOS) user name and password. You must have a valid MOS Account. If the Enterprise Controller requires an HTTP Proxy to reach the Internet, check **Use HTTP Proxy** and enter the HTTP Proxy information:

   - Server: The HTTP Proxy server.

   - Port: The port used to access the HTTP Proxy server.

- (Optional) Authorized user name: The authorized user name is required if the HTTP Proxy can only be accessed by an authorized user.

- (Optional) Password: The password is required if the HTTP Proxy can only be accessed by an authorized user.

Click **Next**.

9. If you enabled Auto Service Request (ASR), the Auto Service Request Contact page is displayed. Enter the default contact information for ASR:

- First Name: The first name of the ASR contact.

- Last Name: The last name of the ASR contact.

- Phone: The phone number for the ASR contact.

- Email: The email address for the ASR contact.

- Country: The country where the assets are located.

- Address 1: The address where the assets are located.

- (Optional) Address 2: The second line of the address where the assets are located.

- City: The city where the assets are located.

- State/Province: The state or province where the assets are located.

- (Optional) Zip/Postal Code: The zip or postal code where the assets are located.

- Time Zone: The time zone where the assets are located.

Click **Next**.

10. The Create Software Libraries page is displayed. Oracle Enterprise Manager Ops Center either creates the libraries or connects to NAS libraries in the locations that you specify. If you are using High Availability for the Enterprise Controller, these libraries must not be created locally.

Enter a location for each library:

- **Software Library**: This library stores firmware images, ISOs, and flash archives.

- **Linux and Oracle Solaris 8-10 Library**: This library stores Linux and Oracle Solaris 8-10 OS images.

Click **Next**.

11. If you are configuring in Disconnected Mode, the Linux/Oracle Solaris 8-10 Software Bundle page is displayed. Enter the location of the update bundle that you downloaded before beginning this procedure.

Click **Next**.

12. The Configure DHCP for OS Provisioning page is displayed. Some OS provisioning, particularly on older hardware, requires DHCP to be configured on the Proxy Controller.

To configure DHCP for a Proxy Controller, select a Proxy Controller, then select a DHCP type from the drop-down list. Add one or more interfaces to the list of selected interfaces, then click **Configure DHCP**.

The Summary page is displayed.

13. Click **Finish**.

Oracle Enterprise Manager Ops Center is configured, and you are logged in to the UI.

Configuring an Enterprise Controller Without Installing a Proxy Controller

You can configure the Enterprise Controller without installing or configuring a Proxy Controller. You can either provision one or more Proxy Controllers through the user interface or manually install and configure one or more Proxy Controllers. You must install and configure at least one Proxy Controller before using the software to manage assets.

This procedure configures an Enterprise Controller without installing or configuring a Proxy Controller.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

  1. Download `https://updates.oracle.com/OCDoctor/harvester_bundle-latest.zip` on an Internet-facing system.

  2. Unzip the bundle.

  3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

  ```
  # ./harvester --user <MOS user name> --password-file <password file
  location> --kb-only
  Directory /export/home/public not found. This directory will be created.
  Setting up local directory structure at: /export/home/public
  Initialization: Downloading channels.xml
  Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
  Distributions:
  Identifying and Downloading the Notifications and Seeker scripts
  Creating tarball...

  Tarball successfully created at /discon/standalone-0127.tar.gz

  Start time: Tue Jan 17 05:08:00 MST 2012
  Completion time: Tue Jan 17 05:08:01 MST 2012
  <output omitted>
  ```

  4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Single Enterprise Controller for the link to log in.

To configure an Enterprise Controller without installing a Proxy Controller:

1. In a browser, navigate to `https://<Enterprise Controller>:9443/emoc`.

   The Login page is displayed.

2. Enter the system's root user name and password and select Ops Center as the source, then click **Log In**.

3. If the configuration detects any prerequisites that are not met, the Prerequisite Checklist page is displayed. If the Prerequisite Checklist is not displayed, skip this step.

