Oracle® Enterprise Manager Ops Center

Administration Guide

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Preface

The Oracle® Enterprise Manager Ops Center Administration Guide describes advanced Ops Center management and administration tasks.

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

Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Documents

For more information, see the following documents in the Oracle Enterprise Manager Ops Center 11*g* documentation set:

- *Oracle Enterprise Manager Ops Center Release Notes*

- *Oracle Enterprise Manager Ops Center Concepts Guide*

- *Oracle Enterprise Manager Ops Center Site Preparation Guide*

- *Oracle Enterprise Manager Ops Center Installation Guide for Linux Operating Systems*

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

- *Oracle Enterprise Manager Ops Center User's Guide*

- *Oracle Enterprise Manager Ops Center Advanced User's Guide*

- *Oracle Enterprise Manager Ops Center Provision and Update Guide*

- *Oracle Enterprise Manager System Monitoring Plug-in for Oracle Enterprise Manager Ops Center Guide*

- *Oracle Enterprise Manager Ops Center Reference Guide*

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.

Join The Community

The Oracle Enterprise Manager Ops Center community is a collaborative space to view, ask, and answer questions related to the Oracle Enterprise Manager Ops Center software. Everyone is invited to use the community and add to the knowledgebase.

Join the community at https://communities.oracle.com/portal/server.pt/community/oracle_enterprise_manager_ops_center.

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Enterprise Controller Administration

The Enterprise Controller is the core of Enterprise Manager Ops Center. It generates the browser user interface, routes commands from the user to the proper Proxy Controller, and communicates with Oracle and other external data sources.

About Enterprise Controller Administration

The Enterprise Controller is the center of the Oracle Enterprise Manager Ops Center infrastructure. It generates the user interface, stores asset and job data, and directs jobs to the Proxy Controllers.

The Administration options for the Enterprise Controller let you manage it directly.

Viewing Enterprise Controller Data

You can view data about the Enterprise Controller through the user interface to troubleshoot problems and ensure good performance. You can view the status of the services used by Oracle Enterprise Manager Ops Center and view log files.

Changing Enterprise Controller Settings

You can change several Enterprise Controller settings that affect the way the software operates.

If there is an HTTP Proxy between your Enterprise Controller and the Internet, you can configure Ops Center to use the HTTP Proxy.

Oracle Enterprise Manager Ops Center requires certain authentications to download content from websites. These authentications include Online Accounts and My Oracle Support accounts. You can create and edit these authentications.

In some cases, products are not correctly recognized by Oracle Enterprise Manager Ops Center. This might prevent management and monitoring actions from being taken on the system. You can correct these issues by adding an alias for a product, which matches the asset to the correct product type.

Changing the Connection Mode

Oracle Enterprise Manager Ops Center can operate in one of two connection modes. In Connected Mode, the software downloads updates and other data from the Internet, and you can directly register your assets with Oracle. In Disconnected Mode, the software operates without an Internet connection; updates and patches are downloaded using a harvester script on a separate system, and manually transferred to the Enterprise Controller system.

You can switch between these modes at any time.

Configuring the Local Agent

An agent is the component of the infrastructure that is installed on operating systems, enabling management and monitoring. A local agent is an agent installed on the Enterprise Controller OS. This enables you to monitor the system that supports the Enterprise Controller and launch some jobs that target the system. Jobs that would restart the Enterprise Controller cannot be launched.

Viewing and Changing the Enterprise Controller Status

Knowing the current status of the Enterprise Controller is necessary for some processes. The product will only function while the Enterprise Controller is online. You can check the status of the Enterprise Controller, and stop or start it, from the command line.

Updating the Enterprise Controller

Updates for the software are released periodically. You can apply these updates to your Enterprise Controller to make use of new and updated features.

When an update is released, you must download it and apply it to the Enterprise Controller before applying it to the Proxy Controllers and Agents.

Viewing Service Status

Oracle Enterprise Manager Ops Center uses the services listed below. The status of these services is monitored and displayed in the UI. The Fault Management Resource Identifier (FMRI) for each service can be used with SMF commands.

These services should not be disabled outside of the software. Use the `satadm`, `proxyadm`, and `agentadm` to manage the services.

To View Service Status

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click the Configuration tab. The Service Status is displayed.

Viewing Logs

You can view logs to diagnose problems or examine Oracle Enterprise Manager Ops Center activities.

To View Logs

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click the Logs tab.

3. Select a log from the dropdown list.

   - Cacao log

   - UI log

   - DB transaction log

- DB report log

- Proxy log

- Update error log

- Update channel download log

- Update channel error log The log is displayed.

4. (Optional) Click Refresh Log File to refresh the displayed version of the log file.

Changing the HTTP Proxy

If your Enterprise Controller accesses the Internet through an HTTP proxy, you can edit the HTTP proxy information.

To Change the HTTP Proxy

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Change HTTP Proxy in the Actions pane. The Change HTTP Proxy wizard is displayed.

3. Enter the HTTP proxy information, including:

- HTTP Proxy server

- Port number.

- User Name – Required if the HTTP Proxy requires authentication

- Password – Required if the HTTP Proxy requires authentication

4. Click Update. The HTTP proxy information is updated.

Adding a Product Alias

In some cases, an asset's type will not be recognized properly. In these cases, you can add a product alias to ensure that an asset is properly recognized by Oracle Enterprise Manager Ops Center and that all of its features are available.

> **Note:** This feature should be used as directed by Oracle Support.

To Add a Product Alias

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Add Product Alias in the Actions pane. The Add Product Alias page is displayed.

3. Enter the Product Alias information.

- Product Alias – This is the existing asset name.

- Product ID – This is the full product ID number. If a Product Label is supplied, the Product ID is optional.

- Product Label – This is the original factory label for the asset. If a Product ID is supplied, the product Label is optional.

4. Click Add Product Alias to add the product alias to the Enterprise Controller.

Editing Authentications

Authentications, such as Online Account or My Oracle Support (MOS) credentials, are necessary to download content such as updates from Oracle or third-party sites.

You can add or edit authentications to access additional external resources.

To Edit Authentications

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Edit Authentications in the Actions pane. The Edit Authentications window is displayed.

3. Edit one or more of the authentications.

   - To edit an online account, click the description, user name, or password field and enter the new information.

   - To add a MOS user, click the Add MOS User icon.

   - To edit a MOS user, click the description, user name, or password field and enter the new information.

   - To remove a MOS user, select the user click the Remove MOS User icon.

   - To set a MOS user as default, select the user and click the Set as Default MOS User icon.

4. Click Submit. A job is launched to update the authentications.

Editing the Energy Cost

One of the Oracle Enterprise Manager Ops Center capabilities is monitoring power utilization for a server or among groups of servers or virtual hosts.

You can also monitor the cost of power utilization by supplying the cost per currency unit. This information is displayed in the Summary or Energy tab.

To Set the Cost of Energy

1. Expand Administration in the Navigation pane.

2. Click Edit Energy Cost in the Actions pane. The Energy Cost Settings window is displayed.

3. Enter your location's cost for each kilowatt-hour.

4. Enter your business's currency unit.

5. Click Submit.

Changing the Connection Mode

Oracle Enterprise Manager Ops Center can operate in either Connected or Disconnected Mode. In Connected Mode, the software communicates with Oracle and other vendors, gathering patch and update information. In Disconnected Mode, the software operates autonomously and does not need an Internet connection.

You can switch between connection modes at any time.

To Switch to Disconnected Mode

To use Disconnected Mode, you must download a Knowledge Base bundle.

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Setup Connection Mode in the Actions pane.

3. Enter the absolute path of the Knowledge Base bundle that you want to use, then click Load Bundle. You can use the Browse button to locate the Knowledge Base bundle.

4. Click Switch to Disconnected Mode.

To Switch to Connected Mode

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Setup Connection Mode in the Actions pane.

3. Click Switch to Connected Mode.

Configuring the Local Agent

The Local Agent is the Agent software installed on the Enterprise Controller system. Configuring the Local Agent enables you to monitor the system that supports the Enterprise Controller and launch jobs that target it.

Jobs that target the Enterprise Controller's hardware or OS that would cause the Enterprise Controller system to restart, such as an OS update that requires a reboot, cannot be performed through the product.

To Configure the Local Agent

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Configure Local Agent in the Actions pane. A confirmation page is displayed.

3. Click Ok. A job is launched to configure the local Agent.

Unconfiguring the Local Agent

The Local Agent is the Agent software installed on the Enterprise Controller system. You can unconfigure the Local Agent to halt monitoring of the Enterprise Controller system.

To Unconfigure the Local Agent

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Unconfigure Local Agent in the Actions pane. A confirmation page is displayed.

3. Click Ok. A job is launched to unconfigure the local Agent.

Configuring Oracle Configuration Manager

Oracle Configuration Manager is a tool used to personalize and enhance the support experience by collecting configuration information and uploading it to the Oracle repository. When the configuration data is uploaded on a regular basis, customer support representatives can analyze this data and provide better service.

Oracle Configuration Manager is installed with Oracle Enterprise Manager Ops Center. If you did not configure Oracle Configuration Manager during installation, you can do so using the command line.

Before You Begin

This procedure requires that Java 6 be configured on the Enterprise Controller.

To Configure Oracle Configuration Manager

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

2. Run the `setupCCR` command.

   ```
   # /var/opt/sun/xvm/ocm/ccr/bin/setupCCR
   ```

3. 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:
   ```

4. If you want security updates to appear on your My Oracle Support page, enter your My Oracle Support password and press Enter. Otherwise, press Enter.

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

   Oracle Configuration Manager is configured.

Checking the Status of the Enterprise Controller

The Enterprise Controller can be in one of two states. In the online state, the Enterprise Controller is running normally. In the offline state, the Enterprise Controller is stopped, and cannot be used.

You can check the status of the Enterprise Controller using the `satadm` command.

To Check the Status of the Enterprise Controller

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

2. Run the `satadm status` command.

   - On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory. The following options can be used:

   - -h | --help – Displays the usage synopsis for the subcommand. For example:

```
# ./satadm status
online
```

The status of the Enterprise Controller is displayed.

Starting the Enterprise Controller

The Enterprise Controller can be in a stopped state due to a system reboot or maintenance. While the Enterprise Controller is stopped, Oracle Enterprise Manager Ops Center does not function.

You can start the Enterprise Controller using the `satadm` command.

To Start the Enterprise Controller

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

2. Run the `satadm start` command.

   - On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory. The following options can be used:

   - -h | --help – Displays the usage synopsis for the subcommand.

   - -w | --wait – satadm does not exit until all services have been started.

   - -t | --temporary – The state change is made temporary until next reboot.

   - -v | --verbose – Displays verbose error and informational messages.

   - -l | --logfile <logfile> – Captures any output from satadm in the <logfile>. For example:

     ```
     # ./satadm start -vw
     satadm: Starting Enterprise Controller with SMF...
     satadm: ... milestone "satellite-enable" succesfully enabled
     satadm: ... Waiting for Enterprise Controller services to go "online"
     satadm: Enterprise Controller services have started
     #
     ```

     The Enterprise Controller is started.

Stopping the Enterprise Controller

When the Enterprise Controller is online, Oracle Enterprise Manager Ops Center functions normally. However, certain maintenance tasks can only be performed when the Enterprise Controller is offline.

You can stop the Enterprise Controller using the `satadm` command.

To Stop the Enterprise Controller

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

2. Run the `satadm stop` command.

   - On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory. The following options can be used:

- -h | --help – Displays the usage synopsis for the subcommand.

- -w | --wait – satadm does not exit until all services have been started.

- -t | --temporary – The state change is made temporary until next reboot.

- -v | --verbose – Displays verbose error and informational messages.

- -l | --logfile <logfile> – Captures any output from satadm in the <logfile>. For example:

```
# ./satadm stop -vw
satadm: Shutting down Enterprise Controller using SMF...
satadm: ... milestone "satellite-enable" successfully disabled
satadm: ... waiting for services to go "offline"
satadm: Enterprise Controller services have stopped
#
```

The Enterprise Controller is stopped.

Ops Center Downloads

You can download updates for Oracle Enterprise Manager Ops Center. This includes updates for the Enterprise Controller, Proxy Controllers, and Agents. Downloading an update does not install it on managed assets.

Updates are downloaded to these directories:

- Enterprise Controller updates – `/var/opt/sun/xvm/images/productUpdate`

- Proxy Controller updates – `/var/opt/sun/xvm/images/productUpdate`

- Agent updates – `/var/opt/sun/xvm/images/agent`

To View and Download Updates

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Oracle Ops Center Downloads. The Oracle Ops Center Downloads wizard is displayed.

3. (Optional) Hover over the details icon for a download to view more information about it.

4. Select one or more downloads and click Next. The View License page is displayed.

5. Read the license and click Accept. The Download Status page is displayed.

6. Check I wish to download the remaining updates in the background, or wait for the downloads to complete.

7. Click Next. The Summary page is displayed.

8. Click Finish. The updates are now available.

To Make Downloads Available in Disconnected Mode

1. Download the updates using the harvester script.

2. Copy the update bundle onto the Enterprise Controller.

   - Proxy Controller updates go in the `/var/opt/sun/xvm/images/productUpdate` directory.

- Agent updates go in the `/var/opt/sun/xvm/images/agent` directory. The updates are now available.

Downloading Updates From e-Delivery

You can download update 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. Select the Oracle Enterprise Manager product pack.

3. Select the correct platform for your environment.

4. Click Go. The list of download packs is displayed.

5. Select the Oracle Enterprise Manger Ops Center 11g Release 1 Media Pack and click Continue. The list of available bundles is displayed.

6. Click the download button next to the appropriate bundle to download it, then save the downloaded bundle locally.

7. Move the downloaded file to the Enterprise Controller system.

8. Unzip the bundle.

9. Download the required Proxy Controller update bundle, unzip it and move the proxy-controller-patch*.gz file to the `/var/opt/sun/xvm/images/productUpdate` directory.

Updating the Enterprise Controller

The following procedure describes how to update the Enterprise Controller. You can view and install updates from the user interface. Updates might be available for the Enterprise Controller, Proxy Controller, or Agents. When new updates are available, a medium priority notification is sent announcing the update, and the update is indicated by an icon in the UI.

Before You Begin

Perform the following tasks before you update the Enterprise Controller:

- Download the Enterprise Controller update using the Ops Center Downloads option.

- Review pending and scheduled jobs before updating the Enterprise Controller. The update shuts down the Enterprise Controller, which will cause a running job to fail.

- Back up your Oracle Enterprise Manager Ops Center data.

To Update the Enterprise Controller

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click Upgrade Enterprise Controller. The Upgrade Enterprise Controller wizard is displayed. All available Enterprise Controller updates are displayed.

3. (Optional) Mouse over the details icon for an update to view more information about it.

4. Select an update and click Next. If the current Oracle Enterprise Manager Ops Center installation file cannot be found, the Install Path Verification page is displayed. If the update fails, the installation file is used for rollback.

5. If the Install Path Verification page is displayed, enter the path to the Oracle Enterprise Manager Ops Center installer and click Next. The Job Details page is displayed. When the update shuts down the Enterprise Controller, any jobs that are running will fail.

6. View the job details, then click Next. The Summary page is displayed.

7. Click Finish. The update is launched. The update can take up to an hour, during which time the Enterprise Controller is not accessible. Reload the browser regularly, and the login page will display normally when the update is complete.

8. Clear the browser cache and refresh the browser before you log in to the newly updated Enterprise Controller.

Updating the Enterprise Controller in Disconnected Mode

The following procedure describes how to update the Enterprise Controller. You can manually update an Enterprise Controller to the latest version. If you are running Oracle Enterprise Manager Ops Center in Disconnected Mode, you must update manually. The co-located Proxy Controller is updated as well, even if it is not enabled. If you have one or more remote Proxy Controllers, you must update them after the Enterprise Controller update has completed.

The Enterprise Controller update log will be saved locally as `/var/scn/update-saved-state/update_satellite_bundle_2.5.0.<version number>/updatelog.txt`.

> **Note:** During the update process, the Enterprise Controller will be shut down. This causes any jobs that are currently running on the Enterprise Controller to be canceled and marked as failed. However, the Enterprise Controller must be online at the beginning of the process.

Before You Begin

Perform the following tasks before you update the Enterprise Controller:

■ Verify that the Enterprise Controller has at least five (5) GB of free space for the update bundle.

■ Acquire the update bundle from Oracle and transfer it to the Enterprise Controller system using portable media.

■ Review pending and scheduled jobs before updating the Enterprise Controller. The update shuts down the Enterprise Controller, which will cause a running job to fail. Scheduled jobs cannot be launched while the update is being applied.

To Upgrade the Enterprise Controller in Disconnected Mode

1. As root, log in to the Enterprise Controller.

2. Use the `satadm` command to verify that the Enterprise Controller is online. If necessary, use the `satadm start` command to start the Enterprise Controller.

```
# /opt/SUNWxvmoc/bin/satadm status
online
```

3. Create a temporary directory on your system, then copy or move the update bundle to the temporary directory that you created.

```
# mkdir /var/tmp/OC/update
# cp enterprise-controller.SunOS.sparc.2.5.0.1171.tar.gz /var/tmp/OC/update
```

4. Change to the directory containing the update bundle.

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

5. Unzip and un-tar the bundle.

- On Solaris OS systems, use the `gzcat` and `tar` commands to unzip and un-tar the update bundle.

  ```
  # gzcat enterprise-controller.SunOS.sparc.2.5.0.1171.tar.gz | tar xf -
  ```

- On Linux systems, use the `gunzip` and `tar` commands to unzip and un-tar the update bundle. Note that the following command example retains the original compressed archive file.

