Oracle® Hardware Installation Assistant 2.5 User's Guide for x86 Servers

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Using This Documentation

This section describes product information, documentation and feedback, and a document change history.

Product Downloads

You can find software, firmware, and drivers downloads for all Oracle x86 servers and server modules (blades) on My Oracle Support (MOS). On MOS, you can find two types of downloads:

- Software release bundles that are specific to rack-mount servers, server modules, modular systems (blade chassis), or network express modules (NEMs). These software release bundles include Oracle Integrated Lights Out Manager (ILOM), Oracle Hardware Installation Assistant, and other platform software and firmware
- Standalone software common across multiple types of hardware. This includes the Hardware Management Pack and Hardware Management Connectors.

▼ Get Software and Firmware Downloads

1. **Go to `http://support.oracle.com`.**
2. **Sign in to My Oracle Support.**
3. **At the top of the page, click the Patches and Updates tab.**
4. **In the Patches Search box, click Product or Family (Advanced Search).**
5. **In the Product ? is field, type a full or partial product name.**
6. **In the Release ? is pull-down list, click the Down arrow.**

7. **In the window that appears, click the triangle (>) by the product folder icon to show the choices and then select the release of interest and click Close.**
8. **In the Patches Search box, click Search.**
   A list of product downloads (listed as patches) appears.
9. **Select the Patch name of interest.**
10. **In the right-side pane that appears, click Download.**

Documentation and Feedback

Documentation	Link
All Oracle products	http://www.oracle.com/documentation
Oracle Hardware Installation Assistant Documentation Library	http://download.oracle.com/docs/cd/E19593-01/index.html

Provide feedback on this documentation at: http://www.oraclesurveys.com/se.ashx?s=25113745587BE578.

About This Documentation

This documentation set is available in both PDF and HTML. The information is presented in topic-based format (similar to online help) and therefore does not include chapters, appendices, or section numbering.

A PDF that includes all information on a particular topic subject (such as hardware installation or product notes) can be generated by clicking on the PDF button in the upper left corner of the page.

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Change History

The following lists the release history of this documentation set:

- March 2011 — Initial publication of document (821–2520–10).
- June 2011 — Revision for procedure fixes (821–2520–11).
- October 2012 — Update for CR 7037464 (821–2520–12).
- January 2013 — Update for CR 16187027 (821–2520–13).
- October 2013 — Update for CR 16532355 and information in the section on creating a bootable Oracle Hardware Installation Assistant USB flash disk (821–2520–14).

Overview of the Oracle Hardware Installation Assistant User's Guide

The *Oracle Hardware Installation Assistant 2.5 User's Guide for x86 Servers* describes how to use Oracle Hardware Installation Assistant 2.5 to perform management and provisioning tasks for your Sun Fire and Sun Blade x86 servers.

Description	Link
Get an overview of the Oracle Hardware Installation Assistant application.	"Getting Started With Oracle Hardware Installation Assistant" on page 13
Launch the Oracle Hardware Installation Assistant application and prepare for provisioning or recovery tasks from local or remote media.	"Launching the Application and Performing Provisioning Tasks" on page 19
Create RAID 0/1 volumes on internal disk drives.	"Configuring RAID" on page 29
Perform an assisted OS installation of Microsoft Windows.	"Installing Windows" on page 37
Perform an assisted OS installation of Linux.	"Installing Linux " on page 45
Perform a system firmware upgrade (system BIOS and Oracle Integrated Lights Out Manager, disk controller HBA or disk expander).	"Updating System and Component Firmware " on page 51
Recover from a corrupt or inaccessible service processor.	"Recovering a Service Processor" on page 59
Configure and manage a specific set of Oracle ILOM settings.	"Configuring Service Processor Settings" on page 61
Configure and manage a specific set of BIOS settings.	"Configuring BIOS Boot Device Settings" on page 75
Perform a provisioning task (OS installation or firmware upgrade) using a PXE-based Oracle Hardware Installation Assistant image in attended mode.	"Launching an Attended PXE-Based Session" on page 87
Setup for a PXE-based launch of the Oracle Hardware Installation Assistant application.	"Setting Up PXE-Based Oracle Hardware Installation Assistant" on page 81

Description	Link
Launch a PXE-based session of the Oracle Hardware Installation Assistant application in attended mode.	"Launching an Attended PXE-Based Session" on page 87
Launch a PXE-based session of the Oracle Hardware Installation Assistant application in unattended mode.	"Performing Unattended PXE-Based Provisioning Tasks" on page 91
Observe an unattended mode PXE-based session of the Oracle Hardware Installation Assistant application.	"Observing Unattended PXE-Based Provisioning Tasks" on page 111
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Create an Oracle Hardware Installation Assistant boot-capable USB flash drive and launch the application.	"Launching Oracle Hardware Installation Assistant Using a USB Flash Drive" on page 119
How to install Service Tags.	"Installing Service Tags" on page 131

Getting Started With Oracle Hardware Installation Assistant

This section provides an overview of the Oracle Hardware Installation Assistant application. Use this section to learn about the features, requirements, and functionality of version 2.5:

What is Oracle Hardware Installation Assistant?

Note – Prior to version 2.5, Oracle Hardware Installation Assistant was known as Sun Installation Assistant.

The Oracle Hardware Installation Assistant application is a provisioning tool for Sun Fire and Sun Blade x86 servers. The application assists in server setup and maintenance by providing a single interface that facilitates server installation, configuration, maintenance, and recovery tasks.

For example, the Oracle Hardware Installation Assistant application can assist in the following:

- RAID configuration
- OS installation
- System BIOS and Oracle ILOM (firmware) updates
- HBA and expander firmware updates
- Oracle ILOM configuration tasks
- BIOS configuration tasks
- Service processor recovery

See Also: "Features and Benefits" on page 14

Features and Benefits

The features and benefits of the Oracle Hardware Installation Assistant application version 2.5:

- Supports multiple boot media options. Launch the Oracle Hardware Installation Assistant application from either a local drive attached to the server (CD/DVD or USB flash drive), a remote redirected network drive (virtual CD/DVD drive or ISO image), or an image available on your PXE network environment.
- Assists in OS installation.
  - Provides Oracle-certified server- and configuration-specific device drivers for optional accessory cards and other system hardware.
  - Eliminates the need to obtain and prepare OS-level device drivers on separate media before installing the OS.
  - Assists in OS installation for Oracle VM and supported versions of Windows and Linux (Oracle, SLES and RHEL) operating systems.

    Note – A licensed retail version of the OS software is required for the installation. The Oracle Hardware Installation Assistant application does not provide the OS software.

  - Supports OS installation on hard disk, solid state disk, or compact flash.
  - Supports unattended OS installation and firmware update tasks using PXE-based Oracle Hardware Installation Assistant.
  - Supports autorun (Windows client only) allowing you to perform additional tasks outside of the Oracle Hardware Installation Assistant environment (version 2.4 and later).
- Assists in RAID configuration for servers that contain an integrated LSI disk controller. Support is for RAID 0 and RAID 1 integrated mirror or integrated mirror enhanced (striping). Assisted RAID 1 configuration is also available (beginning with Oracle Hardware Installation Assistant 2.4) for LSI SAS-2 controllers (926x, 9280).
- Provides an Oracle Hardware Installation Assistant application update option, allowing you to maintain the latest version of the application.
  - Update from the Oracle download site to ensure your session has the latest drivers and firmware.
- Provides a specific set of service processor and Oracle ILOM configuration capabilities.
  - Enables management of Oracle ILOM user account settings and configuration of network settings, system clock, and system identification information.
  - Allows BIOS-level boot device priority configuration and next boot device selection.
- Contains firmware update capabilities for:

- System BIOS and Oracle ILOM firmware
- HBA firmware
- Expander firmware

- Management and troubleshooting capabilities:
  - Oracle Hardware Management Pack 2.1 contains Management Agents, Sun Server Hardware SNMP plug-ins, and CLI Tools. These components provide flexible in-band management to monitor and to configure your Sun Fires Server and Blade module's hardware.
    - For Oracle Hardware Management Pack documentation, go to: `http://www.oracle.com/goto/OHMP/docs`
    - For information about Oracle Hardware Management Pack, see the System Management product page at: `http://www.oracle.com/goto/system-management`.
  - Supports Oracle's Sun Service Tags installation packages.
  - Includes recovery capability for a non-functioning (corrupt or inaccessible) service processor. This feature is server-specific.
  - Creates an Oracle Hardware Installation Assistant session event log to facilitate troubleshooting.

See Also:

- `http://www.oracle.com/goto/hia`
- “Supported Provisioning Tasks List” on page 15
- “Media Availability” on page 16
- “Supported Operating Systems” on page 17

Supported Provisioning Tasks List

The table below lists the available Oracle Hardware Installation Assistant server-specific provisioning tasks.

Note – The lists of tasks available in the Oracle Hardware Installation Assistant application interface is server-dependant. Some tasks might not be available for your server

Task	Description
OS Installation	Assists in OS installations of Oracle VM and supported versions of Microsoft Windows and Linux, allowing for multiple installation methods and devices.
RAID Configuration	Set up one or more RAID 0 and RAID 1 volumes on your internal drives (for servers with an integrated LSI disk controller).

Task	Description
System BIOS and ILOM Upgrade	Upgrade the system BIOS and Oracle ILOM service processor firmware. The application displays the installed version and the latest available version. The BIOS and Oracle ILOM are matched components and are updated at the same time.
HBA Firmware Upgrade	Update the firmware of the server's integrated HBA (Host Bus Adapter). The application displays the installed version and the latest available version.
Expander Firmware Upgrade	Upgrade the firmware of the server's integrated disk expanders. The application displays the installed version and the latest available version.
SP Recovery	Recover a nonfunctional service processor (inaccessible, or displaying corrupted data). **Note –** This functionality is not available for all servers.
ILOM configuration	Configure and manage a specific set of Oracle ILOM and BIOS settings, such as identification and network information, user accounts, and system clock settings.
BIOS configuration	Configure boot device order and onetime boot device.

See Also:

- "Features and Benefits" on page 14
- "Media Availability" on page 16
- "Supported Operating Systems" on page 17

Media Availability

The Oracle Hardware Installation Assistant CD/DVD media is available for x86 Sun Fire and Sun Blade servers (it might come with the server or be available as an X-Option). An ISO CD-ROM image or a USB flash drive image of the Oracle Hardware Installation Assistant application is also available for download from Oracle at: `http://support.oracle.com/`.

See Also:

- "Features and Benefits" on page 14
- "Supported Provisioning Tasks List" on page 15
- "Supported Operating Systems" on page 17

Supported Operating Systems

The Oracle Hardware Installation Assistant application is available for supported versions of Oracle VM, Linux, and Microsoft Windows. A list of supported operating systems is available in the application at the **Release Notes** screen.

An HTML version of the Release Notes is also available on the server download screen at:

`http://support.oracle.com/`

See Also:

- "Features and Benefits" on page 14
- "Supported Provisioning Tasks List" on page 15
- "Media Availability" on page 16

Product Documentation Library

The product documentation library for Oracle Hardware Installation Assistant and Sun Installation Assistant is available online at:

`http://download.oracle.com/docs/cd/E19593-01/index.html`

Launching the Application and Performing Provisioning Tasks

This section explains how to launch the Oracle Hardware Installation Assistant application and perform provisioning tasks. You can launch the application using one of the local or remote media options. Additionally, you can launch the application from a PXE-based installation in either attended or unattended mode.

Local and Remote Media Launch Options for Sun Fire and Sun Blade Servers

The Oracle Hardware Installation Assistant application is supported for most Sun Fire and Sun Blade servers. The specifics for launching the application differ for the two types of servers, but essentially you have the option to launch the application locally or remotely.

This section contains the following topics that list the options available for launching the Oracle Hardware Installation Assistant application locally and remotely for both types of servers:

Local and Remote Media Launch Options for Sun Fire Servers

This section describes the different methods for launching the Oracle Hardware Installation Assistant application on supported *Sun Fire servers*. Identify the method that best matches your server type and installation environment needs.

Supported Methods for Sun Fire Servers	Description
Locally at the server using the Oracle Hardware Installation Assistant application CD/DVD or an application-prepared USB flash drive.	Launch the application from a CD/DVD in the server's CD/DVD drive.
Locally at the server using the Oracle Hardware Installation Assistant application USB flash drive.	Launch the application from a prepared USB flash drive connected to one of the server's USB port. See "Launching Oracle Hardware Installation Assistant Using a USB Flash Drive" on page 119.
Remotely using a remote console through the server's service processor. This method allows you to boot the Oracle Hardware Installation Assistant application from a virtual CD/DVD.	Launch the application from a virtual CD/DVD using the Oracle ILOM Remote Console application. Refer to your server's Oracle ILOM documentation for information about the remote console application. **Note –** There are multiple versions of Oracle ILOM, be sure to refer to the guide that matches your server's installed version.
Remotely over the network using a PXE network boot image.	Launch the application from a PXE server. Using this method can significantly reduce the installation time. Instructions for configuring PXE network boot can be found in "Launching an Attended PXE-Based Session" on page 87. Other remote installation options include "Performing Unattended PXE-Based Provisioning Tasks" on page 91.

See Also: "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21

Local and Remote Media Launch Options for Sun Blade Servers

This section describes the different methods for launching the Oracle Hardware Installation Assistant application on supported *Sun Blade servers*. Identify a method that best matches your server type and installation environment needs.

Supported Methods for Sun Blade Servers	Description
Locally at the server using the Oracle Hardware Installation Assistant application CD/DVD.	Launch the application from an attached USB CD/DVD drive (server modules do not have internal CD/DVD drives). This method assumes you have set up a VGA console with keyboard and mouse as described in your Sun Blade server module installation documentation.

Supported Methods for Sun Blade Servers	Description
Locally at the server using the Oracle Hardware Installation Assistant application USB flash drive.	Launch the application from a prepared USB flash drive connected to one of the server's USB port. See "Launching Oracle Hardware Installation Assistant Using a USB Flash Drive" on page 119.
Remotely using a remote console through the server's service processor. This method allows you to boot the Oracle Hardware Installation Assistant application from a virtual CD/DVD.	Launch the application from a virtual CD/DVD using the Oracle ILOM Remote Console application. Refer to your server's Oracle ILOM documentation for information about the remote console application. **Note –** There are multiple versions of Oracle ILOM, be sure to refer to the guide that matches your server's installed version.
Remotely over the network using a PXE network boot image.	Launch the application from a PXE server. Using this method can significantly reduce the installation time. Instructions for configuring PXE network boot can be found in "Launching an Attended PXE-Based Session" on page 87. Other remote installation options include "Performing Unattended PXE-Based Provisioning Tasks" on page 91.

See Also: "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21

▼ How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media

This section describes how to launch the Oracle Hardware Installation Assistant application using one of the supported local or remote media options.

Before You Begin

- For local and remote media options, see "Local and Remote Media Launch Options for Sun Fire and Sun Blade Servers" on page 19.
- Your server must have internet access (typically through a proxy server).

● **Launch the application using one of the supported methods:**

- **Locally using a CD/DVD:** Insert the Oracle Hardware Installation Assistant application CD/DVD into the server's CD/DVD drive (integral or USB attached) and power on or reboot the server.
- **Locally using a USB flash drive:** Plug the USB Oracle Hardware Installation Assistant flash drive directly into one of the server's USB ports. Use the BIOS Setup utility to redirect the server to boot from the USB flash drive and reboot the server. See "Launching Oracle Hardware Installation Assistant Using a USB Flash Drive" on page 119.

- **Remotely from a CD/DVD or image file:** Log in to the server's service processor from a remote console (or KVMS) using the Oracle ILOM interface and use the Remote Control Launch Redirection feature to redirect the server to the virtual CD/DVD drive that contains the Oracle Hardware Installation Assistant application CD/DVD image. Reboot the server and direct it to boot from your virtual CD/DVD drive (typically accomplished using the F8 menu that is available during server boot).

  Note – Starting the application from a redirected CD/DVD or ISO media can take up to several minutes. During that time the application's Launch screen appears and displays a progress indicator.

- **Remotely using a PXE-based image:** If you are using PXE network booting to load the Oracle Hardware Installation Assistant application image from a Linux-based PXE server, see "Launching an Attended PXE-Based Session" on page 87.

Next Steps See "How to Perform Provisioning Tasks" on page 22.

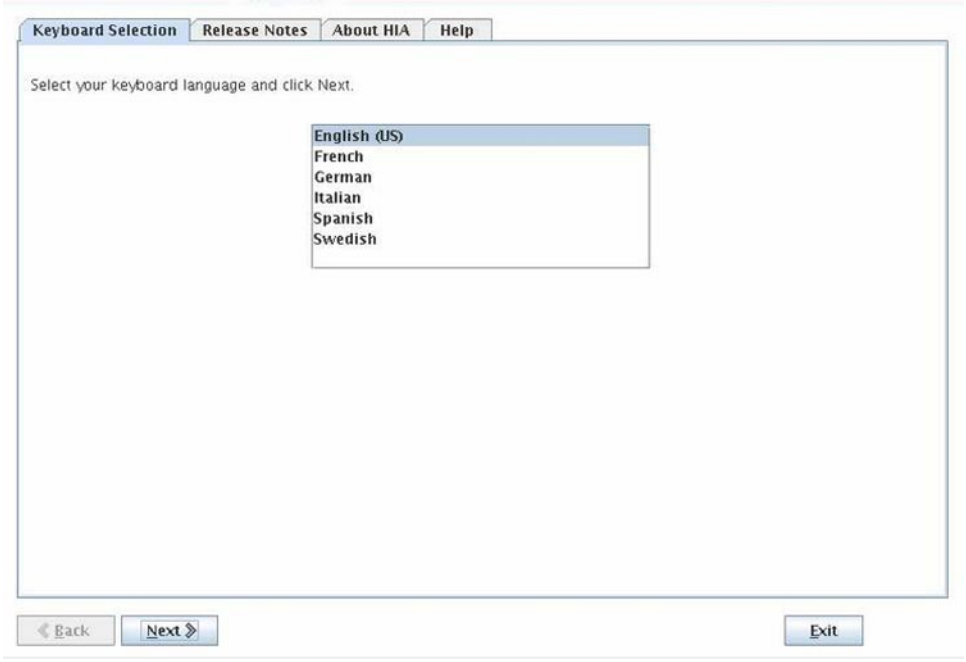
▼ How to Perform Provisioning Tasks

This procedure contains the steps for performing provisioning or recovery tasks using the Oracle Hardware Installation Assistant application. In addition to the main tab, the following tabs appear:

- Release Notes. This tab contains the latest information about the current version of the Oracle Hardware Installation Assistant application. The Release Notes tab is always available.
- About HIA. This tab contains an overview of the Oracle Hardware Installation Assistant application. The About HIA is only available at the opening screen.
- Help. This tab contains screen-specific help information

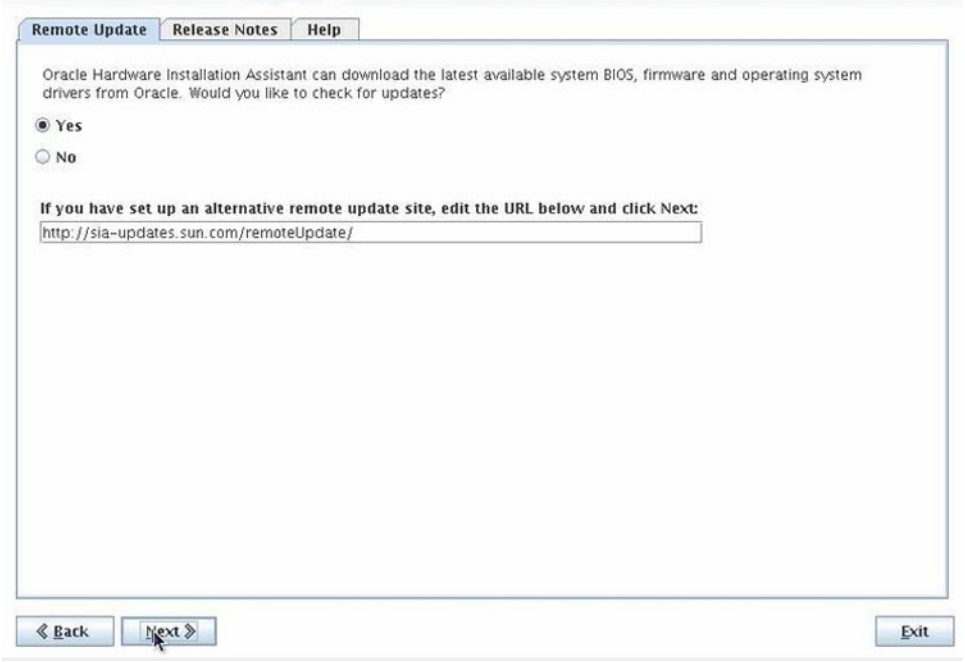
1 **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

The application starts and the Select Your Keyboard Language screen appears.