   If the Prerequisite Checklist is displayed, review the prerequisites. If necessary, cancel the configuration and make changes to the system as suggested by the checklist. Click **Next**.

   The Enterprise Controller Setup page is displayed.

4. Enter the Enterprise Controller setup information, then click **Next**. Configuration information includes:

   - **Enterprise Controller name**: The Enterprise Controller name that is displayed in the masthead.

   - **Administrative User**: The Administrative User is given the Enterprise Controller Admin and All Assets Admin roles. Until other users are added, the Administrative User is the only user recognized by Oracle Enterprise Manager Ops Center. Select **Set the Currently Logged In User as Administrative User** to make the current user the Administrative User, or select **Set the Following User as the Administrative User** and enter a user name and password to make that user the Administrative User.

   - **Proxy Controller Setup**: This option sets the initial Proxy Controller configuration. Select **Manual Setup**.

   The Connection Mode page is displayed.

5. Select a connection mode option:

   - **Connected Mode**: Oracle Enterprise Manager Ops Center downloads patches from Oracle and other vendors. The Enterprise Controller must be able to access the Internet, either directly or through an HTTP Proxy, to use Connected Mode.

     If you select Connected Mode, you can also enable or disable Auto Service Request (ASR).

   - **Disconnected Mode**: Oracle Enterprise Manager Ops Center operates autonomously, and patches must be manually downloaded and supplied to the Enterprise Controller.

   Click **Next**.

6. If you selected Connected Mode, the Connecting to My Oracle Support page is displayed. Enter your My Oracle Support (MOS) user name and password. You must have a valid MOS Account. If the Enterprise Controller requires an HTTP Proxy to reach the Internet, check **Use HTTP Proxy** and enter the HTTP Proxy information:

   - Server: The HTTP Proxy server.

- Port: The port used to access the HTTP Proxy server.

- (Optional) Authorized user name: The authorized user name is required if the HTTP Proxy can only be accessed by an authorized user.

- (Optional) Password: The password is required if the HTTP Proxy can only be accessed by an authorized user.

Click **Next**.

7. If you enabled Auto Service Request (ASR), the Auto Service Request Contact page is displayed. Enter the default contact information for ASR:

- First Name: The first name of the ASR contact.

- Last Name: The last name of the ASR contact.

- Phone: The phone number for the ASR contact.

- Email: The email address for the ASR contact.

- Country: The country where the assets are located.

- Address 1: The address where the assets are located.

- (Optional) Address 2: The second line of the address where the assets are located.

- City: The city where the assets are located.

- State/Province: The state or province where the assets are located.

- (Optional) Zip/Postal Code: The zip or postal code where the assets are located.

- Time Zone: The time zone where the assets are located.

Click **Next**.

8. The Create Software Libraries page is displayed. Oracle Enterprise Manager Ops Center either creates the libraries or connects to NAS libraries in the locations that you specify. If you are using High Availability for the Enterprise Controller, these libraries must not be created locally.

Enter a location for each library:

- **Software Library**: This library stores firmware images, ISOs, and flash archives.

- **Linux and Oracle Solaris 8-10 Library**: This library stores Linux and Oracle Solaris 8-10 OS images.

Click **Next**.

9. If you are configuring in Disconnected Mode, the Linux/Oracle Solaris 8-10 Software Bundle page is displayed. Enter the location of the update bundle that you downloaded before beginning this procedure.

Click **Next**.

10. The Configure DHCP for OS Provisioning page is displayed. Some OS provisioning, particularly on older hardware, requires DHCP to be configured on the Proxy Controller.

   To configure DHCP for a Proxy Controller, select a Proxy Controller, then select a DHCP type from the drop-down list. Add one or more interfaces to the list of selected interfaces, then click **Configure DHCP**.

   The Summary page is displayed.

11. Click **Finish**.

   Oracle Enterprise Manager Ops Center is configured, and you are logged in to the UI.