  ```
  # gunzip enterprise-controller.Linux.i686.2.5.0.1171.tar.gz
  # tar xf enterprise-controller.Linux.i686.2.5.0.1171.tar
  ```

6. Change to the `xvmoc_full_bundle` directory and run the install script.

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

The following options can be used with the install script:

- **--acceptedlicenseor-a** – Accepts the license terms and conditions. Without this option, the terms and conditions are displayed, and you are prompted to accept them.

- **--verboseor-v** – Increases verbosity of output from update program. Without this option, non-verbose output is given. You must accept the license terms and conditions to complete the update. When the update is complete, the install script indicates that all Oracle Enterprise Manager Ops Center components have been updated to the latest version.

7. Clear your browser cache and refresh your browser before you log in to the newly updated Enterprise Controller.

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Proxy Controller Administration

The Proxy Controller carries out commands from the Enterprise Controller. All Oracle Enterprise Manager Ops Center deployments have at least one Proxy Controller.

A Proxy Controller is automatically installed on the Enterprise Controller system. It can be enabled and used for small deployments. For larger deployments, remote Proxy Controllers can be installed on separate systems.

About Proxy Controller Administration

Proxy Controllers are the middle tier of Oracle Enterprise Manager Ops Center. Proxy Controllers carry out most jobs, store data such as OS images, and interact directly with managed assets.

The Administration options for the Proxy Controller let you manage it directly.

Updating a Proxy Controller

Updates for the software are released periodically. You can apply these updates to your Proxy Controllers to make use of new and updated features.

When an update is released, you must download it and apply it to the Enterprise Controller before applying it to the Proxy Controllers.

Viewing and Changing Proxy Controller Status

Knowing the current status of a Proxy Controller is necessary for some processes. You can check the status of a Proxy Controller, and stop or start it, from the command line.

Setting a Proxy Controller's Default Status

You can set a Proxy Controller as the default. Normally, jobs are routed to the Proxy Controller that manages the affected assets, or to whatever Proxy Controller is available. If a Proxy Controller is the default, jobs are routed to it wherever possible.

Modifying Proxy Controller Settings

To perform OS provisioning, Oracle Enterprise Manager Ops Center must have DHCP configured. You can configure DHCP directly, or direct a Proxy Controller to use an external DHCP server. You can also configure subnets to work with specific DHCP servers.

Updating a Proxy Controller

You can remotely update Proxy Controllers to the latest available version.

Proxy Controller files are stored in the `/var/opt/sun/xvm/images/productUpdate` directory. If you are using Connected Mode, use the Ops Center Downloads action to download Proxy Controller files. If you are using Disconnected Mode, Proxy Controller files must be added to the `/var/opt/sun/xvm/images/productUpdate` directory before they can be used.

To update 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, update the Proxy Controller from the command line.

Before You Begin

Perform the following tasks before you update the Proxy Controller:

- Update the Enterprise Controller.
- Download the Proxy Controller update.

  See Ops Center Downloads for more information about downloading updates.

To Update a Proxy Controller

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click the Proxy Controllers tab. Proxy Controller information is displayed.

3. Select one or more Proxy Controllers.

4. Click the Update to Latest Available Version icon in the center pane. The Update Proxy(s) wizard is displayed.

5. Select a method for providing SSH credentials for the Proxy Controller or Proxy Controllers.

   - Re-use the SSH credentials used during discovery
   - Apply the same SSH credentials to all
   - Enter SSH credentials for each

6. Click Finish. A job is launched to update the Proxy Controller.

Manually Updating a Proxy Controller

You can manually update Proxy Controllers to the latest available version to gain access to new and updated features.

Before You Begin

Proxy Controller files are stored in the `/var/opt/sun/xvm/images/productUpdate` directory on the Enterprise Controller. If you are using Connected Mode, use the Ops Center Downloads action to download Proxy Controller files, then move them to the Proxy Controller system. If you are using Disconnected Mode, Proxy Controller files must be downloaded outside of Ops Center and moved to the Proxy Controller system.

To Update a Proxy Controller

1. As root, log in to the Proxy Controller system.

2. Change to the directory containing the proxyadm command.

    - On Oracle Solaris systems, this directory is `/opt/SUNWxvmoc/bin/`.

    - On Linux systems, this directory is `/opt/sun/xvmoc/bin/`.

3. Run the proxyadm status command to verify that the Proxy Controller is online. If the Proxy Controller is offline, start it using the proxyadm start command.

    ```
    # ./proxyadm status
    online
    ```

4. Change to the directory containing the update bundle.

5. Uncompress and un-tar the installation archive, then list the contents of the temporary directory.

    - For example, on a Linux Proxy Controller:

        ```
        # gunzip proxy-controller.Linux.i686.2.5.0.1186.tar.gz
        # tar xf proxy-controller.Linux.i686.2.5.0.1186.tar
        # ls
        xvmoc_full_bundle
        proxy-controller.Linux.i686.2.5.0.1186.tar
        #
        ```

    - On an Oracle Solaris Proxy Controller:

        ```
        # gzcat proxy-controller.SunOS.i386.2.5.0.1186.tar.gz | tar xf -
        # ls
        xvmoc_full_bundle
        proxy-controller.SunOS.i386.2.5.0.1186.tar.gz
        ```

6. Change to the `xvmoc_full_bundle` directory.

7. Run the install script.

    ```
    # ./install
    ```

    The update is installed on the Proxy Controller.

Configuring a Local Agent on a Proxy Controller

A Local Agent is Agent software installed on the Proxy Controller system. Configuring the Local Agent lets you monitor the system that supports the Proxy Controller and launch jobs that target it.

To Configure a Local Agent

1. Click a Proxy Controller in the Administration section of the Navigation pane.

2. Click Configure Local Agent in the Actions pane. A confirmation window is displayed.

3. Click Ok. A job is launched to configure the local Agent.

Unconfiguring a Local Agent on a Proxy Controller

The Local Agent is the Agent software installed on a Proxy Controller system. You can unconfigure the Local Agent to halt monitoring of the Proxy Controller system.

To Unconfigure a Local Agent

1. Click a Proxy Controller in the Administration section of the Navigation pane.

2. Click Unconfigure Local Agent in the Actions pane. A confirmation window is displayed.

3. Click Ok. A job is launched to unconfigure the local Agent.

Checking the Status of a Proxy Controller

You can check the status of a Proxy Controller using the `proxyadm` command.

To Check the Status of a Proxy Controller

1. As root, log in to the Proxy Controller system.

2. Run the `proxyadm status` command.

   - On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory. The following options may be used:

   - -h | --help – Displays the usage synopsis for the subcommand.

     ```
     # ./proxyadm status
     ```

     The status of the Proxy Controller is displayed.

Starting a Proxy Controller

You can start a Proxy Controller using the `proxyadm` command.

To Start a Proxy Controller

1. As root, log in to the Proxy Controller system.

2. Run the `proxyadm start` command.

   - On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory. The following options may be used:

   - -h | --help – Displays the usage synopsis for the subcommand.

   - -w | --wait – proxyadm does not exit until all services have been started.

   - -t | --temporary – The state change is made temporary until next reboot.

   - -v | --verbose – Displays verbose error and informational messages.

   - -l | --logfile <logfile> – Captures any output from proxyadm in the <logfile>.

     ```
     # ./proxyadm start -vw
     ```

     The Proxy Controller is started.

Stopping a Proxy Controller

You can stop a Proxy Controller using the `proxyadm` command.

To Stop a Proxy Controller

1. As root, log in to the Proxy Controller system.

2. Run the `proxyadm stop` command.

   ■ On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

   ■ On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory. The following options may be used:

   ■ -h | --help – Displays the usage synopsis for the subcommand.

   ■ -w | --wait – proxyadm does not exit until all services have been started.

   ■ -t | --temporary – The state change is made temporary until next reboot.

   ■ -v | --verbose – Displays verbose error and informational messages.

   ■ -l | --logfile <logfile> – Captures any output from `proxyadm` in the <logfile>.

   ```
   # ./proxyadm stop -vw
   ```

   The Proxy Controller is stopped.

Setting a Proxy Controller as Default

You can set a Proxy Controller as the default. Jobs will be completed by the default Proxy Controller wherever possible.

To Set a Proxy Controller as Default

1. Click a Proxy Controller in the Administration section of the Navigation pane.

2. Click Set as Default in the Actions pane. A popup appears, confirming that the Proxy Controller has been set as the default.

3. Click OK.

Clearing a Proxy Controller's Default Status

You can remove the default status from a Proxy Controller. Jobs will be completed by the Proxy Controller on the appropriate subnet.

To Clear a Proxy Controller's Default Status

1. Click the default Proxy Controller in the Administration section of the Navigation pane.

2. Click Clear Default in the Actions pane. A popup appears, confirming that the Proxy Controller is no longer the default.

3. Click OK.

Configuring DHCP

You can configure and enable DHCP services on a Proxy Controller. DHCP configuration configures and enables basic DHCP services on the Proxy Controller to support OS provisioning operations. The Proxy Controller must be in the same subnet as the target hosts for OS provisioning to work.

The DHCP Config action configures and enables either a Solaris DHCP server, or an Internet Standards Consortium (ISC) DHCP server, on the Proxy Controller that you select.

The DHCP Config action requires that you specify the Ethernet interface through which the Proxy Controller will provide DHCP services, for example bge0. Currently you may establish DHCP services on all the Ethernet interfaces in the proxy controller. The Proxy Controller's Ethernet interface that you specify must be connected to the network where the target systems for OS provisioning are connected.

Similarly, the Ethernet interface that you select in the Boot Network Device field of the Provision OS wizard must be connected to the network where the Proxy Controller is providing DHCP services.

The DHCP Config and External DHCP Servers actions are mutually exclusive. Use only one of these two actions to configure DHCP services to support OS provisioning operations. The DHCP Config action is more commonly used, and is simpler to implement.

The following diagram illustrates the basic DHCP configuration.

Figure 2–1 Basic DHCP Configuration
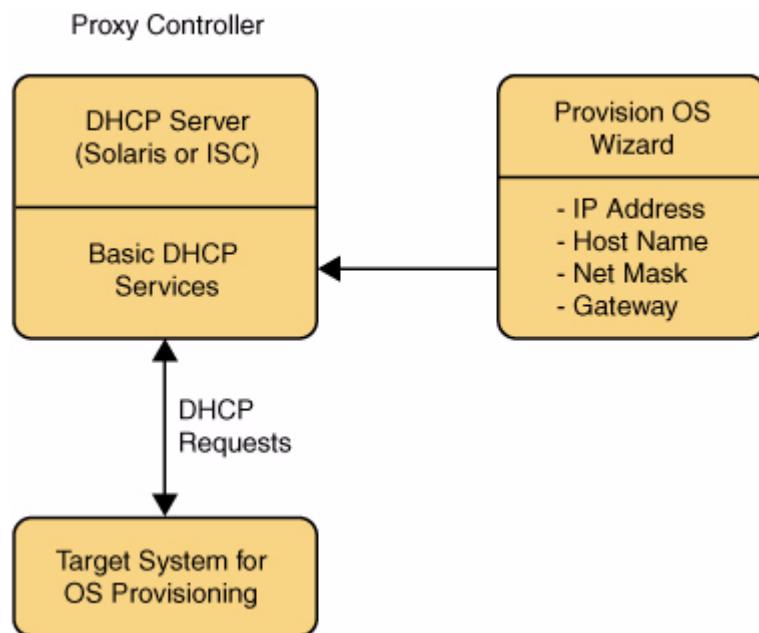
The Provision OS wizard supplies the specific identity information that the target system requests, using the basic DHCP services that you establish on the Proxy Controller.

To Configure DHCP Services

1. In the Administration pane, select the Proxy Controller where you want to configure DHCP services. The Actions list shows the available actions, including the DHCP Config action.

2. Select DHCP Config in the Actions pane. The DHCP Configuration dialog box is displayed.

3. In the DHCP Configuration dialog box, provide the following information:

- **DHCP Server** – Select either ISC or Solaris to implement either the Internet Standards Consortium (ISC) reference DHCP server, or the Solaris native DHCP server. The ISC server is generally preferred.

- **Interface** – Enter the Ethernet interface on the Proxy Controller where you want to provide DHCP services, for example, qfe0. DHCP configuration is possible for multiple Ethernet interfaces in the Proxy Controller.

- **Enable DHCP** – Select this option to enable the DHCP server that you selected.

4. Click Save Config to save the DHCP configuration that you specified.

5. A warning indicates that any existing subnets in the DHCP configuration will be removed. Click Yes to accept that action and continue.

6. A message indicates that the DHCP configuration job has been submitted. Click OK to dismiss the message. When the job is complete, DHCP services become available.

Note: You can configure DHCP server on the Proxy Controller to listen to multiple Ethernet interfaces. For example, consider the following network configuration for the Proxy Controller:

