Oracle® Enterprise Manager Ops Center

Installation Guide for Linux Operating Systems

12*c* Release 1 (12.1.4.0.0)

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Oracle Enterprise Manager Ops Center Installation Guide for Linux Operating Systems, 12*c* Release 1 (12.1.4.0.0)

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Preface

The Oracle® Enterprise Manager Ops Center Installation Guide 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.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

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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 Guide*
- *Oracle Enterprise Manager Ops Center Readme*
- *Oracle Enterprise Manager Ops Center Release Notes*
- *Oracle Enterprise Manager Ops Center Quick Start Guide*
- *Oracle Enterprise Manager Ops Center Installation Guide for Oracle Solaris Operating System*
- *Oracle Enterprise Manager Ops Center Administration Guide*
- *Oracle Enterprise Manager Ops Center Feature Reference Guide*
- *Oracle Enterprise Manager Ops Center Cloud Infrastructure API and CLI Reference Guide*
- *Oracle Enterprise Manager Ops Center Certified Systems Matrix Guide*

- *Oracle Enterprise Manager Ops Center How To Library*

For more information, see the other documents in the Oracle Enterprise Manager Ops Center 12c Release 1 documentation set, located at this site:
http://www.oracle.com/pls/topic/lookup?ctx=oc121

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.

1

Introduction to Installation

This documentation describes the procedures required to install and configure Oracle Enterprise Manager Ops Center.

The following topics are covered:

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

- Installation and Configuration – Explains how to install and configure the Enterprise Controller and Proxy Controller software.

Introduction to Installation

The following is a 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 final two tasks are described in the Installation and Configuration chapter.

Figure 1–1, "Site Preparation, Installation and Configuration" shows the steps involved in an Oracle Enterprise Manager Ops Center installation.

Figure 1–1   Site Preparation, Installation and Configuration
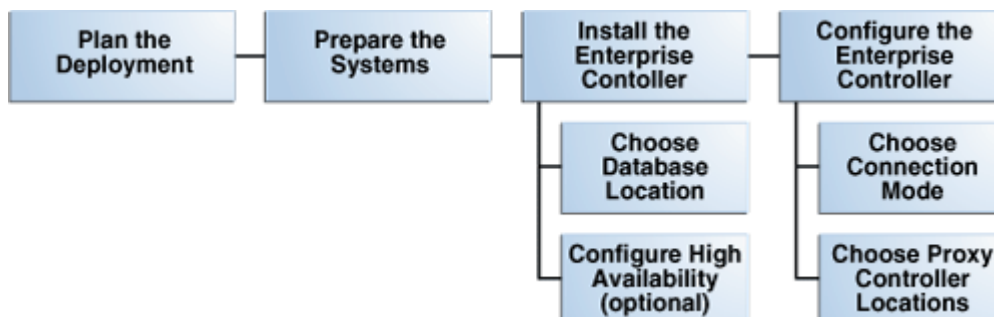
Enterprise Controllers and Proxy Controllers can be installed on Oracle Solaris 10, Oracle Solaris 11, Oracle Linux, or Red Hat Enterprise Linux. See the *Oracle Enterprise Manager Ops Center Certified Systems Matrix* for more information about supported OS versions.

See the *Oracle Enterprise Manager Ops Center Security Guide* for more information about security considerations.

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.

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Preparing Your Environment

This section provides guidelines for deploying Oracle Enterprise Manager Ops Center in a way that meets your needs, explains the steps needed to verify that your systems meet the prerequisites, and provides instructions for obtaining the software.

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

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:

1. How will you use Oracle Enterprise Manager Ops Center?

2. Will you manage virtual assets?

3. What type of network configuration will you use?

4. Will you use Connected Mode or Disconnected Mode?

5. Does your site require High Availability?

6. Will your site use a local or a remote database?

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 the Proxy Controller on a separate system. 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 and Oracle VM Server for SPARC (Sun Logical Domains). 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.

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:

- 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.

- No Agent Controller software can be installed on the global zone that supports the Enterprise Controller's non-global zone.

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 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.

About Network Requirements

Use these guidelines to configure a network switch for a system running the Oracle Enterprise Manager Ops Center software.

- 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 10/100 connection.