Configuring an Enterprise Controller Manually

You can configure an Enterprise Controller using a configuration file.

You must specify the configuration parameters, including MOS credentials, ASR status, co-located Proxy Controller activation, and HTTP proxy settings.

> **Note:**
>
> The manual configuration process does not configure libraries. If you configure your Enterprise Controller manually, you must configure libraries through the UI.

Before you begin:

- If you intend to operate in Disconnected Mode, acquire a Knowledge Base (KB) bundle. The example below downloads the KB bundle. The KB bundle is the only required component, but you can download OS content such as patches and baselines as well.

   1. Download `https://updates.oracle.com/OCDoctor/harvester_bundle-latest.zip` on an Internet-facing system.

   2. Unzip the bundle.

   3. Run the `harvester` script on an Internet-facing Oracle Solaris or Linux system. The script connects to the Oracle Datacenter and creates an update bundle. For example:

```
# ./harvester --user <MOS user name> --password-file <password file
location> --kb-only
Directory /export/home/public not found. This directory will be created.
Setting up local directory structure at: /export/home/public
Initialization: Downloading channels.xml
Tue Jan 17 05:08:01 MST 2012 Clearing cookies to initialize new session.
Distributions:
Identifying and Downloading the Notifications and Seeker scripts
Creating tarball...

Tarball successfully created at /discon/standalone-0127.tar.gz

Start time: Tue Jan 17 05:08:00 MST 2012
Completion time: Tue Jan 17 05:08:01 MST 2012
<output omitted>
```

4. Copy the resulting bundle back to the Enterprise Controller system.

- If you intend to operate in Connected Mode, go to My Oracle Support page and log in to verify that you have a valid set of My Oracle Support (MOS) credentials. See Related Resources for Single Enterprise Controller for the link to log in.

To configure an Enterprise Controller manually:

1. As root, log on to the Enterprise Controller system.

2. Change to the directory used for the installation and create a configuration file. For example:

```
# cd /var/tmp/OC
# touch EC-config
```

3. Edit the configuration file to contain the parameters of your environment. The allowed parameters are:

- `username=<user name>`: This user is configured as the Oracle Enterprise Manager Ops Center administrative user. The user must be present on the local file system.

- `update.username=<MOS user name>`: This MOS user name is used to download update content in connected mode.

- `update.password=<password>`: The password for the update MOS user. This parameter is required if the `update.username` parameter is set.

- `register.username=<MOS user name>`: This MOS user name is used to register the Enterprise Controller with Oracle.

- `register.password=<password>`: The password for the registration MOS user. This parameter is required if the `register.username` parameter is set.

- `mos.username=<MOS user name>`: This MOS user name is used to connect to Oracle, download product updates and other content, and enable service request creation.

- `mos.password=<password>`: The password for the primary MOS user. This parameter is required if the `mos.username` parameter is set.

- `asr.mode=<enabled | disabled>`: Specifies whether Auto Service Request (ASR) should be enabled or disabled. ASR is disabled by default.

- `httpproxy.hostname=<host name>`: If your environment requires an HTTP proxy to reach the internet, enter the HTTP proxy host name.

- `httpproxy.port=<port>`: If your environment requires an HTTP proxy to reach the internet, enter the HTTP proxy port number.

- `httpproxy.username=<user name>`: If your environment requires an HTTP proxy to reach the internet, and the HTTP proxy requires authentication, enter a user name for the HTTP proxy.

- `httpproxy.password=<password>`: The password for the HTTP proxy user. This parameter is required if the `httpproxy.username` parameter is set.

- `local.controlproxy=<enabled | disabled>`: This setting enables or disables the co-located Proxy Controller on the Enterprise Controller system.

- `local.controlproxy.ip=<IP>`: This IP address is used by the co-located Proxy Controller if it is enabled. This parameter is required if the `local.controlproxy` parameter is set to enabled.