```
e1000g0  10.0.0.2
e1000g1  192.168.1.2
e1000g2  172.16.12.2
```

If you configure the DHCP server to listen to e1000g1 and e1000g2, then the target system must have the IP address in the range of 192.168.1.0/24 or 172.16.12.0/24.

Configuring Subnets

You can configure subnets to use the DHCP server on a Proxy Controller for purposes in addition to OS provisioning, or to define subnets that are used with external DHCP servers.

Configuring subnets is *not* required to establish the basic DHCP services that are required for OS provisioning, unless you are using an external DHCP server.

Typically you would configure subnets for the following reasons:

- To configure a subnet to provide IP address, DNS server, and router information to systems that may request them on the same network where the Proxy Controller is providing basic DHCP services for OS provisioning;

- If you choose to configure an external DHCP server instead of configuring a DHCP server on a Proxy Controller, you must configure a subnet for each network from which you might receive relayed DHCP requests.

Specifying IP Address Ranges

The Subnets action allows you to specify an IP address range that the DHCP server will assign to systems that request them. The IP addresses that you specify in the Low IP Address and High IP Address fields for the subnet define the low and high boundaries of the IP address range.

The IP addresses that are within the range that you specify may not be used for OS provisioning operations. If, for example, you specify 192.168.0.64 and 192.168.0.128 as

the low and high IP addresses, you could not use any of the IP addresses within that range, including the low and high addresses, as values for the IP Address or IP Address Ranges fields in the Provision OS wizard.

To Configure a Subnet

1. In the Administration pane, select the Proxy Controller where you want to configure a DHCP subnet. The Actions list shows the available actions, including the Subnets action.

2. Select Subnets in the Actions pane. The DHCP Subnets Configuration dialog box is displayed.

3. In the DHCP Subnets Configuration dialog box, provide the following information:

   - **Subnet** – To create a new subnet on the selected Proxy Controller, select Create New Subnet. Select an existing subnet from the pull-down list to modify its configuration. The Refresh button updates the list of subnets.

   - **Subnet Name** – Enter the name of the subnet where you want to establish or modify DHCP services.

   - **Network** – Enter the network address.

   - **Netmask** – Enter the netmask for the network.

   - **Router IP Address** – Enter the IP address of the router that systems that on this subnet will use.

   - **Low IP Address** – Enter the IP address to use as the lower limit of the IP address range that systems on this subnet will use.

   - **High IP Address** – Enter the IP address to use as the upper limit of the IP address range that systems on this subnet will use.

   - **Name Server** – Enter the IP addresses of the DNS servers that systems will use.

   - **Domain** – Enter the names of the DNS domains that systems will use to resolve host names.

4. Click Create Subnet to create the subnet configuration that you specified. A message indicates that a job to create the subnet was submitted. Click OK to dismiss the message.

Configuring External DHCP Servers

Oracle Enterprise Manager Ops Center enables you to use DHCP servers that are external to Proxy Controllers to provide the DHCP services that OS provisioning operations require.

The DHCP Config and External DHCP Servers actions are mutually exclusive. Use only one of these two actions to configure DHCP services to support OS provisioning operations. The DHCP Config action is more commonly used, and is simpler to implement.

The following diagram illustrates DHCP configuration using External DHCP servers.

Figure 2–2   DHCP Configuration Using External DHCP Servers
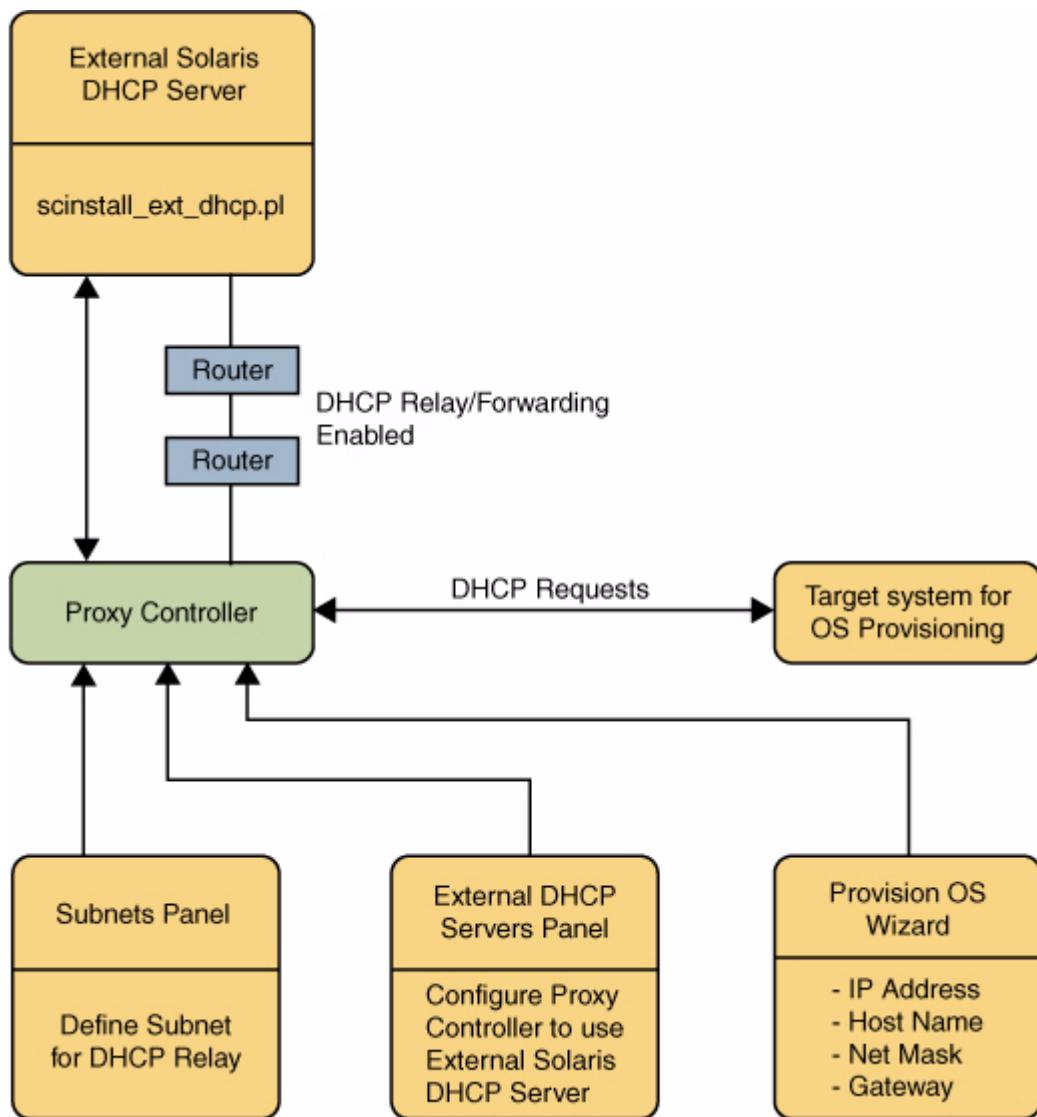
You run the scinstall_ext_dhcp.pl script on the External DHCP server to establish communication between the Proxy Controller and the External DHCP server. The Subnets pane allows you to define subnets where DHCP relay traffic is expected. The External DHCP Servers pane configures the Proxy Controller to relay DHCP configuration information that the Provision OS wizard supplies. The Provision OS wizard supplies the specific identity information that the target system requests. The target system makes its DHCP requests, which are relayed to the External DHCP server. The routers or other network asset that connects the External DHCP server to the Proxy Controller must have DHCP relay capabilities enabled.

External DHCP Server Requirements

The External DHCP Servers action is only compatible with Solaris DHCP server and not with ISC DHCP server.

Before You Begin

Configuring External DHCP servers requires the following prerequisite work:

- You must establish DHCP relay or forwarding services on the network routers, switches, or systems that comprise your network. Refer to the documentation for those components for the required procedures.

- You must use the scninstall_ext_dhcp.pl script to establish the communication channel between a Proxy Controller and the External DHCP server. The scninstall_ext_dhcp.pl script enables ssh access to the DHCP server without requiring passwords.

To Install the scninstall_ext_dhcp.pl Script on the External DHCP Server

You need to use wget to get the scninstall_ext_dhcp.pl script from the Proxy Controller to the External DHCP server.

1. On the external DHCP server, execute the following command to get the scninstall_ext_dhcp.pl script from the Proxy Controller.

   ```
   # wget http://proxy_ip:8004/pub/scninstall_ext_dhcp.pl
   ```

   Where proxy_ip is the IP address of the Proxy Controller.

2. Grant execute permissions for the script.

   ```
   # chmod +x scninstall_ext_dhcp.pl
   ```

3. Install the script as root user.

   ```
   # ./scninstall_ext_dhcp.pl install
   ```

   This will perform the following actions:

- Sets up scnospadmin user.

- Downloads the SUNWscnosp-extdhcp package from the proxy directory.

- Sets up the configuration file for limited commands to run from scnospadmin user.

- Sets up ssh keys to allow ssh/scp commands from the Proxy Controller to the external DHCP server without requiring passwords.

   > **Note:** Ensure that you use wget to copy the scninstall_ext_dhcp.pl script from the Proxy Controller to another external DHCP server.

To Configure External DHCP Servers

1. In the Administration pane, select the Proxy Controller where you want to configure an external DHCP server. The Actions list shows the available actions, including the External DHCP Servers action.

2. Select External DHCP Servers in the Actions pane. The External DHCP Servers Configuration dialog box is displayed.

3. In the External DHCP Servers Configuration dialog box, provide the following information:

   - **DHCP Server** – To create a new DHCP server on the selected Proxy Controller, select Create New DHCP Server. Select an existing DHCP server from the pull-down list to modify its configuration. The Refresh button updates the list of DHCP servers.

- **Subnet Name** – Enter the name of the subnet where you want to establish or modify DHCP services.

- **DHCP Server** – Select Solaris to implement the Solaris native DHCP server.

- **DHCP Server IP** – Enter the IP address of the DHCP server.

- **Network** – Enter the network address where you want to establish or modify DHCP services.

- **Netmask** – Enter the netmask for the network where you want to establish or modify DHCP services.

- **Router IP Address** – Enter the IP address of the router that the DHCP server will assign to systems.

- **Low IP Address** – Enter the IP address to use as the lower limit of the IP address range that the DHCP server will allocate to systems.

- **High IP Address** – Enter the IP address to use as the upper limit of the IP address range that the DHCP server will allocate to systems.

- **Name Server** – Enter the IP addresses of the DNS servers that systems will use.

- **Domain** – Enter the names of the DNS domains that systems will use to resolve host names.

4. Click Create DHCP Server to create the DHCP server configuration that you specified. A message indicates that a job to create the external DHCP server was submitted. Click OK to dismiss the message.

Viewing a Proxy Controller's Configuration

You can view the configuration of a Proxy Controller, including:

- IP Address

- Registration Date

- Status (Online or Offline)

- Whether or not the Proxy Controller is the default

To View a Proxy Controller's Configuration

1. Click the Proxy Controller in the Administration section of the Navigation pane.

2. Click the Configuration tab in the Center pane. The Proxy Controller's configuration is displayed.

3

Agent Controller Administration

The Agent Controller is the portion of Oracle Enterprise Manager Ops Center that manages and monitors OS and virtualization assets.

Agent Controllers can be updated remotely. However, the Enterprise Controller and Proxy Controllers must be updated first.

About Agent Controller Administration

Agent Controllers, or Agents, are installed on managed operating systems. They send asset data to Oracle Enterprise Manager Ops Center and enable Proxy Controllers to carry out jobs such as OS updating.

The Administration options for Agents let you manage them directly.

Viewing Agent Controllers

You can view the Agents currently known to Ops Center and see their version and status.

Updating or Downgrading Agent Controllers

Updates for Oracle Enterprise Manager Ops Center are released periodically. You can apply these updates to your Agents to make use of new features and bug fixes.

When an update is released, you must download it and apply it to the Enterprise Controller and Proxy Controllers before applying it to the Agents.

Viewing Agent Controllers

Agent Controllers are installed on operating systems and virtualization tools managed by Oracle Enterprise Manager Ops Center. You can view them to see their status, their current version, and any available updates.

To View Agent Controllers

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click the Agent Controllers tab. Agent Controller information is displayed.

Updating Agent Controllers

You can remotely update Agent Controllers to the latest available version.

Agent files are stored in the `/var/opt/sun/xvm/images/agent` directory. If you are using disconnected mode, Agent Controller files must be added to the `/var/opt/sun/xvm/images/agent` directory before they can be used.

To Update Agent Controllers

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click the Agent Controllers tab. Agent Controller information is displayed.

3. Select one or more Agent Controllers.

4. Click the Update to Latest Available Version icon in the center pane. The Upgrade Agents wizard is displayed.

5. Select an option for providing upgrade credentials.

   - Upgrade without requiring ssh credentials

   - Re-use SSH credentials used during discovery for the selected hosts – Uses the saved discovery criteria.

   - Apply the same SSH credentials to all – Uses the same ssh credentials for all selected assets.

   - Enter SSH credentials for each of the selected hosts – Uses separately entered ssh credentials for all assets.

6. Click Submit. A job is launched to upgrade the Agent.

Downgrading Agent Controllers

You can remotely revert Agent Controllers to a previously installed version.

To Downgrade Agent Controllers

1. Click the Enterprise Controller in the Administration section of the Navigation pane.

2. Click the Agent Controllers tab. Agent Controller information is displayed.

3. Select one or more Agent Controllers.

4. Click the Downgrade to Previously Installed Version icon in the center pane. The Downgrade Agents wizard is displayed.

5. Select an option for providing credentials.

   - Downgrade without requiring ssh credentials

   - Re-use SSH credentials used during discovery for the selected hosts – Uses the saved discovery criteria.

   - Apply the same SSH credentials to all – Uses the same ssh credentials for all selected assets.

   - Enter SSH credentials for each of the selected hosts – Uses separately entered ssh credentials for all assets.

6. Click Submit. A job is launched to downgrade the Agent.

Re-installing Agent Controllers

You can re-install the Agent Controller on managed assets, removing the existing Agent and installing the latest version.

Agent files are stored in the `/var/opt/sun/xvm/images/agent` directory. If you are using disconnected mode, Agent Controller files must be added to the `/var/opt/sun/xvm/images/agent` directory before they can be used.

To Re-install Agent Software

1. Click All Assets in the Assets section of the Navigation pane.

2. Select an operating system from the list of assets.

3. Click Re-install agentry in the Actions pane. The Enter Credentials page of the Manage Assets wizard is displayed.

4. Select an option for providing SSH credentials for the system:

    ■   Reuse the SSH credentials used to discover the asset

    ■   Enter one set of SSH credentials to use for all assets

    ■   Enter separate SSH credentials for each asset

5. Click Next. The Start Managing page is displayed.

6. Confirm your selection and click Next. The Summary page is displayed. An Agent installation job is launched.

7. Click Close.

4

User and Role Management

You can add users to Oracle Enterprise Manager Ops Center from the local authentication subsystem of the Enterprise Controller's operating system. Each user can be given a different role which grants or denies access to the different functions of Oracle Enterprise Manager Ops Center.

You can view the existing Users from the Users tab of the Administration section.

You can view the Roles of existing users from the Roles tab of the Administration section.

About User and Role Management

Oracle Enterprise Manager Ops Center can import any user known to the Enterprise Controller. These users can log in and launch jobs separately. Each user can be granted different roles, giving them a tailored set of abilities.

Adding and Removing Users

Oracle Enterprise Manager Ops Center can have any number of users. If a user is known to the Enterprise Controller system, either as a local user or through a network information service, that user can be added to Oracle Enterprise Manager Ops Center. They can then log in to Ops Center.

Existing users can also be deleted by any user with the Enterprise Controller Admin role.

Roles and Authorizations

You can give each user a set of roles, which determine what tasks the user can and cannot take. This gives administrators fine-grained control over the actions that users can take.

A user with the Enterprise Controller Admin role is an Oracle Enterprise Manager Ops Center superuser. They can take any action within Oracle Enterprise Manager Ops Center, including updating the product and modifying or removing other users and roles.

A user with the All Assets Admin role can perform any action, such as discovery, OS provisioning, or firmware provisioning, on any asset. However, they cannot modify or remove users, update the product, or take other actions that directly affect the Oracle Enterprise Manager Ops Center infrastructure.

The Admin, Provision, Update, Update Simulate, and Manage roles can be granted for each group. Each one lets the user take certain actions on any asset in the group.

Notification Profiles

Assets managed by Ops Center can be set to generate notifications when specified criteria are met. For example, a server could be set to generate a notification if its temperature climbs too high.

Notification profiles let you specify how these notifications should be sent to each user and under what circumstances. Notifications can be sent through the UI, by email, or by pager. Different degrees of notifications, or notifications for different assets, can be sent through different methods. For example, you could create a notification profile that would send low-priority notifications to your email, and high-priority notifications to your pager.

Adding a User

Users with admin privileges can add other users to the list of users recognized by Oracle Enterprise Manager Ops Center. New user information, such as the passwords for new users, will be pulled from the local authentication subsystem.

To Add a User

1. Select Administration in the Navigation pane.

2. Click the Users tab. The Users page is displayed.

3. Click the Add User icon. The Add User window is displayed.

4. Enter the user name.

5. Click Add User. The new user is created.

Deleting a User

A user with admin rights can delete other users, removing the user and their role from Oracle Enterprise Manager Ops Center.

To Delete a User

1. Select Administration in the Navigation pane.

2. Click the Users tab. The Users page is displayed.

3. Select the user that you want to delete.

4. Click the Delete User icon. The Delete User window is displayed.

5. Click Confirm. The user is deleted.

Roles and Authorizations

Roles grant users the ability to use the different functions of Oracle Enterprise Manager Ops Center. By giving a role to a user, an Enterprise Controller Administrator can control what functions are available to that user on specific assets and groups.

Each role grants a user a specific set of authorizations. To perform a job, you must have the correct role for the assets or group targeted by the job. Enterprise Controller Administrators can grant roles to a user that cover the following assets or groups:

- Enterprise Controller

- All Assets group

- User-created groups

- System-defined groups

- Deployment plans

- Profiles

- OS Update profiles

> **Note:** Subgroups inherit the roles assigned to the parent group.

Enterprise Controller Admin Role

The Enterprise Controller Admin role grants root access to Oracle Enterprise Manager Ops Center. A user with the Enterprise Controller Admin role can perform asset discovery, perform administration actions on Oracle Enterprise Manager Ops Center, add new users, edit roles, and create new profiles, policies, and plans.

When Oracle Enterprise Manager Ops Center is configured, the privileged user is automatically given this role. At least one user must have this role.

All Assets Admin Role

A user with the All Assets Admin role can perform any action, including provisioning, updating, and managing, on any asset or group.

When Oracle Enterprise Manager Ops Center is configured, the privileged user is automatically given this role.

Group Roles

An Enterprise Controller Admin can grant one or more of these roles to any user for any group:

Group Admin

A user with the Admin role for a group has unlimited access to assets within that group. They can take any action on the assets in the group, including installing Agents, updating or provisioning operating systems, provisioning firmware, and managing and monitoring assets. However, they cannot edit or add assets to the group.

Group Provision

A user with the Provision role for a group can provision operating systems and firmware onto assets in the group. You can use existing profiles, policies, and plans to perform provisioning, but you cannot edit them or create new ones. Deployment plans that include update components can be used by a user with this role.

Group Update

A user with the Update role for a group can update operating systems in the group and run update reports. You can use existing profiles, policies, and plans to perform the update, but you cannot edit them or create new ones. Deployment plans, including those with update components, require the Group Provision role.

Group Update Sim

A user with the Update Sim role for a group can perform simulated Update jobs on operating systems and run update reports.

Group Manage

A user with the Manage role for a group can monitor assets, gain console access, and launch reports.

Plan and Profile Roles

A user can be granted the Admin role for a Deployment Plan, Operational Plan, or Profile. A user with the Admin role can edit, copy, or delete the plan or profile. However, a user can run the plan or profile on an asset without having the Admin role.

Assigning a Role

Roles grant users the ability to use the different functions of Oracle Enterprise Manager Ops Center. By giving a role to a user, an administrator can control what functions are available to that user for specific groups. See Roles and Authorizations for a list of the available roles and their functions.

An Enterprise Controller Admin can grant users different roles for the Enterprise Controller, the All Assets group, and any user-defined groups. A user who is assigned a role for a group will receive the same role for all subgroups.

To Assign a Role to a User

> **Note:** You must have the Enterprise Controller Admin role to assign roles to other users.

1. Select Administration in the Navigation pane.

2. Click the Roles tab. The Roles page is displayed.

3. Select a user from the dropdown menu.

4. Select Enterprise Controller, All Assets, or a user-defined group.

5. Click Edit Roles. The Edit Roles window is displayed.

6. Select the checkbox for the role or roles you want to assign to the user. You can remove a role by un-checking the checkbox.

7. Click Update Role Capabilities. The user's roles are updated.

Configuring a Notification Profile

Notification Profiles determine how notifications are sent to a user and what levels of notifications are sent. By configuring separate notification profiles, different users can receive specific levels of notifications through the UI, through email, or through a pager.

There are four levels of notification that can be sent to a specific destination (the UI, an email address, or a pager).

- **None** – No notifications will be sent to the destination.

- **Low and Higher** – Low, medium, and high severity notifications will be sent to the destination.

- **Medium and Higher** – Medium and high severity notifications will be sent to the destination.

- **High** – High severity notifications will be sent to the destination.

Different levels of notifications can be sent for specific Virtualization Pools, Groups, or top-level Smart Groups.

If a user has no notification profile, all notifications (Low and Higher) for all assets will be sent to the UI, and no notifications will be sent to other destinations.

To Configure a Notification Profile

You can configure a new notification profile for a user or edit an existing profile.

1. Select Administration in the Navigation pane.

2. Select the Enterprise Controller.

3. Click the Users tab. The Users page is displayed.

4. Select the user for whom you want to configure notifications.

5. Click the Configure Notification Profile icon. The Configure Notification Profile window appears. If a Notification Profile has already been configured for the user, the existing profile is displayed.

6. Select either Subscribe to All Notifications or Subscribe to Custom Filtered Notifications.

   - If you select Subscribe to All Notifications, you will receive notifications for all assets.

     Use the Application drop-down list to select the severity of messages to be received through the BUI.

     Use the Email drop-down list to select the severity of messages to be received through email.

     Use the Pager drop-down list to select the severity of messages to be received through a pager.

   - If you select Subscribe to Custom Filtered Notifications, you will receive the specified priority of notifications for each Virtualization Pool and Group.

     For each Virtualization Pool, select the severity of messages to be received through the BUI, email, and pager.

     For each Smart Group, select the severity of messages to be received through the BUI, email, and pager.

     For each Group, select the severity of messages to be received through the BUI, email, and pager.

7. If you chose to receive notifications by email, enter an email address and mail host. The mail host specifies an external mail host through which messages are sent.

8. If you chose to receive notifications by pager, enter a pager address and mail host. The mail host specifies an external mail host through which messages are sent.

9. (Optional) Click More Options to view additional options.

   - Enter a Mail User and Mail Password to specify credentials for the mail host.

10. Click Update Notification Profile.

Deleting a Notification Profile

Notification Profiles determine what events generate notifications for a user and how those notifications are sent to the user. If a user's notification profile is deleted, notifications of all severity levels to be sent to the UI.

To Delete a Notification Profile

1. Select Administration in the Navigation pane.

2. Select the Enterprise Controller.

3. Click the Users tab. The Users page is displayed.

4. Select the user whose Notification Profile you want to delete.

5. Click the Delete Notification Profile icon. The Delete User Notification Profile confirmation window is displayed.

6. Click Delete. The User's Notification Profile is deleted.

5

Enterprise Manager Grid Control Access

You can configure Oracle Enterprise Manager Ops Center and Grid Control to work together to monitor the entire asset stack in your data center. These software products monitor managed assets, or targets, in different sections of the stack:

- Oracle Enterprise Manager Grid Control manages applications, middleware, databases, and operating systems

- Oracle Enterprise Manager Ops Center manages operating systems, virtual machines, servers, and storage devices

When you configure the Oracle Enterprise Manager Ops Center and Grid Control applications to work together, each application shares information with the other application:

- Each user interfaces includes information from the other application. Resources managed by Oracle Enterprise Manager Ops Center are visible on the Grid Control user interface and resources managed by Grid Control are visible on the Ops Center user interface.

- Alerts generated in one application are reported in the other application.

See the Oracle Enterprise Manager documentation library at http://download.oracle.com/docs/cd/E11857_01/nav/overview.htm for more information about Oracle Enterprise Manager Grid Control.

Configuring Enterprise Manager Ops Center and Grid Control

When configured, you can view the status of targets that are being monitored by the Grid Control application, and launch the Oracle Enterprise Manager Grid Control console from either the Targets tab in the managed asset view, or from Administration in the Navigation pane.

To establish the connection, you configure the Enterprise Controller to communicate with the Oracle Enterprise Manager Grid Control repository. The Oracle Enterprise Manager user credentials that you provide must have access to the repository.

To Configure Ops Center and Grid Control

1. Click Grid Control in the Administration section of the Navigation pane.

2. Click Configure/Connect in the Actions pane.

3. Enter the server name and port number for the Grid Control console. The default port is 7799.

4. Enter the Grid Control database host name, port number, SID (Oracle System ID), user name and password. The default port is 1521.

5. Click Finish.

For more links to information about Oracle Enterprise Manager Grid Control, see the *Oracle Enterprise Manager Ops Center Reference Guide*. To configure Oracle Enterprise Manager to display Ops Center alerts in Grid Control, see the *Oracle Enterprise Manager System Monitoring Plug-In for Oracle Enterprise Manager Ops Center Guide*.

Disconnecting Enterprise Manager Grid Control Access

You can disconnect and unconfigure the link between the Oracle Enterprise Manager Ops Center and Grid Control applications.

To Disconnect Enterprise Manager Grid Control Access

1. Click Grid Control in the Administration section of the Navigation pane.

2. Click Disconnect/Unconfigure in the Actions pane.

3. Confirm the action.

For more information about Oracle Enterprise Manager Grid Control, see the *Oracle Enterprise Manager Ops Center Reference Guide*. To configure Oracle Enterprise Manager to display Oracle Enterprise Manager Ops Center alerts in Grid Control, see the *Oracle Enterprise Manager System Monitoring Plug-In for Oracle Enterprise Manager Ops Center Guide*.

Launching the Enterprise Manager Grid Control Console

When configured, you can launch the Oracle Enterprise Manager Grid Control console from Administration in the Navigation pane. If you installed the Oracle Enterprise Manager Ops Center plug-in, you can search for assets by the Infrastructure Stack target type and display monitoring information that was collected by Oracle Enterprise Manager Ops Center.

To Launch the Enterprise Manager Grid Control Console

1. Click Grid Control in the Administration section of the Navigation pane.

2. Click Grid Control Console in the Actions pane.

For more information about Oracle Enterprise Manager Grid Control, see the *Oracle Enterprise Manager Ops Center Reference Guide*. To configure Oracle Enterprise Manager to display Ops Center alerts in Grid Control, see the *Oracle Enterprise Manager System Monitoring Plug-In for Oracle Enterprise Manager Ops Center Guide*.

6

Backup and Recovery

Oracle Enterprise Manager Ops Center has several capabilities that can be used to recover data and resume functions if the Enterprise Controller system or a Proxy Controller system fail.

The satadm command can be used to back up the data on the Enterprise Controller. The backup file can then be used to restore the Enterprise Controller on the same system or on a system of the same type.

If a Proxy Controller must be reinstalled, you can back up its data and restore it after reinstallation.

If you set up a High Availability configuration during the installation and configuration process, you can fail over to the secondary Enterprise Controller if the primary Enterprise Controller fails.

About Backup and Recovery

Oracle Enterprise Manager Ops Center has several tools that can be used for disaster recovery. These tools let you preserve Oracle Enterprise Manager Ops Center data and functionality if the Enterprise Controller or Proxy Controller systems fail.

Backup and Restore Commands

You can back up the Enterprise Controller using the satadm backup command. This creates a backup file that contains all of the Oracle Enterprise Manager Ops Center information stored by the Enterprise Controller, including asset data, administration data, job history. Oracle Enterprise Manager Ops Center data that takes up large amounts of space, such as operating system images, is not included.

If the Enterprise Controller system fails, you can use the satadm restore command and the backup file to restore the Enterprise Controller to its previous state. If you use a new system, it must have the same specifications, operating system, version of Oracle Enterprise Manager Ops Center, and IP address as the old system. The new Enterprise Controller system must have Oracle Enterprise Manager Ops Center installed but not configured. The satadm restore command uses the backup file to configure the Enterprise Controller and restore the data.

Restoring Proxy Controller Data

Proxy Controllers store a variety of data, including data about the Agent Controllers that they manage. If you uninstall and reinstall a Proxy Controller without backing up and restoring this data, the Proxy Controller will not be able to communicate with the Agent Controllers, and the Agent Controllers' systems will become unmanageable.

You can back up the directories containing the Agent Controller data and restore them when you reinstall a Proxy Controller on the same system.

High Availability Failover

High Availability is a setup involving multiple Enterprise Controllers using shared storage. The primary Enterprise Controller is active, and is used for all Oracle Enterprise Manager Ops Center operations. The secondary Enterprise Controller is installed but not configured, and is kept as a backup.

If the primary Enterprise Controller fails or must be taken offline, you can transfer the data from the primary Enterprise Controller to the secondary Enterprise Controller, transfer the shared storage, and bring the secondary Enterprise Controller online.

Backing Up an Enterprise Controller

The satadm backup command enables you to back up and restore the Enterprise Controller, but it does not back up or restore the colocated Proxy Controller. The backup command temporarily shuts down the Enterprise Controller functionality before backing up the data, saves the back up data in a tar file, and then restarts the Enterprise Controller. You can specify the name and location of the backup file and the log file. For information about the supported flags and other information about the satadm command, see the SATADM man page.

Note: The satadm backup command does not back up the `/var/opt/sun/xvm/images/os` directory. This is intentional, because the size of some of the files can be prohibitively large, such as those found under the `/iso` sub-directory.

In addition to running the satadm backup command, you should also back up the `/var/opt/sun/xvm/images/os` directory and manually archive the files to another server, file-share facility, or a location outside of the `/var/opt/sun` directory.

If you have already stored exact copies of the ISO images elsewhere, such as the location from which the ISO's were originally imported into Oracle Enterprise Manager Ops Center, you can exclude the ISO images matched by the `/var/opt/sun/xvm/images/os/iso/DISTRO*.iso` when making the manual archive. The ISO signature files, which are matched by `/var/opt/sun/xvm/images/os/iso/DISTRO*.sig` should be archived along with all other files from the `/var/opt/sun/xvm/images/os` hierarchy (possibly excluding the `os/DISTRO*.iso`'s.)

The satadm restore command is used to restore the Enterprise Controller from the backup file. You can restore the Enterprise Controller on a different system, but only if the following characteristics are identical for both systems:

■   Processor class (SPARC or x86)

■   Operating system (Oracle Solaris or Oracle Linux)

■   Oracle Enterprise Manager Ops Center software version, including updates

■   Set of network interfaces that are cabled identically to the same subnets

To Back Up an Enterprise Controller

This procedure describes the steps required to back up the Enterprise Controller. The back up cannot be used to migrate an Enterprise Controller to a new configuration.

By default, the server data is saved in a backup file in the /var/tmp directory with a file name that includes a date and time stamp. You can define the file name and location during the backup, as shown in the example below. To use additional options, see the SATADM man page.

1. From the command line, log in to the Enterprise Controller system.

2. Use the proxyadm command to shut down the co-located Proxy Controller. The proxyadm command resides in the /opt/SUNWxvmoc/bin directory on an Oracle Solaris system, and in the /opt/sun/xvmoc/bin on a Linux system. For example:

    ```
    ./proxyadm stop
    ```

3. Use the satadm command with the backup subcommand to back up the Enterprise Controller. The satadm command resides in the /opt/SUNWxvmoc/bin directory on an Oracle Solaris system, and in the /opt/sun/xvmoc/bin on a Linux system. The example below uses the following flag: -o – Indicate the directory location of the backup file.

    ```
    ./satadm backup -o /var/tmp/backup-file-name.tar
    ```

4. Use the proxyadm command to restart the co-located Proxy Controller. For example:

    ```
    ./proxyadm start
    ```

Restoring an Enterprise Controller

Once you have created a backup of an Enterprise Controller, you can use that backup to restore it.

> **Note:** The satadm commands do not back up or restore the /var/opt/sun/xvm/images/os directory. This is intentional, because the size of some of the files can be prohibitively large, such as those found under the /iso sub-directory.
>
> In the event that it is necessary to completely rebuild the Enterprise Controller, you must manually restore the /var/opt/sun/xvm/images/os hierarchy from the user-created archive after the satadm restore job has completely finished.
>
> If the /var/opt/sun/xvm/images/os/iso/DISTRO*.iso were excluded from the user-created archive, then you will need to copy in the exact ISO images from elsewhere and named according to the saved /var/opt/sun/xvm/images/os/iso/DISTRO*.sig files that must also be restored to the /var/opt/sun/xvm/images/os/iso directory.

You can restore the Enterprise Controller on a different system, but only if the following characteristics are identical for both systems:

■   Processor class (SPARC or x86)

■   Operating system (Oracle Solaris or Oracle Linux)

- Oracle Enterprise Manager Ops Center software version, including updates
- Set of network interfaces that are cabled identically to the same subnets

To Restore an Enterprise Controller

This procedure describes the steps required to restore the data from the backup file, which is the archive created by the `satadm backup` operation.

1. Prepare the Enterprise Controller system for the restore.

   - If you are restoring the backup on a new system, then the IP address, host name, and Enterprise Controller software version of the restored system must match that of the backed up system.

   - If you are restoring the backup on the same system, but the software has become corrupt or an upgrade failed, uninstall the Enterprise Controller software.

     Run the `install` script with the `-e` and `-k` options. The `-e` option uninstalls the Enterprise Controller and co-located Proxy Controller, and the `-k` option preserves the Oracle Configuration Manager software. For example:

     ```
     # cd /var/tmp/OC/xvmoc_full_bundle
     # ./install -e -k
     ```

   - If you are restoring the backup on the same system, and the software is functioning normally, unconfigure the Enterprise Controller.

2. Install the Enterprise Controller if it has not been installed.

   a. Oracle Solaris OS: See the *Oracle Enterprise Manager Ops Center Installation Guide for Oracle Solaris Operating System*.

   b. Linux OS: See the *Oracle Enterprise Manager Ops Center Installation Guide for Linux Operating Systems*.

   Do not configure the Enterprise Controller. The restore command will restore your configuration settings.

   Note: The Enterprise Controller version must match the version that was backed up.

   ---

3. Change to the directory where the `satadm` file is located on your system.

   - On Oracle Solaris systems, go to the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, go to the `/opt/sun/xvmoc/bin/` directory.

4. Enter the `satadm` command with the `restore` subcommand. The -i flag is required to restore the data from the backup file. See the *Oracle Enterprise Manager Ops Center Reference Guide* for information about additional options.

   ```
   ./satadm restore -i backup-directory-location/file-name
   ```

5. For an Enterprise Controller with a co-located Proxy Controller, restart the co-located Proxy Controller using the `proxyadm` command. The `proxyadm` command is in the same directory as the `satadm` command.

   ```
   ./proxyadm start -w
   ```

6. For an Enterprise Controller with a co-located Proxy Controller, use the Custom Discovery method to rediscover the system after running the restore command.

See the *Oracle Enterprise Manager Ops Center Advanced User's Guide* for more information about the Custom Discovery procedure. You do not need to re-register the assets.

> **Note:** After restoring the Enterprise Controller, the asset details might take several minutes to display completely in the user interface.

Example – Restoring a Backup File for an Enterprise Controller Running on an Oracle Solaris OS

In this example, the restore command includes flags to set the restore in verbose mode (-v), and to create a restore log (-l) for debugging purposes. The input (-i) specifies the backup file location.