2 **Click Next.**

The Remote Update screen provides the option to update the Oracle Hardware Installation Assistant application software.



3 **At the Remote Update screen, click the Release Notes tab.**

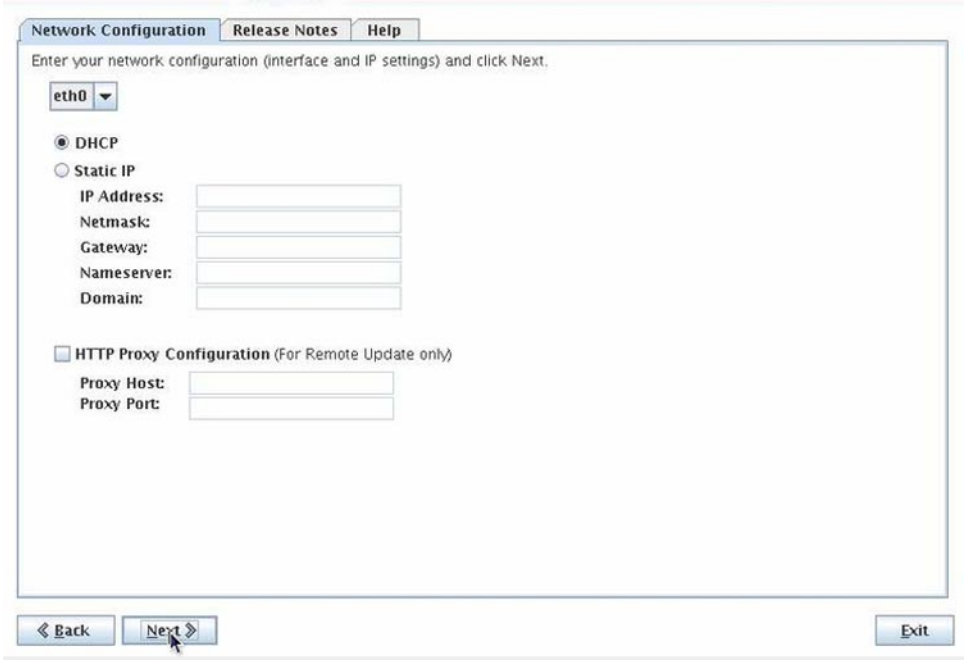
The Release Notes screen appears. The Release Notes screen contains important information about this version of the Oracle Hardware Installation Assistant application.

4 **When you are done, click the Remote Update tab.**

The Remote Update screen appears.

5 **To update the application, select the Yes radio button and click Next. If you choose *not* to update the Oracle Hardware Installation Assistant application, go to Step 8.**

The Network Configuration screen appears



6 **To perform an update of the Oracle Hardware Installation Assistant application, do the following:**

a. **Select the active network interface on your server (for example: eth0).**

This enables the network interface that the application uses to access the update image. If your server has multiple network cards, be sure to use the network-connected interface that enables access to the host where the update image files reside (Internet access is required to use the Oracle Hardware Installation Assistant update site).

b. **Select the network IP assignment (DHCP or Static IP).**

c. **If you selected DHCP, go to Step 7e.**

d. **If you selected Static IP, type the following information in the corresponding field:**

- IP address
- Netmask
- Gateway
- Nameserver

- Domain

e. If an HTTP proxy is needed for Internet access, type the proxy host and port information.

For example:

`Proxy Host:` *webproxy.mycompany.com*

`Proxy Port: 8088`

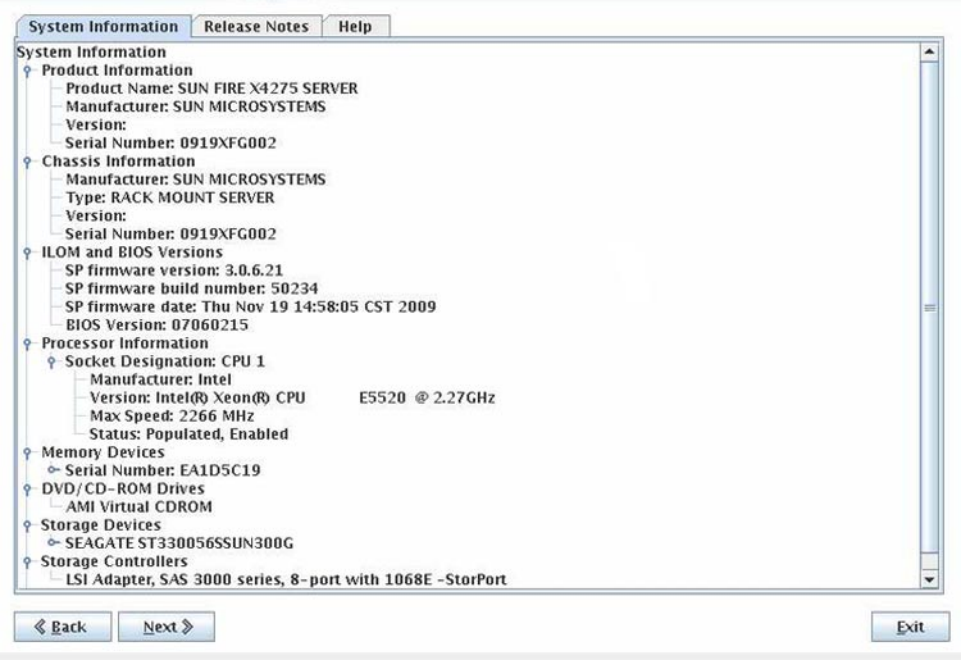
f. To establish a connection to the Oracle Hardware Installation Assistant Update site, click Next.

The process checks for component updates. If updates are available, the components eligible for an update appear in a list.

g. To proceed with the update, click Next.

When done, the System Information screen appears.

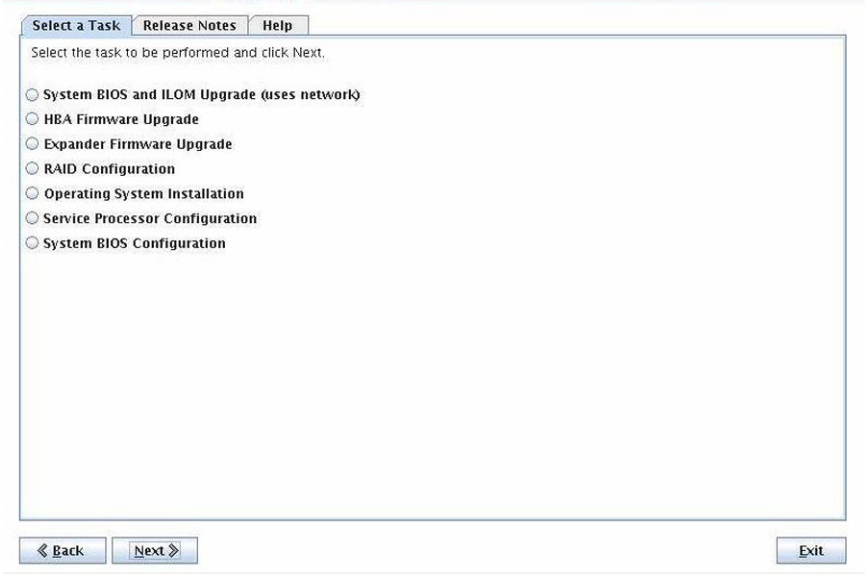
Tip – To expand the individual information listings, click the toggles.



7 **Review the contents of the System Information Screen and click Next.**

The Select a Task screen appears.

Note – The Select a Task screen only appears if your server supports additional provisioning tasks other than OS installation. If it does not, the application proceeds with the OS installation screen.



8 **At the Select a Task screen, select one of the following tasks and click Next.**

Next Steps Refer to the appropriate section listed below for task–related information.

- To include your OS boot disk as part of a RAID configuration and your server has an LSI disk controller, see to "Configuring RAID" on page 29.
- To install a supported OS for your server, see to "Installing Windows" on page 37 or "Installing Linux " on page 45.
- To update system or component firmware (BIOS/Oracle ILOM, HBA or disk expander), see to "Updating System and Component Firmware " on page 51.
- To recover from a corrupt or inaccessible service processor (SP), see to "Recovering a Service Processor" on page 59.
- To manage Oracle ILOM users, see "Configuring Service Processor Settings" on page 61.
- To set boot device priority, see "Configuring BIOS Boot Device Settings" on page 75.

Configuring RAID

This section explains how to use the Oracle Hardware Installation Assistant application to configure RAID for a Sun Fire and Sun Blade server that has an LSI disk controller (integrated or optional) that supports RAID.

RAID Support

The Oracle Hardware Installation Assistant application only supports RAID configuration on systems with LSI SAS-2 controllers (926x, 9280). If your system does not include one of these controllers, the RAID configuration task is not available.

Note – If you want to include your boot drive as part of a RAID configuration, you must do so before you install an OS on the boot drive.

The Oracle Hardware Installation Assistant application can be used to configure RAID 0 and RAID 1 (mirroring) on available SAS *or* SATA disk drives only. You **cannot** mix SAS and SATA drives in a RAID volume. If you plan on using SAS and SATA disks, they must reside in separate RAID volumes.

Up to 32 RAID volumes are supported. Hot spares cannot be configured using the Oracle Hardware Installation Assistant application. To configure hot spares, use the disk controller's BIOS configuration tool which is accessible using a keyboard keystroke combination entered during system boot.

The types of RAID volumes that can be configured using the Oracle Hardware Installation Assistant application depends on the controller type you are using.

- For LSI MegaRAID (926x, 9280) SAS-2 controllers you can configure:
  - RAID 0: A striped volume that uses one or more physical disks. Data is striped across all available disks that make up the volume. RAID 0 provides no fault tolerance, but it provides increased data throughput especially for large files.

- RAID 1: A volume that mirrors data on a physical disk. Each volume must have an even number of physical disks (multiple of 2).

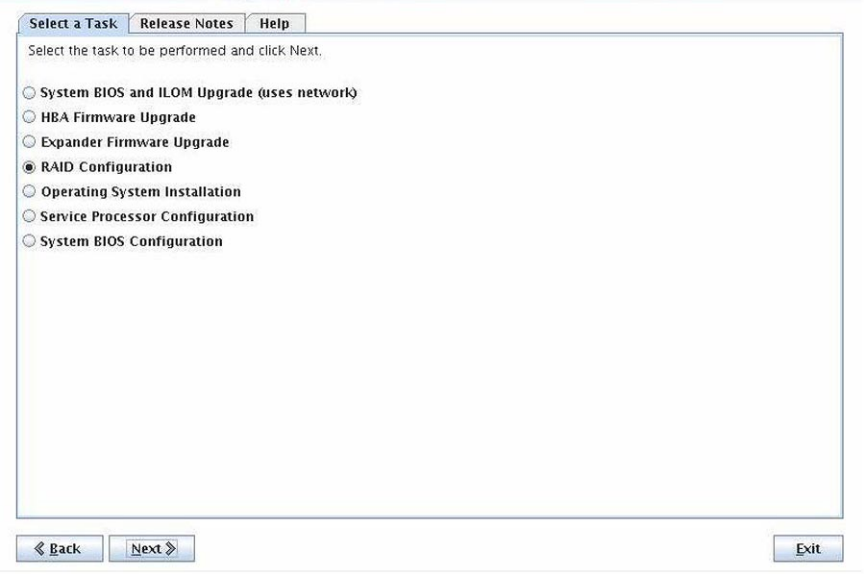
See Also: "How to Create a RAID Volume" on page 30

How to Create a RAID Volume

1. **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

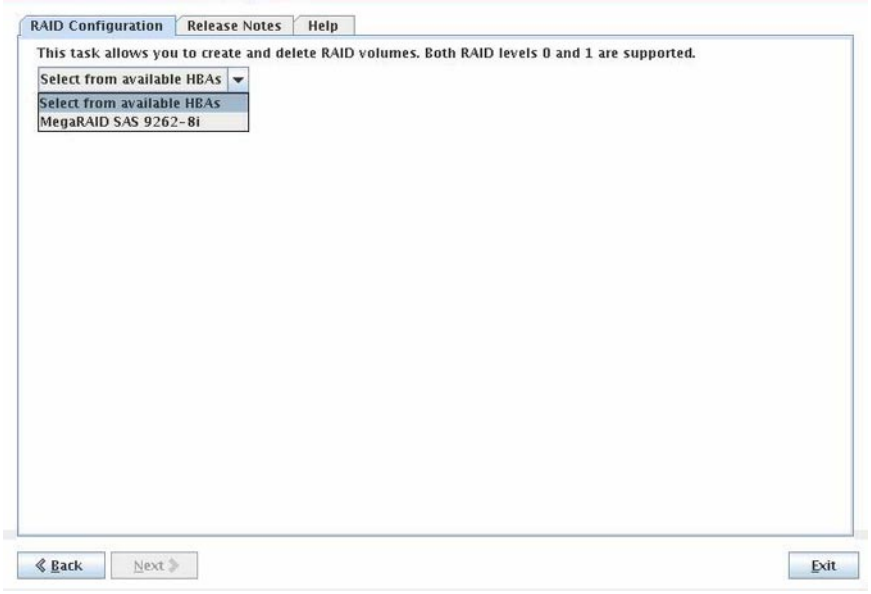
2. **At the Select a Task screen, select the Raid Configuration radio button.**

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.



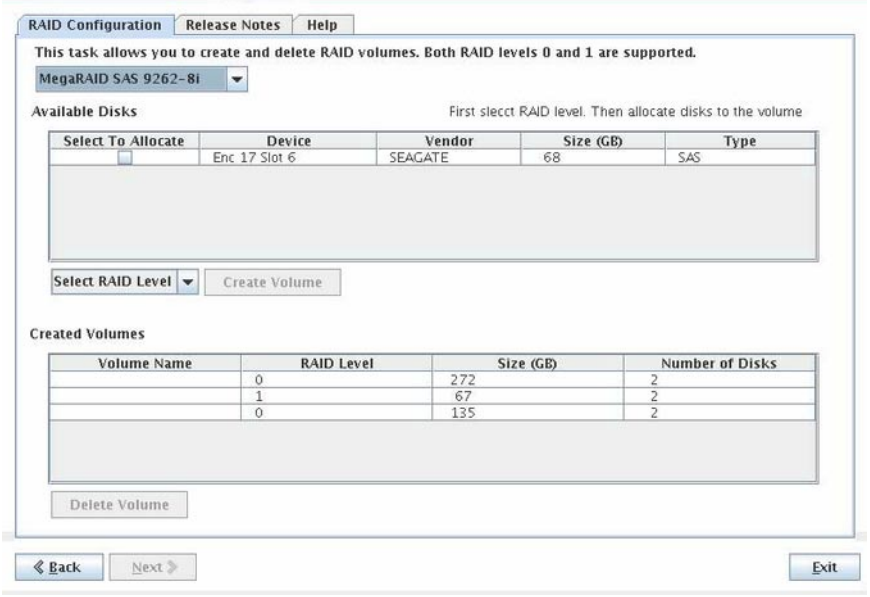
3 Click Next.

The HBA selection screen appears.



4 Select an HBA from the drop-down list and click Next.

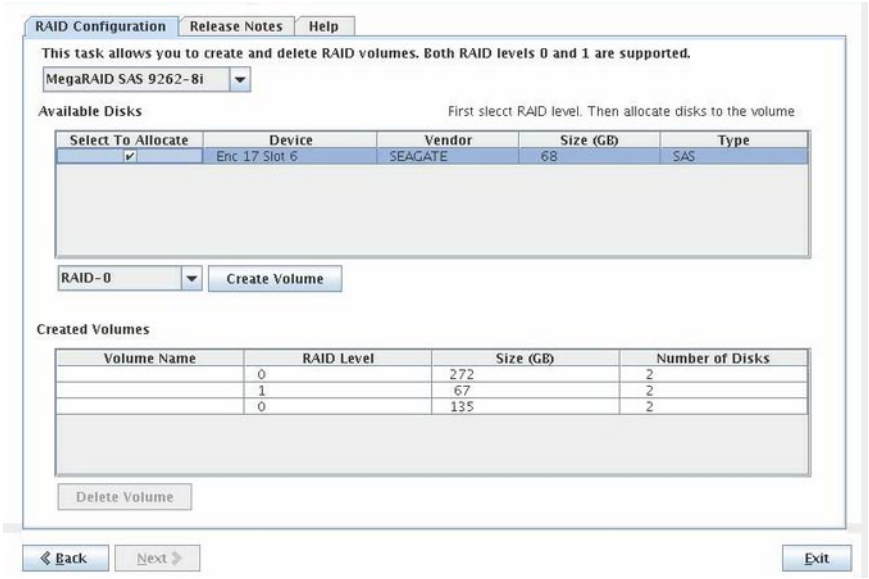
The RAID Configuration screen appears.



5 At the RAID Configuration screen, select the disks to be included in the RAID volume from the Available Disks box.

- To create a RAID 1 or a RAID IM volume, select two disks.
- To create an integrated mirror enhanced (IME) volume, select from 3 to 10 disks.
- To create a new volume, select the RAID level (RAID 0 or RAID 1) from the drop-down list, and then select from the available free disks. For RAID 0, select one or more disks. For RAID 1, select an even number of disks.

Note – The interface does not allow you to select more disks per volume than are supported by your disk controller. If your controller does not support IME volumes, you can only select two disks per volume.



6 **Click the Create Volume button.**

The volume is created and listed in the Created Volumes box.

Note – Disks included in the RAID volume are no longer listed in the Available Disks box.

Next Steps Once the RAID volume(s) are created, you can install an OS on the boot volume.

- "Installing Windows" on page 37
- "Installing Linux " on page 45

See Also "How to Delete a RAID Volume" on page 33

▼ How to Delete a RAID Volume

1 **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

The Select a Task menu appears.

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

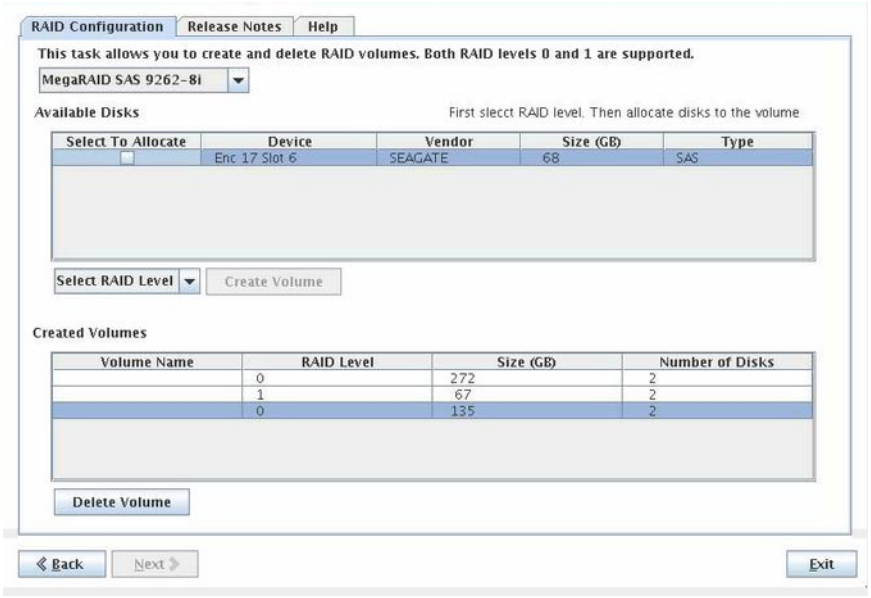
---

2 Select the RAID Configuration task, and click Next.

The HBA selection screen appears.

3 **Select the HBA from the drop-down list and click Next.**

The RAID Configuration screen appears.



4 **Select the RAID volume to be deleted from the Created Volumes box and click the Delete Volume button.**

Caution – Data loss. Deleting a volume erases all data on the volume.

The volume is deleted and the disks that were in the volume are now listed in the Available Disks box.

5 **To leave the application, click Exit or click Back to continue with other provisioning tasks.**

Installing Windows

This section explains how to use the Oracle Hardware Installation Assistant application to install a supported Microsoft Windows OS. The application assists in the installation of supported operating systems and requires a licensed retail version of the OS distribution media to be available locally or remotely to complete the task.

Note – For a list of system and OS-level device drivers that are provided by Oracle and installed by the Oracle Hardware Installation Assistant application, refer to the Oracle Hardware Installation Assistant CD/DVD `readme.html` file and the *Product Notes* for your server.