- `local.controlproxy.wait=<true | false>`: This variable specifies whether the configuration process should wait until the co-located Proxy Controller is enabled before completing.

Here is an example configuration file:

```
# Configuration file
username=root
update.username=user@company.com
update.password=companypass
register.username=user@company.com
register.password=companypass
mos.username=user@company.com
mos.password=companypass
asr.mode=enabled
httpproxy.hostname=http.proxy.company.com
httpproxy.port=80
local.controlproxy=enabled
local.controlproxy.ip=10.10.24.28
local.controlproxy.wait=true
```

4. Run the `/opt/sun/xvmoc/bin/ecadm` command with the `configure` subcommand and the `--config <configuration file>` option. For example:

```
./ecadm configure --config /var/tmp/EC-config
ecadm:    --- Enterprise Controller registered
#
```

The Enterprise Controller is configured. If you plan to use remote Proxy Controllers, you can install and configure them manually or through the UI.

5. Delete the configuration file. For example:

```
# cd /var/tmp/OC
# rm EC-config
```

Related Resources for Single Enterprise Controller

You can view the Oracle Enterprise Manager Ops Center documents for additional information.

For more information, see these Oracle resources:

- For information on supported database versions and database options, see *Oracle Enterprise Manager Ops Center Certified Systems Matrix*

- To download Oracle Database 12c Enterprise Edition installation bundles, go to http://www.oracle.com/technetwork/database/enterprise-edition/downloads/index-092322.html

- For information on preparing the Oracle 12CDB customer-managed database for Oracle Enterprise Manager Ops Center installation, see *Oracle Enterprise Manager Ops Center Administration*

- For information about site administration, to convert to Enterprise Controller High Availability, and for High Availability management, see the High Availability chapter of *Oracle Enterprise Manager Ops Center Administration*

- For Oracle Clusterware installation documentation, go to `http://www.oracle.com/pls/db112/portal.portal_db?selected=16`

- For more information on Oracle RAC, see Configuring Storage for Oracle Grid Infrastructure for a Cluster and Oracle RAC chapter of *Oracle Grid Infrastructure Installation Guide*

- For information on certificates authenticated by a Certificate Authority, see *Oracle Enterprise Manager Ops Center Security*

- For information on downloading the KB bundle while operating in disconnected mode, see *Oracle Enterprise Manager Ops Center Use Disconnected Mode* or *Oracle Enterprise Manager Ops Center Administration*

- For My Oracle Support (MOS) page, go to `https://support.oracle.com/`

- For information on installing Agent Controllers and discovering and managing assets and for Configuring Storage, see *Oracle Enterprise Manager Ops Center Configuration Reference*

- The Oracle Enterprise Manager Ops Center Documentation Library is located at `http://docs.oracle.com/cd/E59957_01/index.htm`

- For more information on product administration, see `http://docs.oracle.com/cd/E59957_01/nav/administer.htm`

- For end-to-end examples, see the Deploy How To library at `http://docs.oracle.com/cd/E59957_01/nav/deploy.htm` and the Operate How To library at `http://docs.oracle.com/cd/E59957_01/nav/operate.htm`

- For more information on Enterprise Manager Ops Center, see the Ops Center blog at `https://blogs.oracle.com/opscenter/`

5

Installing Proxy Controllers

You can install Proxy Controllers on Linux systems.

If you decided to install Proxy Controllers outside of the configuration wizard when you configured the Enterprise Controller, or if you need to install Proxy Controllers after completing the initial installation, you can use one of two methods:

- Deploy it remotely using the Proxy Deployment Wizard

- Install and configure it manually

This chapter includes the following sections:

- Installing and Configuring a Proxy Controller Remotely

- Installing and Configuring a Proxy Controller Manually

- Modifying the Java Version for Oracle VM Management

- Related Resources for Proxy Controllers

Installing and Configuring a Proxy Controller Remotely

The Deploy Proxy Wizard can be used to deploy and configure one or more remote Proxy Controllers, and to configure the co-located Proxy Controller. Proxy Controllers can be deployed at any time; however, Oracle Enterprise Manager Ops Center requires at least one Proxy Controller.