- The provisioning and data networks must be a 10/100/1000 (1 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, "Network Ports and Protocols for Enterprise Controller in Connected Mode" 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
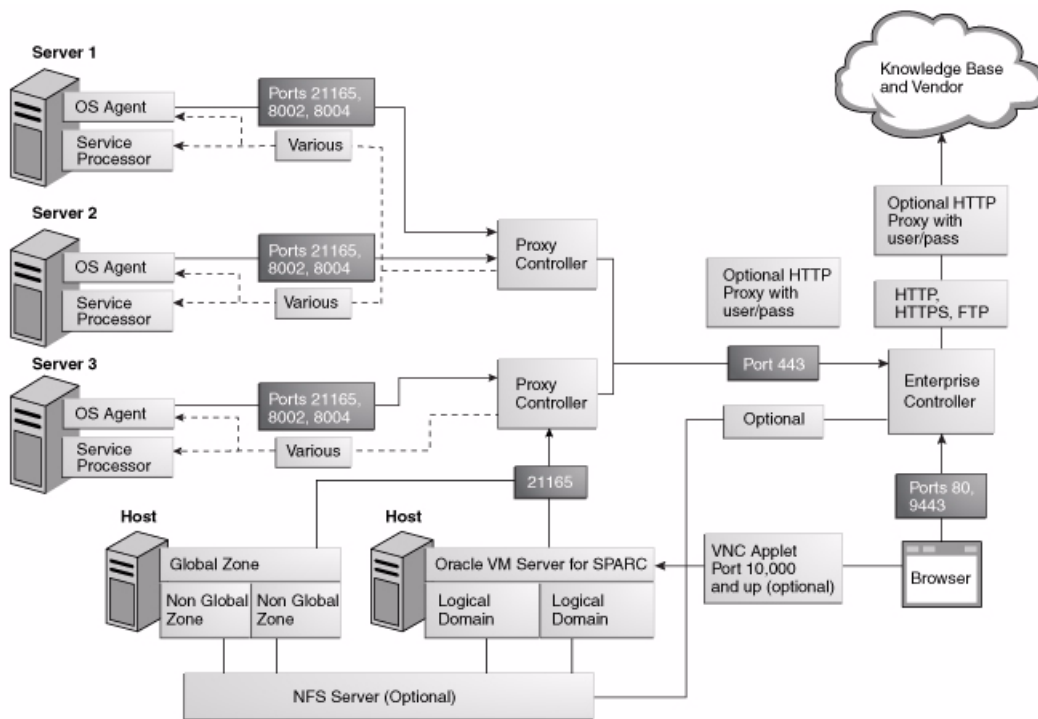
Ports and Protocols

The Enterprise Controller's default port is 443. If port 443 is in use, the Enterprise Controller uses Port 11165. The following table describes the required ports and their protocols.

Table 2–1, " Required Ports and Protocols" shows the required ports and protocols used by Oracle Enterprise Manager Ops Center.

Table 2–1   Required Ports and Protocols

Communication Direction	Protocol and Port	Purpose
Enterprise Controller	Port 443, then Port 11165 Port 8005	Enterprise Controller in Disconnected mode
Enterprise Controller	Port 443, then Port 11165	Enterprise Controller in Connected mode
Browser to Enterprise Controller	HTTP, TCP: Port 80	Redirects to port 9443
Browser to Enterprise Controller	HTTPS, TCP: Port 9443	Web interface
Enterprise Controller to Local Database	Port 11176	Oracle Listener port
Enterprise Controller to Proxy Controller	SSH, TCP: Port 22 ICMP ping: Type 8 Code 0 (echo request	Enterprise Controller installs or upgrades a Proxy Controller through the UI.
Proxy Controllers to Enterprise Controller	HTTPS, TCP: Port 443	Proxy Controller pushes data about assets to Enterprise Controller. Proxy Controller pulls data for jobs, updates, Agent Controllers, and OS images from the Enterprise Controller.

Table 2–1   (Cont.) Required Ports and Protocols

Communication Direction	Protocol and Port	Purpose
Proxy Controllers to Enterprise Controller	HTTP: Port 8004	WAN Boot traffic
Proxy Controllers to Enterprise Controller	ICMP ping: Type 0 Code 0 (echo reply)	During upgrades, Proxy Controllers use ICMP ping.
Remote Proxy Controller to Enterprise Control through an SSH Tunnel	SSH, Port 21161	When a Proxy Controller is deployed on a network outside of the firewall, the SSH Tunnel and Port 21161 change the direction of communication so that the remote Proxy Controller does not initiate communication with the Enterprise Controller.
Proxy Controller to ALOM or XCSF Service Processors	SSH, TCP: Port 22 or Telnet, TCP: Port 23 SNMP, UDP: Port 161 TCP: Port 6481 (for discovery by service tags)	Proxy Controller discovers, manages, and monitors the service processor.
Proxy Controller to ILOM Service Processors	SSH, TCP: Port 22 SNMP, UDP: Port 161 IPMI, TCP, UDP: Port 623 TCP: Port 6481 (for discovery by service tags)	Proxy Controller discovers, manages, and monitors the service processor.
Proxy Controller to ALOM or XCSF Service Processor	FTP, TCP: Port 21	Proxy Controller provisions firmware on an ALOM service processor. Port 21 transfers the firmware image. A transient random port is opened for the duration of the operation.
Proxy Controller to ILOM Service Processor	TFTP, UDP: Port 69	Proxy Controller provisions firmware on an ILOM service processor. Port 69 transfers the firmware image. A transient random port is opened for the duration of the operation.
Service Processor to Proxy Controller	SNMP, UDP: Port 162 ICMP ping: Type 0 (echo reply)	For monitoring hardware, the service processor sends SNMP traps to the Proxy Controller. For a failed connection, Proxy Controller receives ICMP ping Type 3 (destination unreachable).
Proxy Controller to OS Host	SSH, TCP: Port 22 or Telnet, TCP: Port 23 TCP: Port 6481 (for discovery and monitoring by service tags) ICMP, Type 0 Code 0 (echo reply)	Proxy Controller discovers, manages, and monitors an asset.
Proxy Controller to OS Host	DHCP, UDP: Port 67	Proxy Controller provisions an OS.