To install Windows using local or remote media, see "How to Install Windows Using Local or Remote Media" on page 37.

▼ How to Install Windows Using Local or Remote Media

Before You Begin

- If your server ships with an LSI-based integrated RAID controller and you want to include your boot drive as part of a RAID configuration, you need to configure a RAID volume on it before installing the operating system. See "Configuring RAID" on page 29.
- If you have a Sun StorageTek RAID disk controller (Adaptec-based), you need to configure an array volume through the Adaptec RAID Configuration Utility (accessible by pressing Ctrl-A when prompted during server boot process). This must be done whether you intend to use RAID or not. Consult your platform installation guide for instructions on how to do this.
- The instructions below assume local CD/DVD drive access. Be sure to modify the instructions accordingly if you are using a local USB flash drive (see "Launching Oracle Hardware Installation Assistant Using a USB Flash Drive" on page 119), or if you are launching the Oracle Hardware Installation Assistant application from a remote console (or KVMS) with CD-ROM redirection.

1 **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

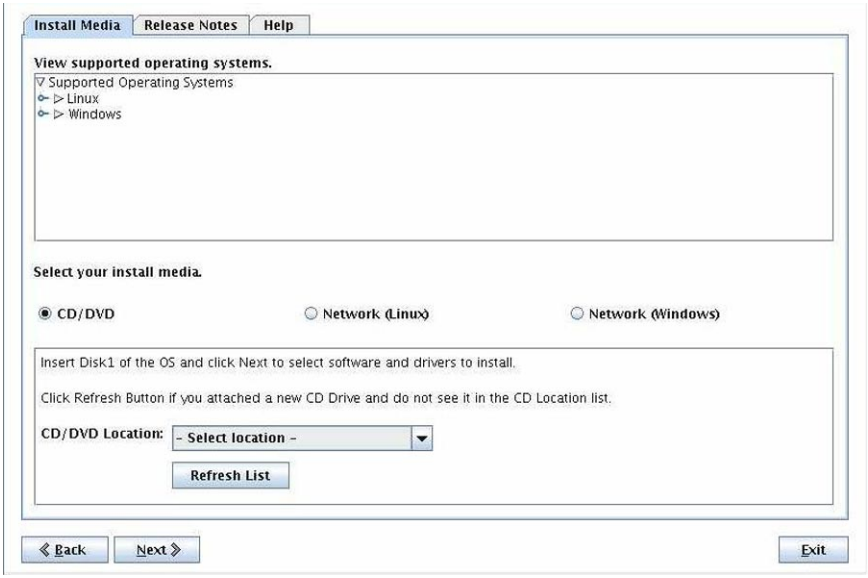
2 **At the Select a Task screen click the Operating System Installation button.**

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

3 **Click Next.**

The Install Media screen appears.



4 **To view supported versions of your OS, expand the listing by clicking the toggle.**

Note – You cannot use the Hardware Installation Assistant application to install an unsupported version of an OS.

---

5 **To select the location of your OS installation media, click the appropriate button.**

You have the following options for media delivery methods:

- **CD/DVD**: This option allows you to install the OS source from a local CD/DVD, a redirected CD/DVD, or an ISO CD-ROM image.
- **Network (Linux)**: This option allows you to install the OS source from a network share on a Linux system.
- **Network (Windows)**: This option allows you to install the OS source from a network share on a Windows system.

6 **For installation instructions based on the media delivery method, go to one of the following steps:**

- If you are installing from a local CD/DVD, go to Step 7.
- If you are installing from a redirected CD/DVD or ISO CD-ROM image, go to Step 8.
- If you are installing from a network share drive, go to Step 9.

7. **For an installation from a local CD/DVD, do the following at the Install Media Information screen:**

   a. **Ensure that the CD/DVD radio button is selected.**

   b. **Select the server's CD/DVD drive from the CD Location drop-down list.**

   c. **Eject the Oracle Hardware Installation Assistant CD/DVD from the drive then insert the *first* CD of the OS distribution into the drive.**

   d. **Click Next at the Install Media Information screen and proceed to Step 12.**

8. **For an installation from a redirected CD/DVD or ISO CD-ROM image using the server's Oracle ILOM Remote Console application, do the following at the Install Media Information screen:**

   a. **Ensure that the CD/DVD radio button is selected.**

   b. **Select the *virtual* CD-ROM from the CD Location drop-down list.**

   c. **At the server's Oracle ILOM Remote Console, redirect the OS installation media (`CD-ROM` or `CD-ROM Image`) using one of the following methods.**

      - **If you booted the Oracle Hardware Installation Assistant application from a CD/DVD drive,** eject the CD from this drive and insert the first disk of the OS into the drive. In the Remote Console, select the `CD-ROM` option from the Devices menu.
      - **If you booted the Oracle Hardware Installation Assistant application from an ISO CD-ROM image,** unmount the ISO image by deselecting `CD-ROM Image` from the Devices menu, then select `CD-ROM Image` and specify the location of the ISO OS CD-ROM image.

   d. **When done, click Next at the Install Media Information screen and proceed to Step 12.**

9. **For installation from a Network share, do the following at the Install Media Information screen:**

   a. **Ensure that the Network (Windows) radio button is selected.**

   b. **In the address bar that appears, specify the http or ftp accessible network address to the Windows ISO image media. See table below for examples.**

      For operating systems requiring multiple images (for example, CD1, CD2), multiple address fields are available.

      Note – The URL address can not contain spaces.

Transfer Method	OS Source Location	What to Type
HTTP	ISO image file in a directory	Path to directory containing the OS install ISO image file. Example: http://*hostname_or_IPaddress*/*imagepath*/*ISOimage.iso*
FTP	ISO image file in a directory	Path to directory containing the OS install ISO image file. Example: ftp://*hostname_or_IPaddress*/*imagepath*/*ISOimage.iso*

In the table, *hostname_or_IPaddress* is either the hostname or the IP address of the server containing the image file, and *ISOimage.iso* is the name of the Windows OS installation ISO image (.iso) file. For Windows, the complete path to the required ISO file must be included.

c. Click Next.

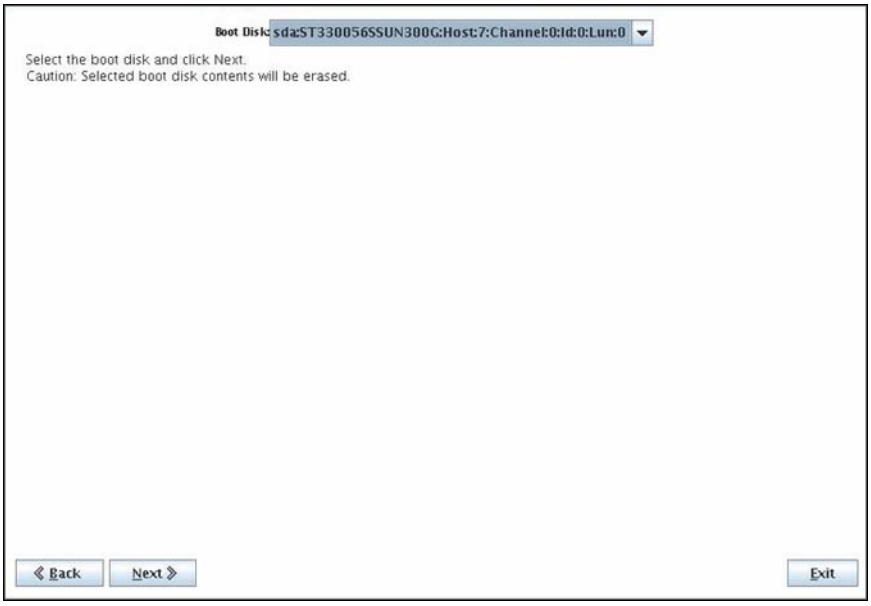
The Oracle Hardware Installation Assistant application checks the supplied media to ensure it is a supported version and displays the results in the Identifying Distribution screen.

10 To select option cards from the list, click the check boxes next to the name of the cards.

11 When done, click Next .

12 If you are installing Windows Server 2003, the Windows Preinstallation Information screen appears. Fill in the required information, click Next and then proceed to Step 15.

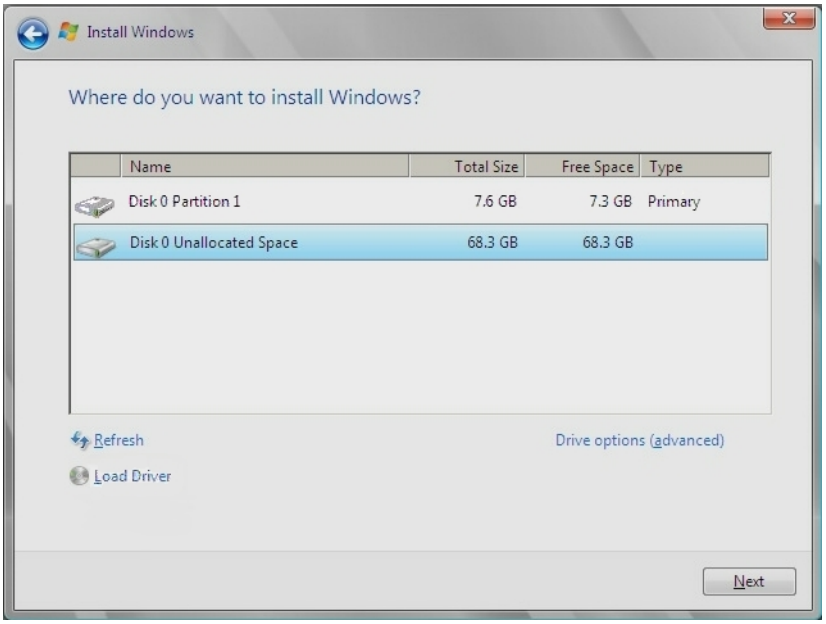
13 If you are installing Windows Server 2008, the Setup WinPE Environment screen appears (shown below). Select a boot disk for the WinPE partition from the drop-down list and click Next.



Note – This partition is required for Windows Server 2008 installation.

The WinPE partition for Windows Server 2008 installation is created.

14 For Windows Server 2008 installation, you are prompted to select a partition for the OS (see below). Select available space on the disk other than the WinPE partition, and click Next.



Note – The first 8 GB of the disk is reserved for the WinPE partition and cannot be used for anything else.

The Windows boot partition is created and the OS preinstallation environment is complete.

15 Depending on the version of Windows you are installing, the Installing Additional Software screen might appear. Review the information presented to ensure there are no errors.

Note – If you see an error listed during installation, check the `SunInstallationAssistant.log` file for more details.

---

16 Remove the Oracle Hardware Installation Assistant media and click Reboot.

The server boots from the newly installed OS. Follow the onscreen instructions to complete any additional OS setup tasks.

Note – If you are installing the OS on a disk other than disk 0, you need to change the system boot order to identify the correct boot disk. This can be done either through the system BIOS Setup Utility (if your disk is connected to an integrated disk controller), or an option card BIOS setup program (if your disk is connected to an optional HBA). Follow the instructions in your system or option card documentation to set boot order.

Note – The default administrator account password for Windows Server 2008 is `changeme`.

Next Steps Once the OS is installed, complete the following post installation tasks, as necessary:

- Install and configure additional drivers for your server not installed by the Oracle Hardware Installation Assistant application. This provides you the supported feature set for installed server components and option cards (for example, additional drivers may include ACPI, video, network and mass storage). Additional drivers can be found on the latest *Tools and Drivers* CD/DVD for your server.
- Install Oracle-specific optional software and utilities available on the latest *Tools and Drivers* CD/DVD for your server.
- Install Sun Service Tags. The installation files are automatically copied to your server during OS installation, but they must be run by the system administrator to be properly installed. See "Installing Service Tags" on page 131.

Installing Linux

This section explains how to use the Oracle Hardware Installation Assistant application to install a supported Linux OS. The application assists in the installation of supported operating systems and requires a licensed retail version of the OS distribution media to be available locally or remotely to complete the task.

The Oracle Hardware Installation Assistant application provides OS-level device drivers that are certified by Oracle for optional accessory cards and other system hardware. The Oracle Hardware Installation Assistant application eliminates the need to obtain and prepare OS-level device drivers on separate media before installing the operating system.

Note – For a complete list of system and OS-level device drivers that are provided and installed by the Oracle Hardware Installation Assistant application, refer to the Oracle Hardware Installation Assistant CD/DVD `readme.html` file and the *Product Notes* for your server.

To install Linux using local or remote media, see the following procedure:

- "How to Install Linux Using Local or Remote Media" on page 45

▼ How to Install Linux Using Local or Remote Media

Before You Begin

- If your server ships with an LSI-based integrated RAID controller and you want to include your boot drive as part of a RAID configuration, you need to configure a RAID volume on it before installing the operating system. See "Configuring RAID" on page 29.
- If you have a Sun StorageTek RAID disk controller (Adaptec-based), you need to configure an array volume through the Adaptec RAID Configuration Utility (accessible by pressing Ctrl-A when prompted during server boot) before it can be accessed by the Oracle Hardware Installation Assistant application. This must be done whether you intend to use RAID or not. Consult your platform installation guide for instructions on how to do this.
- The instructions below assume local CD/DVD drive access. Be sure to modify the instructions accordingly if you are using a local USB flash drive (see "Launching Oracle Hardware Installation Assistant Using a USB Flash Drive" on page 119), or if you are launching the application from a remote console (or KVMS) with CD-ROM redirection.

1 **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

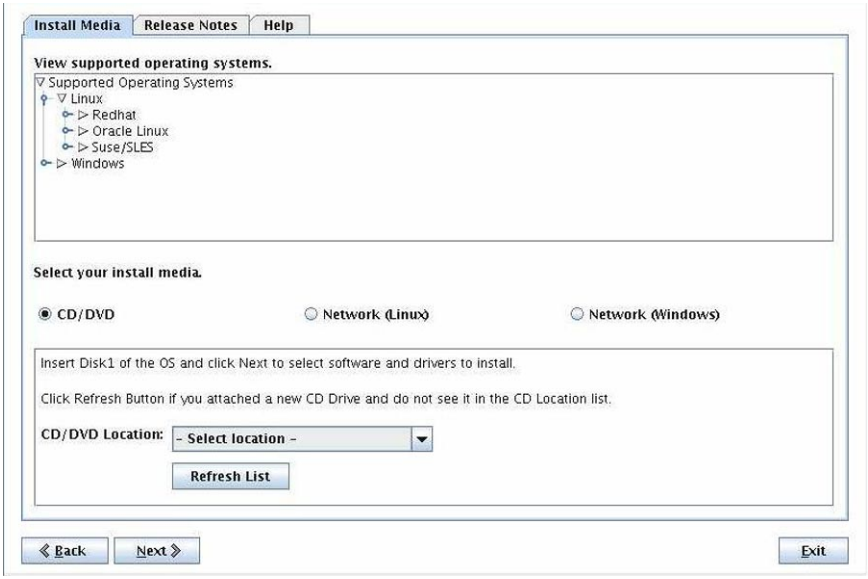
2 **At the Select a Task screen, select the Operating System Installation radio button.**

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

3 **Click Next.**

The Install Media Information screen appears.



4 **To view supported versions of your OS, expand the listing by clicking the toggle.**

Note – You cannot use the Hardware Installation Assistant application to install an unsupported version of an OS.

---

5 **At the Install Media Information screen, specify the location of your OS installation media. Choose one of the following options:**

- **CD/DVD**: This option allows you to install the OS source from a local CD/DVD, a redirected CD/DVD, or ISO CD-ROM image.
- **Network (Linux)**: This option allows you to install the OS source from a network share on Linux system.
- **Network (Windows)**: This option allows you to install the OS source from a network share on a Windows system.

6 **For installation instructions based on the media delivery method, go to one of the following steps:**

- If you are installing from a local CD/DVD, go to Step 7
- If you are installing from a redirected CD/DVD or ISO CD-ROM image, go to Step 8
- If you are installing from a network share drive, go to Step 9

7. **If you are installing from a local CD/DVD, do the following at the Install Media Information screen:**

   a. **Ensure that the CD/DVD radio button is selected.**

   b. **Select the server's CD/DVD drive from the CD Location drop-down list.**

   c. **Eject the Oracle Hardware Installation Assistant CD/DVD from the drive and insert the *first* CD of the OS distribution into the drive.**

   Note – Oracle Hardware Installation Assistant might not recognize the Linux installation media if you chose to use a CD/DVD drive other than the one you previously used to boot The Oracle Hardware Installation Assistant application. Therefore, insert the Linux OS media into the same device that you used to launch the application.

   ---

   d. **Click Next at the Install Media Information screen.**

   The Oracle Hardware Installation Assistant application checks the supplied media to ensure it is a supported version and displays the results in the Identifying Distribution screen.

   e. **Select option cards from the displayed list.**

   The application installs the option card driver(s) during the installation process.

   f. **To start the OS installer, click Next.**

   g. **Go to Step 10.**

8. **If you are installing from a redirected CD/DVD or ISO CD-ROM image using the Oracle ILOM Remote Console application, do the following at the Install Media Information screen:**

   a. **Ensure that the CD/DVD radio button is selected.**

   b. **Select the *virtual* CD-ROM from the CD Location drop-down list.**

   c. **In the server's Oracle ILOM Remote Console, redirect the OS installation media (`CD-ROM` or `CD-ROM Image`) using one of the following methods.**

      - **If you booted the Oracle Hardware Installation Assistant application from a CD/DVD drive,** eject the Oracle Hardware Installation Assistant CD from this drive and insert the first disk of the OS into the drive. In the Oracle ILOM Remote Console, select the `CD-ROM` option from the Devices menu.
      - **If you booted the Oracle Hardware Installation Assistant application from an ISO CD-ROM image,** unmount the Oracle Hardware Installation Assistant ISO image by deselecting `CD-ROM Image` from the Devices menu, then select `CD-ROM Image` and specify the location of the ISO OS CD-ROM image.

d. When done, click Next at the Install Media Information screen.

The Oracle Hardware Installation Assistant application checks the supplied media to ensure it is a supported version and displays the results in the Identifying Distribution screen.

e. Select option cards from the displayed list.

The application installs the option card driver(s) during the installation process.

f. To start the OS installer, click Next.

g. Go to Step 10.

9 For installation from a Network share, do the following at the Install Media Information screen:

a. Ensure that the Network (Linux) radio button is selected.

b. In the address bar, specify the http or ftp accessible network address to the Linux extracted ISO media (.iso files cannot be used for this method). See table below for examples.

For operating systems requiring multiple images (for example CD1, CD2), multiple address fields are available.

Note – The URL address can not contain spaces.

Transfer Method	OS Source Location	What to Type
HTTP	Content extracted from an ISO image to a directory	Path to directory containing the extracted OS install ISO content files. Example: http://*hostname_or_IPaddress*/*extractedISOdirectory*
FTP	Content extracted from an ISO image to a directory	Path to directory containing the extracted OS install ISO content files. Example: ftp://*hostname_or_IPaddress*/*extractedISOdirectory*

In the table, *hostname_or_IPaddress* is either the hostname or the IP address of the server containing the ISO image, *extractedISOdirectory* is the directory containing the extracted Linux OS installation ISO image files. For Linux, only the path to the directory containing the ISO image source files should be used; individual files cannot be part of the URL path.

c. Click Next.

10 As the OS installer starts, do one of the following depending on your installation:

- **To install Linux from redirected CD or ISO image, proceed to the next step.**

11 If you are installing a Linux OS that uses a preinstallation environment, the Preinstallation Environment setup screen appears (shown below). Select a boot disk for the Preinstallation Environment partition and click Next.

Depending on the version of Linux you are installing, the Installing Additional Software screen might appear. The Oracle Hardware Installation Assistant application installs any additional software or drivers.

12 Review the information presented to ensure there are no errors.

If you see an error listed during installation, check the `SunInstallationAssistant.log` file for more details.

13 Remove the Oracle Hardware Installation Assistant media and click Reboot.

Boot from the hard disk on which the OS is installed. Follow the onscreen instructions as prompted to complete any additional OS setup tasks.

Note – If you are installing the OS on a disk other than disk 0, you need to change the system boot order to identify the correct boot disk. This can be done either through the system BIOS Setup Utility (if your disk is connected to an integrated disk controller), or an option card BIOS setup program (if your disk is connected to an optional HBA). Follow the instructions in your system and/or option card documentation to set boot order.