This installation installs, or upgrades to, Java Development Kit (JDK) 7 Update 101. If the system already has a later version of JDK installed, then the later version of JDK is used.

If you need a Java version greater than the version that the Enterprise Controller software installs, you must manually install the desired Java version before the Enterprise Controller software installation. For more information on manually installing Java, see Installing the Java Version Manually.

> **Note:**
>
> If your environment includes Oracle VM Server for x86, you must modify the Proxy Controllers that will manage Oracle VM Server for x86 to use JDK 6 as described in the Modifying the Java Version for Oracle VM Management section.

You must not install a Proxy Controller in an environment where there is a web proxy which requires authentication between the Enterprise Controller and the Proxy Controller. Many OS update functions are not usable for systems managed by such a Proxy Controller.

To install a Proxy Controller through the UI, the Enterprise Controller must be able to reach the Proxy Controller with an SSH connection using port 22 during the update process. This connection is used to transfer Proxy Controller bundles and execute commands on the Proxy Controller system. If your security restrictions do not allow this connection, install the Proxy Controller from the command line.

> **Note:**
>
> To provision an Oracle VM Server for SPARC, the Proxy Controller that performs the provisioning must be installed on Oracle Solaris.

To deploy a Proxy Controller:

You can use the Deploy Proxy Wizard to deploy and configure one or more Proxy Controllers.

1. Click the **Enterprise Controller** in the Administration section of the Navigation Pane.

2. Click **Deploy Proxy** in the Actions pane. The Proxy Controller Deployment page is displayed.

3. Choose a deployment option:

   - **Co-located Proxy**: Configures the co-located Proxy Controller.

   - **Remote Proxies**: Lets you remotely install and configure one or more Proxy Controllers. Click **Next**.

   - If you select Co-located Proxy, a popup is displayed indicating that the local Proxy Controller is being configured. Click **Close** to close the popup.

     Skip the Proxy Controllers and Remote Proxy Controllers pages and proceed to the Proxy Controller Status page.

   - If you select Remote Proxies, Proxy Controller deployment steps are displayed. Proceed to the next step.

4. If you selected Remote Proxies, the Proxy Controllers page is displayed. Select an option:

   - **Deploy Automatically**: Lets you deploy a remote Proxy Controller through the wizard.

   - **Deploy Manually**: Lets you install and configure a Proxy Controller manually.

5. If you selected Remote Proxies, the Remote Proxy Controllers page is displayed. Click the add and remove icons to create an entry for each new Proxy Controller, then enter credentials for each remote system. Proxy Controllers are installed and configured on these systems.

   - **Hostname or IP address**: The host name or IP address of the target system.

   - **SSH User name**: If root SSH access is allowed on the target system, enter the root user name and password in the SSH User and SSH Password fields.

   - **SSH Password**: The password associated with the SSH user name.

- (Optional) **Privileged Role**: If root SSH access is not allowed on the target system, enter the login user name and password in the SSH User and SSH Password fields, then enter the root user name and password in the Privileged Role and Role Password fields.

- (Optional) **Role Password**: If you entered the root user name in the Privileged Role field, enter the root password.

- **Create Tunnel**: Check this box to create a tunnel to the Proxy Controller.

- **Port**: If you want the Proxy Controller to use a port other than the default, enter that port number.

- **Maintenance Mode**: Check this box to start the Proxy Controller in maintenance mode.

Click **Next**.

The Proxy Controller Status page is displayed.

6. View the status of the configured Proxy Controllers. Each Proxy Controller that you enabled or provisioned should be online.

 (Optional) Click **Check**, then enter a host name or IP address. The connectivity and status of the specified host is checked.

 Click **Next**.