```
# /opt/SUNWxvmoc/bin/satadm restore -v -i
/var/tmp/OC/server1/backup-May28-2010.tar -l
/var/tmp/OC/server1/logfile-restore-May28-2010.log
```

Restoring Agent Data During a Proxy Controller Reinstall

When you reinstall a Proxy Controller, the data stored on the older version of the Proxy Controller is lost. This data includes Agent data. If this data is not restored, the assets managed by that Proxy Controller will not be manageable.

To Restore Agent Data During a Proxy Controller Reinstall

This procedure describes the steps required to retain Agent Controller data while reinstalling a Proxy Controller.

1. As root, log in to the Enterprise Controller.

2. Use the satadm backup command to back up the Enterprise Controller. The satadm command resides in the `/opt/SUNWxvmoc/bin` directory on an Oracle Solaris system, and in the `/opt/sun/xvmoc/bin` on a Linux system.

   ```
   # /opt/SUNWxvmoc/bin/satadm backup -o /var/tmp/sat-backup-proxy-reinstall.tar
   ```

3. Copy the Proxy Controller install bundle from the Enterprise Controller to the Proxy Controller.

   ```
   # scp /var/opt/sun/xvm/images/proxy/ProxyBundle.SunOS.sparc.2.5.0.3057.zip
   root@<proxy>:/var/tmp
   ```

4. As root, log in to the Proxy Controller system.

5. Archive the contents of the `/var/opt/sun/xvm` and `/etc/cacao` directories.

   ```
   # tar cvf /var/tmp/scn-proxy.tar /var/opt/sun/xvm /etc/cacao
   ```

6. Uninstall the Proxy Controller.

   ```
   # /n1gc-setup/installer/install -e
   ```

7. Create a new directory and change to it.

   ```
   # mkdir /var/tmp/proxy
   # cd /var/tmp/proxy
   ```

8. Unzip the Proxy Controller install bundle.

   ```
   # unzip ../ProxyBundle.SunOS.sparc.2.5.0.3057.zip
   ```

9. Install the Proxy Controller.

    ```
    # ./install -p
    ```

10. Change to the top-level directory and un-tar the `/var/opt/sun/xvm` and `/etc/cacao` directories.

    ```
    # cd /
    # tar xvf /var/tmp/scn-proxy.tar
    ```

11. On the Enterprise Controller, use the `satadm restore` command to restore the previously saved Enterprise Controller data.

    ```
    # /opt/SUNWxvmoc/bin/satadm restore -i /var/tmp/sat-backup-proxy-reinstall.tar
    ```

12. On the Proxy Controller, use the `proxyadm start` command to start the Proxy Controller.

    ```
    # /opt/SUNWxvmoc/bin/proxyadm start -w
    ```

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 product software.

For the Enterprise Manager Ops Center environment, high availability applies only to the Enterprise Controller and its co-located Proxy Controller. To avoid a single point of failure in the Enterprise Manager Ops Center software, transfer the `/var/opt/sun/xvm` directory structure manually from the primary Enterprise Controller to a secondary Enterprise Controller. The secondary Enterprise Controller duplicates the primary Enterprise Controller's configuration and takes over much of the primary Enterprise Controller's identity, including its host name, its IP addresses, its ssh keys, and its role. Only one Enterprise Controller, either primary or secondary, can be operational at any time.

The primary Enterprise Controller is configured and operational. The secondary Enterprise Controller is not configured and not operational. On the primary Enterprise Controller, the `habackup` program saves the data in the `/var/opt/sun/xvm` directory structure. The data that is saved by the habackup program on the primary Enterprise Controller is used by the harestore program on the secondary Enterprise Controller to duplicate how the primary Enterprise Controller is configured. The habackup program also backs up the local `/etc/passwd` file. The `harestore` program uses that information to change the ownership of the files to match the secondary Enterprise Controller's `/etc/passwd` file. However, root user passwords on Enterprise Controllers are not changed.

Requirements for High Availability

- Use two systems of the same model and configured identically:
  - Processor class
  - Operating system
  - Oracle Enterprise Manager Ops Center software version, including updates
  - Network interfaces that are cabled identically to the same subnets

- Add an asset tag to identify the primary Enterprise Controller and to distinguish it from the secondary Enterprise Controller. You can add a tag by using the Edit Asset action.

- Maintain the secondary Enterprise Controller's system in the same way as the primary Enterprise Controller. The primary and secondary Enterprise Controllers must use the same version of Enterprise Manager Ops Center software. If you cannot use the Enterprise Manager Ops Center's user interface to verify the installed software versions at the time that you need to transfer functions to the secondary system view the content of the `/n1gc-setup/.version.properties` file. The product.version property lists the specific revision level of the installed software. For example:

```
# cat /n1gc-setup/.version.properties
#Note: This file is created at build time.
#Wed Jun 30 15:28:45 PDT 2010
version=dev-ga
date=2010/06/30 15\:28
build.variation=xvmopscenter
product.version=2.6.0.1395
product.installLocation=/var/opt/sun/xvm/EnterpriseController_installer_
2.6.0.1395
#
```

  Verify that the product.version property lists the same version on the primary and secondary Enterprise Controllers before you perform a failover procedure.

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.

High Availability Failover on Oracle Solaris

Oracle Enterprise Manager Ops Center provides high availability capability that enables you to manually transfer Enterprise Controller functions from one system to another. If you configured high availability during the installation and configuration process, you can switch to the alternate Enterprise Controller if the primary Enterprise Controller fails.

HA Failover Overview on Oracle Solaris

The High Availability configuration uses manual failover procedures to transfer product functions from the primary Enterprise Controller to the secondary Enterprise Controller. Depending on the nature of the failure, different or additional procedures might be required. The procedures follow these general steps:

1. Shut down the primary Enterprise Controller, if possible.

2. Prepare the secondary Enterprise Controller for failover.

3. Transfer the storage asset that holds the `/var/opt/sun/xvm` directory structure from the primary Enterprise Controller to the secondary Enterprise Controller.

4. Run the harestore program to configure the Enterprise Manager Ops Center software on the secondary Enterprise Controller.

5. Reboot the secondary Enterprise Controller and start the Enterprise Manager Ops Center operations.

The `harestore` command configures the secondary Enterprise Controller to use the IP addresses of the primary Enterprise Controller. As you repair the primary Enterprise Controller, prevent it from accessing the networks where the secondary Enterprise Controller is operational.

Shutting Down the Primary Enterprise Controller on Oracle Solaris

Depending on the nature of the failure that you encounter, the primary Enterprise Controller might function enough to allow you to shut down the system in an orderly manner. If this is true, take the steps necessary to complete the following:

- Run the habackup program if possible

- Stop Oracle Enterprise Manager Ops Center services

- Unmount LOFS mounts

- Unshare the `/var/opt/sun/xvm/osp/share/allstart` directory

- Release control of the storage asset that stores the `/var/opt/sun/xvm` directory structure

- Shut down the operating system of the failing Enterprise Controller

The steps to shut down the primary Enterprise Controller are intended to minimize damage to the primary Enterprise Controller and to the data that will transfer to the secondary Enterprise Controller. Some failures, however, might prevent you from shutting down the primary Enterprise Controller in an orderly manner. If this is true, additional procedures might be required to transfer the storage asset to the secondary Enterprise Controller. Even if it is not possible to perform these procedures, the HA failover procedure is designed to succeed.

The cron utility runs the `habackup` program every hour on the Enterprise Controller. To obtain a current copy of the data that it collects, run habackup before you unmount directories and release the storage asset that holds the `/var/opt/sun/xvm` directory structure, if possible.

If Oracle Enterprise Manager Ops Center services are running on the primary Enterprise Controller, stop those services before you transfer a storage asset between the two systems.

The `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce` directories are used as LOFS mount points for a set of directories within the `/var/opt/sun/xvm` directory structure. These LOFS mounts are created automatically when you install Oracle Enterprise Manager Ops Center. Before you release or transfer control of the storage asset that holds the `/var/opt/sun/xvm` directory structure, unmount these LOFS mounts.

The `/var/opt/sun/xvm/osp/share/allstart` directory is automatically shared when you install Oracle Enterprise Manager Ops Center software on an Enterprise Controller. Before you release or transfer control of the storage asset that holds the `/var/opt/sun/xvm` directory structure, unshare the `/var/opt/sun/xvm/osp/share/allstart` directory.

Many storage solutions support HA configurations in Oracle Enterprise Manager Ops Center. Some storage solutions allow you to release control of a storage asset, to allow a different system to use the storage asset. For example, the ZFS file system allows you to *export* a storage pool so that a different system can *import* it. The following example procedures use a Fibre Channel attached array that contains a ZFS storage pool. In this example, the primary and secondary Enterprise Controllers are both attached to the array.

Determine if the storage solution for your HA configuration allows you to release control of the storage asset that stores the `/var/opt/sun/xvm` directory structure. If this is true, release the storage asset before you shut down the primary Enterprise Controller.

Perform the following procedure on the primary Enterprise Controller.

To Shut Down the Primary Enterprise Controller

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

1. Run the `habackup` program to create a current copy of the data that it collects. For example:

```
# /opt/sun/xvm/bin/habackup
Backup complete.
#
```

The `habackup` program successfully runs only if the Enterprise Controller services are running.

2. Use the `proxyadm` and `satadm` commands to check for and shut down Oracle Enterprise Manager Ops Center services on the primary Enterprise Controller. These commands are located in the `/opt/SUNWxvmoc/bin/` directory. Shut down Proxy Controller services before you shut down Enterprise Controller services. For example:

```
# /opt/SUNWxvmoc/bin/proxyadm status
online
# /opt/SUNWxvmoc/bin/proxyadm stop -w
proxyadm: Shutting down proxy using SMF...
proxyadm: Proxy services have stopped
#
# /opt/SUNWxvmoc/bin/satadm status
online
# /opt/SUNWxvmoc/bin/satadm stop -w
satadm: Shutting down satellite using SMF...
satadm: Satellite services have stopped
#
```

In this example, both Proxy Controller and Enterprise Controller services are online. The services that the proxyadm command reports as online are associated with the Proxy Controller that is co-located with the Enterprise Controller.

3. Unmount the `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce` LOFS mounts. For example:

```
# mount -v | grep xvm
OpsCenter/xvm on /var/opt/sun/xvm type zfs
```

```
read/write/setuid/devices/exec/xattr/atime/dev=4010002 on Mon Feb 23 07:59:22
2009
/var/opt/sun/xvm/uce/etc.opt on /etc/opt/SUNWuce type lofs
read/write/setuid/devices/dev=4010002 on Mon Feb 23 08:15:15 2009
/var/opt/sun/xvm/uce/var.opt on /var/opt/SUNWuce type lofs
read/write/setuid/devices/dev=4010002 on Mon Feb 23 08:15:15 2009
/var/opt/sun/xvm/uce/opt on /opt/SUNWuce type lofs
read/write/setuid/devices/dev=4010002 on Mon Feb 23 08:15:15 2009
#
# umount /etc/opt/SUNWuce
# umount /var/opt/SUNWuce
# umount /opt/SUNWuce
# mount -v | grep xvm
OpsCenter/xvm on /var/opt/sun/xvm type zfs
read/write/setuid/devices/exec/xattr/atime/dev=4010002 on Mon Feb 23 07:59:22
2009
#
```

In this example, the ZFS file system named `OpsCenter/xvm` is mounted as
`/var/opt/sun/xvm`. The `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce`
LOFS mounts use resources within `/var/opt/sun/xvm`.

4. Unshare the `/var/opt/sun/xvm/osp/share/allstart` directory. For example:

```
# share
-               /var/opt/sun/xvm/osp/share/allstart   ro   "Allstart Share"
-               /var/js   ro,anon=0   "Allstart Share"
-               /opt/SUNWjet   ro,anon=0   "JET Framework"
# unshare /var/opt/sun/xvm/osp/share/allstart
# share
-               /var/js   ro,anon=0   "Allstart Share"
-               /opt/SUNWjet   ro,anon=0   "JET Framework"
#
```

5. Release control of the storage asset that stores the `/var/opt/sun/xvm` directory
   structure. For example, if you use ZFS to store the `/var/opt/sun/xvm` directory
   structure, you can export the ZFS pool that contains `/var/opt/sun/xvm`:

```
# zfs list
NAME            USED   AVAIL  REFER  MOUNTPOINT
OpsCenter       382M   134G   1.50K  none
OpsCenter/xvm   382M   134G   382M   legacy
# zpool export OpsCenter
# zpool list
no pools available
# zfs list
no datasets available
#
```

The `/var/opt/sun/xvm` directory unmounts automatically when you export the
OpsCenter pool.

6. If required for your particular storage solution, physically detach the storage asset
   from the primary Enterprise Controller.

7. Shut down the operating system on the primary Enterprise Controller. For
   example, on Oracle Solaris systems, you can use the `init 5` command to shut
   down and power off the system:

```
# init 5
```

8. Disconnect the primary Enterprise Controller from the networks to which it is connected. If you boot the primary Enterprise Controller to make repairs, this prevents the primary Enterprise Controller from using the same IP addresses as secondary Enterprise Controller. You can temporarily assign new IP addresses to the primary Enterprise Controller if you need to attach it to your network.

Preparing the Secondary Enterprise Controller for Failover on Oracle Solaris

Preparing the secondary Enterprise Controller before you transfer storage requires the following tasks:

- Stopping Oracle Enterprise Manager Ops Center services

- Unmounting LOFS mounts

- Unsharing the `/var/opt/sun/xvm/osp/share/allstart` directory

- Renaming the `/var/opt/sun/xvm` directory, and creating an empty `/var/opt/sun/xvm` directory

Perform the following procedure on the secondary Enterprise Controller.

To Prepare the Secondary Enterprise Controller for Failover

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

1. Use the `satadm` command to check for and shut down Oracle Enterprise Manager Ops Center services on the secondary Enterprise Controller. The `satadm` command is located in the `/opt/SUNWxvmoc/bin/` directory. For example:

```
# /opt/SUNWxvmoc/bin/satadm status
online
# /opt/SUNWxvmoc/bin/satadm stop -w
satadm: Shutting down satellite using SMF...
satadm: Satellite services have stopped
#
```

   In this example, Enterprise Controller services are online. On a secondary Enterprise Controller you typically install, but do not configure, Oracle Enterprise Manager Ops Center Software. No Proxy Controller services run on a system that has Oracle Enterprise Manager Ops Center software installed but not configured. You can use the proxyadm command to check for and stop Proxy Controller services if required. The proxyadm command is located in the `/opt/SUNWxvmoc/bin/` directory.

2. Unmount the `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce` LOFS mounts. For example:

```
# mount -v | grep xvm
/var/opt/sun/xvm/uce/etc.opt on /etc/opt/SUNWuce type lofs
read/write/setuid/devices/dev=1d80018 on Mon Feb 23 08:16:30 2009
/var/opt/sun/xvm/uce/var.opt on /var/opt/SUNWuce type lofs
read/write/setuid/devices/dev=1d80018 on Mon Feb 23 08:16:30 2009
/var/opt/sun/xvm/uce/opt on /opt/SUNWuce type lofs
read/write/setuid/devices/dev=1d80018 on Mon Feb 23 08:16:30 2009
#
# umount /etc/opt/SUNWuce
```

```
# umount /var/opt/SUNWuce
# umount /opt/SUNWuce
# mount -v | grep xvm
#
```

In this example, the system was installed using one file system to hold all Oracle Enterprise Manager Ops Center software. No separate file system yet exists for the `/var/opt/sun/xvm` directory.

3. Unshare the `/var/opt/sun/xvm/osp/share/allstart` directory. For example:

```
# share
-                   /var/opt/sun/xvm/osp/share/allstart  ro   "Allstart Share"
-                   /var/js   ro,anon=0   "Allstart Share"
-                   /opt/SUNWjet   ro,anon=0   "JET Framework"
# unshare /var/opt/sun/xvm/osp/share/allstart
# share
-                   /var/js   ro,anon=0   "Allstart Share"
-                   /opt/SUNWjet   ro,anon=0   "JET Framework"
#
```

4. Rename the `/var/opt/sun/xvm` directory to `/var/opt/sun/xvm_secondary`. For example:

```
# mv /var/opt/sun/xvm /var/opt/sun/xvm_secondary
#
```

5. Create a new directory named `/var/opt/sun/xvm`. For example:

```
# mkdir /var/opt/sun/xvm
#
```

This directory is used to mount the transferable storage that contains the `/var/opt/sun/xvm` directory structure from the primary Enterprise Controller.

Transferring a Storage Asset on Oracle Solaris

Many storage solutions support HA configurations in Oracle Enterprise Manager Ops Center. Different storage solutions require different procedures. You must determine the procedures that are required to transfer the storage asset that stores the `/var/opt/sun/xvm` directory structure in your particular storage solution.

This example procedure assumes that the mountpoint property of the example ZFS file system is set to legacy, to resolve an issue regarding when ZFS and LOFS mounts take place in the system boot process. The legacy value indicates that the legacy mount and umount commands, and the `/etc/vfstab` file, will control mounting and unmounting this ZFS file system. Other storage solutions typically use these legacy commands and the `/etc/vfstab` file to control mounting and unmounting operations. See the *Oracle Enterprise Manager Ops Center Release Notes* for information about the LOFS race condition issue.

Perform the following procedure on the secondary Enterprise Controller.

To Transfer a Storage Asset to the Secondary Enterprise Controller

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

1. If required for your particular storage solution, physically attach the storage asset to the secondary Enterprise Controller.

2. Transfer the storage asset that stores the `/var/opt/sun/xvm` directory structure to the secondary Enterprise Controller. For example, if you use ZFS to store the `/var/opt/sun/xvm` directory structure, you can import the ZFS pool that contains `/var/opt/sun/xvm`:

```
# zpool import
  pool: OpsCenter
    id: 16117101211372343022
 state: ONLINE
action: The pool can be imported using its name or numeric identifier.
config:

        OpsCenter    ONLINE
          mirror     ONLINE
            c1t65d0  ONLINE
            c1t66d0  ONLINE

# zpool import OpsCenter
#
```

The zpool import command with no argument shows the list of ZFS pools that you can import. The zpool import OpsCenter command imports the OpsCenter pool.

3. Verify that the ZFS file system exists and that its mount point is set to legacy. For example:

```
# zfs list
NAME           USED  AVAIL  REFER  MOUNTPOINT
OpsCenter      382M   134G  1.50K  none
OpsCenter/xvm  382M   134G   382M  legacy
#
```

In this example, the `OpsCenter/xvm` file system contains the Oracle Enterprise Manager Ops Center data from the primary Enterprise Controller, and its mount point is set to legacy.

4. Edit the `/etc/vfstab` file and add an entry for the ZFS file system above the three lofs entries for `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce`. For example:

```
(output omitted)
OpsCenter/xvm   -         /var/opt/sun/xvm       zfs    -        yes      -
/var/opt/sun/xvm/uce/etc.opt   -      /etc/opt/SUNWuce        lofs    -
yes      -
/var/opt/sun/xvm/uce/var.opt   -      /var/opt/SUNWuce        lofs    -
yes      -
/var/opt/sun/xvm/uce/opt       -      /opt/SUNWuce    lofs    -        yes
-
```

In this example, the device to mount is `OpsCenter/xvm`, the mount point is `/var/opt/sun/xvm`, the file system type is zfs, and the mount at boot option is set to yes.

5. Mount the new file system, and then verify that it is mounted. For example:

```
# mount /var/opt/sun/xvm
# mount
(output omitted)
/var/opt/sun/xvm on OpsCenter/xvm
```

```
read/write/setuid/devices/exec/xattr/atime/dev=4010002 on Mon Feb 23 09:51:55
2009
```

Completing HA Failover on Oracle Solaris

After the storage asset that holds the `/var/opt/sun/xvm` directory structure has been transferred to the secondary Enterprise Controller, you must run the harestore program, reboot the secondary Enterprise Controller, and start Oracle Enterprise Manager Ops Center services.

After you complete the HA failover procedure, the secondary Enterprise Controller is listed in the Assets pane as *controller*_0, where *controller* is the host name of the primary Enterprise Controller.

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

To Run the harestore Program

Run the harestore program to restore Oracle Enterprise Manager Ops Center configuration from the primary Enterprise Controller onto the secondary Enterprise Controller. The harestore program is located in the `/opt/sun/xvm/bin/` directory. For example:

```
# /opt/sun/xvm/bin/harestore
./osp/clientPkgs/Sun_Microsystems,_
Inc.-allstart-3.3-1/base-mgmt-allstart-1.0-15.noarch.rpm:  No mapping for uid
63333
Restore complete.  You need to reboot now.
#
```

To Reboot the Secondary Enterprise Controller and Start Services

After you run the harestore program, you must reboot the secondary Enterprise Controller and start Oracle Enterprise Manager Ops Center services on that system.

1. Reboot the operating system on the secondary Enterprise Controller. For example, on Solaris systems, you can use the `init 6` command to reboot the system:

   ```
   # init 6
   ```

2. Use the `satadm` command to start Enterprise Controller services. The `satadm` command is located in the `/opt/SUNWxvmoc/bin/` directory. For example:

   ```
   # /opt/SUNWxvmoc/bin/satadm start -w
   satadm: Starting satellite with SMF...
   satadm: Satellite services have started
   #
   ```

3. If the configuration from the primary Enterprise Controller included an enabled co-located Proxy Controller, use the `proxyadm` command to start Proxy Controller services. The `proxyadm` command is located in the `/opt/SUNWxvmoc/bin/` directory. For example:

   ```
   # /opt/SUNWxvmoc/bin/proxyadm start -w
   proxyadm: Starting proxy with SMF...
   proxyadm: Proxy services have started
   ```

```
#
```

Restoring the Primary Enterprise Controller

After the primary Enterprise Controller has been repaired, you can either establish it as a new secondary Enterprise Controller, or return operation to it by taking the following actions:

1. Shutting down the secondary Enterprise Controller

2. Preparing the primary Enterprise Controller for failover

3. Transferring the storage asset that holds the `/var/opt/sun/xvm` directory structure from the secondary Enterprise Controller to the primary Enterprise Controller

4. Running the harestore program to restore the Oracle Enterprise Manager Ops Center configuration on the primary Enterprise Controller

5. Re-booting the primary Enterprise Controller and starting Ops Center operations

> **Caution:** You must prevent the primary and secondary Enterprise Controllers from using the same IP addresses at the same time.

High Availability Failover on Linux

Oracle Enterprise Manager Ops Center provides high availability capability that enables you to manually transfer Enterprise Controller functions from one system to another. If you configured high availability during the installation and configuration process, you can switch to the alternate Enterprise Controller if the primary Enterprise Controller fails.

HA Failover Overview on Linux

Oracle Enterprise Manager Ops Center HA configurations use manual failover procedures to transfer Oracle Enterprise Manager Ops Center functions from the primary Enterprise Controller to the secondary Enterprise Controller. Depending on the nature of the failure that takes place on an Enterprise Controller, different or additional procedures might be required. Failover generally follows these main steps:

1. Shutting down the primary Enterprise Controller, if possible

2. Preparing the secondary Enterprise Controller for failover

3. Transferring the storage asset that holds the `/var/opt/sun/xvm` directory structure from the primary Enterprise Controller to the secondary Enterprise Controller

4. Running the harestore program to restore Ops Center configuration on the secondary Enterprise Controller

5. Rebooting the secondary Enterprise Controller and starting Ops Center operations

You must prevent the primary Enterprise Controller from using the same IP addresses that the secondary Enterprise Controller uses. The harestore command configures the secondary Enterprise Controller to use the IP addresses of the primary Enterprise Controller. As you repair the primary Enterprise Controller, prevent it from accessing the networks where the secondary Enterprise Controller is operational.

Preparing the Secondary Enterprise Controller for Failover on Linux

Preparing the secondary Enterprise Controller before you transfer storage requires the following tasks:

- Stopping Oracle Enterprise Manager Ops Center services

- Unmounting LOFS mounts

- Unsharing the `/var/opt/sun/xvm/osp/share/allstart` directory

- Renaming the `/var/opt/sun/xvm` directory, and creating an empty `/var/opt/sun/xvm` directory

Perform the following procedure on the secondary Enterprise Controller.

Shutting Down the Primary Enterprise Controller on Linux

Depending on the nature of the failure that you encounter, the primary Enterprise Controller might function enough to allow you to shut down the system in an orderly manner. If this is true, take the steps necessary to complete the following:

- Run the habackup program if possible

- Stop Oracle Enterprise Manager Ops Center services

- Unmount LOFS mounts

- Unshare the `/var/opt/sun/xvm/osp/share/allstart` directory

- Release control of the storage asset that stores the `/var/opt/sun/xvm` directory structure

- Shut down the operating system of the failing Enterprise Controller

The steps to shut down the primary Enterprise Controller are intended to minimize damage to the primary Enterprise Controller and to the data that will transfer to the secondary Enterprise Controller. Some failures, however, might prevent you from shutting down the primary Enterprise Controller in an orderly manner. If this is true, additional procedures might be required to transfer the storage asset to the secondary Enterprise Controller. Even if it is not possible to perform these procedures, the HA failover procedure is designed to succeed.

The cron utility runs the habackup program every hour on the Enterprise Controller. To obtain a current copy of the data that it collects, run habackup before you unmount directories and release the storage asset that holds the `/var/opt/sun/xvm` directory structure, if possible.

If Oracle Enterprise Manager Ops Center services are running on the primary Enterprise Controller, stop those services before you transfer a storage asset between the two systems.

The `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce` directories are used as LOFS mount points for a set of directories within the `/var/opt/sun/xvm` directory structure. These LOFS mounts are created automatically when you install Oracle Enterprise Manager Ops Center. Before you release or transfer control of the storage asset that holds the `/var/opt/sun/xvm` directory structure, unmount these LOFS mounts.

The `/var/opt/sun/xvm/osp/share/allstart` directory is automatically shared when you install the Enterprise Controller. Before you release or transfer control of the storage asset that holds the `/var/opt/sun/xvm` directory structure, unshare the `/var/opt/sun/xvm/osp/share/allstart` directory.

Many storage solutions support HA configurations in Oracle Enterprise Manager Ops Center. Some storage solutions allow you to release control of a storage asset, to allow a different system to use the storage asset. The following example procedures use a Fibre Channel attached array. In this example, the primary and secondary Enterprise Controllers are both attached to the array.

Determine if the storage solution for your HA configuration allows you to release control of the storage asset that stores the `/var/opt/sun/xvm` directory structure. If this is true, release the storage asset before you shut down the primary Enterprise Controller.

Perform the following procedure on the primary Enterprise Controller.

To Prepare the Secondary Enterprise Controller for Failover

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

1. Use the `/opt/sun/xvmoc/bin/satadm` command to check for and shut down Oracle Enterprise Manager Ops Center services on the secondary Enterprise Controller. For example:

```
# /opt/sun/xvmoc/bin/satadm status
online
# /opt/sun/xvmoc/bin/satadm stop -w
satadm: Shutting down satellite using SMF...
satadm: Satellite services have stopped
#
```

   In this example, Enterprise Controller services are online. On a secondary Enterprise Controller you typically install, but do not configure, Oracle Enterprise Manager Ops Center Software. No Proxy Controller services run on a system that has Oracle Enterprise Manager Ops Center software installed but not configured. You can use the `/opt/sun/xvmoc/bin/proxyadm` command to check for and stop Proxy Controller services if required.

2. Unmount the `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce` LOFS mounts. For example:

```
# mount -v | grep xvm
/var/opt/sun/xvm/uce/etc.opt on /etc/opt/SUNWuce type lofs
read/write/setuid/devices/dev=1d80018 on Mon Feb 23 08:16:30 2009
/var/opt/sun/xvm/uce/var.opt on /var/opt/SUNWuce type lofs
read/write/setuid/devices/dev=1d80018 on Mon Feb 23 08:16:30 2009
/var/opt/sun/xvm/uce/opt on /opt/SUNWuce type lofs
read/write/setuid/devices/dev=1d80018 on Mon Feb 23 08:16:30 2009
#
# umount /etc/opt/SUNWuce
# umount /var/opt/SUNWuce
# umount /opt/SUNWuce
# mount -v | grep xvm
#
```

   In this example, the system was installed using one file system to hold all Oracle Enterprise Manager Ops Center software. No separate file system yet exists for the `/var/opt/sun/xvm` directory.

3. Unshare the `/var/opt/sun/xvm/osp/share/allstart` directory. For example:

```
# share
- /var/opt/sun/xvm/osp/share/allstart ro "Allstart Share"
- /var/js ro,anon=0 "Allstart Share"
- /opt/SUNWjet ro,anon=0 "JET Framework"
# unshare /var/opt/sun/xvm/osp/share/allstart
# share
- /var/js ro,anon=0 "Allstart Share"
- /opt/SUNWjet ro,anon=0 "JET Framework"
#
```

4. Rename the `/var/opt/sun/xvm` directory to `/var/opt/sun/xvm_secondary`. For example:

```
# mv /var/opt/sun/xvm /var/opt/sun/xvm_secondary
#
```

5. Create a new directory named `/var/opt/sun/xvm`. For example:

```
# mkdir /var/opt/sun/xvm
#
```

This directory is used to mount the transferable storage that contains the `/var/opt/sun/xvm` directory structure from the primary Enterprise Controller.

To Shut Down the Primary Enterprise Controller

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

1. Run the `habackup` program to create a current copy of the data that it collects. For example:

```
# /opt/sun/xvm/bin/habackup
Backup complete.
#
```

The `habackup` program successfully runs only if the Enterprise Controller services are running.

2. Use the `proxyadm` and `satadm` commands to check for and shut down Oracle Enterprise Manager Ops Center services on the primary Enterprise Controller. Shut down Proxy Controller services before you shut down Enterprise Controller services. For example:

```
# /opt/sun/xvmoc/bin/proxyadm status
online
# /opt/sun/xvmoc/bin/proxyadm stop -w
proxyadm: Shutting down proxy using SMF...
proxyadm: Proxy services have stopped
#
# /opt/sun/xvmoc/bin/satadm status
online
# /opt/sun/xvmoc/bin/satadm stop -w
satadm: Shutting down satellite using SMF...
satadm: Satellite services have stopped
#
```

In this example, both Proxy Controller and Enterprise Controller services are online. The services that the proxyadm command reports as online are associated with the Proxy Controller that is co-located with the Enterprise Controller.

3. Unmount the `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce` LOFS mounts. For example:

```
# mount -v | grep xvm
OpsCenter/xvm on /var/opt/sun/xvm type zfs
read/write/setuid/devices/exec/xattr/atime/dev=4010002 on Mon Feb 23 07:59:22
2009
/var/opt/sun/xvm/uce/etc.opt on /etc/opt/SUNWuce type lofs
read/write/setuid/devices/dev=4010002 on Mon Feb 23 08:15:15 2009
/var/opt/sun/xvm/uce/var.opt on /var/opt/SUNWuce type lofs
read/write/setuid/devices/dev=4010002 on Mon Feb 23 08:15:15 2009
/var/opt/sun/xvm/uce/opt on /opt/SUNWuce type lofs
read/write/setuid/devices/dev=4010002 on Mon Feb 23 08:15:15 2009
#
# umount /etc/opt/SUNWuce
# umount /var/opt/SUNWuce
# umount /opt/SUNWuce
# mount -v | grep xvm
OpsCenter/xvm on /var/opt/sun/xvm type zfs
read/write/setuid/devices/exec/xattr/atime/dev=4010002 on Mon Feb 23 07:59:22
2009
#
```

In this example, the ZFS file system named `OpsCenter/xvm` is mounted as `/var/opt/sun/xvm`. The `/etc/opt/SUNWuce`, `/var/opt/SUNWuce`, and `/opt/SUNWuce` LOFS mounts use resources within `/var/opt/sun/xvm`.

4. Unshare the `/var/opt/sun/xvm/osp/share/allstart` directory. For example:

```
# share
- /var/opt/sun/xvm/osp/share/allstart ro "Allstart Share"
- /var/js ro,anon=0 "Allstart Share"
- /opt/SUNWjet ro,anon=0 "JET Framework"
# unshare /var/opt/sun/xvm/osp/share/allstart
# share
- /var/js ro,anon=0 "Allstart Share"
- /opt/SUNWjet ro,anon=0 "JET Framework"
#
```

5. Release control of the storage asset that stores the `/var/opt/sun/xvm` directory structure. For example, if you use ZFS to store the `/var/opt/sun/xvm` directory structure, you can export the ZFS pool that contains `/var/opt/sun/xvm`:

```
# zfs list
NAME USED AVAIL REFER MOUNTPOINT
OpsCenter 382M 134G 1.50K none
OpsCenter/xvm 382M 134G 382M legacy
# zpool export OpsCenter
# zpool list
no pools available
# zfs list
no datasets available
#
```

The `/var/opt/sun/xvm` directory unmounts automatically when you export the OpsCenter pool.

6. If it is required for your particular storage solution, physically detach the storage asset from the primary Enterprise Controller.

7. Shut down the operating system on the primary Enterprise Controller. For example, on Linux systems, you can use the poweroff command to shut down and power off the system:

```
# poweroff
```

8. Disconnect the primary Enterprise Controller from the networks to which it is connected. If you boot the primary Enterprise Controller to make repairs, this prevents the primary Enterprise Controller from using the same IP addresses as secondary Enterprise Controller. You can temporarily assign new IP addresses to the primary Enterprise Controller if you need to attach it to your network.

Transferring a Storage Asset on Linux

Many storage solutions support HA configurations in Oracle Enterprise Manager Ops Center. Different storage solutions require different procedures. You must determine the procedures that are required to transfer the storage asset that stores the /var/opt/sun/xvm directory structure in your particular storage solution.

This example procedure assumes that the mountpoint property of the example ZFS file system is set to legacy, to resolve an issue regarding when ZFS and LOFS mounts take place in the system boot process. The legacy value indicates that the legacy mount and umount commands, and the /etc/fstab file, will control mounting and unmounting this ZFS file system. Other storage solutions typically use these legacy commands and the /etc/fstab file to control mounting and unmounting operations. See *Oracle Enterprise Manager Ops Center Release Notes* for information about the LOFS race condition issue.

Perform the following procedure on the secondary Enterprise Controller.

To Transfer a Storage Asset to the Secondary Enterprise Controller

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

1. If required for your particular storage solution, physically attach the storage asset to the secondary Enterprise Controller.

2. Transfer the storage asset that stores the /var/opt/sun/xvm directory structure to the secondary Enterprise Controller.

3. Mount the Oracle Enterprise Manager Ops Center directory, and then verify that it is mounted. For example:

```
# mount /var/opt/sun/xvm
# mount
(output omitted)
/var/opt/sun/xvm on OpsCenter/xvm
read/write/setuid/devices/exec/xattr/atime/dev=4010002 on Mon Feb 23 09:51:55
2009
```

Completing HA Failover on Linux

After the storage asset that holds the `/var/opt/sun/xvm` directory structure has been transferred to the secondary Enterprise Controller, you must run the `harestore` program, reboot the secondary Enterprise Controller, and start Oracle Enterprise Manager Ops Center services.

After you complete the HA failover procedure, the secondary Enterprise Controller is listed in the Assets pane as *controller*_0, where *controller* is the host name of the primary Enterprise Controller.

> **Note:** The following procedure is for a sample storage solution. You must determine the specific procedures to use, depending on the storage solution that you have implemented.

To Run the harestore Program

Run the `harestore` program to restore Oracle Enterprise Manager Ops Center configuration from the primary Enterprise Controller onto the secondary Enterprise Controller. The harestore program is located in the `/opt/sun/xvm/bin/` directory. For example:

```
# /opt/sun/xvm/bin/harestore
./osp/clientPkgs/Sun_Microsystems,_
Inc.-allstart-3.3-1/base-mgmt-allstart-1.0-15.noarch.rpm: No mapping for uid 63333
Restore complete. You need to reboot now.
#
```

To Reboot the Secondary Enterprise Controller and Start Services

After you run the `harestore` program, you must reboot the secondary Enterprise Controller and start Oracle Enterprise Manager Ops Center services on that system.

1. Reboot the operating system on the secondary Enterprise Controller. For example, on Linux systems, you can use the reboot command to reboot the system:

    ```
    # reboot
    ```

2. Use the `satadm` command to start Oracle Enterprise Manager Ops Center Enterprise Controller services. For example:

    ```
    # /opt/sun/xvmoc/bin/satadm start -w
    satadm: Starting satellite with SMF...
    satadm: Satellite services have started
    #
    ```

3. If the configuration from the primary Enterprise Controller included an enabled co-located Proxy Controller, use the `proxyadm` command to start Proxy Controller services. For example:

    ```
    # /opt/sun/xvmoc/bin/proxyadm start -w
    proxyadm: Starting proxy with SMF...
    proxyadm: Proxy services have started
    #
    ```

Restoring the Primary Enterprise Controller

After the primary Enterprise Controller has been repaired, you can either establish it as a new secondary Enterprise Controller, or return operation to it by taking the following actions:

1. Shutting down the secondary Enterprise Controller

2. Preparing the primary Enterprise Controller for failover

3. Transferring the storage asset that holds the `/var/opt/sun/xvm` directory structure from the secondary Enterprise Controller to the primary Enterprise Controller

4. Running the `harestore` program to restore the Oracle Enterprise Manager Ops Center configuration on the primary Enterprise Controller

5. Re-booting the primary Enterprise Controller and starting Oracle Enterprise Manager Ops Center operations

> **Caution:** You must prevent the primary and secondary Enterprise Controllers from using the same IP addresses at the same time.

7

Uninstalling and Unconfiguring Oracle Enterprise Manager Ops Center

These procedures describe unconfiguring and uninstalling Agent, Proxy Controller, and Enterprise Controller software.

Check with Oracle Support for any additional scripts that might be available to ensure a clean removal of Enterprise Controller or Proxy Controller software.

Uninstalling and Unconfiguring Agents

You can uninstall and unconfigure Agents to remove them from Oracle Enterprise Manager Ops Center. This will also remove the assets managed by the Agents from Oracle Enterprise Manager Ops Center.

To Uninstall and Unconfigure Agents

1. Select Assets from the Navigation pane. The All Managed Assets list in the Managed Assets tab shows the list of currently managed assets.

2. From the All Managed Assets list, select the managed OS instance that is currently installed on the system from which you want to remove the agent software. Selecting the managed OS allows you to uninstall the Oracle Enterprise Manager Ops Center agent that is currently installed.

3. Click the Unmanage/Delete Assets icon. The Introduction pane of the Unmanage and Delete Assets wizard is displayed.

4. Click Next. The Enter Server Credential pane is displayed.

5. For this example, select Use the Same SSH Credentials for All Assets Listed Below.

6. Enter the access credentials using the following fields:

   ■ **SSH Username** – Enter either the root user, or the name of the non-root administrative user to use for ssh access.

   ■ **SSH Password** – Enter the password for the user you specified in the SSH Username field.

   ■ **Root Username** – If you specified the root user in the SSH Username field, leave this field blank. If you specified a non-root administrative user in the SSH Username field, enter the root user name.

   ■ **Root Password** – Enter the password for the user you specified in the Root Username field.

7. Click Next. The Unmanage/Delete pane is displayed.

8. In the Unmanage/Delete pane, verify that the correct system to unmanage is listed.

9. Click Next. The Summary pane is displayed.

10. Click Close to close the Unmanage and Delete Assets wizard.

Unconfiguring and Uninstalling a Proxy Controller

Unconfiguring and uninstalling a Proxy Controller breaks its connection with the Enterprise Controller and removes the Proxy Controller software. All Assets discovered or managed by the Proxy Controller are removed as well. The Agents installed on systems managed by the Proxy Controller are not removed.

Three methods are available for unconfiguring and uninstalling a Proxy Controller. The first two options are performed through the user interface.

■ Connect to the Proxy Controller through SSH, then command it to unregister and uninstall itself. You can only take this action if the Proxy Controller is reachable.

■ Remove the Proxy Controller from Ops Center. This option does not uninstall the Proxy Controller. You can remove a Proxy Controller even if it is unreachable.

■ Unconfigure the Proxy Controller from the command line. The Proxy Controller software must then be uninstalled from the command line.

To Unconfigure and Uninstall a Proxy Controller

1. Click a Proxy Controller in the Administration section of the Navigation pane.

2. Click Unconfig/uninstall Proxy in the Actions pane. The Unconfigure/Uninstall Proxy Controller window is displayed.

3. Select an Unconfiguration/Uninstallation option.

    ■ Send Job to Remote Proxy – This option sends a command to the Proxy to unconfigure and uninstall itself.

       Enter the privileged user name and password for the Proxy Controller. If root logon is not permitted on the Proxy Controller, enter a non-root user name and password followed by the root user name and password.

    ■ Force the Removal of the Proxy from Ops Center – This will remove the Proxy Controller from Ops Center, but will not uninstall the Proxy Controller software.

4. Click Unconfigure/Unregister.

To Unconfigure a Proxy Controller From the Command Line

1. From the command line, log in to the Proxy Controller.

2. Use the `proxyadm` command and the stop subcommand to stop the Proxy Controller. The proxyadm command resides in the `/opt/SUNWxvmoc/bin` directory on an Oracle Solaris system, and in the `/opt/sun/xvmoc/bin` on a Linux system. The example below uses the following option: -w – Wait for services to complete stopping.

    ```
    /opt/SUNWxvmoc/bin/proxyadm stop -w
    ```

3. Use the `proxyadm` command and the unconfigure subcommand to unconfigure the Proxy Controller. The example below uses the following option: -s – Unregisters the Proxy Controller from the Enterprise Controller.