Table 2–1   (Cont.) Required Ports and Protocols

Communication Direction	Protocol and Port	Purpose
OS Host to Proxy Controller	HTTP, TCP: Port 8004 Oracle Solaris 11 Automated Installer Web Server: Port 5555 to accept requests from the OS Host during provisioning ■ For provisioning by DHCP, the opened port is on the Proxy Controller. ■ For provisioning by WAN Boot, the opened port is on the Enterprise Controller or a Proxy Controller.	OS Host reports status of OS updates and status of Agent Controller installation. OS Host downloads Agent Controller archive file.
OS Host to Proxy Controller	DHCP, UDP: Port 68 TFTP, UDP: Port 69 TCP+UDP: Port 37 HTTP, TCP: Port 8004	OS Host responds to Proxy Controller inquiries during bare-metal OS provisioning
Agent Controller to Proxy Controller	HTTPS, TCP: Port 21165	Agent Controllers push asset data to Proxy Controller. Agent Controllers pull data for jobs.
Agent Controller to Proxy Controller	HTTPS, TCP: Port 8002	Agent Controllers pull updates from Proxy Controller.
Agent Controller on Oracle Solaris OS or on Oracle hardware to co-located Proxy Controller	SNMP: Port 1162, or a port in the range of 1100 through 1200	For monitoring assets, the Agent Controller sends trap notifications and fault management alerts (FMA) to the Proxy Controller as local traffic. Because the Proxy Controller is using Port 162, a co-located Agent Controller uses Port 1162, if it is available, or a port in the range of Ports 1100 through 1200.
Java client to public APIs	TLS: Port 11172	JMX access from clients
WMI client on Proxy Controller to Agent Controller	Port 11162	WMI client resides on the Proxy Controller and communicates with the WMI server on the Agent Controller. The Proxy Controller uses the DCOM protocol to monitor a Windows system. The Proxy Controller opens a TCP connection to the Windows DCOM registry port, TCP 135, which provides a lookup service to the WMI scripting DCOM object. The Proxy Controller connects to the DCOM object. The port number for this connection is allocated by the Windows system.

Table 2–1   (Cont.) Required Ports and Protocols

Communication Direction	Protocol and Port	Purpose
Proxy Controller to NFS server	Use an NFS server that is on the same side of the firewall as the Proxy Controller. Refer to your OS documentation to set up the NFS server.	Proxy Controller pulls provisioning images from NAS Library
Global Zones or Oracle VM Servers to NFS server	Use an NFS server that is on the same side of the firewall as the Proxy Controller. Refer to your OS documentation to set up the NFS server.	Global Zones and Oracle VM Servers push their metadata and virtual host images to NAS Library
OCDoctor to `java.net`	HTTPS, TCP: Port 80	Acquires product updates.

Examples of Network Configurations

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

Separate Management, Provisioning, and Data Networks

Environments with separate management, provisioning, and data networks have the following characteristics:

- Separate networks provide the highest security and the lowest number of points of failure.

- Additional NICs are needed to support this configuration.

Figure 2–2, "Separate Management, Provisioning, Data Networks" shows a network configuration with separate management, provisioning and data networks.

Figure 2–2   Separate Management, Provisioning, Data Networks
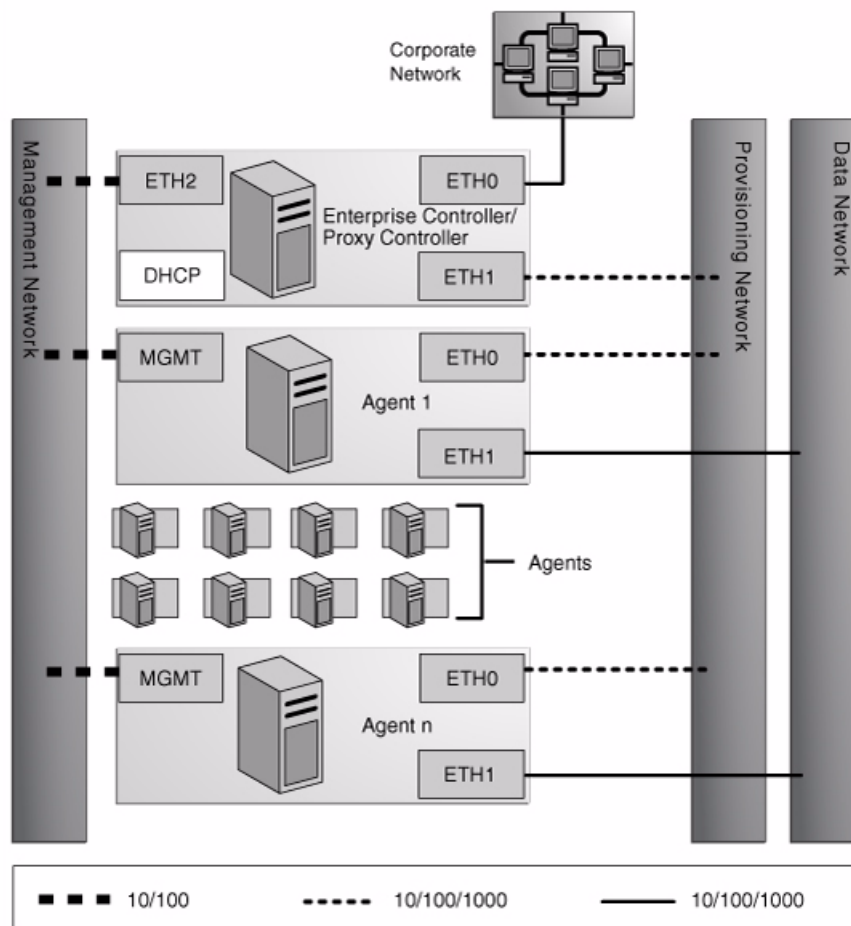
A configuration with separate management, provisioning, and data networks has the following requirements:

- 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.