Next Steps Complete the following post installation tasks, as necessary:

- Download and install the latest Linux OS updates and fixes from the Linux OS vendor's web site.
- Install and configure additional drivers for your server not installed by the Oracle Hardware Installation Assistant application. This provides you the supported feature set for installed server components and option cards (for example, additional drivers may include ACPI, video, network and mass storage). Additional drivers can be found on the latest *Tools and Drivers* CD/DVD for your server.
- Install server-specific optional software and utilities available on the latest *Tools and Drivers* CD/DVD for your server.
- Install Sun Service Tags. The installation files are automatically copied to your server during OS installation, but must be run by the system administrator for the server in order to be properly installed. See "Installing Service Tags" on page 131.

Updating System and Component Firmware

This section explains how to use the Oracle Hardware Installation Assistant application to update system BIOS, Oracle ILOM, disk controller HBA, and disk expander firmware:

- "How to Update the System BIOS and Oracle ILOM Firmware" on page 51
- "How to Update Expander Firmware" on page 54
- "How to Update HBA Firmware" on page 55

Note – For a complete list of systems that support the firmware update capabilities of the Oracle Hardware Installation Assistant application, refer to the Oracle Hardware Installation Assistant CD/DVD `readme.html` file and the *Product Notes* for your server.

▼ How to Update the System BIOS and Oracle ILOM Firmware

Use the Oracle Hardware Installation Assistant application to update the system firmware.

Note – The Oracle Hardware Installation Assistant application can perform firmware updates only. It cannot downgrade firmware.

Before You Begin The server must be able to access its management port over the network.

1. **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

   The Select a Task screen appears.

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

2 **At the Select a Task screen, select the System BIOS and ILOM Upgrades radio button and click Next.**

If your server supports inband upgrades (using the server's internal circuitry and not the network), then two system BIOS and Oracle ILOM upgrade options appear in the task list: System BIOS and ILOM Upgrades (uses inband interface) and System BIOS and ILOM Upgrades (uses network interface).

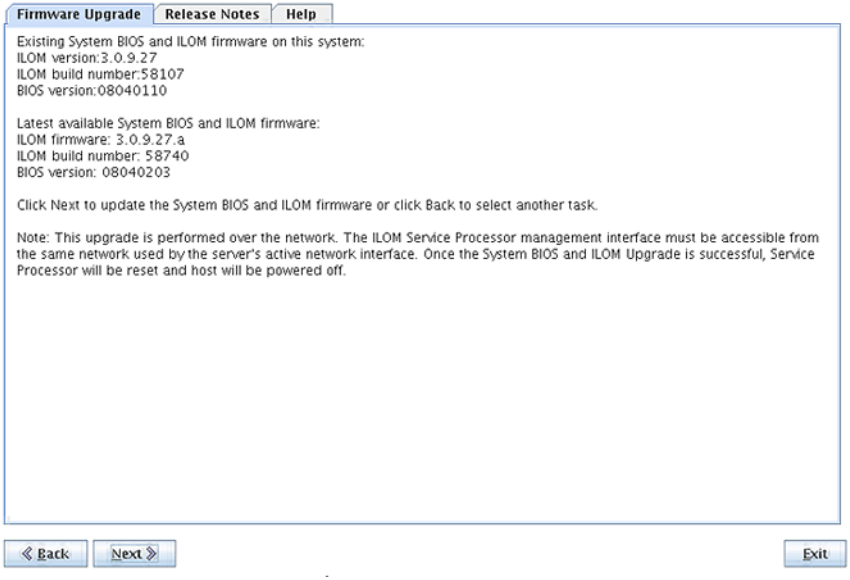
Note – An inband update can take up to 40 minutes to complete and is only recommended if your server's service processor is not connected, or not reachable over the network.

---

3 **Enter the login information to your server's SP and click Next.**

The Oracle Hardware Installation Assistant application compares and displays the existing system BIOS and Oracle ILOM versions against the latest available versions.

Note – The following screen capture is only a sample. The information for your server might be different.



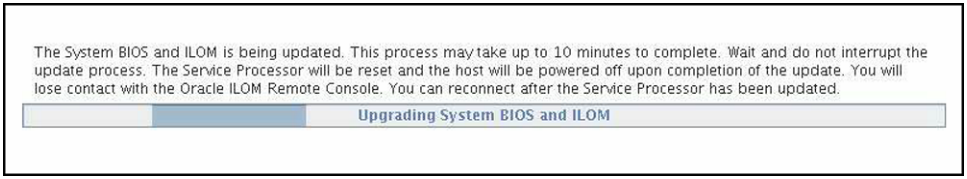
Note – If you performed an Oracle Hardware Installation Assistant Update during the current session (described in "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21), the application obtained the latest BIOS and Oracle ILOM versions from the software download site.

---

4 **To update the system BIOS and Oracle ILOM firmware, click Next.**

If there is a later version of code available, the update begins.

Caution – Possible corruption of system BIOS and ILOM firmware. Do *not* interrupt the update process. The process can take up to 10 minutes to finish.



When the update is finished, the SP resets. The connection with the Oracle ILOM Remote Console application is discontinued.

5 **To use the updated firmware, power on or reboot the system.**

See Also
- "How to Update Expander Firmware" on page 54
- "How to Update HBA Firmware" on page 55

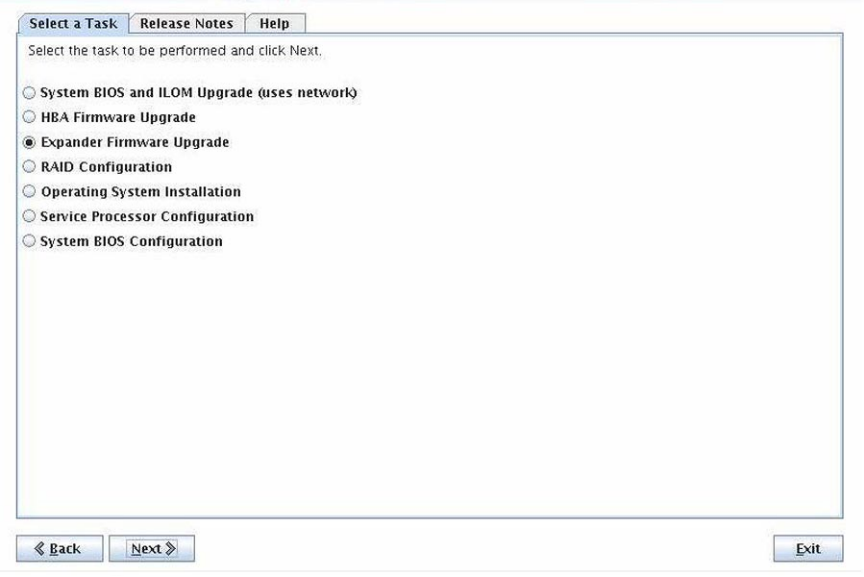
How to Update Expander Firmware

Use the Oracle Hardware Installation Assistant application to update the firmware for supported expanders.

Note – The Oracle Hardware Installation Assistant application can perform firmware updates only. It cannot downgrade firmware.

1 **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

The Select a Task screen appears.



Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

2. **At the Select a Task screen, select the Expander Firmware Upgrade radio button and click Next.**

   The Expander Firmware Update screen appears. The screen lists the discovered expanders, their current firmware version, and the available firmware versions.

3. **Select the expanders to update.**

4. **Click Next.**

   The expander firmware update process starts.

5. **Follow the onscreen instructions until the update is finished.**

Note – The updated code is not used by the system until after a reboot.

See Also

- "How to Update the System BIOS and Oracle ILOM Firmware" on page 51
- "How to Update HBA Firmware" on page 55

▼ How to Update HBA Firmware

The host bus adapter (HBA) controls internal disks or external disks connected to the server. Use the Oracle Hardware Installation Assistant application to update the firmware for supported adapters.

Note – The Oracle Hardware Installation Assistant application can perform firmware updates only. It cannot downgrade firmware.

Before You Begin

The Oracle Hardware Installation Assistant HBA firmware update process is not destructive to data on connected storage; however, a full backup of storage connected to the HBA is recommended.

1 **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19 .**

The Select a Task screen appears.

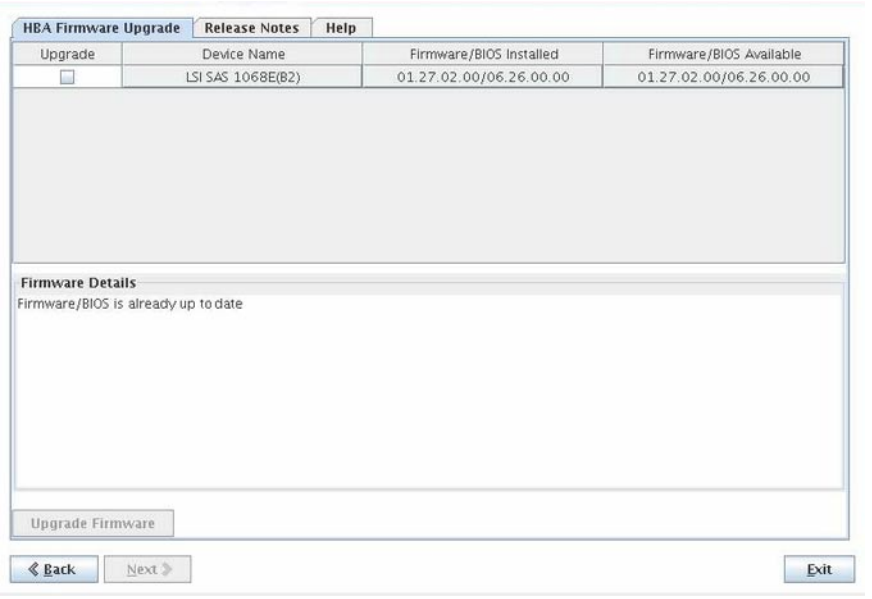
Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

2 **At the Select a Task screen, click the HBA Firmware Upgrade radio button and click Next.**

The HBA Firmware Upgrade screen appears. The screen lists the discovered host bus adapters, the current firmware version, and the available update version.

Note – If you performed an Oracle Hardware Installation Assistant Update during the current session (described in "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21), then the application has the latest code from the Oracle software download site.



3. **Compare the two versions of firmware as they appear in the Firmware/BIOS Installed and the Firmware/BIOS Available columns.**

   If the versions are the same, the firmware is up-to-date.

4. **If the two versions are different, click the check boxes for the host bus adapters you want to update.**

   Note – In a multi-controller system, all controllers should be at the same firmware level. However, you can update non-boot controllers first, check functionality, and then update boot controllers.

5. **To update the HBA firmware, click the Upgrade Firmware button.**

6. **Follow the onscreen instructions until the update is finished.**

   Note – The updated code is not used by the system until after a reboot.

See Also

- "How to Update the System BIOS and Oracle ILOM Firmware" on page 51
- "How to Update Expander Firmware" on page 54

Recovering a Service Processor

Note – This functionality is not available for all servers.

This section explains how to use the Oracle Hardware Installation Assistant application to recover a corrupt or inaccessible service processor (SP). The SP recovery is a two-step process that includes:

1. SP firmware recovery (to regain access to the SP)
2. System BIOS and Oracle ILOM firmware update (to update the system BIOS and Oracle ILOM code to a supported level)

Note – For a complete list of systems that support the SP recovery capabilities of the Oracle Hardware Installation Assistant application, refer to the Oracle Hardware Installation Assistant CD/DVD `readme.html` file and the *Product Notes* for your server.

Use the following procedure to recover an SP:

- "How to Recover a Service Processor" on page 59

▼ How to Recover a Service Processor

Note – This functionality is not available for all servers.

1 **Launch the Oracle Hardware Installation Assistant application. See "Launching the Application and Performing Provisioning Tasks" on page 19.**

The Select a Task screen appears.

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

2 **At the Task Selection screen, choose the SP Recovery task and click Next.**

The Service Processor Recovery screen appears.

Caution – Do *not* use this feature on a functioning (working) SP. Use this task to repair a non-functional service processor *only*.

3 **At the Service Processor Recovery screen, click Next to start the recovery.**

4 **Follow the onscreen instructions to complete the recovery.**

The recovery wizard takes you through a two-step process:

- The first step recovers the service processor. This process can take up to 20 minutes.
- The second step performs a System BIOS and Oracle ILOM update to bring system firmware to a supported revision.

Next Steps "How to Update the System BIOS and Oracle ILOM Firmware" on page 51

Configuring Service Processor Settings

This section explains how to use the Oracle Hardware Installation Assistant application to configure and manage a specific set of service processor settings, including Oracle ILOM identification information, network information, user accounts, and the system clock.

This section contains the following procedures:

▼ How to Configure Service Processor Identification Information Settings

1 **Launch the Oracle Hardware Installation Assistant application. See "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21.**

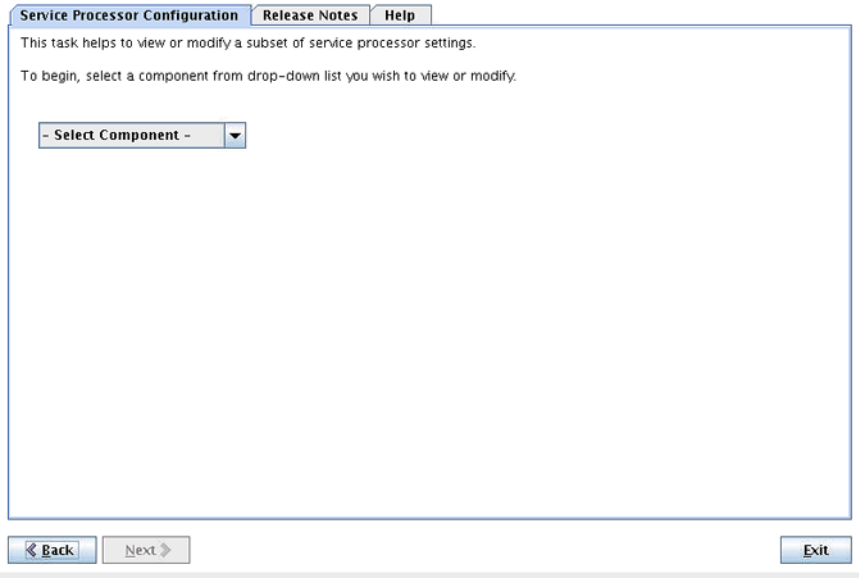
The Select a Task screen appears.

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

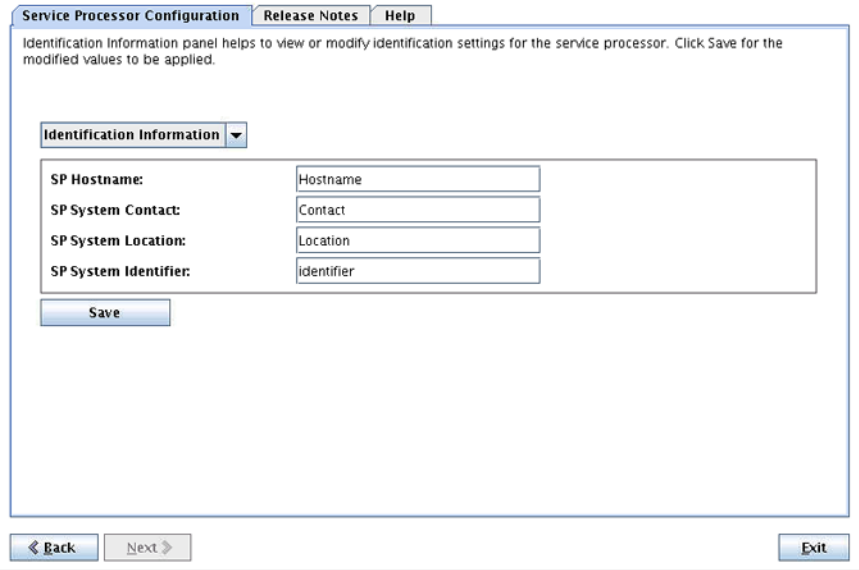
2 From the Select a Task screen, select Service Processor Configuration and click Next.

The Service Processor Configuration screen appears.



3 From the drop-down list, select Identification Information.

The SP identification fields appear.



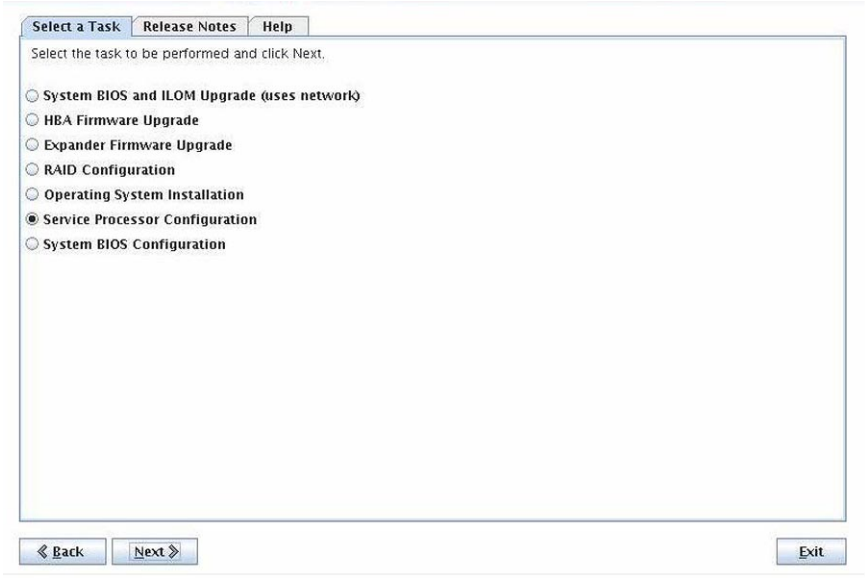
4. **In the appropriate field, type the information for the following Oracle ILOM settings:**
   - **SP Hostname**: Type the hostname. The hostname must start with a letter and can contain up to 60 alphanumeric characters, hyphens, and underscores.
   - **SP System Contact**: Type the name of the person to contact. Use any character except quotation marks.
   - **SP System Location**: Type the name of the physical location of the system. Use any character except quotation marks.
   - **SP System Identifier**: Type the name that identifies the system. Use any character except quotation marks.
5. **To retain the information, click Save.**
6. **To leave the application, click Exit. To perform more provisioning tasks, click Back.**

See Also
- "How to Configure Network Information Settings" on page 65
- "How to Manage Oracle ILOM User Accounts" on page 68
- "How to Set the System Clock" on page 71

▼ How to Configure Network Information Settings

1 **Launch the Oracle Hardware Installation Assistant application. See "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21.**

The Select a Task screen appears.

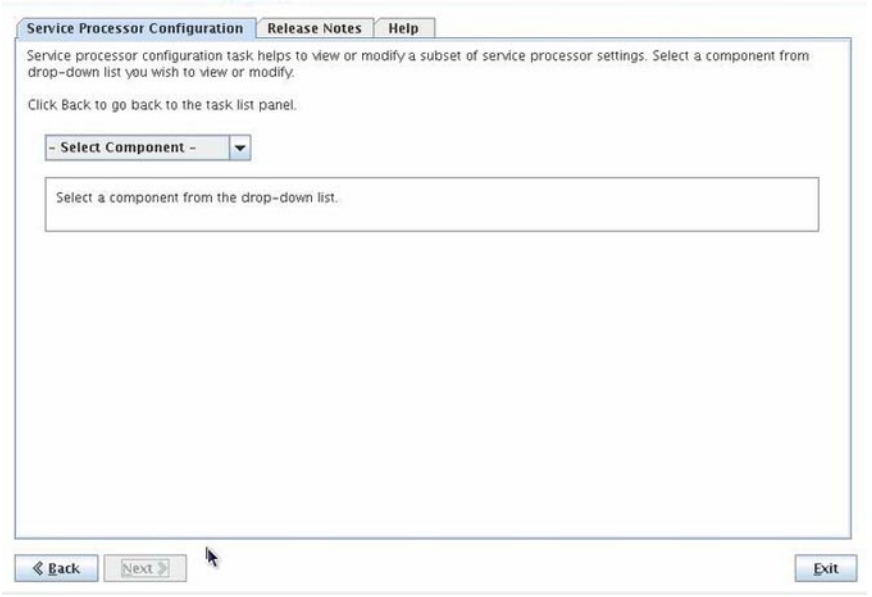


Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

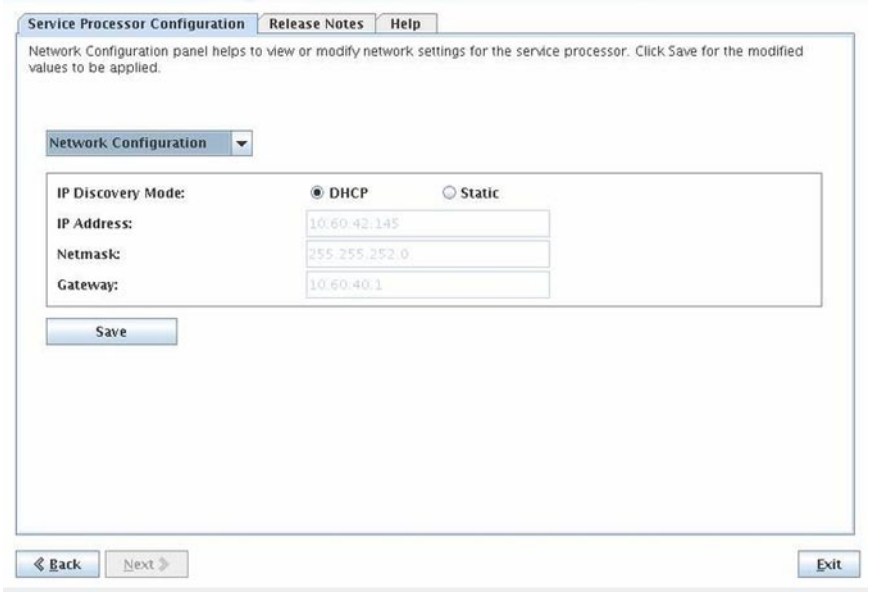
2 From the Select a Task screen, select Service Processor Configuration and click next.