 The Summary page is displayed.

7. Click **Finish**.

Installing and Configuring a Proxy Controller Manually

You can install and configure Proxy Controller software on an Linux system that meets the recommended specifications for the installation.

Proxy Controllers can be installed at any time; however, Oracle Enterprise Manager Ops Center requires at least one Proxy Controller. Use this procedure only to install and configure a Proxy Controller on a system other than the system on which the Enterprise Controller is installed.

Installing a Proxy Controller Manually

This installation installs, or upgrades to, Java Development Kit (JDK) 7 Update 101. If the system already has a later version of JDK installed, then the later version of JDK is used.

If you need a Java version greater than the version that the Enterprise Controller software installs, you must manually install the desired Java version before the Enterprise Controller software installation. For more information on manually installing Java, see Installing the Java Version Manually.

You can use the OC Doctor to verify that the system is prepared for the installation.

You must not install a Proxy Controller in an environment where there is a web proxy which requires authentication between the Enterprise Controller and the Proxy Controller. Many OS update functions are not usable for systems managed by such a Proxy Controller.

> **Note:**
>
> To provision an Oracle VM Server for SPARC, the Proxy Controller that performs the provisioning must be installed on Oracle Solaris.

Before you begin:

Before proceeding with the Proxy Controller installation, check that your system's resources meet the system requirements using the OC Doctor or using the manual procedure.

To install a Proxy Controller:

1. Create a temporary directory on your target system, then copy or move the appropriate Proxy Controller bundle from the /var/opt/sun/xvm/images/productUpdate on the Enterprise Controller system to the temporary directory that you created. The installation archive consumes about 700 MBytes of disk space. You must use the same Oracle Enterprise Manager Ops Center archive version as the one used to install the Enterprise Controller. For example:

   ```
   # mkdir /var/tmp/OC
   # cp proxy-controller.Linux.i686.12.1.2.2140.tar.zip /var/tmp/OC
   ```

2. Change to the directory where the archive is located on your system. For example:

   ```
   # cd /var/tmp/OC
   #
   ```

3. Use the unzip and tar commands to uncompress and un-tar the archive, then list the contents of the temporary directory. The following command example retains the original compressed archive file. The data extracted from the archive consumes about 1 GB of additional space. For example:

   ```
   # unzip proxy-controller.Linux.i686.12.1.2.2140.tar.zip
   # tar xf proxy-controller.Linux.i686.12.1.2.2140.tar
   # ls
   xvmoc_full_bundle
   proxy-controller.Linux.i686.12.1.2.2140.tar
   #
   ```

4. Change to the xvmoc_full_bundle directory, and run the install script. Each installation archive only contains an install script that is appropriate for its intended OS and platform. For example:

   ```
   # cd xvmoc_full_bundle
   # ./install
   ```

   The screen clears, then the install script displays a list of installation tasks that automatically updates as the installation proceeds. For example:

   ```
       Ops Center Proxy Controller Installer
       (version 12.1.2.2140 on Linux)

   1. Check for installation prerequisites.                        [Completed]
   2. Install prerequisite packages.                               [Completed]
   3. Install Expect.                                          [Not Completed]
   4. Install IPMI tool.                                       [Not Completed]
   5. Install Agent components.                                [Not Completed]
   6. Install application packages.                            [Not Completed]
   7. Install Core Channel components.                         [Not Completed]
   ```

```
8. Set Proxy database credentials.                   [Not Completed]
9. Install Proxy Controller components.              [Not Completed]
10. Install UCE Http proxy.                          [Not Completed]
11. Install OS provisioning components.              [Not Completed]
12. Initialize (but do not start) services.         [Not Completed]

Executing current step:  Install Expect...
```

When complete, the install script indicates that all components have been installed, and indicates that the Proxy Controller is ready to be configured.