```
/opt/SUNWxvmoc/bin/proxyadm unconfigure -s
```

The Proxy Controller is now unconfigured from the Enterprise Controller.

Unconfiguring a Proxy Controller from the Command Line

Unconfiguring a Proxy Controller breaks its connection with the Enterprise Controller.

To Unconfigure a Proxy Controller from the Command Line

1. From the command line, log in to the Proxy Controller.

2. Use the proxyadm command and the stop subcommand to stop the Proxy Controller. The proxyadm command resides in the /opt/SUNWxvmoc/bin directory on an Oracle Solaris system, and in the /opt/sun/xvmoc/bin on a Linux system. The example below uses the following option: -w – Wait for services to complete stopping.

   ```
   /opt/SUNWxvmoc/bin/proxyadm stop -w
   ```

3. Use the proxyadm command and the unconfigure subcommand to unconfigure the Proxy Controller. The example below uses the following option: -s – Unregisters the Proxy Controller from the Enterprise Controller.

   ```
   /opt/SUNWxvmoc/bin/proxyadm unconfigure -s
   ```

   The Proxy Controller is now unconfigured from the Enterprise Controller.

Uninstalling a Proxy Controller from the Command Line

Uninstalling a Proxy Controller removes the Proxy Controller software and all Oracle Enterprise Manager Ops Center data. All Assets discovered or managed by the Proxy Controller are removed as well. The Agents installed on systems managed by the Proxy Controller are not removed.

You can uninstall a Proxy Controller from the command line. This may be necessary if the Proxy Controller is not responding to remote commands.

> **Note:** The co-located Proxy Controller that is installed with the Enterprise Controller cannot be uninstalled without uninstalling the Enterprise Controller.

To Uninstall a Proxy Controller from the Command Line

1. Use the proxyadm command to stop the Proxy Controller services.

   - Oracle Solaris OS: Use the /opt/SUNWxvmoc/bin/proxyadm command.

   - Linux OS: Use the /opt/sun/xvmoc/bin/proxyadm command. For example:

     ```
     # /opt/SUNWxvmoc/bin/proxyadm stop
     ```

2. Use the install -e command to uninstall the Proxy Controller software components from your system. Within the parent installation directory, the install command exists in the dvd subdirectory. The example parent installation directory used throughout the installation procedures is /var/tmp/OC. For example:

   ```
   # cd /var/tmp/OC/dvd
   # ./install -e
   Invoking uninstall
   ```

The install script displays a list of uninstallation tasks that automatically updates as the uninstallation proceeds. For example:

```
Ops Center Proxy Controller Uninstall
(version 11.1.0.0.0 on SunOS)

1. Restore file system configuration. [Not Uninstalled]
2. Uninstall Expect. [Not Uninstalled]
3. Uninstall IPMI tool. [Not Uninstalled]
4. Uninstall Agent components. [Not Uninstalled]
5. Uninstall application packages. [Not Uninstalled]
6. Uninstall Core Channel components. [Not Uninstalled]
7. Uninstall Proxy Core components. [Not Uninstalled]
8. Uninstall UCE Http proxy. [Not Uninstalled]
9. Uninstall OS provisioning components. [Not Uninstalled]
10. Stop and delete services. [Uninstalled]
(1 of 10 Uninstalled)

Executing current step: Uninstall OS provisioning components...
```

When complete, the install script indicates that the Ops Center Proxy Controller has been uninstalled.

Unconfiguring an Enterprise Controller

Unconfiguring an Enterprise Controller removes user, authentication, and configuration data and unregisters the Enterprise Controller from Oracle. Data about Proxy Controllers and managed systems is retained. If you unconfigure your Enterprise Controller, you must reconfigure it before using Oracle Enterprise Manager Ops Center.

You can unconfigure an Enterprise Controller to reconfigure it or as a precursor to uninstalling.

To Unconfigure an Enterprise Controller
1. Click the Enterprise Controller in the Administration section of the Navigation pane.
2. Click Unconfigure in the Actions pane. A confirmation page is displayed.
3. Click Unconfigure. The Enterprise Controller is unconfigured.

Uninstalling an Enterprise Controller

You can uninstall the Enterprise Controller. This removes the Enterprise Controller software and all Oracle Enterprise Manager Ops Center data.

To Uninstall an Enterprise Controller
1. Use the satadm command to stop the Enterprise Controller services.
   - On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.
   - On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory. For example:
     ```
     # /opt/SUNWxvmoc/bin/satadm stop
     satadm: Shutting down satellite using SMF...
     ```

```
#
```

2. Use the `install -e` command to uninstall the Enterprise Controller software components from your system. Within the parent installation directory, the install command exists in the `xvmoc_full_bundle` subdirectory. The example parent installation directory used throughout the installation procedures is `/var/tmp/OC`. For example:

```
# cd /var/tmp/OC/xvmoc_full_bundle
# ./install -e
Invoking uninstall
```

The install script displays a list of uninstallation tasks that automatically updates as the uninstallation proceeds. For example:

```
Ops Center Enterprise Controller Uninstall
(version 11.1.0.0.0 on SunOS)

1. Restore file system configuration. [Not Uninstalled]
.........................
5. Remove users. [Not Uninstalled]
6. Uninstall application packages. [Not Uninstalled]
7. Run preremove tasks. [Not Uninstalled]
8. Uninstall Expect. [Not Uninstalled]
9. Uninstall IPMI tool. [Not Uninstalled]
10. Destroy database. [Not Uninstalled]
11. Uninstall Service container components. [Not Uninstalled]
12. Uninstall Core Channel components. [Not Uninstalled]
13. Uninstall Proxy Core components. [Not Uninstalled]
14. Uninstall Enterprise Controller components. [Not Uninstalled]
15. Uninstall Update Connection - Enterprise. [Not Uninstalled]
16. Uninstall Ops Center BUI components. [Not Uninstalled]
17. Uninstall OS provisioning components. [Not Uninstalled]
18. Stop and delete services. [Not Uninstalled]
(0 of 18 Uninstalled)

Executing current step: Stop and delete services...
```

When complete, the install script indicates that the Ops Center Enterprise Controller has been uninstalled.

8

Upgrading and Updating Ops Center

Ops Center upgrade and update functionality lets you perform the following tasks:

- Upgrade from Ops Center 2.5 to Oracle Enterprise Manager 11g Ops Center Release 1.

- Update to the latest version of Ops Center.

About Upgrading and Updating

When upgrading or updating the software, you must apply the upgrades or updates in the following order:

1. Enterprise Controller – Upgrading or updating the Enterprise Controller also upgrades or updates the co-located Proxy Controller.

2. Remote Proxy Controllers

3. Agent Controllers

Upgrading From Version 2.5

If you are using Ops Center Version 2.5, you can upgrade directly to Oracle Enterprise Manager 11g Ops Center Release 1. This upgrade must be performed using the command line.

In order to perform the upgrade, the original install directory must be available. If it is not, it must be restored before performing the operation.

> **Caution:** The upgrade will preserve all data with the exception of notifications. All notifications in the UI for all users are deleted by the upgrade process.

Updating Ops Center

If you are using Oracle Enterprise Manager 11g Ops Center Release 1, you can update to the latest available update.

Updates are typically performed through the UI; however, you can apply upgrades manually from the command line. In connected mode, you can update the Enterprise Controller through the UI or through the command line. In disconnected mode, you must use the command line to update the Enterprise Controller. In either connection mode, you can update remote Proxy Controllers and Agents through the UI.

The Enterprise Controller update uses the satadm backup command to back up Ops Center data before performing the upgrade.

Each update bundle contains the previous update bundles, so you only need to download and apply the most recent update in order to update your system.

Upgrading to Oracle Enterprise Manager 11g Ops Center Release 1 on Oracle Solaris

If you are using Oracle Enterprise Manager Ops Center version 2.5.0.1200, you can upgrade the Enterprise Controller and Proxy Controllers to Oracle Enterprise Manager 11g Ops Center Release 1 using an installation and upgrade bundle.

The upgrade stops the services on the Enterprise Controller or Proxy Controller, then backs up the current data. The Oracle Enterprise Manager 11g Ops Center Release 1 packages are installed, and the Enterprise Controller or Proxy Controller services are restored to their initial state.

If the upgrade fails, the newly installed material is removed, and the product is reinstalled using the version 2.5 installer. The Enterprise Controller or Proxy Controller is then restored using the backup file.

> **Note:** Some data is not preserved by the upgrade process. Notifications and historical asset data such as power and memory use will be lost.

Before You Begin

Perform the following tasks before beginning the upgrade:

1. Review the *Oracle Enterprise Manager Ops Center Release Notes* for pre-installation requirements and known issues.

2. Verify that your system meets the system requirements outlined in the *Oracle Enterprise Manager Ops Center Site Preparation Guide*, since some system requirements have changed.

   You can use the OC Doctor to check system requirements. See http://java.net/projects/oc-doctor for more information about the OC Doctor.

3. Back up the Enterprise Controller. See the *Oracle Enterprise Manager Ops Center Administration Guide* for more information.

4. Log in to the Enterprise Controller and verify that all Proxy Controllers and Agent Controllers are online. If necessary, stop and restart any Agent Controllers that are not online using the agentadm command.

   - On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory.

     ```
     # agentadm stop; sleep 30; agentadm start
     ```

     It may take 5-10 minutes for the Agent Controller's online status to be displayed in the UI. Agent Controllers that are not online when the Enterprise Controller and Proxy Controllers are upgraded might only be upgradable after SSH credentials are supplied.

5. Stop and then restart the Enterprise Controller using the satadm command. If the co-located Proxy Controller and local Agent Controller are enabled and configured, stop and restart them as well using the proxyadm and agentadm commands.

- On Oracle Solaris systems, these commands are in the `/opt/SUNWxvmoc/bin/` directory.

- On Linux systems, these commands are in the `/opt/sun/xvmoc/bin/` directory.

```
# ./satadm stop -w -v
# ./proxyadm stop -w -v
# ./agentadm stop
# netstat -na | grep -i TIME
```

Repeat until all connections are fully closed.

```
# ./satadm start -w -v
# ./proxyadm start -w -v
# ./agentadm start
```

6. Stop and then restart each remote Proxy Controllers using the proxyadm command. If the local Agent Controller is configured, stop and restart it as well.

- On Oracle Solaris systems, these commands are in the `/opt/SUNWxvmoc/bin/` directory.

- On Linux systems, these commands are in the `/opt/sun/xvmoc/bin/` directory.

```
# ./proxyadm stop -w -v
# ./agentadm stop
# netstat -na | grep -i TIME
```

Repeat until all connections are fully closed.

```
# ./proxyadm start -w -v
# ./agentadm start
```

7. Acquire the Oracle Enterprise Manager 11g Ops Center Release 1 Enterprise Controller and Proxy Controller installation bundles and copy them to the appropriate systems. To get these bundles, contact Oracle Support or download them using the UI.

To perform the upgrade, the `/var/opt/sun/xvm/update-saved-state/` directory must be present. This directory is used to back out the upgrade changes if the upgrade fails. If you have removed this directory, you must provide the location of the installation media during the upgrade.

> **Note:** Several existing features are affected by the upgrade. Review the Release Notes and the entirety of this document before upgrading.

> **Note:** If you made changes to the uce.rc file, your changes will be erased by the upgrade. Copy your changes to the .uce.rc file before beginning the upgrade.

> **Note:** If you replaced the self-signed web server certificate for the Enterprise Controller, the upgrade will erase your web server configuration changes, and might erase the certificate. Copy the certificate to a safe location before beginning the upgrade. After the upgrade, reapply your configuration changes and copy the certificate to its original location.

Downloading Enterprise Controller and Proxy Controller Upgrade Bundles

You can download the upgrade bundles through the UI.

> **Note:** You cannot download the Proxy Controller bundle until you have downloaded and applied the Enterprise Controller bundle.

1. Select Administration in the Navigation pane.

2. Click Ops Center Updates in the Actions pane. The Ops Center Updates wizard is displayed.

3. Select one or more upgrades from the list, then click Next. The View License page is displayed.

4. Accept the license and click Next. The Update Download page is displayed.

5. Confirm your selections and click Download. The Summary page is displayed.

6. Click Finish. The selected Update Bundles are downloaded.

Performing the Upgrade

Upgrade your systems in the following order.

1. Upgrade the Enterprise Controller. This will also upgrade the co-located Proxy Controller.

2. Upgrade the separate Proxy Controllers.

3. Perform Post-Upgrade Tasks.

4. Upgrade the Agent Controllers through the UI or manually.

If your data center is large, you can upgrade your Proxy Controllers one at a time. To do so, upgrade your systems in the following order.

1. Upgrade the Enterprise Controller.

2. Upgrade one Proxy Controller.

3. Perform Post-Upgrade Tasks.

4. Upgrade the Agent Controllers managed by the upgraded Proxy Controller.

5. Upgrade the next Proxy Controller.

6. Upgrade the Agent Controllers managed by the upgraded Proxy Controller.

7. Repeat steps 5 and 6 for each Proxy Controller.

In either scenario, once you have begun the upgrade, complete it as soon as possible. Do not allow the Enterprise Controller or Proxy Controllers to be restarted before all systems have been upgraded.

Upgrade log files are stored in the `/var/opt/sun/xvm/update-saved-state` directory on the Enterprise Controller.

To Upgrade an Enterprise Controller

You can upgrade an Enterprise Controller from Ops Center 2.5.0.1200 to Oracle Enterprise Manager 11g Ops Center Release 1. The co-located Proxy Controller will be upgraded as well.

The Enterprise Controller upgrade log will be saved locally as
`/var/opt/sun/xvm/update-saved-state/update_satellite_bundle_<version number>/updatelog.txt`.

If an error occurs during this process, the system will be restored to version 2.5.

> **Note:** During the upgrade process, the Enterprise Controller will be shut down. This might cause any jobs that are currently running on the Enterprise Controller to be canceled and marked as failed. However, the Enterprise Controller must be online at the beginning of the process.

1. Download or acquire the Enterprise Controller installation bundle.

2. As root, log in to the Enterprise Controller.

3. Use the satadm command to verify that the Enterprise Controller is online. If necessary, use the `satadm start -w` command to start Oracle Enterprise Manager Ops Center services.

   ```
   # /opt/SUNWxvmoc/bin/satadm status
   online
   ```

4. Create a temporary directory on your system, then copy or move the installation bundle to the temporary directory that you created. The Enterprise Controller upgrade requires 5 Gbytes of free space.

   ```
   # mkdir /var/tmp/OC/upgrade
   # cp enterprise-controller.SunOS.i386.11.1.0.1512.tar.gz /var/tmp/OC/upgrade
   ```

   If you downloaded the Enterprise Controller upgrade through the UI, the bundle will be found in the `/var/opt/sun/xvm/images/productUpdate` directory on the Enterprise Controller system.

5. Change to the directory containing the installation bundle.

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

6. Use the `gzcat` and `tar` commands to uncompress and un-tar the upgrade bundle.

   ```
   # gzcat enterprise-controller.SunOS.i386.11.1.0.1512.tar.gz | tar xf -
   ```

7. Change to the `xvmoc_full_bundle` directory and run the install script.

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

   The following options may be used with the install script:

   - **--install <version 2.5 install bundle path>or-i <version 2.5 install bundle path>** – If you removed the `/var/opt/sun/xvm/update-saved-state/` directory, you must use this option to specify the location of the Oracle Enterprise Manager Ops Center 2.5 install bundle. If the directory is present, this option is unnecessary. When the upgrade is complete, the install script indicates that all components have been upgraded.

8. Clear your browser cache. Cached data from the earlier version can cause Oracle Enterprise Manager Ops Center to display incorrectly. Refreshing or logging out and logging in will not clear this data.

To Upgrade a Proxy Controller

Once you have upgraded your Enterprise Controller, you can upgrade any Proxy Controllers. The co-located Proxy Controller, if enabled, is upgraded along with the Enterprise Controller, but separate Proxy Controllers must be upgraded separately.

The Proxy Controller upgrade log will be saved locally as `/var/opt/sun/xvm/update-saved-state/update_proxy_bundle_<version number>/updatelog.txt`.

If an error occurs during this process, the system will be restored to version 2.5.

> **Note:** During the upgrade process, the Proxy Controller will be shut down. However, the Proxy Controller must be online at the beginning of the process.

1. Download or acquire the Proxy Controller upgrade bundle.

2. As root, log in to the Proxy Controller.

3. Back up the contents of the `/etc/opt/sun/cacao2/instances/scn-proxy/security/` directory.

4. Use the `proxyadm` command to verify that the Proxy Controller is online. If necessary, use the `proxyadm start -w` command to start Oracle Enterprise Manager Ops Center services.

    ```
    # /opt/SUNWxvmoc/bin/proxyadm status
    online
    ```

5. Create a temporary directory on your system, then copy or move the installation bundle to the temporary directory that you created. The Proxy Controller upgrade requires 2 Gbytes of free space.

    ```
    # mkdir /var/tmp/OC/upgrade
    # cp proxy-controller.SunOS.i386.11.1.0.1512.tar.gz /var/tmp/OC/upgrade
    ```

    If you downloaded the Proxy Controller installation bundle through the UI, it will be found in the `/var/opt/sun/xvm/images/productUpdate` directory on the Enterprise Controller system. The Proxy Controller installation bundle must be copied to the remote Proxy Controller system.

6. Change to the directory containing the installation bundle.

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

7. Use the `gzcat` and `tar` commands to uncompress and un-tar the installation bundle.

    ```
    # gzcat proxy-controller.SunOS.i386.11.1.0.1512.tar.gz | tar xf -
    ```

8. Change to the `xvmoc_full_bundle` directory and run the install script.

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

    The following options may be used with the install script:

    -   **--install <version 2.5 install bundle path>or-i <version 2.5 install bundle path>** – If you removed the `/var/opt/sun/xvm/update-saved-state/` directory, you must use this option to specify the location of the Oracle

Enterprise Manager Ops Center 2.5 install bundle. If the directory is present, this option is unnecessary. When the upgrade is complete, the install script indicates that all components have been upgraded.

To Perform Post-Upgrade Tasks

These procedures must be performed after upgrading the Enterprise Controller and Proxy Controller to ensure full functionality.

Edit OS Update Profiles

OS Update Profiles from Oracle Enterprise Manager Ops Center 2.5 are preserved by the upgrade. However, OS Update Profiles in Enterprise Manager Ops Center 11g are configured to use a specific network. You must edit existing OS Update Profiles to assign a network. Consider editing the name of the profile to include the network, to avoid confusion. Once you have edited the profile, edit each OS Provisioning Plan that uses the profile so that it uses the new version. Consider editing the name of the plan to match the new profile name, to avoid confusion.

See the *Oracle Enterprise Manager Ops Center Provision and Update Guide* and the *Oracle Enterprise Manager Ops Center Advanced User's Guide* for more information.

Create Oracle VM Server for SPARC Guest Plans

In Oracle Enterprise Manager Ops Center 11.1.0.0.0, you provision an Oracle VM Server for SPARC guest using a SPARC OS Profile and a Guest Plan, which are incorporated into a composite plan. The upgrade preserves OS profiles, but you must create a new Guest Plan and composite plan in order to provision.

See the *Oracle Enterprise Manager Ops Center User's Guide* for more information.

Add My Oracle Support Credentials

You must add My Oracle Support Credentials to Oracle Enterprise Manager Ops Center's authentications to access data from My Oracle Support.

See Editing Authentications for more information.

Review the Release Notes

Review the *Oracle Enterprise Manager Ops Center Release Notes*. Upgrade issues that may affect your systems are documented there.

To Upgrade Agents Using the User Interface

You can upgrade Agents using the UI. Before you upgrade an Agent, you must upgrade the Proxy Controller that manages it.

1. Log in to the UI.

2. Select Administration in the Navigation pane.

3. Select Agent Controllers in the Center pane.

4. Select the Agents, then click the Upgrade to Latest Available Version icon. The Upgrade Agents window is displayed.

5. Select an upgrade option for the system or systems to be upgraded.

   ■ The Upgrade without requiring SSH credentials option lets you upgrade version 2.5 Agent Controllers without using SSH credentials.

- The Apply the Same SSH Credentials to All option prompts you for a single set of SSH credentials for all systems to be upgraded.

- The Enter SSH credentials For Each of the Selected Hosts prompts you for a separate set of credentials for each system to be upgraded.

6. Click Submit. A popup appears confirming that the job has been launched.

7. Click Ok. The Agent or Agents are upgraded.

To Upgrade Agents Manually

You can upgrade Agents manually. Before you upgrade an Agent, you must upgrade the Proxy Controller that manages it.

If you are manually upgrading Agents running in non-global zones, complete these upgrade steps for any Agent running in the global zone before upgrading all of the non-global zones. The global zone and the non-global zones must all use the same Agent Controller version.

This procedure requires root access.

1. Copy the new agent bundle from the Enterprise Controller to the client, remove the version 2.5 Agent directory, and extract the new agent bundle. For example, on Oracle Solaris Agents:

```
# scp <IP of Enterprise
Controller>:/var/opt/sun/xvm/images/agent/SunConnectionAgent.`uname -s`.`uname
-p`.2.5.0.1163.zip /var/tmp
# cd /var/tmp
# rm -r SunConnectionAgent
# unzip SunConnectionAgent.`uname -s`.`uname -p`.2.5.0.1163.zip
```

On Linux Agents:

```
# scp -p <IP of Enterprise
Controller>:/var/opt/sun/xvm/images/agent/SunConnectionAgent.`uname
-s`.i686.2.5.0.1163.zip /var/tmp
# cd /var/tmp
# rm -r SunConnectionAgent
# unzip SunConnectionAgent.`uname -s`.i686.2.5.0.1163.zip
```

2. Stop the version 2.5 Agent. For example, on Oracle Solaris Agent Controllers:

```
/opt/SUNWxvmoc/bin/agentadm stop
```

On Linux Agent Controllers:

```
/opt/sun/xvmoc/bin/agentadm stop
```

3. Install the agent upgrade.