The Service Processor Configuration screen appears.



3 **From the drop-down list, select Network Information.**

The Network Configuration fields appear.



4 **In the appropriate field, supply the information for the following Oracle ILOM settings:**

- **IP Discovery Mode**: Select whether the system uses a DHCP or a static IP assignment by clicking the appropriate button.
- **IP Address**: If you selected a static IP assignment, then provide the IP address of the SP.
- **Netmask**: If you selected a static IP assignment, then provide the netmask for the SP.
- **Gateway**: If you selected a static IP assignment, then provide the gateway address of the SP.

5 **To retain the information, click Save.**

6 **To leave the application, click Exit. To perform more provisioning tasks, click Back.**

See Also

- "How to Configure Service Processor Identification Information Settings" on page 62
- "How to Manage Oracle ILOM User Accounts" on page 68
- "How to Set the System Clock" on page 71

▼ How to Manage Oracle ILOM User Accounts

The User Accounts screen allows you to manage Oracle ILOM users. You can do the following:

- Add users.
- Modify user roles and privileges.
- Delete users.

1 **Launch the Oracle Hardware Installation Assistant application. See "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21**

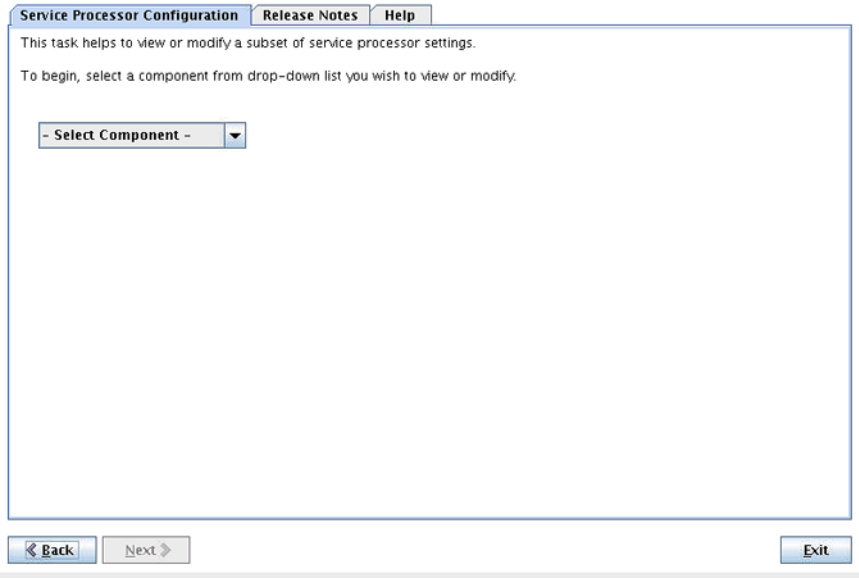
The Select a Task screen appears.

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

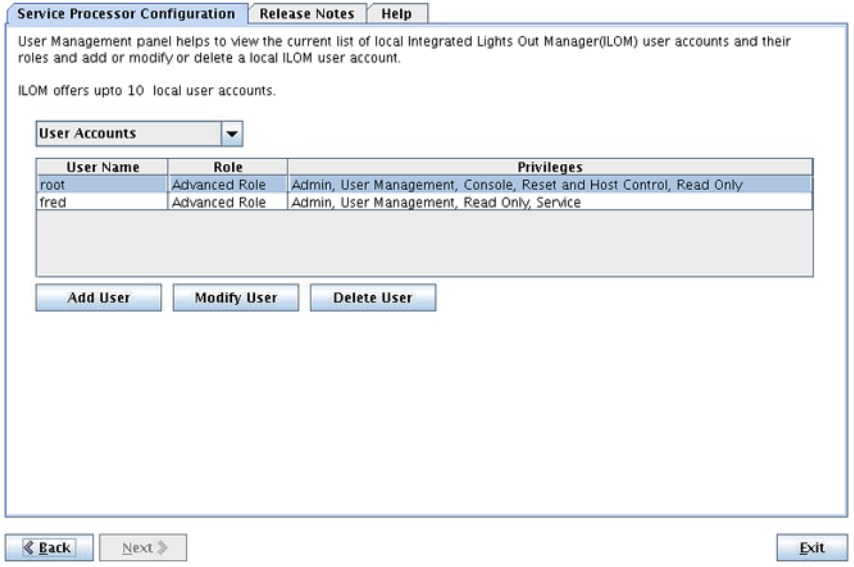
2 From the Select a Task screen, select Service Processor Configuration and click next.

The Service Processor Configuration screen appears.



3 From the drop-down list select User Accounts.

The User Accounts screen appears.



4 To manage user accounts, do one or more of the following:

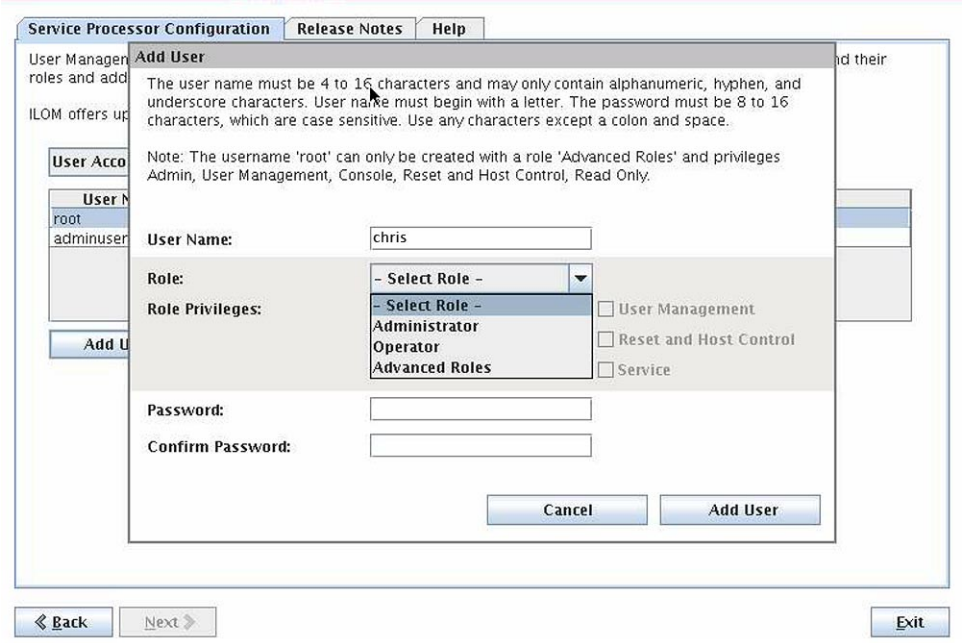
a. To add a user, click Add User.

Note – The maximum number of users is ten.

---

i. Type a unique user name.

ii. Select one of the predefined roles (Administrator or Operator), or choose Advanced Roles to customize user privileges.



iii. Type and confirm the password.

iv. To save the information and create the user, click Add User.

b. To modify an existing user, highlight the user in the list and click Modify User.

You can modify the role, the privileges, and the password.

c. To Delete a user, highlight the user in the list and click Delete User.

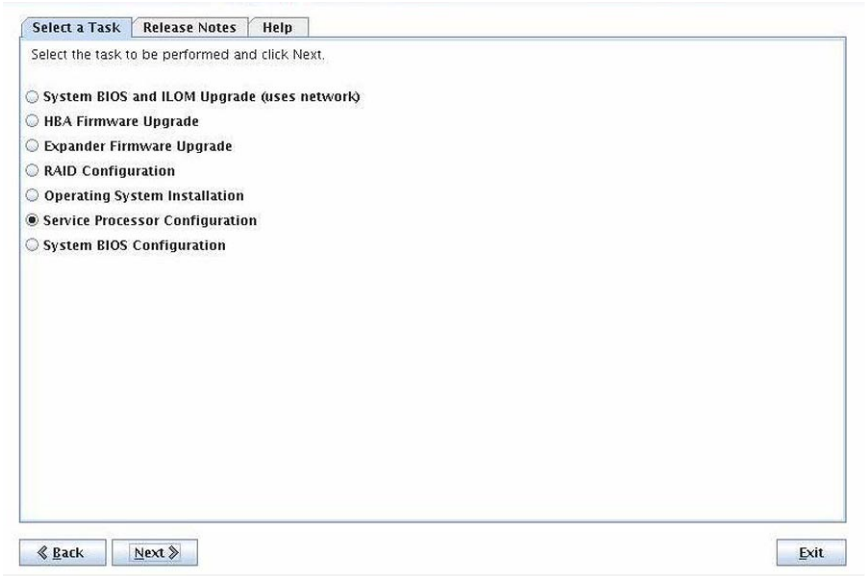
5 To leave the application, click Exit. To perform more provisioning tasks, click Back.

See Also
- "How to Configure Service Processor Identification Information Settings" on page 62
- "How to Configure Network Information Settings" on page 65
- "How to Set the System Clock" on page 71

▼ How to Set the System Clock

1 **Launch the Oracle Hardware Installation Assistant application. See "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21.**

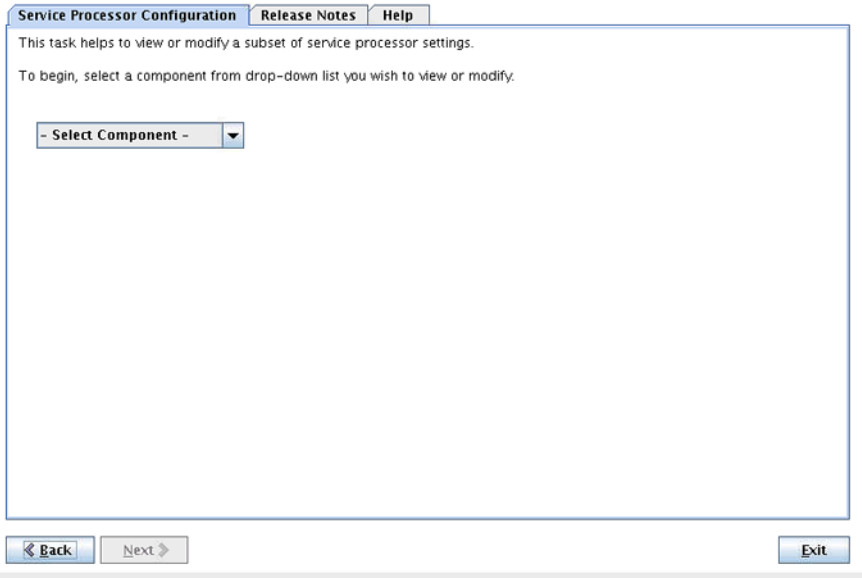
The Select a Task screen appears.



Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

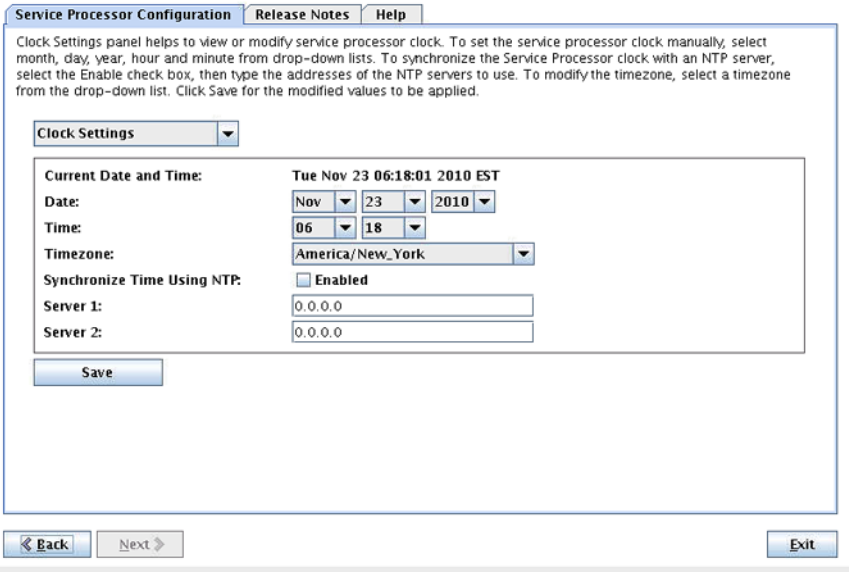
2 From the Select a Task screen, select Service Processor Configuration and click next.

The Service Processor Configuration screen appears.



3 From the drop-down list select Clock Settings.

The Clock Settings screen appears.



4. **Do one or more of the following:**

   Note – The Date, Time, and Timezone fields cannot be modified when the check box for Synchronize Time Using NTP is selected.

   a. **To set the date, type the date using the following format:**

      mm/dd/yyyy

      where *mm* is the month, *dd* is the day, and *yyyy* is the year.

   b. **To set the time, select the hour and minutes from the drop-down lists.**

   c. **To set the time zone, select the time zone for the server from the drop-down list.**

   d. **To use a NTP server to set and synchronize time, click the Synchronize Time Using NTP Enabled check box and supply IP addresses of the NTP servers.**

5. **To retain your changes, click Save.**

6. **To leave the application, click Exit. To perform more provisioning tasks, click Back.**

See Also

- "How to Configure Service Processor Identification Information Settings" on page 62
- "How to Configure Network Information Settings" on page 65
- "How to Manage Oracle ILOM User Accounts" on page 68

Configuring BIOS Boot Device Settings

This section explains how to use the Oracle Hardware Installation Assistant application's BIOS Configuration task to configure BIOS boot device settings. You can set the system boot device order or a temporary one-time boot device. Setting the order allows you to prioritize the boot-capable devices in your system by arranging them in a hierarchical list. Setting the boot device for the next boot allows you to select one of the boot device options to override the boot order for a temporary onetime boot.

Note – The boot device order is nonvolatile. It resides in battery-backed CMOS storage, so it survives reboots and power cycles. However, it does *not* survive a system battery failure or battery replacement.

This section contains the following tasks:

▼ How to Set the Boot Device Order

The Set Boot Device Order task allows you to prioritize the boot-capable devices in your system by arranging them in a hierarchical list. Arrange the devices according to your preference for boot priority. The device placed at the top of the list becomes the primary device.

1 **Launch the Oracle Hardware Installation Assistant application. See "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21.**

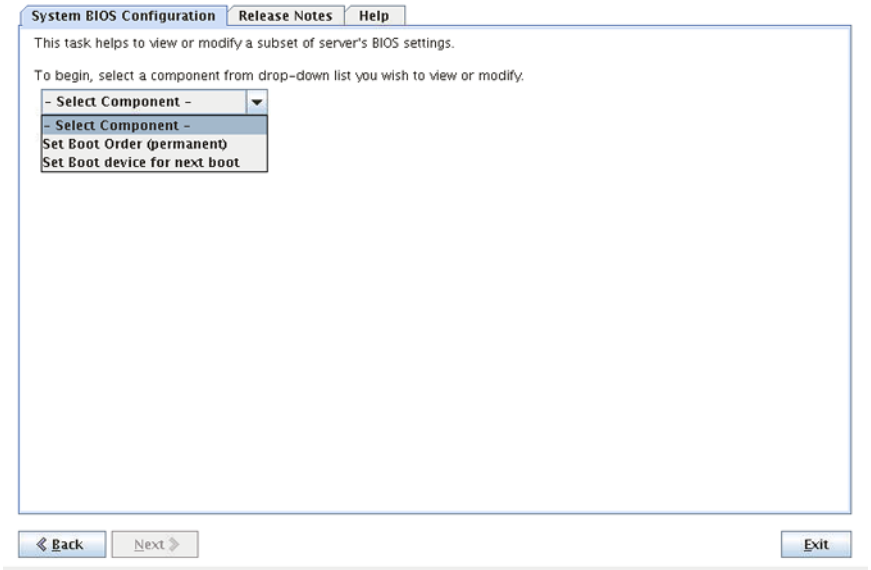
The Select a Task screen appears.

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

2 **From the Select a Task screen, select System BIOS Configuration and click Next.**

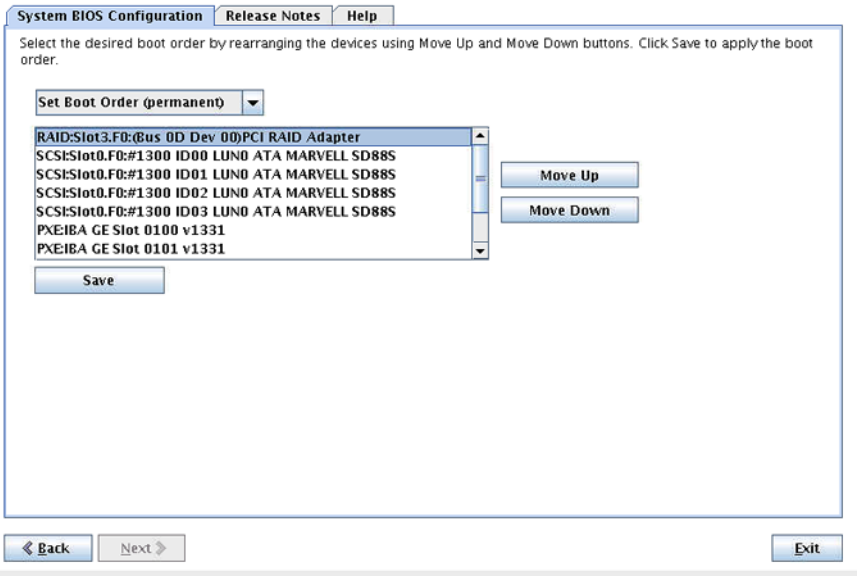
The System BIOS Configuration screen appears.



3 **From the drop-down list, select Set Boot Order (Permanent) and click Next.**

The Set Boot Order (Permanent) screen appears. The Oracle Hardware Installation Assistant application displays a list of the boot-capable devices attached to your server.

4 **To arrange the devices according to your boot priority preference, select a device and move it up or down the list by clicking the Move Up and Move Down buttons.**



5 **To retain the boot order list, click Save.**

The boot priority list takes effect on the next system boot.

6 **To leave the application, click Exit. To perform more provisioning tasks, click Back.**

See Also "How to Set the Boot Device for the Next Boot" on page 78

▼ How to Set the Boot Device for the Next Boot

The Set Boot Device for the Next Boot task allows you to override the default boot device list and select a one-time boot device for the next boot *only*.

1 **Launch the Oracle Hardware Installation Assistant application. See "How to Launch Oracle Hardware Installation Assistant Using Local or Remote Media" on page 21.**

The Select a Task screen appears.

Note – The Select a Task screen only appears if your server supports additional tasks other than OS installation. It does not appear if the only available task is OS installation. Additionally, the Select a Task screen only lists task options supported for your server.