5. Use the `/opt/sun/xvmoc/bin/proxyadm` command to check the status of the Proxy Controller services. If the installation has completed successfully, the services should be online. For example:

```
# /opt/sun/xvmoc/bin/proxyadm status
online
#
```

Configuring a Proxy Controller Manually

Once a Proxy Controller has been installed, it must be configured to connect it with the Enterprise Controller. Use this procedure to configure a Proxy Controller with an Enterprise Controller.

Consult with Oracle Support to determine what Oracle Enterprise Manager Ops Center updates are required. Install all required updates before you register the Proxy Controller with the Enterprise Controller.

Note:

If you designated an alternative Administrative User for the Enterprise Controller, use the same user name to register your Proxy Controller with the Enterprise Controller. Otherwise, use the root user to register your Proxy Controller with the Enterprise Controller.

Note:

If you are configuring a co-located Proxy Controller in an environment with Enterprise Controller High Availability, register the Proxy Controller using the Virtual IP address of the Enterprise Controller.

To register a Proxy Controller with an Enterprise Controller:

1. Create a temporary directory, for example, `/var/tmp/OC`, to hold the password file that you create in this procedure.

   ```
   # mkdir -p /var/tmp/OC
   ```

2. Create an empty file named `/var/tmp/OC/mypasswd`, and set its permission mode to 400.

   ```
   # touch /var/tmp/OC/mypasswd
   # chmod 400 /var/tmp/OC/mypasswd
   ```

3. Edit the `/var/tmp/OC/mypasswd` file so that it contains the password of the user that you designated the administrator of your Enterprise Controller. The following

echo command appends the password to the `/var/tmp/OC/mypasswd` file. Replace *password* with the correct password. For example:

```
# echo 'password' > /var/tmp/OC/mypasswd
```

4. Use the `/opt/sun/xvmoc/bin/proxyadm` command with the `configure` subcommand to associate the Proxy Controller with the Enterprise Controller. The example commands below use the following options:

   - -s: Specify the host name or IP address of the Enterprise Controller with which to register the Proxy Controller.

   - -u: Specify the user that you designated the administrator of your Enterprise Controller.

   - -p: Specify the absolute path name of the file that contains the password for the user you specified with the -u option.

   - -a: Specify the IP address that the Proxy Controller should use. This option is required if you want the Proxy Controller to be identified on a specific NIC by the Enterprise Controller. Accept any certificates that are presented. The co-located Proxy Controller configuration does not display certificate information.

   For example:

```
# /opt/sun/xvmoc/bin/proxyadm configure -s enterprise-controller.company -u droot
-p /var/tmp/OC/mypasswd

Certificate:
Serial Number: 270256981
Version: 3
Issuer: CN=enterprise-controller_ca
Subject: CN=enterprise-controller_agent
Not valid before: Wed Jul 02 19:32:56 MDT 1969
Not valid after: Mon Apr 02 19:32:56 MDT 2029

Certificate:
Serial Number: 1062961758
Version: 3
Issuer: CN=enterprise-controller_ca
Subject: CN=enterprise-controller_ca
Not valid before: Wed Jul 02 19:32:54 MDT 1969
Not valid after: Mon Apr 02 19:32:54 MDT 2029

Accept server's certificate? (y|n)
y
Connection registered successfully.
#
```

   If you are manually configuring the co-located Proxy Controller because your Enterprise Controller has more than one active network interface, use the `-a` option to identify the particular interface that you want the Proxy Controller to use. Specify the IP address that is assigned to the interface that you want to use. For example:

```
# /opt/sun/xvmoc/bin/proxyadm configure -s enterprise-controller.company -u droot
-p /var/tmp/OC/mypasswd -a 172.20.25.18
(output omitted)
```

5. Use the `/opt/sun/xvmoc/bin/proxyadm` command with the `start` subcommand and the `-w` option to start the Proxy Controller services. For example:

```
# /opt/sun/xvmoc/bin/proxyadm start -w
proxyadm: Starting proxy with SMF...
proxyadm: Proxy services have started
#
```