```
# cd /var/tmp/SunConnectionAgent
# ./install
```

4. Configure the new Agent. For example, on Oracle Solaris Agents:

```
# /opt/SUNWxvmoc/bin/agentadm configure --keep-connection
```

On Linux Agents:

```
/opt/sun/xvmoc/bin/agentadm configure --keep-connection
```

This step also starts the Agent.

> **Note:** The following errors may safely be ignored. These refer to the addition of two sysidcfg scripts, which are already present from a prior agentadm configure step, such as from the original version 2.5 agent installation and configuration. The correct sysidcfg scripts will be called properly by sysidcfg.
>
> ```
> Failed to add the zone configuration automation.
> Failed to add the service tags recreate script.
> ```

5. Verify the connection.

```
# sc-console list-connections
scn-agent https://172.25.14.21:21165
urn:scn:clregid:1234567-aaaa-bbbb-cccc-123456789abc:YYYYMMDDHHMMSSss
```

Upgrading to Oracle Enterprise Manager 11g Ops Center Release 1 on Linux

If you are using Oracle Enterprise Manager Ops Center version 2.5.0.1200, you can upgrade the Enterprise Controller and Proxy Controllers to Oracle Enterprise Manager 11g Ops Center Release 1 using an installation and upgrade bundle.

The upgrade stops the services on the Enterprise Controller or Proxy Controller, then backs up the current data. The Oracle Enterprise Manager 11g Ops Center Release 1 packages are installed, and the Enterprise Controller or Proxy Controller services are restored to their initial state.

If the upgrade fails, the newly installed material is removed, and the product is reinstalled using the version 2.5 installer. The Enterprise Controller or Proxy Controller is then restored using the backup file.

> **Note:** Some data is not preserved by the upgrade process. Notifications and historical asset data such as power and memory use will be lost.

Before You Begin

Perform the following tasks before beginning the upgrade:

1. Review the *Oracle Enterprise Manager Ops Center Release Notes* for pre-installation requirements and known issues.

2. Verify that your system meets the system requirements outlined in the *Oracle Enterprise Manager Ops Center Site Preparation Guide*, since some system requirements have changed.

   You can use the OC Doctor to check system requirements. See http://java.net/projects/oc-doctor for more information about the OC Doctor.

3. Back up the Enterprise Controller. See the *Oracle Enterprise Manager Ops Center Administration Guide* for more information.

4. Log in to the Enterprise Controller and verify that all Proxy Controllers and Agent Controllers are online. If necessary, stop and restart any Agent Controllers that are not online using the agentadm command.

- On Oracle Solaris systems, this command is in the `/opt/SUNWxvmoc/bin/` directory.

- On Linux systems, this command is in the `/opt/sun/xvmoc/bin/` directory.

  ```
  # agentadm stop; sleep 30; agentadm start
  ```

  It may take 5-10 minutes for the Agent Controller's online status to be displayed in the UI. Agent Controllers that are not online when the Enterprise Controller and Proxy Controllers are upgraded might only be upgradable after SSH credentials are supplied.

5. Stop and then restart the Enterprise Controller using the satadm command. If the co-located Proxy Controller and local Agent Controller are enabled and configured, stop and restart them as well using the proxyadm and agentadm commands.

   - On Oracle Solaris systems, these commands are in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, these commands are in the `/opt/sun/xvmoc/bin/` directory.

     ```
     # ./satadm stop -w -v
     # ./proxyadm stop -w -v
     # ./agentadm stop
     # netstat -na | grep -i TIME
     ```

     Repeat until all connections are fully closed.

     ```
     # ./satadm start -w -v
     # ./proxyadm start -w -v
     # ./agentadm start
     ```

6. Stop and then restart each remote Proxy Controllers using the proxyadm command. If the local Agent Controller is configured, stop and restart it as well.

   - On Oracle Solaris systems, these commands are in the `/opt/SUNWxvmoc/bin/` directory.

   - On Linux systems, these commands are in the `/opt/sun/xvmoc/bin/` directory.

     ```
     # ./proxyadm stop -w -v
     # ./agentadm stop
     # netstat -na | grep -i TIME
     ```

     Repeat until all connections are fully closed.

     ```
     # ./proxyadm start -w -v
     # ./agentadm start
     ```

7. Acquire the Oracle Enterprise Manager 11g Ops Center Release 1 Enterprise Controller and Proxy Controller installation bundles and copy them to the appropriate systems. To get these bundles, contact Oracle Support or download them using the UI.

To perform the upgrade, the `/var/opt/sun/xvm/update-saved-state/` directory must be present. This directory is used to back out the upgrade changes if the upgrade fails. If you have removed this directory, you must provide the location of the installation media during the upgrade.

> **Note:** Several existing features are affected by the upgrade. Review the Release Notes and the entirety of this document before upgrading.

> **Note:** If you made changes to the uce.rc file, your changes will be erased by the upgrade. Copy your changes to the .uce.rc file before beginning the upgrade.

> **Note:** If you replaced the self-signed web server certificate for the Enterprise Controller, the upgrade will erase your web server configuration changes, and might erase the certificate. Copy the certificate to a safe location before beginning the upgrade. After the upgrade, reapply your configuration changes and copy the certificate to its original location.

Downloading Enterprise Controller and Proxy Controller Upgrade Bundles

You can download the upgrade bundles through the UI.

> **Note:** You cannot download the Proxy Controller bundle until you have downloaded and applied the Enterprise Controller bundle.

1. Select Administration in the Navigation pane.

2. Click Ops Center Updates in the Actions pane. The Ops Center Updates wizard is displayed.

3. Select one or more upgrades from the list, then click Next. The View License page is displayed.

4. Accept the license and click Next. The Update Download page is displayed.

5. Confirm your selections and click Download. The Summary page is displayed.

6. Click Finish. The selected Update Bundles are downloaded.

Performing the Upgrade

Upgrade your systems in the following order.

1. Upgrade the Enterprise Controller. This will also upgrade the co-located Proxy Controller.

2. Upgrade the separate Proxy Controllers.

3. Perform Post-Upgrade Tasks.

4. Upgrade the Agent Controllers through the UI or manually.

If your data center is large, you can upgrade your Proxy Controllers one at a time. To do so, upgrade your systems in the following order.

1. Upgrade the Enterprise Controller.

2. Upgrade one Proxy Controller.

3. Perform Post-Upgrade Tasks.

4. Upgrade the Agent Controllers managed by the upgraded Proxy Controller.

5. Upgrade the next Proxy Controller.

6. Upgrade the Agent Controllers managed by the upgraded Proxy Controller.

7. Repeat steps 5 and 6 for each Proxy Controller.

In either scenario, once you have begun the upgrade, complete it as soon as possible. Do not allow the Enterprise Controller or Proxy Controllers to be restarted before all systems have been upgraded.

Upgrade log files are stored in the `/var/opt/sun/xvm/update-saved-state` directory on the Enterprise Controller.

To Upgrade an Enterprise Controller

You can upgrade an Enterprise Controller from Ops Center 2.5.0.1200 to Oracle Enterprise Manager 11g Ops Center Release 1. The co-located Proxy Controller will be upgraded as well.

The Enterprise Controller upgrade log will be saved locally as `/var/opt/sun/xvm/update-saved-state/update_satellite_bundle_<version number>/updatelog.txt`.

If an error occurs during this process, the system will be restored to version 2.5.

> **Note:** During the upgrade process, the Enterprise Controller will be shut down. This might cause any jobs that are currently running on the Enterprise Controller to be canceled and marked as failed. However, the Enterprise Controller must be online at the beginning of the process.

1. Acquire the Enterprise Controller upgrade bundle.

2. As root, log in to the Enterprise Controller.

3. Use the `satadm` command to verify that the Enterprise Controller is online. If necessary, use the `satadm start -w` command to start Oracle Enterprise Manager Ops Center services.

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

4. Create a temporary directory on your system, then copy or move the update bundle to the temporary directory that you created. The Enterprise Controller upgrade requires 5 GB of free space.

```
# mkdir /var/tmp/OC/update
# cp enterprise-controller.Linux.i686.11.1.0.1512.tar.gz /var/tmp/OC/update
```

5. Change to the directory containing the update bundle.

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

6. Use the `gunzip` and `tar` commands to uncompress and un-tar the update bundle. Note that the following command example retains the original compressed archive file.

```
# gunzip enterprise-controller.Linux.i686.11.1.0.1512.tar.gz
# tar xf enterprise-controller.Linux.i686.11.1.0.1512.tar
```

7. Change to the `xvmoc_full_bundle` directory and run the install script.

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

The following options may be used with the install script:

- **--install <version 2.5 install bundle path>or-i <version 2.5 install bundle path>** – If you removed the /var/opt/sun/xvm/update-saved-state/ directory, you must use this option to specify the location of the Oracle Enterprise Manager Ops Center 2.5 install bundle. If the directory is present, this option is unnecessary. When the upgrade is complete, the install script indicates that all components have been upgraded.

8. Restart or Shift-Reload your browser if it is running. Cached data from the earlier version can cause Oracle Enterprise Manager Ops Center to display incorrectly. Refreshing or logging out and logging in will not clear this data.

To Upgrade a Proxy Controller

Once you have upgraded your Enterprise Controller, you can upgrade any Proxy Controllers. The co-located Proxy Controller, if enabled, is upgraded along with the Enterprise Controller, but separate Proxy Controllers must be upgraded separately.

The Proxy Controller upgrade log will be saved locally as /var/opt/sun/xvm/update-saved-state/update_proxy_bundle_<version number>/updatelog.txt.

If an error occurs during this process, the system will be restored to version 2.5.

> **Note:** During the upgrade process, the Proxy Controller will be shut down. However, the Proxy Controller must be online at the beginning of the process.

1. Acquire the Proxy Controller upgrade bundle.

2. As root, log in to the Proxy Controller.

3. Back up the contents of the /etc/cacao/instances/scn-proxy/security/ directory.

4. Use the proxyadm command to verify that the Proxy Controller is online. If necessary, use the proxyadm start -w command to start Oracle Enterprise Manager Ops Center services.

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

5. Create a temporary directory on your system, then copy or move the update bundle to the temporary directory that you created. The Proxy Controller upgrade requires 2 GB of free space.

```
# mkdir /var/tmp/OC/update
# cp proxy-controller.Linux.i686.11.1.0.1512.tar.gz /var/tmp/OC/update
```

6. Change to the directory containing the update bundle.

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

7. Use the gunzip and tar commands to uncompress and un-tar the update bundle. Note that the following command example retains the original compressed archive file.

```
# gunzip proxy-controller.Linux.i686.11.1.0.1512.tar.gz
# tar xf proxy-controller.Linux.i686.11.1.0.1512.tar
```

8. Change to the `xvmoc_full_bundle` directory and run the install script.

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

The following options may be used with the install script:

- **--install <version 2.5 install bundle path>or-i <version 2.5 install bundle path>** – If you removed the /var/opt/sun/xvm/update-saved-state/ directory, you must use this option to specify the location of the Oracle Enterprise Manager Ops Center 2.5 install bundle. If the directory is present, this option is unnecessary. When the upgrade is complete, the install script indicates that all components have been upgraded.

To Perform Post-Upgrade Tasks

These procedures must be performed after upgrading the Enterprise Controller and Proxy Controller to ensure full functionality.

Edit OS Update Profiles

OS Update Profiles from Oracle Enterprise Manager Ops Center 2.5 are preserved by the upgrade. However, OS Update Profiles in Enterprise Manager Ops Center 11g are configured to use a specific network. You must edit existing OS Update Profiles to assign a network. Consider editing the name of the profile to include the network, to avoid confusion. Once you have edited the profile, edit each OS Provisioning Plan that uses the profile so that it uses the new version. Consider editing the name of the plan to match the new profile name, to avoid confusion.

See the *Oracle Enterprise Manager Ops Center Provision and Update Guide* and the *Oracle Enterprise Manager Ops Center Advanced User's Guide* for more information.

Create Oracle VM Server for SPARC Guest Plans

In Oracle Enterprise Manager Ops Center 11.1.0.0.0, you provision an Oracle VM Server for SPARC guest using a SPARC OS Profile and a Guest Plan, which are incorporated into a composite plan. The upgrade preserves OS profiles, but you must create a new Guest Plan and composite plan in order to provision.

See the *Oracle Enterprise Manager Ops Center User's Guide* for more information.

Add My Oracle Support Credentials

You must add My Oracle Support Credentials to Oracle Enterprise Manager Ops Center's authentications to access data from My Oracle Support.

See Editing Authentications for more information.

Review the Release Notes

Review the *Oracle Enterprise Manager Ops Center Release Notes*. Upgrade issues that may affect your systems are documented there.

To Upgrade Agents Using the User Interface

You can upgrade Agents using the UI. Before you upgrade an Agent, you must upgrade the Proxy Controller that manages it.

1. Log in to the UI.

2. Select Administration in the Navigation pane.

3. Select Agent Controllers in the Center pane.

4. Select the Agents, then click the Upgrade to Latest Available Version icon. The Upgrade Agents window is displayed.

5. Select an upgrade option for the system or systems to be upgraded.

   ■ The Upgrade without requiring SSH credentials option lets you upgrade version 2.5 Agent Controllers without using SSH credentials.

   ■ The Apply the Same SSH Credentials to All option prompts you for a single set of SSH credentials for all systems to be upgraded.

   ■ The Enter SSH credentials For Each of the Selected Hosts prompts you for a separate set of credentials for each system to be upgraded.

6. Click Submit. A popup appears confirming that the job has been launched.

7. Click Ok. The Agent or Agents are upgraded.

Upgrading Agents Manually

You can upgrade Agents manually. Before you upgrade an Agent, you must upgrade the Proxy Controller that manages it.

If you are manually upgrading Agents running in non-global zones, complete these upgrade steps for any Agent running in the global zone before upgrading all of the non-global zones. The global zone and the non-global zones must all use the same Agent Controller version.

This procedure requires root access.

1. Copy the new agent bundle from the Enterprise Controller to the client, remove the version 2.5 Agent directory, and extract the new agent bundle. For example, on Oracle Solaris Agents:

```
# scp <IP of Enterprise
Controller>:/var/opt/sun/xvm/images/agent/SunConnectionAgent.`uname -s`.`uname
-p`.2.5.0.1163.zip /var/tmp
# cd /var/tmp
# rm -r SunConnectionAgent
# unzip SunConnectionAgent.`uname -s`.`uname -p`.2.5.0.1163.zip
```

On Linux Agents:

```
# scp -p <IP of Enterprise
Controller>:/var/opt/sun/xvm/images/agent/SunConnectionAgent.`uname
-s`.i686.2.5.0.1163.zip /var/tmp
# cd /var/tmp
# rm -r SunConnectionAgent
# unzip SunConnectionAgent.`uname -s`.i686.2.5.0.1163.zip
```

2. Stop the version 2.5 Agent. For example, on Oracle Solaris Agent Controllers:

```
/opt/SUNWxvmoc/bin/agentadm stop
```

On Linux Agent Controllers:

```
/opt/sun/xvmoc/bin/agentadm stop
```

3. Install the Agent update.

```
# cd /var/tmp/SunConnectionAgent
```

```
# ./install
```

4. Configure the new Agent. For example, on Solaris Agents:

```
# /opt/SUNWxvmoc/bin/agentadm configure --keep-connection
```

On Linux Agents:

```
/opt/sun/xvmoc/bin/agentadm configure --keep-connection
```

This step also starts the Agent.

> **Note:** The following errors may safely be ignored. These refer to the addition of two sysidcfg scripts, which are already present from a prior agentadm configure step, such as from the original version 2.5 Agent installation and configuration. The correct sysidcfg scripts will still be called properly by sysidcfg.
>
> ```
> Failed to add the zone configuration automation.
> Failed to add the service tags recreate script.
> ```

5. Verify the connection.

```
# sc-console list-connections
scn-agent https://172.25.14.21:21165
urn:scn:clregid:1234567-aaaa-bbbb-cccc-123456789abc:YYYYMMDDHHMMSSss
```