---

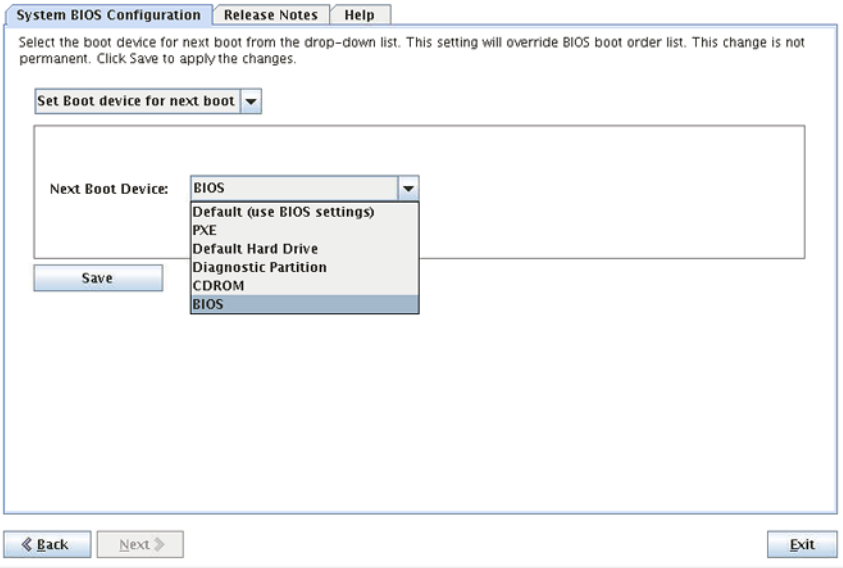
2 **At the Select a Task screen, select BIOS Configuration and click Next.**

The BIOS Configuration screen appears.

3 **From the drop-down list, select Set Next Boot Device.**

The Next Boot Device drop-down list appears.

4 **From the Next Boot Device drop-down list select the device to boot.**



The drop-down list contains the following list of boot options:

- **Default (use BIOS settings)**: Uses the boot order list as defined in the BIOS Setup Utility.
- **PXE**: Boots from a network server.
- **Default Hard Drive**: Boots the default drive based on hardware setup.
- **Diagnostic Partition**: Boots to the diagnostic space set up on the default drive.
- **CD–ROM**: Boots from the system CD/DVD drive or an attached USB CD/DVD drive.
- **BIOS**: Boots into the BIOS Setup Utility.

5 **To retain the selection, click Save.**

6 **To leave the application, click Exit. To perform more provisioning tasks, click Back.**

See Also "How to Set the Boot Device Order" on page 75

Setting Up PXE-Based Oracle Hardware Installation Assistant

You can launch the Oracle Hardware Installation Assistant application from the network using the Preboot Execution Environment (PXE). Additionally, you can launch a PXE-based Oracle Hardware Installation Assistant session in attended or unattended mode. The basic PXE setup is the same for either mode.

This section contains the following topics for basic PXE set up:

▼ How to Set Up the PXE Infrastructure

- **Set up your PXE infrastructure in accordance with the requirements and needs of your IT department or datacenter.**

  The basic setup of a Linux-based PXE environment involves:

  - Setting up the DHCP server
  - Setting up the TFTP server with boot and/or install images
  - Modifying the appropriate PXE configuration files that direct clients to the boot or install images

  Detailed instructions for setting up your Linux PXE environment are available with your Linux documentation.

Next Steps "Preparing the Oracle Hardware Installation Assistant PXE Image Files" on page 81

Preparing the Oracle Hardware Installation Assistant PXE Image Files

To prepare for an attended installation, you need the following Oracle Hardware Installation Assistant PXE files available on your TFTP server:

- `vmlinuz` (Linux boot kernel)

- `netboot.img` (Oracle Hardware Installation Assistant boot image)
- `Version` (version information about Oracle Hardware Installation Assistant netboot)
- `sample_pxe.cfg` (sample code to be inserted into your `pxelinux.cfg` file)

The files are available for download as a compressed file called, `HIA_netboot.zip`. You can download this file and extract it to your TFTP server. The files are also available on the Oracle Hardware Installation Assistant CD/DVD. You can create the `HIA_netboot.zip` file using the Oracle Hardware Installation Assistant CD/DVD and then extract it on your TFTP server. If you are using a Windows system, the Oracle Hardware Installation Assistant application has an autorun utility specifically to perform this task.

This section contains both methods of preparing the files:

- "How to Download the Oracle Hardware Installation Assistant PXE Image Files" on page 82
- "How to Create the Oracle Hardware Installation Assistant PXE Image File Using the DVD" on page 82
- "How to Create the Oracle Hardware Installation Assistant PXE Image File on a Windows System" on page 83

▼ How to Download the Oracle Hardware Installation Assistant PXE Image Files

1 **Download the `HIA_netboot.zip` image file from Oracle at:**

`http://support.oracle.com/`

2 **Once obtained, extract the `.zip` file to the appropriate directory on the TFTP server.**

Next Steps

- "How to Create the Oracle Hardware Installation Assistant PXE Image File Using the DVD" on page 82
- "How to Create the Oracle Hardware Installation Assistant PXE Image File on a Windows System" on page 83

▼ How to Create the Oracle Hardware Installation Assistant PXE Image File Using the DVD

Use this procedure to create the `HIA_netboot.zip` file using the Oracle Hardware Installation Assistant CD/DVD on a Linux system.

1 **Mount the Oracle Hardware Installation Assistant CD/DVD.**

2 **From the command line, navigate to the root of the CD/DVD.**

3. **From the root of the CD/DVD run the following script file:**

   ```
   # ./generate-netboot.img.sh -o /tmp/HIA_netboot.zip
   ```

   Follow the prompts to create the `HIA_netboot.zip` file.

4. **Extract the `.zip` file to the appropriate directory on the TFTP server.**

Next Steps

- To launch the Oracle Hardware Installation Assistant application in attended mode, see "Launching an Attended PXE-Based Session" on page 87.
- To launch the Oracle Hardware Installation Assistant application in unattended mode, see "Performing Unattended PXE-Based Provisioning Tasks" on page 91.

▼ How to Create the Oracle Hardware Installation Assistant PXE Image File on a Windows System

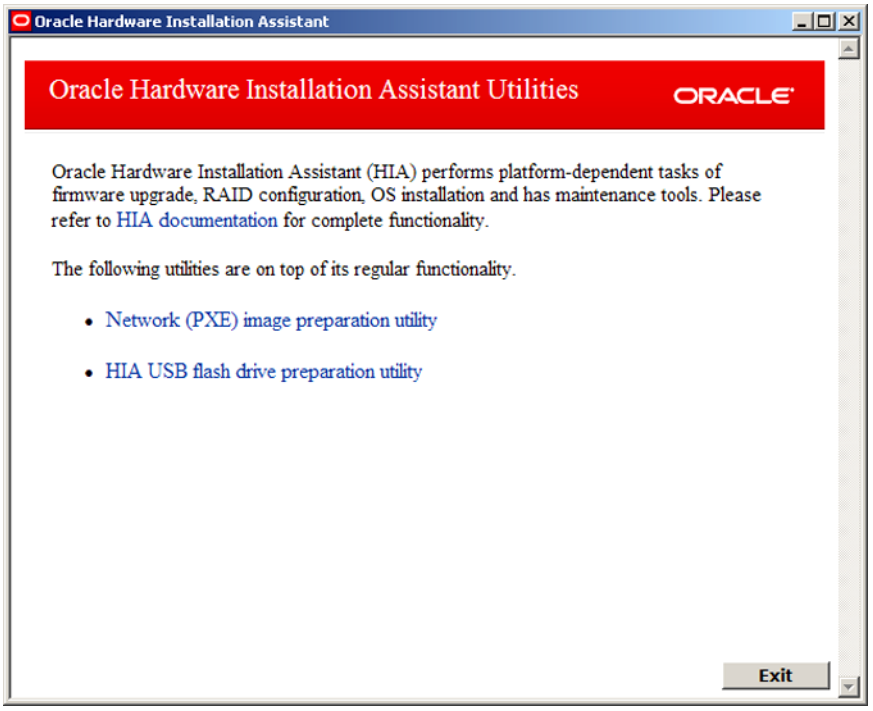
The Oracle Hardware Installation Assistant application has a autorun utility to assist in the creation of the `netboot.img` file. To use the autorun utility, mount the Oracle Hardware Installation Assistant CD/DVD or CD/DVD ISO image.

Before You Begin

See "How to Download the Oracle Hardware Installation Assistant PXE Image Files" on page 82.

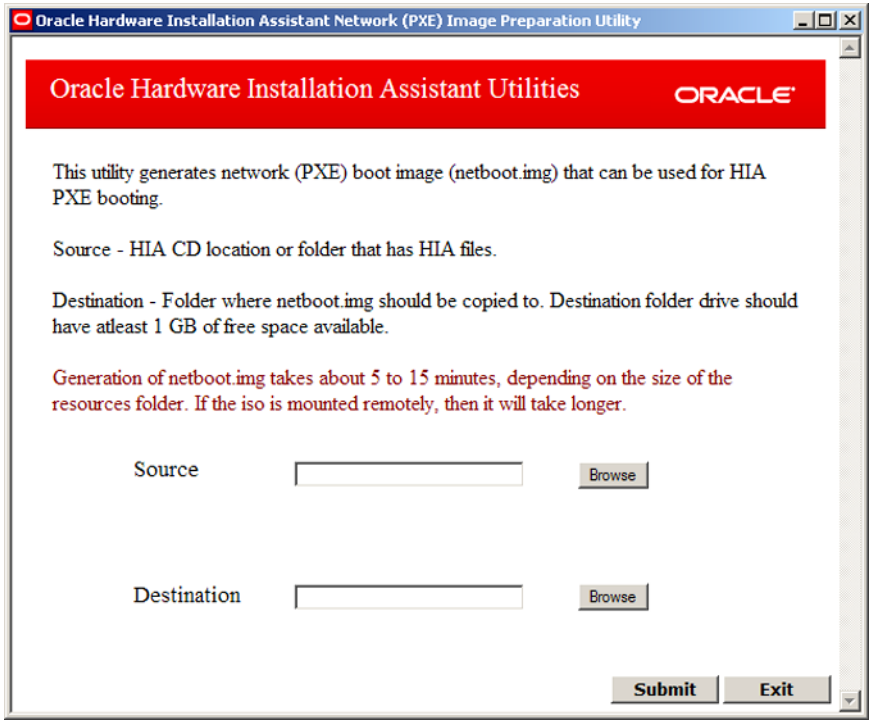
1 **Mount the Oracle Hardware Installation Assistant CD/DVD.**

The initial screen for the autorun utility screen appears.



2 **Click the Network (PXE) image preparation utility option.**

The autorun PXE Preparation utility appears.



3 **Browse or enter the source path for the Oracle Hardware Installation Assistant files (CD/DVD or folder).**

4 **Browse or enter the destination path for the `netboot.img` file.**

Note – The destination folder must have at least 1 GB of free space available.

---

5 **Click Submit to generate the netboot.img file.**

Note – The netboot.img file can take up to 15 minutes to generate. If the ISO file is mounted remotely, then it might take longer.

Next Steps

- To launch the Oracle Hardware Installation Assistant application in attended mode, see "Launching an Attended PXE-Based Session" on page 87.
- To launch the Oracle Hardware Installation Assistant application in unattended mode, see "Performing Unattended PXE-Based Provisioning Tasks" on page 91.

Launching an Attended PXE-Based Session

This section describes how to perform provisioning tasks, such as OS installations and firmware updates, utilizing a PXE-based image of the Oracle Hardware Installation Assistant application. These instructions are for advanced users familiar with PXE.

This section contains the following topics. Refer to the topics that apply to your installation.

Attended PXE-Based Session Overview

The Oracle Hardware Installation Assistant is a Linux-based application that can be launched from a Linux-based PXE server. You can create the Oracle Hardware Installation Assistant application image on your Linux-based PXE server, launch from it, and use the application to perform installation tasks in attended or unattended mode.

In unattended mode the provisioning tasks are performed using a script file and are not visible, nor do the tasks require user interaction. In attended mode, the provisioning tasks are performed using the Oracle Hardware Installation Assistant application's interactive user interface as if it were launched from local or remote media.

▼ How to Create the Image for a PXE-Based Session

This task describes how to create the application image file for attended mode PXE boot.

Before You Begin Set up your PXE infrastructure and prepared the image files. See "Setting Up PXE-Based Oracle Hardware Installation Assistant" on page 81.

1 **On the PXE TFTP server, create a new subdirectory for the Oracle Hardware Installation Assistant application image.**

For example, the following command line creates a subdirectory in the default TFTP server root to contain the Oracle Hardware Installation Assistant application image:

```
# mkdir /var/lib/tftpboot/HIA
```

2. **Extract the contents of `HIA_netboot.zip` to the subdirectory on the TFTP server that you created for the Oracle Hardware Installation Assistant image.**

3. **Use an editor to modify your PXE configuration file (the default name for this file is `pxelinux.cfg`) to add the necessary references to your Oracle Hardware Installation Assistant image.**

   Refer to the examples in `sample-pxe.cfg` file. Modify them as necessary for your setup.

Next Steps To boot the Oracle Hardware Installation Assistant application image from the PXE environment, follow the steps in "How to Launch an Attended Installation From a PXE Server" on page 88.

▼ How to Launch an Attended Installation From a PXE Server

The following procedure explains the initial steps for launching the Oracle Hardware Installation Assistant application from a PXE Linux-based server.

Note – The Oracle Hardware Installation Assistant application files are Linux-based and must be configured to boot from a Linux PXE environment. However, the application even when booted from a Linux-based PXE environment supports the installation of Windows or Linux from distribution media (CD or ISO image) accessible from the network.

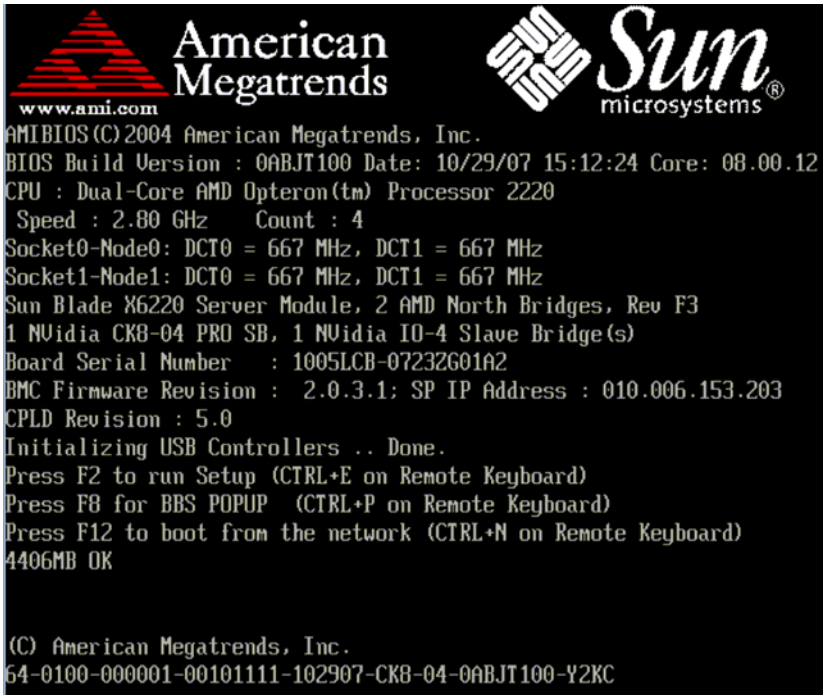
Before You Begin

- See "How to Create the Image for a PXE-Based Session" on page 87
- Ensure that the target server is attached to the network configured with the PXE boot environment.
- Your server should be set up to view boot and POST messages.

1. **Restart the server.**

   Boot and POST messages appear.

Tip – The next events occur very quickly. Watch carefully for these messages, because they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.



2 **As the system boots, do one of the following to start a network boot:**

- **When prompted, press F12 to boot from the first network boot device found.**
- **When prompted, press F8 to display the boot menu and specify the network boot device.**

Tip – On a Sun Blade server module, you can determine the PXE interface boot device by (1) matching the *PXE:Slot#* or *Network:Slot#* (listed on the F8 `BBS Popup` menu) with the physical NEM or EM slot number label on the chassis, and (2) matching the *F#* (listed on the `Please Select Boot Device` menu) with the physical NIC port number label on the NEM (ports 0.0 to 9.0 and 0.1 to 9.1) or EM (ports 0 or port 1).

After the network boot device is specified, the system attempts to get the IP address from the DHCP PXE boot server. After the PXE server is found, the PXE boot prompt appears.

3 **At the PXE boot prompt, press Enter or type: `install`**

The Oracle Hardware Installation Assistant installation image is downloaded to the server, and the application starts.

Next Steps "How to Perform Provisioning Tasks" on page 22

Performing Unattended PXE-Based Provisioning Tasks

This section describes how to perform unattended (no user interaction required) provisioning tasks, such as OS installations and firmware updates, utilizing a PXE-based image of the Oracle Hardware Installation Assistant application. These instructions are for advanced users familiar with PXE.

This section contains the following topics. Refer to the topics that apply to your installation.

Unattended PXE-Based Provisioning Tasks Requirements

The Oracle Hardware Installation Assistant is a Linux-based application that can be launched from a Linux-based PXE server. You can create an Oracle Hardware Installation Assistant image on your Linux-based PXE server and launch from it to use the application in attended or unattended mode for either a Linux or a Windows system.

In unattended mode, the Oracle Hardware Installation Assistant application runs without user intervention and automatically performs provisioning tasks, such as OS installation (of supported Linux or Windows versions) and firmware updates.

The following table lists the tasks for using the Oracle Hardware Installation Assistant application in unattended mode with Linux-based PXE server:

Step	Task	Link
1	Ensure that your environment is set up with the necessary PXE infrastructure.	"Setting Up PXE-Based Oracle Hardware Installation Assistant" on page 81
2	Prepare the Oracle Hardware Installation Assistant PXE image files.	"Preparing the Oracle Hardware Installation Assistant PXE Image Files" on page 81

Step	Task	Link
3	Create an Oracle Hardware Installation Assistant state file to guide the installation.	"Creating a State File for Unattended Installation" on page 92
4	Create the Oracle Hardware Installation Assistant image and prepare for PXE boot.	"How to Create the Application Image and Prepare for a PXE-Based Launch" on page 106
5	Launch the Oracle Hardware Installation Assistant application from the server.	"How to Launch an Unattended Session From a PXE-Based Server" on page 107

Next Step: "Creating a State File for Unattended Installation" on page 92

Creating a State File for Unattended Installation

To use the Oracle Hardware Installation Assistant application in unattended mode, you need to create an Oracle Hardware Installation Assistant state file. The state file guides the installation allowing the process to occur without user intervention. A state file resides on the Oracle Hardware Installation Assistant CD/DVD.

▼ How to View the Contents of the Oracle Hardware Installation Assistant State File

The Oracle Hardware Installation Assistant state file provides the scripting variables required for carrying out an unattended session of the Oracle Hardware Installation Assistant application and performing the specified provisioning tasks automatically without user intervention. A copy of the state file with all of the possible parameters can be found at the root level on the Oracle Hardware Installation Assistant CD/DVD and is accessible by command prompt during an Oracle Hardware Installation Assistant session. You can use this file as a template.

Use this task to reach the command line from Oracle Hardware Installation Assistant and view the contents of the Oracle Hardware Installation Assistant state file.

Before You Begin For this task, you need command-line access to a text editor application.

1. **Boot the Oracle Hardware Installation Assistant application (locally or through the remote console). See "Launching the Application and Performing Provisioning Tasks" on page 19.**

2. **At the first screen, press Ctrl-Alt-F2.**

   A command prompt appears.

3. **At the prompt, enter the following commands:**

   # **`cd /root`**

   # **`ls`**

   A listing of the `/root` directory appears.

   The `externalStateVariables.txt` file appears in the listing.

4. **To view the contents of the state file, start your text editor and open the `externalStateVariables.txt` file.**

   The `externalStateVariables.txt` file lists the state file variables. For a description of the state file variables, see "Oracle Hardware Installation Assistant State File Variable List" on page 93.

See Also "Considerations for Creating a State File" on page 100

Oracle Hardware Installation Assistant State File Variable List

The following table describes the state file variables for the automated tasks that can be performed.

Note – Each variable with its value must be on a separate line in the state file without line breaks. Due to width restrictions in the table below, some examples might show variables breaking across multiple lines.