6. To verify the connection that has been established for this Proxy Controller configuration, run the `sc-console list-connections` command. For example:

```
# sc-console list-connections
scn-proxy https://enterprise-controller.company:443 urn:scn:clregid:18a0206a-
a5c4-4c8c-90f2-d4eb1d2b623b:20090419213707452
#
```

The `sc-console list-connections` command lists the connection that is established with the Enterprise Controller. If you are enabling a co-located Proxy Controller, the command also lists a connection for localhost. For example:

```
# sc-console list-connections
scn-proxy https://enterprise-controller.company:443 urn:scn:clregid:6d0ec2ab-
b868-46ab-8475-4a5d726dee69:20090419214450735
localhost https://localhost:443 urn:scn:clregid:a9f5243e-
f46e-4b32-85ca-76e2c12c0707:20090403015601612
#
```

Modifying the Java Version for Oracle VM Management

By default, Proxy Controllers use Java Runtime Environment (JRE) 7. If a Proxy Controller will be used to manage Oracle VM Servers for x86, the Proxy Controller must be modified to use JRE 6.

This procedure describes the steps to modify the java version for Oracle VM Management.

1. As root, log on to the Proxy Controller system.

2. Stop the Proxy Controller using the `proxyadm` command with the `stop` subcommand and `-w` option. For example:

```
/opt/sun/xvmoc/bin/proxyadm stop -w
```

3. List the contents of the `/usr/java` directory and note the latest version of Java 6. For example:

```
# ls /usr/java
jdk1.6.0_65
```

4. Use the cacaoadm command to set the Java version. For example:

```
/opt/sun/cacao2/bin/cacaoadm set-param -i scn-proxy java-home=/usr/java/
jdk1.6.0_65
```

5. Restart the Proxy Controller using the `proxyadm` command with the `start` subcommand and `-w` option. For example:

```
/opt/sun/xvmoc/bin/proxyadm start -w
```

Related Resources for Proxy Controllers

You can view the Oracle Enterprise Manager Ops Center documents for additional information.

For more information about Enterprise Controller Administration or Agent Controller installation, go to one of the following resources:

- For more information on OCDoctor, see *Oracle Enterprise Manager Ops Center Administration*

- To download OCDoctor, go to https://updates.oracle.com/OCDoctor/ OCDoctor-latest.zip

- For information about site administration and for information on proxyadm command, see *Oracle Enterprise Manager Ops Center Administration*

- For a condensed walkthrough of post-installation administrative tasks, see *Oracle Enterprise Manager Ops Center Administer Your Environment Using Oracle Enterprise Manager Ops Center*

- For information about installing Agent Controllers and discovering and managing assets, see *Oracle Enterprise Manager Ops Center Configuration Reference*

- For end-to-end examples, see the Deploy How To library at http:// docs.oracle.com/cd/E59957_01/nav/deploy.htm and the Operate How To library at http://docs.oracle.com/cd/E59957_01/nav/operate.htm

- For more information on Enterprise Manager Ops Center, see the Ops Center blog at https://blogs.oracle.com/opscenter/

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Installing the Java Version Manually

You can manually install the 32-bit rpm and 64-bit rpm java versions.

To manually install the java versions:

1. Remove any existing installed java rpm versions by using the following command:

```
rpm -e --allmatches jdk
```

2. Install the 64-bit rpm version. For example:

```
rpm -i --badreloc --force --relocate /usr/java/=/usr/java/x86_64 jdk-7uXX-linux-x64.rpm
```

3. Install the 32-bit rpm version. For example:

```
rpm -i --badreloc --force --relocate /usr/java/=/usr/java/i386 jdk-7uXX-linux-i586.rpm
```

4. Ensure if the `/usr/java/latest` points to the right java version. For example:

```
rm -f /usr/java/latest
ln -s /usr/java/jdk1.7.0_XX /usr/java/latest
```