Combined Management and Provisioning Network and a Separate Data Network

Environments with a combined management and provisioning and a separate data network have the following characteristics:

- Reduced system and network security.

- No additional NIC is needed on the Enterprise Controller or Proxy Controller.

Figure 2–3, "Separate Data Network" shows a network configuration with a combined management and provisioning network and a separate data network.

Figure 2–3   Separate Data Network
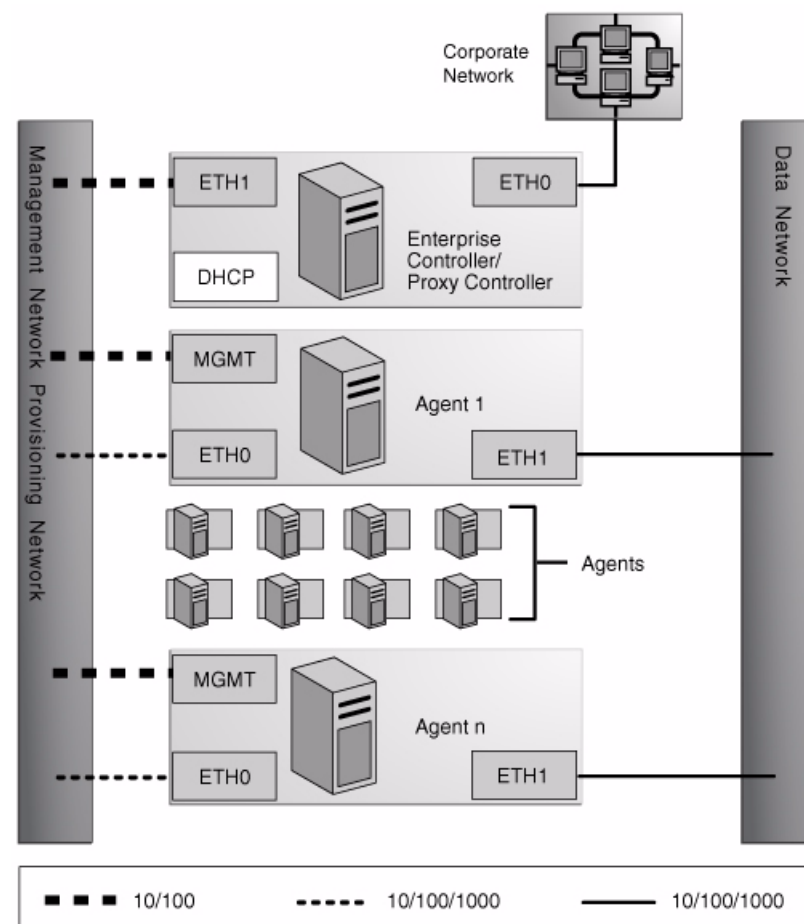
- Enterprise Controller/Proxy Controller

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

- ETH1 connects the Enterprise Controller/Proxy Controller to the management and provisioning network, and must be on the same network as the MGMT and ETH0 connections of the Agent Controllers. Only the Enterprise Controller/Proxy Controller and the Agent Controllers must reside on the management and provisioning network. The ETH1 IP address, netmask, and gateway must be configured to enable connectivity to the Agent Controller's management port IP addresses. ETH1 must be a 1 Gb 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 and provisioning network, and must be on the same network as the ETH1 connection of the Enterprise Controller/Proxy Controller. The management port must be a 100 MB connection.

  - ETH0 connects the Agent Controller to the management and 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.

Combined Provisioning and Data Network and a Separate Management Network

Figure 2–4, "Separate Management Network" shows a network configuration with a combined provisioning and data network and a separate management network.

Figure 2–4   Separate Management Network

- Enterprise Controller/Proxy Controller
    - ETH0 connects the Enterprise Controller/Proxy Controller to the corporate network to provide 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 and data 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 data and 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 Controller's 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
    - The 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 data and provisioning network to provide corporate network access to the Agent Controller. ETH0 connection must be on the same network as the ETH1 connection of the Enterprise Controller/Proxy Controller. ETH0 must be a 1 GB connection.

Combined Provisioning, Data, and Management Network

Environments with combined management, provisioning, and data networks have the following characteristics:

- Least secure system and network

- No additional NIC is needed for the Enterprise Controller/Proxy Controller.

Figure 2–5, "Combined Networks" shows a network configuration with a combined provisioning, data, and management network.