TABLE 1 Oracle Hardware Installation Assistant State File Variables

Variable	Description (Defaults in Bold)	Required for Windows Install	Required for Linux Install	Required for Firmware update
apit.unattended	Tells Oracle Hardware Installation Assistant to run in unattended mode. Values supported: **true** | false Example: apit.unattended=true	X	X	X

TABLE 1 Oracle Hardware Installation Assistant State File Variables *(Continued)*

Variable	Description (Defaults in Bold)	Required for Windows Install	Required for Linux Install	Required for Firmware update
apit.welcome.acceptlicense	Accepts the Oracle Hardware Installation Assistant license agreement. Values supported: true | **false** Example: apit.welcome.acceptlicense=true	X	X	X
apit.remoteUpdate	Tells Oracle Hardware Installation Assistant to look for Oracle Hardware Installation Assistant updates. You should always perform an update to ensure you install the latest software and firmware. Values supported: true | **false** Example: apit.remoteUpdate=true	X	X	X
apit.remoteUpdateURL	If you specified "true" for apit.remoteUpdate, tells Oracle Hardware Installation Assistant where to look for Oracle Hardware Installation Assistant software updates. Values supported: Any URL with updated Oracle Hardware Installation Assistant content files. You only need to specify this variable if you are *not* using the default URL.	X (if remote Update is true and default URL is not used)	X (if remote Update is true and default URL is not used)	X (if remote Update is true and default URL is not used)
apit.networking	Tells Oracle Hardware Installation Assistant it has permission to work over the network. If true, Oracle Hardware Installation Assistant configures network settings based on networkconfig variables. Values supported: true | **false** Example: apit.networking=true	X	X	X
apit.networkconfig.needNetwork	If you specified "true" for network, tells Oracle Hardware Installation Assistant whether network access is required for a particular task. Values supported: true | **false** Example: apit.networkconfig.needNetwork=true	X (if networking is true)	X (if networking is true)	X (if networking is true)
apit.networkconfig.activeNic	If you specified "true" for network, tells Oracle Hardware Installation Assistant which network interface is connected to the active network. Values supported: eth0 | eth1 | eth2 | eth3 .... Example: apit.networkconfig.activeNic=eth0	X (if networking is true)	X (if networking is true)	X (if networking is true)

TABLE 1 Oracle Hardware Installation Assistant State File Variables *(Continued)*

Variable	Description (Defaults in Bold)	Required for Windows Install	Required for Linux Install	Required for Firmware update
apit.networkconfig.NetworkType	If you specified "true" for network, tells Oracle Hardware Installation Assistant the configuration of the active network interface. Values supported: static | **dhcp** Example: apit.networkconfig.NetworkType=dhcp	X (if networking is true)	X (if networking is true)	X (if networking is true)
apit.networkconfig.useDHCP	If you selected "dhcp" as the NetworkType, tells Oracle Hardware Installation Assistant to obtain the server's address from the DHCP server. Values supported: **true** | false Example: apit.networkconfig.useDHCP=true	X (if networking is true)	X (if networking is true)	X (if networking is true)
apit.networkconfig.ipfield	If you selected "static" as the NetworkType, tells Oracle Hardware Installation Assistant to use the server's IP address value you provide. Example: apit.networkconfig.ipfield=*n.n.n.n*	X (if static IP is used)	X (if static IP is used)	X (if static IP is used)
apit.networkconfig.gatewayField	If you selected "static" as the NetworkType, tells Oracle Hardware Installation Assistant to use the IP address value you provide. Example: apit.networkconfig.gatewayfield=*n.n.n.n*	X (if static IP is used)	X (if static IP is used)	X (if static IP is used)
apit.networkconfig.netmaskedField	If you selected "static" as the NetworkType, tells Oracle Hardware Installation Assistant to use the IP address value you provide. Example: apit.networkconfig.ipfield=*n.n.n.n*	X (if static IP is used)	X (if static IP is used)	X (if static IP is used)
apit.http_proxy	If, for example, you specified "true" for remoteUpdate, tells Oracle Hardware Installation Assistant to use a proxy server for internet access. Examples: apit.http_proxy=*n.n.n.n* (IP address) apit.http_proxy=file://*web-proxy-configfile* apit.http_proxy=http://*web-proxy-server* apit.http_proxy=http://*internal-host:portnumber*	X (if proxy used)	X (if proxy used)	X (if proxy used)

TABLE 1 Oracle Hardware Installation Assistant State File Variables *(Continued)*

Variable	Description (Defaults in Bold)	Required for Windows Install	Required for Linux Install	Required for Firmware update
apit.taskList.selectedTask	Tells Oracle Hardware Installation Assistant which task to perform (only one task can be run per unattended session). This variable is required in the state file. Values supported: SP/Bios Firmware Upgrade | OS Installation | HBA Firmware Upgrade | Expander Firmware Upgrade | SP Recovery Example: apit.taskList.selectedTask=OS Installation	X	X	X
apit.osid.installLoc	Tells Oracle Hardware Installation Assistant where the network image of the Linux OS to be installed is located. The path is to the directory containing the image (ISO or extracted ISO), not the image itself. The directory cannot contain more than one image. Example: apit.osid.installLoc=http://*path_to_imagedirectory*		X	
apit.osid.installMedia	Tells Oracle Hardware Installation Assistant where the CD or `.iso` file for the OS installation software is located. Values supported: cdrom | networkLinux | networkWindows Example: apit.osid.installMedia=cdrom	X	X	
apit.osid.installMethod	Tells Oracle Hardware Installation Assistant which file transfer protocol to use during the installation. Values supported: http | ftp Example: apit.osid.installMethod=http	X	X	
apit.osid.kickstart	Tells Oracle Hardware Installation Assistant where the kickstart file is located for a Linux installation. This could be the URL to the Red Hat kickstart file or the SUSE autoyast file. Examples: apit.osid.kickstart=http://*url_to_kickstart* apit.osid.kickstart=ftp://*url_to_kickstart*		X	

TABLE 1 Oracle Hardware Installation Assistant State File Variables *(Continued)*

Variable	Description (Defaults in Bold)	Required for Windows Install	Required for Linux Install	Required for Firmware update
apit.windows2008.imageName	Specifies the version of Windows Server 2008 to be installed. Values determine whether this is a full or core–only Windows installation. Core installations allow you to install Windows with only the components needed to run a small set of core network roles. Supported values: ■ WINDOWS LONGHORN [R2] SERVERSTANDARD ■ WINDOWS LONGHORN [R2] SERVERENTERPRISE ■ WINDOWS LONGHORN [R2] SERVERDATACENTER ■ WINDOWS LONGHORN R2 SERVERWEB ■ WINDOWS LONGHORN [R2] SERVERSTANDARDCORE ■ WINDOWS LONGHORN [R2] SERVERENTERPRISECORE ■ WINDOWS LONGHORN [R2] SERVERDATACENTERCORE ■ WINDOWS LONGHORN R2 SERVERWEBCORE Note: The R2 value is only required for Windows Server 2008 R2. Windows Server 2008 SERVERWEB/CORE is only supported with R2. Example for pre-R2: apit.windows2008.imageName=WINDOWS LOGHORN SERVERENTERPRISE Example for R2: apit.windows2008.imageName=WINDOWS LONGHORN R2 SERVERENTERPRISE	X (2008 only)		
apit.osid.windows.iso.url1	Based on the installMethod you choose (http or ftp), tells Oracle Hardware Installation Assistant where the location of the first Windows OS install disk `.iso` image file is located. Examples: apit.osid.windows.iso.url1=http://*path_to_disk1.iso* apit.osid.windows.iso.url1=ftp://*path_to_disk1.iso*	X		

TABLE 1 Oracle Hardware Installation Assistant State File Variables *(Continued)*

Variable	Description (Defaults in Bold)	Required for Windows Install	Required for Linux Install	Required for Firmware update
apit.osid.windows.iso.url2	Based on the installMethod you chose (http or ftp), tells Oracle Hardware Installation Assistant where the location of the second Windows OS install disk `.iso` image file is located (if on two disks). Examples: apit.osid.windows.iso.url2=http://*path_to_disk2.iso* apit.osid.windows.iso.url2=ftp://*path_to_disk2.iso*	X		
apit.enclosureID.oldEnclosureID	Used as part of a two-step process that allows you to replace a Sun Blade 6000 disk module. The value for this variable must be the old enclosure ID number (also called WWN) that can be found on the circuit board of the blade being replaced.			
apit.enclosureID.newEnclosureID	Used as part of a two-step process that allows you to replace a Sun Blade 6000 disk module. This value for this variable must be the new enclosure ID number (also called WWN) that can be found on the circuit board of the replacement blade.			
apit.firmware.enabled	Tells Oracle Hardware Installation Assistant to enable or disable its firmware update function. Values supported: **true** | false Typically used in a test environment, this variable is not required to update firmware.			
apit.firmware.spIP	Part of a firmware upgrade task. Tells Oracle Hardware Installation Assistant the IP address of the server's service processor. Example: apit.firmware.spIP=*n.n.n.n*			X
apit.firmware.spPasswd	Part of a firmware upgrade task. Tells Oracle Hardware Installation Assistant the password of the server's service processor. Example: apit.firmware.spIP=*changeme*			X
apit.windows.acceptEula	Tells Oracle Hardware Installation Assistant to accept the EULA (End User License Agreement), as required when installing the Windows OS. Example: apit.windows.acceptEula	X (2003 only)		

TABLE 1 Oracle Hardware Installation Assistant State File Variables *(Continued)*

Variable	Description (Defaults in Bold)	Required for Windows Install	Required for Linux Install	Required for Firmware update
apit.windows.adminPasswd	Tells Oracle Hardware Installation Assistant the password you wish to use for the administrator account set up during the installation of the Windows OS. Password must comply with Windows password standards. Example: apit.windows.adminPasswd=*myadminpassword*	X (2003 only)		
apit.windows.computerName	Tells Oracle Hardware Installation Assistant the computer name you wish to use for the server set up during the installation of the Windows OS. Example: apit.windows.computerName=*mycomputername*	X (2003 only)		
apit.windows.key	Tells Oracle Hardware Installation Assistant the product key for your retail copy of the Windows OS. Required during Windows installation. Example: apit.windows.key=*XXXXX-XXXXX-XXXXX-XXXXX-XXXXX*	X (2003 only)		
apit.windows.orgName	Tells Oracle Hardware Installation Assistant the organization name you wish to use for the server set up during the installation of the Windows OS. Example: apit.windows.orgName=*myorganization*	X (2003 only)		
apit.windows.userName	Tells Oracle Hardware Installation Assistant the user name you wish to use for the initial user account set up during the installation of the Windows OS. Example: apit.windows.userName=*myusername*	X (2003 only)		
apit.done.notifyUrl	Tells Oracle Hardware Installation Assistant to access the specified URL following the completion of enabled Oracle Hardware Installation Assistant tasks. This is currently only supported for Sun N1 System Manager. Example: apit.done.notifyUrl=http://*my_destination_url*			

See Also:

- "How to View the Contents of the Oracle Hardware Installation Assistant State File" on page 92

Considerations for Creating a State File

The Oracle Hardware Installation Assistant state file is a text file that directs the unattended installation of your Linux or Windows Server OS and other provisioning tasks. Therefore, the instructions within the state file *must* be explicit.

Requirements for creating an Oracle Hardware Installation Assistant state file:

- When the Oracle Hardware Installation Assistant application launches from PXE, the state file must identify the location of the OS media and the transfer protocol method (FTP or HTTP).
- The state file must not contain extraneous spaces or punctuation of any kind.
- Each variable with its value must be on a separate line in the state file without line breaks.
- The lines specified in the Oracle Hardware Installation Assistant state file must correspond to the steps you would see if you were interactively using the Oracle Hardware Installation Assistant application to perform tasks.
- The install location must be specified as a boot argument in the configuration file (described in "How to Create the Application Image and Prepare for a PXE-Based Launch" on page 106).

See Also: "Sample State Files" on page 100

Sample State Files

This section contains examples of state files for Linux and Windows OS installations, and firmware updates:

Sample Oracle Hardware Installation Assistant State File for Linux

The following is a sample of an Oracle Hardware Installation Assistant state file for an unattended Linux installation:

```
[STATE_BEGIN noname apit]
apit.unattended=true
apit.welcome.acceptlicense=true
apit.networking=true
```

```
apit.networkconfig.needNetwork=true
apit.networkconfig.useDHCP=true
apit.networkconfig.needProxy=false
apit.remoteUpdate=true
apit.remoteupdateURL=http://HIA-updates.sun.com/remoteUpdate
apit.http_proxy=path_to_my_http_proxy
apit.taskList.selectedTask=Operating System Installation
apit.osid.installMedia=networkLinux
apit.osid.installMethod=http or  ftp
apit.osid.installLoc=path_to_PXE_file
apit.osid.kickstart=path_to_configuration file
[STATE_DONE noname apit]
```

See Also:

- "How to Create an Unattended Oracle Hardware Installation Assistant State File" on page 102
- "Oracle Hardware Installation Assistant State File Variable List" on page 93 for an explanation of each variable

Sample Oracle Hardware Installation Assistant State File for Windows

The following is a sample of an Oracle Hardware Installation Assistant state file for an unattended Windows installation:

```
[STATE_BEGIN noname apit]
apit.unattended=true
apit.networking=true
apit.welcome.acceptlicense=true
apit.networkconfig.needNetwork=true
apit.networkconfig.useDHCP=true
apit.networkconfig.needProxy=false
apit.taskList.selectedTask=Operating System Installation
apit.remoteUpdate=true
apit.remoteupdateURL=http://HIA-updates.sun.com/remoteUpdate
apit.http_proxy=path_to_my_http_proxy
apit.osid.installMedia=networkWindows
apit.osid.installMethod=http or ftp
apit.osid.url1=path_to_Windows_OS_CD1_iso_file
apit.osid.url2=path_to_Windows_OS_CD2_iso_file
apit.windows.key=XXXXX-XXXX-XXXXX-XXXXX-XXXXX
apit.windows.computerName=computername
apit.windows.orgName=organizationname
apit.windows.userName=username
apit.windows.adminPasswd=password
apit.windows.acceptEula=Yes
[STATE_DONE noname apit]
```

See Also:

- "How to Create an Unattended Oracle Hardware Installation Assistant State File" on page 102
- "Oracle Hardware Installation Assistant State File Variable List" on page 93 for an explanation of each variable

Sample Oracle Hardware Installation Assistant State File for Firmware Updates

The following is a sample of an Oracle Hardware Installation Assistant state file for an unattended firmware updates:

Note – Not all servers support the `taskList` and `firmware` options in the Oracle Hardware Installation Assistant state file. Refer to the Oracle Hardware Installation Assistant feature list for your server found on the Oracle download site if you are in doubt about support for these options.

```
[STATE_BEGIN noname apit]
apit.unattended=true
apit.networking=true
apit.welcome.acceptlicense=true
apit.networkconfig.needNetwork=true
apit.networkconfig.useDHCP=true
apit.networkconfig.needProxy=false
apit.taskList.selectedTask=SP/Bios Firmware Upgrade
apit.remoteUpdate=true
apit.remoteupdateURL=http://HIA-updates.sun.com/remoteUpdate
apit.http_proxy=path_to_my_http_proxy
apit.firmware.spIP=n.n.n.n
apit.firmware.spPasswd=password_for_sp
[STATE_DONE noname apit]
```

See Also:

- "How to Create an Unattended Oracle Hardware Installation Assistant State File" on page 102
- "Oracle Hardware Installation Assistant State File Variable List" on page 93 for an explanation of each variable.

▼ How to Create an Unattended Oracle Hardware Installation Assistant State File

Use this procedure to create a state file to guide the unattended Oracle Hardware Installation Assistant OS installations (Linux and Windows Server) and firmware updates.

Before You Begin

- For a listing of the Oracle Hardware Installation Assistant state file variables, see "Oracle Hardware Installation Assistant State File Variable List" on page 93.
- To view an example of an Oracle Hardware Installation Assistant state file for Linux, see "Sample Oracle Hardware Installation Assistant State File for Linux" on page 100.
- To view an example of an Oracle Hardware Installation Assistant state file for Windows Server, see "Sample Oracle Hardware Installation Assistant State File for Windows" on page 101.

- To view an example of an Oracle Hardware Installation Assistant state file for firmware updates, see "Sample Oracle Hardware Installation Assistant State File for Firmware Updates" on page 102.

1. **To create an Oracle Hardware Installation Assistant state file, do one of the following:**

   - Copy the `externalStateVariables.txt` file from the Oracle Hardware Installation Assistant CD/DVD to a location where you can open and edit it with a text editor. Then, go to Step 2.

   –or–

   - Start your text editor and create a new file named `externalStateVariables.txt`. Then, go to Step 3.

2. **Open the `externalStateVariables.txt` file and change the variables in the file to suit your preferences and environment. Then, go to Step 4.**

   Note – The state file must begin with the opening line, `[STATE_BEGIN noname apit]` and end with the line, `[STATE_DONE noname apit]`.

3. **Type the following:**

   a. **On the first line, type the following:**

      ```
      [STATE_BEGIN noname apit]
      ```

   b. **On the next line, type the following variable and value:**

      ```
      apit.unattended=true
      ```

   c. **On each subsequent line type a separate variable and the value that suits your preferences and environment.**

      Tip – Use the sample state files for reference. See "Sample State Files" on page 100.

      For a list of available state file variables, see "Oracle Hardware Installation Assistant State File Variable List" on page 93.

   d. **When you are finished listing the variables, type the following on the last line of the file:**

      ```
      [STATE_DONE noname apit]
      ```

4. **Save the file.**

Next Steps

- "How to Prepare for an Unattended Installation of Linux" on page 104
- "How to Prepare for an Unattended Installation of Windows Server" on page 105

- "How to Prepare for an Unattended Firmware Update" on page 105

How to Prepare for an Unattended Installation of Linux

Before You Begin The procedure presented in this section assumes the following:

- You are familiar with Oracle Enterprise Linux, RHEL or SLES Linux unattended installations.
- You have created an Oracle Enterprise Linux, or RHEL Kickstart file, or a SLES AutoYaST file.
- You have configured the Oracle Enterprise Linux, or RHEL Kickstart, or SLES AutoYaST PXE image with the following options:
  - Additional drivers for your server not installed by the Oracle Hardware Installation Assistant application. This provides you the full supported feature set for installed server components (such as ACPI, video, network and mass storage) as described in your server installation and *Product Notes* documentation.
  - Latest OS installation patches available from the Linux vendor.
  - The required Oracle Hardware Installation Assistant display resolution. The Oracle Hardware Installation Assistant application should always boot with vga=0x314 from CD-ROM or PXE.
- The Kickstart or AutoYaST file is accessible through an FTP or HTTP server.

1. **Setup the PXE environment and prepare the Oracle Hardware Installation Assistant application image files. See "Setting Up PXE-Based Oracle Hardware Installation Assistant" on page 81.**
2. **Create an Oracle Hardware Installation Assistant unattended state file. See "Sample Oracle Hardware Installation Assistant State File for Linux" on page 100 .**
3. **Set up an unattended configuration file and PXE OS install image for Linux.**
   - Use Kickstart unattended installation with either Oracle Enterprise Linux or Red Hat Enterprise Linux, refer to the product documentation.
   - Use AutoYaST unattended installation with SUSE Linux Enterprise Server, refer to the product documentation.

Next Steps "How to Create the Application Image and Prepare for a PXE-Based Launch" on page 106

How to Prepare for an Unattended Installation of Windows Server

Before You Begin

- For a listing of the Oracle Hardware Installation Assistant state file variables, see "Oracle Hardware Installation Assistant State File Variable List" on page 93.
- To view an example of an Oracle Hardware Installation Assistant state file for Windows, see "Sample Oracle Hardware Installation Assistant State File for Windows" on page 101.

1. **Setup the PXE environment and prepare The Oracle Hardware Installation Assistant application image files. See "Setting Up PXE-Based Oracle Hardware Installation Assistant" on page 81.**
2. **Create an Oracle Hardware Installation Assistant state file for your Windows Server OS installation. See "Sample Oracle Hardware Installation Assistant State File for Windows" on page 101.**

Next Steps "How to Create the Application Image and Prepare for a PXE-Based Launch" on page 106

How to Prepare for an Unattended Firmware Update

Note – Your server must support firmware updates through the Oracle Hardware Installation Assistant application to use the firmware upgrade option.

You can use PXE to launch the Oracle Hardware Installation Assistant application and perform an unattended system firmware update on your Sun Fire and Sun Blade servers, and you can choose to perform other provisioning tasks such as system BIOS and Oracle ILOM upgrade, HBA firmware, and SP recovery.

If you enable an unattended firmware update and an update is *not* required on the target server, the unattended install stops, prompting for user intervention to continue.

To avoid an interruption of the update process, confirm that the firmware image you are using for the update is newer than what is already on the target server(s). The firmware version (build number) of the update image is included in the README file. The firmware version (build number) on a target server can be viewed by logging into the service processor and viewing the information through the Oracle ILOM web interface, or by entering the `version` command at the CLI prompt.

- **Create an Oracle Hardware Installation Assistant Unattended State File for a firmware update. See "Sample Oracle Hardware Installation Assistant State File for Firmware Updates" on page 102.**

  The Oracle Hardware Installation Assistant state file is a text file that directs the unattended installation of the firmware update.