Figure 2–5   Combined Networks
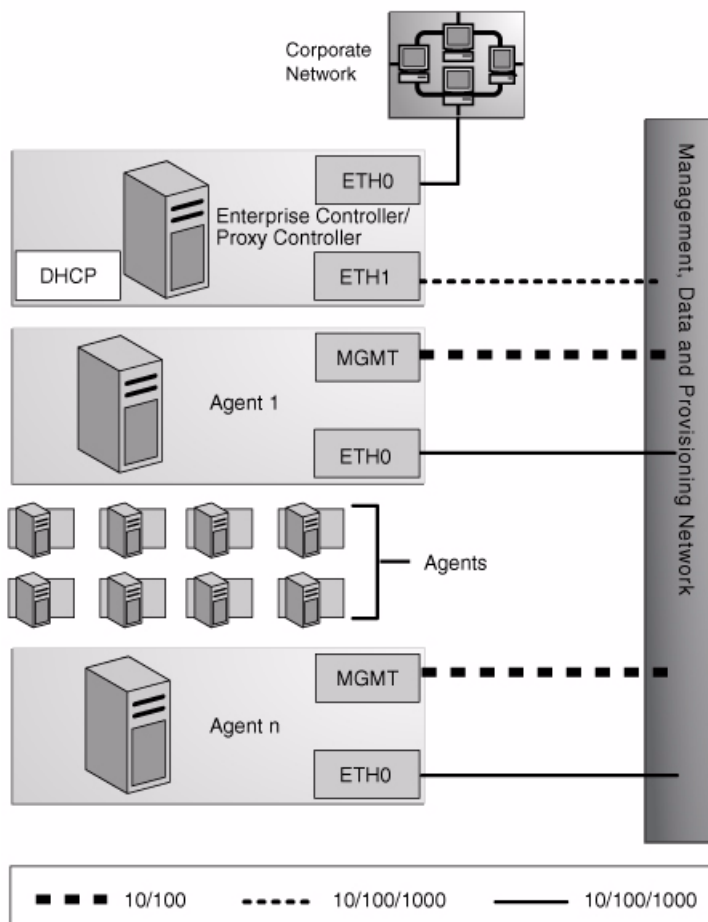
- Enterprise Controller/Proxy Controller

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

- ETH1 connects the Enterprise Controller/Proxy Controller to the combined management, provisioning, and data network, and must be on the same network as the MGMT and ETH0 connections of the Agent Controllers. Only the Enterprise Controller/Proxy Controller and the Agent Controllers must reside on the combined network. ETH1 must be a 1 GB 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, provisioning, and data network, and must be on the same network as the ETH1 connection of the Enterprise Controller/Proxy Controller. The management port must be a 100 MB connection.

  - ETH0 connects the Agent Controller to the management, provisioning, and data network, and must be on the same network as the ETH1 connection of the Enterprise Controller/Proxy Controller. ETH0 also connects the Agent Controller to the data network through the switch to provide external corporate network access to the Agent Controller. ETH0 must be a 1 GB connection.
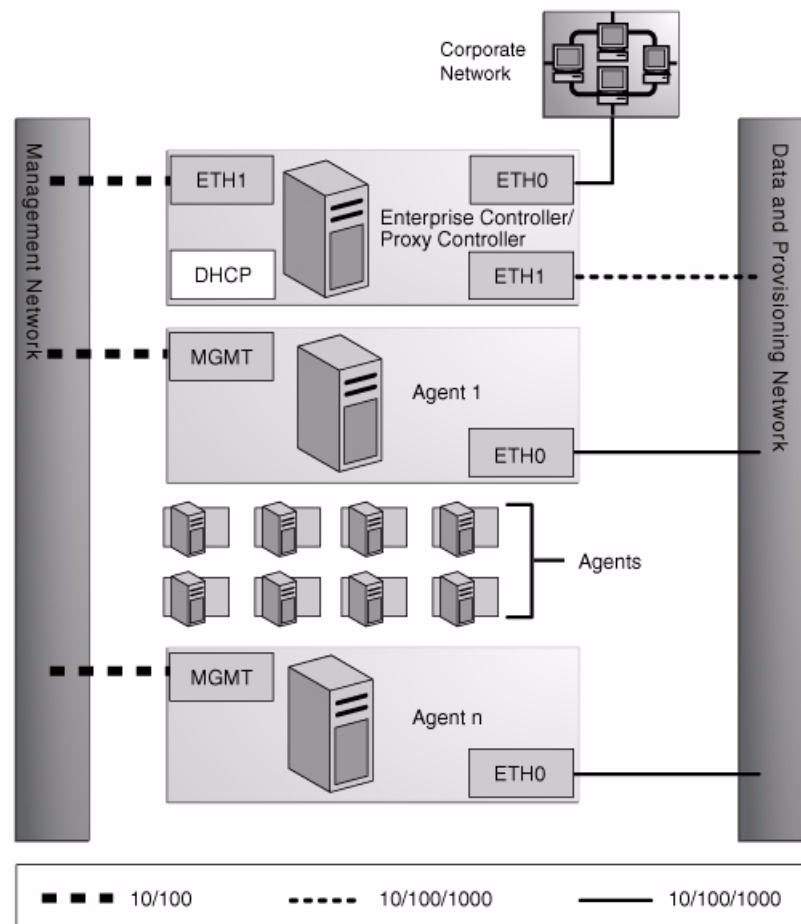
About Connection Modes

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, 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 operate Ops Center in Disconnected mode.

Figure 2–6, "Enterprise Controller in Connected Mode" shows the Enterprise Controller in Connected Mode.

Figure 2–6   Enterprise Controller in Connected Mode
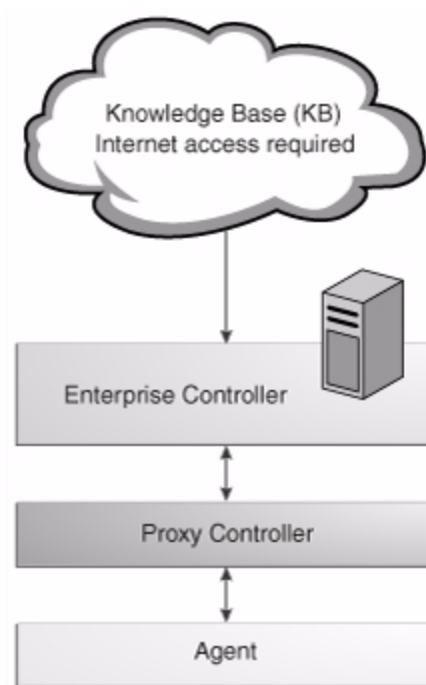
Disconnected Mode

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 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 2–7, "Enterprise Controller in Disconnected Mode" shows the Enterprise Controller in Disconnected Mode.

Figure 2–7   Enterprise Controller in Disconnected Mode
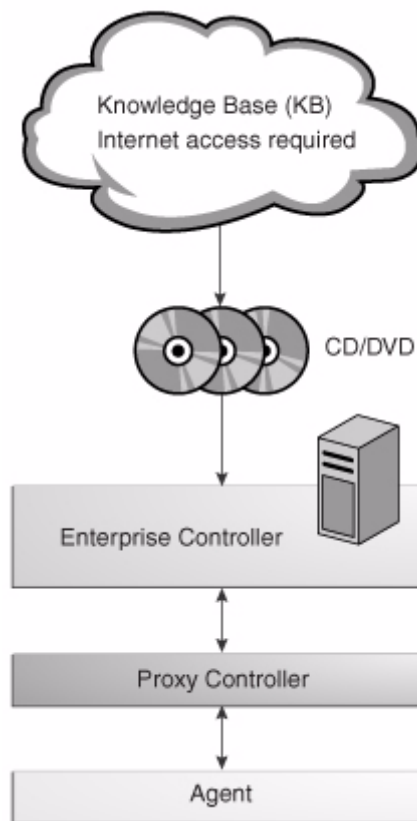
About High Availability

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.

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 about Oracle Clusterware, see the Oracle Clusterware documentation at http://www.oracle.com/pls/db111/homepage.

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)

- Operating system - Must be Oracle Linux 5.6 or 5.7 or Red Hat Enterprise Linux 5.6 or 5.7

- 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**

- 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 and its co-located Proxy Controller and not to other standalone Proxy Controllers.

About High Availability for Proxy Controllers

High availability for Proxy Controllers is a feature of the software. When a Proxy Controller goes offline, you can migrate the Agent Controllers and assets associated with the Proxy Controller to a different Proxy Controller if one is available, or leave them if you expect the Proxy Controller to come back online.

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.

The backup option described in the *Oracle Enterprise Manager Ops Center Administration Guide* can be used to 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:** Runing 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. These requirements are documented in more detail in the *Oracle Database Enterprise Edition documentation*.

- The system uses a supported Linux operating system as documented in the *Oracle Enterprise Manager Ops Center Certified Systems Matrix*. Requirements for Oracle Solaris are documented in the *Oracle Enterprise Manager Ops Center Installation Guide for Oracle Solaris Operating System*.

- The required Linux packages are installed.

- The Linux kernel parameters are configured correctly.

- The system has 6 GB of physical memory

- The system has 23 GB of free space

- The root directory has 10 GB of free space

- The `/tmp` directory has at least 1 GB of free space

- The system has swap space equivalent to memory, up to 16 GB

You must also download the installation bundles for Oracle Database Enterprise Edition version 11.2.0.3. These files are available on My Oracle Support (MOS).

Preparing for an Installation with a Customer-Managed Database

To prepare for an installation with a customer-managed database, you must identify a system that meets the following requirements:

- System uses Oracle RDBMS 11.1.0.x or higher

- Network latency is minimal between the EC and the database server

- System has 4 GB of physical memory, or 6 GB of physical memory if you plan to use a co-located Proxy Controller

These requirements are documented in more detail in the Oracle Database Enterprise Edition documentation at
http://www.oracle.com/technetwork/database/enterprise-edition/documentation/index.html.

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

Preparing The 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.

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.

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.

See the *Oracle Enterprise Manager Ops Center Certified Systems Matrix* for lists of supported operating systems for Agent Controller installation and management, hardware and other technologies supported for management, and browsers supported for accessing the UI.

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.

To Check the Enterprise Controller System

1. Download the OC Doctor utility. The OC Doctor can be found at http://java.net/projects/oc-doctor/downloads and is labeled as OCDoctor-LATEST.zip.

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.

To Check the Proxy Controller System

1. Download the OC Doctor utility. The OC Doctor can be found at http://java.net/projects/oc-doctor/downloads and is labeled as OCDoctor-LATEST.zip.

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 following 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 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

The Oracle Enterprise Manager Ops Center software requires the following minimum values for disk and swap space:

- At least 70 GB of available disk space after the operating system has been installed
- At least 6 GB of swap space

> **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

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

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

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.

1. Log in to the Oracle Technology Network Oracle Enterprise Manager Ops Center page at `http://www.oracle.com/technetwork/oem/ops-center/index.html`.

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 e-Delivery

You can download installation bundles for the Enterprise Controller and Proxy Controller from e-Delivery.

1. Log in to the Oracle e-Delivery website at `http://edelivery.oracle.com`.

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 Manger Ops Center 12*c* Release 1 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.

3

Installation and Configuration

These procedures describe how to install and configure an Enterprise Controller and one or more Proxy Controllers on Linux systems. Oracle Enterprise Manager Ops Center requires an Enterprise Controller and at least one Proxy Controller.

You can install the Enterprise Controller and the product database in one of three ways depending on the size and requirements of your environment:

- Install the Enterprise Controller and an embedded database on one system
- Install the Enterprise Controller and configure it to use a customer-managed database
- Install Oracle Clusterware and multiple Enterprise Controllers for high availability, and configure them to use a customer-managed 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.

If you decided to install Proxy Controllers outside of the configuration wizard, or if you need to install Proxy Controllers at a later date, you can use one of two methods:

- Deploy it remotely using the Deploy Proxy Wizard
- Install and configure it manually

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.

This installation installs, or upgrades to, Java Runtime Environment (JRE) 1.7_25 for the use of the Enterprise Controller and JRE 1.6_51 for the use of the Proxy Controllers. Later versions of JRE are not affected.

Installing an Enterprise Controller with an Embedded Database

This procedure describes the steps required to install Enterprise Controller software on a system that is running the Linux OS. This procedure also installs 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 required Oracle Database 11g Enterprise Edition version 11.2.0.3 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 `http://support.oracle.com`, click Sign In, and sign in with your MOS credentials.

3. Click the Patches & Updates tab.

4. Enter 10404530 in the field next to Patch Name or Number.

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 version 11.2.0.3 patch set 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.i686.12.1.0.0.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.i686.12.1.2.2140.zip
   # ls
   enterprise-controller.Linux.i686.12.1.2.2140.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.i686.12.1.2.2140.tar.zip | tar xf -
   # ls
   enterprise-controller.Linux.i686.12.1.2.2140.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 12.1.2.2140 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 12.1.0.0 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 an Enterprise Controller section.

Installing an Enterprise Controller with a Customer-Managed Database

This procedure describes the steps required to install Enterprise Controller software on a system that is running the Linux OS. This procedure also configures 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.

See the *Oracle Enterprise Manager Ops Center Certified Systems Matrix* for a list of supported database versions and database options.

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.

> **Note:** The installation procedure requires database user name and password 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 11g Enterprise Edition database to use, or install and configure a customer-managed database according to the Oracle Database 11g Enterprise Edition installation documentation.

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.i686.12.1.0.0.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.i686.12.1.2.2140.zip
# ls
enterprise-controller.Linux.i686.12.1.2.2140.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.i686.12.1.2.2140.tar.zip | tar xf -
# ls
enterprise-controller.Linux.i686.12.1.2.2140.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/SunOS_
i386/Product/installer/scripts/createOCSchema.sql .
Password:
createOCSchema.sql  100% |*********************| 1486     00:00
```

5. As the customer-managed database administrator, run the `createOCSchema_remote.sql` script and enter the following information:

   - ■ **Oracle Enterprise Manager Ops Center user name** – This is a database user that Oracle Enterprise Manager Ops Center uses to access the database.

   - ■ **Oracle Enterprise Manager Ops Center password** – This is the password for the database user. See the Oracle Database 11g Enterprise Edition documentation for information about password length and character restrictions.

   - ■ **Oracle Enterprise Manager Ops Center read-only user name** – This is a read-only database user that 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.

   - ■ **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.

   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 11.2.0.3.0 Production on Thu Dec 15 16:55:34 2011

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Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining 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 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 11g Enterprise Edition Release 11.2.0.3.0 -
64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
$
```

6. Create a database properties file on the Enterprise Controller system. The database properties file must contain the location of the customer-managed database and the same user and read-only user credentials supplied in the schema creation script.

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>
```

7. 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
```

8. 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:
```

9. 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 12.1.2.2140 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 12.1.0.0 on Linux)
```

10. 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.

11. 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
#
```

12. 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 an Enterprise Controller section.

Installing an Enterprise Controller with High Availability

This procedure describes the steps required to 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 procedure configures the software to use a remote Oracle Database. The customer-managed database must be installed and configured separately. See the *Oracle Enterprise Manager Ops Center Certified Systems Matrix* for a list of supported database versions and database options.

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 perfomed as part of the primary Enterprise Controller installation, you can choose to enable this Proxy Controller.

When you have completed this procedure, configure only the primary Enterprise Controller as described in the Configuring an Enterprise Controller section.

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

Preparing for High Availability with Oracle Clusterware

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

To Configure Systems for High Availability

1. Install Oracle Clusterware in your environment. The Oracle Clusterware installation documentation is available at http://download.oracle.com/docs/cd/B28359_01/install.111/b28263/toc.htm.

2. Identify an existing Oracle Database 11g Enterprise Edition database to use, or install and configure a customer-managed database according to the Oracle Database 11g Enterprise Edition installation documentation.

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

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.

To Install the Enterprise Controller 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.i686.12.1.0.0.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.i686.12.1.2.2140.zip
# ls
enterprise-controller.Linux.i686.12.1.2.2140.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.i686.12.1.2.2140.tar.zip | tar xf -
# ls
enterprise-controller.Linux.i686.12.1.2.2140.tar.zip
xvmoc_full_bundle
#
```

4. Identify an existing Oracle Database 11g Enterprise Edition database to use, or install and configure a customer-managed database according to the Oracle Database 11g Enterprise Edition installation documentation.

5. 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/SunOS_
i386/Product/installer/scripts/createOCSchema.sql .
Password:
createOCSchema.sql  100% |*********************| 1486     00:00
```

6. As the customer-managed database administrator, run the `createOCSchema_remote.sql` script and enter the following information:

    - **Oracle Enterprise Manager Ops Center user name** – This is a database user that Oracle Enterprise Manager Ops Center uses to access the database.

    - **Oracle Enterprise Manager Ops Center password** – This is the password for the database user. See the Oracle Database 11g Enterprise Edition documentation for information about password length and character restrictions.

    - **Oracle Enterprise Manager Ops Center read-only user name** – This is a read-only database user that 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.

    - **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.

    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 11.2.0.3.0 Production on Thu Dec 15 16:55:34 2011
```

```
Copyright (c) 1982, 2011, Oracle.  All rights reserved.


Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, OLAP, Data Mining 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 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 11g Enterprise Edition Release 11.2.0.3.0 -
64bit Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
$
```

7. Create a database properties file on the Enterprise Controller system. The database properties file must contain the location of the customer-managed database and the same user and read-only user credentials supplied in the schema creation script.

   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>
   ```

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
   ```

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 12.1.2.2140 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 12.1.0.0 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. 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.

To Install the Enterprise Controller on a Standby 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.i686.12.1.0.0.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.i686.12.1.2.2140.zip
# ls
enterprise-controller.Linux.i686.12.1.2.2140.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.i686.12.1.2.2140.tar.zip | tar xf -
# ls
enterprise-controller.Linux.i686.12.1.2.2140.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>
```

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 12.1.2.2140 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 12.1.0.0 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. 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
```

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

For example:

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

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.

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 an Enterprise Controller and follow the steps to configure the
   active Enterprise Controller.

Configuring the Standby Enterprise Controllers

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

To Configure a Standby Enterprise Controller

1. 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
```

2. 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
#
```

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.

Three 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.

> **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.

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 an update bundle:

  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 https://support.oracle.com/ and log in to verify that you have a valid set of My Oracle Support (MOS) credentials.

To Configure the Enterprise Controller with a Simple Deployment

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

   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 Controller**.

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 **Refresh** to refresh the list of Proxy Controllers.

(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 Automated Service Requests (ASRs).

- **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 Automated Service Requests (ASRs), the Automated 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 page is displayed. To perform OS provisioning, you must configure DHCP on your Proxy Controllers.

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 an update bundle:

  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 https://support.oracle.com/ and log in to verify that you have a valid set of My Oracle Support (MOS) credentials.

To Configure the Enterprise Controller with an Advanced Deployment

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

   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 Proxy Controllers**.

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 **Refresh** to refresh the list of Proxy Controllers.

(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 Automated Service Requests (ASRs).

- **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 Automated Service Requests (ASRs), the Automated 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 page is displayed. To perform OS provisioning, you must configure DHCP on your Proxy Controllers.

    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

This procedure configures 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 an update bundle:

  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 https://support.oracle.com/ and log in to verify that you have a valid set of My Oracle Support (MOS) credentials.

To Configure the Enterprise Controller Without Installing a Proxy Controller

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

   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 Automated Service Requests (ASRs).

- **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 Automated Service Requests (ASRs), the Automated 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 page is displayed. To perform OS provisioning, you must configure DHCP on your Proxy Controllers.

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.

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 Runtime Environment (JRE) 1.6_51. Later versions of JRE are not affected.

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 colocated 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 **Refresh** to refresh the list of Proxy Controllers.

(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

This section describes the steps required to install and configure Proxy Controller software on a Linux system that meets the recommended specifications for this 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 Runtime Environment (JRE) 1.6_51. Later versions of JRE are not affected.

You can use the OC Doctor to verify that the system is prepared for the installation. See http://java.net/projects/oc-doctor for more information about the OC Doctor.

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 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. 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 with the -p option. Each installation archive only contains an install script that is appropriate for its intended OS and platform. The -p option causes the install script to only install the Proxy Controller-related components. For example:

```
# cd xvmoc_full_bundle
# ./install -p
```

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.

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
#
```

For more information about the `proxyadm` command, see the Oracle Enterprise Manager Ops Center Administration Guide.