Next Steps "How to Create the Application Image and Prepare for a PXE-Based Launch" on page 106

▼ How to Create the Application Image and Prepare for a PXE-Based Launch

Before You Begin

- Perform the preparatory tasks described in the relevant sections below:
  - "How to Prepare for an Unattended Installation of Linux" on page 104
  - "How to Prepare for an Unattended Installation of Windows Server" on page 105
  - "How to Prepare for an Unattended Firmware Update" on page 105

1. **On the PXE TFTP server, create a new subdirectory for the Oracle Hardware Installation Assistant application image.**

   For example, the following command line creates a subdirectory in the default TFTP server root for the Oracle Hardware Installation Assistant application image:

   ```
   # mkdir /var/lib/tftpboot/HIA
   ```

2. **Extract the contents of `HIA_netboot.zip` to the subdirectory on the TFTP server that you created for your Oracle Hardware Installation Assistant image.**

3. **Make your modified Oracle Hardware Installation Assistant state file (`externalStateVariables.txt`) available on a web server that is accessible to the PXE server.**

   Tip – You can use the same PXE server, if it is configured as a web server.

4. **Use an editor to modify your PXE configuration file (the default name for this file is `pxelinux.cfg`) to add the necessary references to your Oracle Hardware Installation Assistant image.**

   Refer to the examples in `sample-pxe.cfg` file. Modify them as necessary for your setup.

5. **Add the following to the `append` line in the `pxelinux.cfg` file to configure it for an unattended Oracle Hardware Installation Assistant install using your state file:**

   `splash=silent HIAurl=http://`*URL_to_ externalStateVariables.txt*

   The `HIAurl=` parameter must point to the state file.

6 **Save the `pxelinux.cfg` file.**

The image is now ready to boot and launch the application.

Next Steps To launch the Oracle Hardware Installation Assistant PXE image from the PXE server and begin the unattended installation, follow the steps presented in "How to Launch an Unattended Session From a PXE-Based Server" on page 107.

▼ How to Launch an Unattended Session From a PXE-Based Server

Before You Begin Create the image file and prepared for booting. See "How to Create the Application Image and Prepare for a PXE-Based Launch" on page 106.

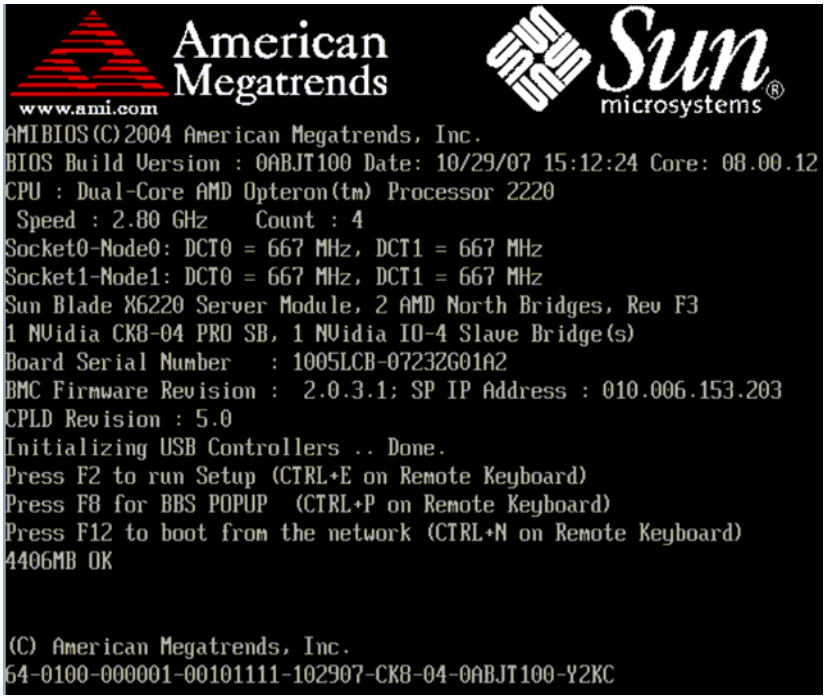
1 **Ensure that the target server is configured on the same network as the PXE server, and then reset the target server. For example:**

- **From the Oracle ILOM Remote Console web interface, click Remote Control->Remote Power Control then select `Reset` to reset the host server.**

  –or–

- **Press the Power button on the front panel of the server to turn it off (hold the button in until the server powers off), then press the Power button to turn on the server.**

The server boots and the BIOS screen appears. An example is shown below (your server's BIOS screen might look different).



Tip – The next events occur very quickly. Watch carefully for these messages, as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

---

2 As the system boots, do one of the following to start a network boot:

- **When the prompted, press F12 to boot from the first network boot device found.**
- **When prompted, press F8 to display the boot menu and specify the network boot device.**

Tip – On a Sun Blade server module, you can determine the PXE interface boot device by (1) matching the *PXE:Slot#* (listed on the `Please Select Boot Device` menu) with the physical NEM or EM slot number label on the chassis, and (2) matching the *F#* (listed on the `Please Select Boot Device` menu) with the physical NIC port number label on the NEM (ports 0.0 to 9.0 and 0.1 to 9.1) or EM (ports 0 or port 1).

After the network boot device is specified, the system attempts to get the IP address from the DHCP PXE boot server. After the PXE server is found, the PXE boot prompt appears.

3 **At the PXE boot prompt, press Enter or type: `install`**

The Oracle Hardware Installation Assistant installation image downloads to the server and the screen for "Launching the Oracle Hardware Installation Assistant" appears.

See Also For information on observing an unattended installation, proceed to the section "Observing Unattended PXE-Based Provisioning Tasks" on page 111.

Observing Unattended PXE-Based Provisioning Tasks

Observing an unattended network provisioning tasks enables you to monitor the progress of the task and view the diagnostic messages that occur during the process. To observe an unattended installation, establish a viewing connection to the system using one of the following methods:

- System console
- Virtual console or secure shell connection
- Virtual network computing (VNC) viewer
- Serial console

Note – If you are using a virtual console or a VNC viewer, you need to send passwords for both root and VNC.

This section contains the following topics and procedures for setting up passwords and establishing a viewing connection to the system to allow you to observe an unattended operation:

Establishing a Viewing Connection Using a Virtual Console or Secure Shell (SSH) Connection

Before logging into a virtual console, set a root password as a boot argument to the installer. For more information see "How to Set Up Root and VNC Passwords" on page 112.

The installation interface runs a Linux kernel and provides virtual console access. To access the virtual console, press Ctrl-Alt-F2 (you can also use Ctrl-Alt-F3 and Ctrl-Alt-F4 for additional console screens). After you have established a connection to a virtual console, you can determine the VNC server IP address and view the standard log files.

Alternatively, you can establish a SSH connection through a serial console using the VNC IP address (see "How to Establish a Connection Using a Serial Console" on page 113).

How to Set Up Root and VNC Passwords

If you plan to use a virtual console or a virtual network computing (VNC) viewer as your option for viewing unattended provisioning tasks, then you first need to provide the root and VNC access passwords.

The passwords are provided as boot arguments to the installer, either manually when booting from a CD or PXE server, or in the PXE boot target file, `/home/pxeboot/pxelinux.cfg/default`:

- The `rootpw=`*des-crypted-password* argument enables SSH remote access on a PXE boot without passing the plain text root password across the network. The argument passes an encrypted password generated by a Perl script.
- The `vncauth=`*hex-string* argument enables a password for VNC access. The remote VNC authorization file is eight binary bytes. You create those eight bytes with `vncpasswd` and then convert them to a hex-string.
- The `ptextpass=`*password* argument provides a way of passing a plain text password that is to be used for both the root password and the VNC password.

- **Do one of the following:**
  - For maximum security use the following password arguments at the CD `boot:` prompt:
    - For the root password use:

      `rootpw=`*des-crypted-password*

      where *des-crypted-password* is the string output supplied by executing the following Perl script at the command line:

      `# perl -e 'print crypt("`*password*`","42"). "\n"'`

      where *password* is the root password to be encrypted.
    - For VNC access password use:

      `vncauth=`*hex-string*

      where *hex-string* is the hex string output supplied by executing the following `vncpasswd`commands at the command line:

      ```
      # vncpasswd /tmp/vncauth
      # od -t x1 /tmp/vncauth | awk '/0000000/ \
      {print $2 $3 $4 $5 $6 $7 $8 $9}'
      ```

  –or–

  - To pass a plain text password for both the root password and the VNC password enter the following:

```
# ptextpass=password
```

where *password* is the plain text password.

Next Steps

- "How to Establish a Connection Using a VNC Viewer" on page 113
- "How to Establish a Connection Using a Serial Console" on page 113

How to Establish a Connection Using a VNC Viewer

When you perform an unattended network installation, virtual network computing (VNC) is enabled by default. If you perform an unattended network installation, you can enable VNC by adding `display=vnc` as a boot argument.

1. **Set a password as shown in "How to Set Up Root and VNC Passwords" on page 112.**
2. **Press the Esc key shortly after the Oracle Hardware Installation Assistant splash screen appears.**

   Console messages appear. After the VNC server has started, a message appears providing the IP address to connect using VNC.
3. **Connect to the VNC viewer using the IP address displayed in Step 2.**

   For example:

   ```
   # vncviewer IP_address:1.0
   ```
4. **When prompted, enter the password that you set in Step 1 and VNC starts.**

   The installer interface appears when performing a manual installation. The screens automatically move forward as the installation progresses. The VNC screens are active for input and you can disrupt the installation if you do anything in the VNC window.

See Also "How to Establish a Connection Using a Serial Console" on page 113

How to Establish a Connection Using a Serial Console

Use this procedure to redirect the system console to a workstation or laptop and connect to the server's serial management port to view an unattended installation.

1. **Use the boot argument `console=ttyS0,9600` to have console output redirected to the serial console.**

   Tip – This is helpful when debugging and you want to be able to scroll back to see messages.

Note – Redirecting the output to the serial console disables output to the VGA console.

2. **Set up the serial console through the serial port.**

   For more information about using a serial console, see the Oracle ILOM (Integrated Lights Out Manager) documentation. The default setup is for the service processor to be available through the serial port.

3. **Log in to the service processor and enter the following command to start the console:**

   ```
   # start /SP/console
   ```

4. **Reboot the system.**

5. **Select the Network Boot option.**

6. **Select your Oracle Hardware Installation Assistant target, and then observe the progress of the unattended network installation.**

   After booting the Oracle Hardware Installation Assistant application, the serial console is sometimes left in a state where it is writing black text on a black background. If this occurs, reset your terminal to view the text.

See Also "How to Establish a Connection Using a VNC Viewer" on page 113

Troubleshooting Oracle Hardware Installation Assistant

This section provides information about the Oracle Hardware Installation Assistant application error messages, information about the Oracle Hardware Installation Assistant application installation log file, and procedures for debugging an unattended PXE-based network installation.

Topics in this section include:

No Driver Found Message Appears During Oracle VM 2.2.1 Server Installation

The Oracle VM Server installation process might show a "no driver found" message during the installation of Oracle VM 2.2.1 from Oracle Hardware Installation Assistant.

If this happens, click the Back button and retry the operation.

Oracle Hardware Installation Assistant Can Go Into a Loop at Last OS Install Screen

On rare occasions, the Oracle Hardware Installation Assistant application might go into a repeating loop at the final OS installation screen after pressing the Back and Next buttons.

If this happens, reboot the server. This issue does not affect any tasks performed during the Hardware Installation Assistant session, including OS installation.

Oracle Hardware Installation Assistant Error Messages

If the Oracle Hardware Installation Assistant application encounters an error or an unexpected condition, it generates an error message. The following table lists some possible error messages and scenarios and provides a possible resolution.

Error Message or Condition	Resolution
Message: `You have inserted Disc 3 but the system requires Disc 2. Please insert Disc 2.`	Insert the correct disk and try again.

Error Message or Condition	Resolution
Message: `The media you have provided is not a release that is supported on this platform. You cannot use the Oracle Hardware Installation Assistant to install this product and associated software.`	You are attempting to use the Oracle Hardware Installation Assistant application with an unsupported version of Linux or Microsoft Windows. To resolve, do one of the following: ■ To install a supported product, click Back and then insert the appropriate media. ■ To install a product not supported by the Oracle Hardware Installation Assistant application, click Exit to exit the application and reboot the system. You can now install the unsupported product as you normally would without the use of the Oracle Hardware Installation Assistant application.
Process problem or issue.	View the application's log file, see "How to View the Application Log File" on page 117.
The application does not launch from a PXE-based installation.	See "How to Debug a PXE Image That Does Not Boot" on page 117.

How to View the Application Log File

An the Oracle Hardware Installation Assistant application log file is written to the root directory of the newly installed system.

- **To view the application log file, do one of the following (depending on your OS):**
  - For Linux systems, use a text editor to open the `SunInstallationAssistant.log` file (located at `/root`).
  - For Windows systems, use a text editor to open the `SunInstallationAssistant.log` file (located at `C:\`).

See Also "Oracle Hardware Installation Assistant Error Messages" on page 116

How to Debug a PXE Image That Does Not Boot

Use this procedure to debug a PXE image that does not boot.

1. **Check the DHCP and TFTP server areas and the integrity of the `netboot.img` and `vmlinuz` files.**
2. **Verify that the kernel boot arguments are correct by consulting the PXE-example configuration (`boot/isolinux/isolinux.cfg`) provided on the Oracle Hardware Installation Assistant CD/DVD.**

3 Verify that the URL's in the Oracle Hardware Installation Assistant state file, Kickstart file, or AutoYaST file are correct. To determine whether the URL's are correct:

a. Test the URL with the command `wget` *URL*.

b. Verify that the DNS is working or use IP addresses instead of host names.

c. Check the following table for URL errors.

Problem	What you see
The state file URL (*HIAurl*) is incorrect.	If the state file URL (*HIAurl*) is incorrect, the installation appears to hang. Check the console for the following error message that appears after the VNC information: `Unable to fetch unattended statefile: URL`
The InstallLoc in the state file URL (*HIAurl*) is incorrect.	The system reboots without an error message and the console displays messages such as the following message before rebooting: `Can't MD5 ...`
The Kickstart entry in state file URL (*HIAurl*) is incorrect.	The installation appears to hang and the console displays the following message: `apit-magic: run: /installer/..."`
A parameter in the URL file is incorrect.	When connecting to VNC, you see that the unattended network installation stopped and is waiting for input.

4 Verify that the VNC password is properly set.

If the VNC password was not set, the following message displays on the console:

```
mv /dev/tty /dev/tty-node
ln -s /proc/self/fd/0 /dev/tty
echo password
/usr/X11R6/bin/vncpasswd.real /installer/vncpasswd
echo password
They don't match. Try again.
```

See Also "Oracle Hardware Installation Assistant Error Messages" on page 116

Launching Oracle Hardware Installation Assistant Using a USB Flash Drive

This section describes how to create a boot-capable USB flash drive and launch the Oracle Hardware Installation Assistant application.

Preparing and booting an Oracle Hardware Installation Assistant USB flash drive is described in the following sections:

Requirements

- The Oracle Hardware Installation Assistant application version 2.0.144 or later. USB flash drive support is not available on earlier versions of the Oracle Hardware Installation Assistant application.
- Syslinux utility version 3.52 or later
- 1 GB or larger USB 2.0 flash drive
- A system running Windows XP or Linux with a USB 2.0 compatible port
- Internet access (to download the necessary software)

Next Step: "How to Get the Syslinux and Oracle Hardware Installation Assistant Software" on page 119

▼ How to Get the Syslinux and Oracle Hardware Installation Assistant Software

This section describes how to get the Syslinux and the Oracle Hardware Installation Assistant application software. The Syslinux software is needed to prepare the USB flash drive in order to boot the Oracle Hardware Installation Assistant application. You can use either a Windows or Linux machine to download the Syslinux and the Oracle Hardware Installation Assistant application software and prepare the USB flash drive for booting.

1. **Go to the Oracle Single System Management page on the Oracle web site:**

   `http://www.oracle.com/goto/system-management`

2. **Click the Downloads tab.**

3. **Follow the instructions for "Obtaining Oracle Hardware Installation Assistant" on the page.**

4. **From the `http://support.oracle.com` site, select and download the appropriate software package for your server.**

5. **Once the appropriate zip file(s) have been downloaded (there might be multiple), extract the following archive files from the main download package(s) to a convenient file folder on a Windows XP or Linux (Red Hat or SUSE) system where you will be preparing the USB flash disk.**

   - `syslinux-`*version*`.tar.gz` where *version* is 3.52 or later
   - `Oracle_HIA-`*version*`-usb.zip` where *version* is 2.0.144 or later

   Note – These files might be available separately (as listed above) or bundled in a single package.

Next Steps "Creating an Oracle Hardware Installation Assistant USB Flash Drive" on page 120

Creating an Oracle Hardware Installation Assistant USB Flash Drive

This section describes how to create an Oracle Hardware Installation Assistant boot-capable USB flash drive for either a Linux or Windows system. Choose one of the installation methods:

- Automated method (Windows XP), for downloads with `Oracle_HIA-`*version*`.iso` and `Oracle_HIA-`*version*`-usb.zip`: see "How to Prepare an Oracle Hardware Installation Assistant USB Flash Drive With Windows Autorun" on page 121
- Manual method (Linux), for downloads with `syslinux-`*version*`.tar.gz` and `Oracle_HIA-`*version*`-usb.zip`: see "How to Create an Oracle Hardware Installation Assistant USB Flash Drive Manually on a Linux (Red Hat/SUSE) System With Syslinux" on page 124
- Manual method (Windows XP) for downloads with `syslinux-`*version*`.tar.gz` and `Oracle_HIA-`*version*`-usb.zip`: see "How to Create an Oracle Hardware Installation Assistant USB Flash Drive Manually on a Windows XP System With Syslinux" on page 127

▼ How to Prepare an Oracle Hardware Installation Assistant USB Flash Drive With Windows Autorun

The Oracle Hardware Installation Assistant ISO image download package has a Windows XP autorun utility to assist in the creation of a boot-capable USB flash drive.

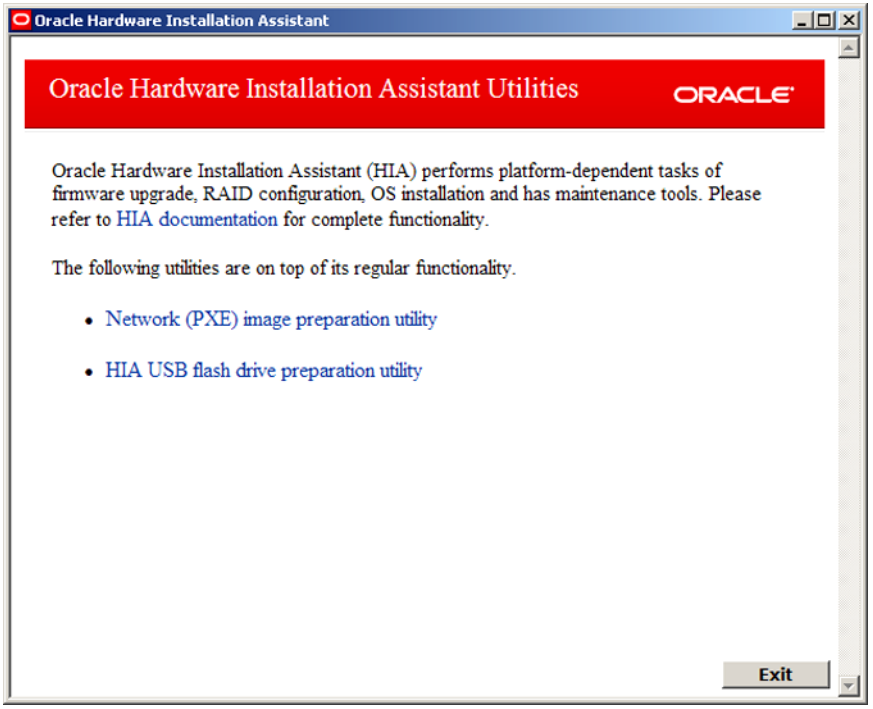
Before You Begin

- You should have already downloaded the Oracle Hardware Installation Assistant ISO image. See "How to Get the Syslinux and Oracle Hardware Installation Assistant Software" on page 119.
- You should have already downloaded the `Oracle_HIA-`*version*`-usb.zip` file and saved it to a folder on the Windows system where you will be creating the boot-capable USB flash drive.
- If you want to use the autorun option from a DVD of the Oracle Hardware Installation Assistant ISO image, burn an Oracle Hardware Installation Assistant DVD from the ISO image before you begin.

1 Plug the USB flash drive that you will be using into an available USB port on a Windows XP system. Make a note of the drive letter assigned to the USB drive.

2 **Insert the Oracle Hardware Installation Assistant CD/DVD into the drive on a Windows XP system, or mount the ISO image file.**

The initial screen for the autorun utility screen appears.

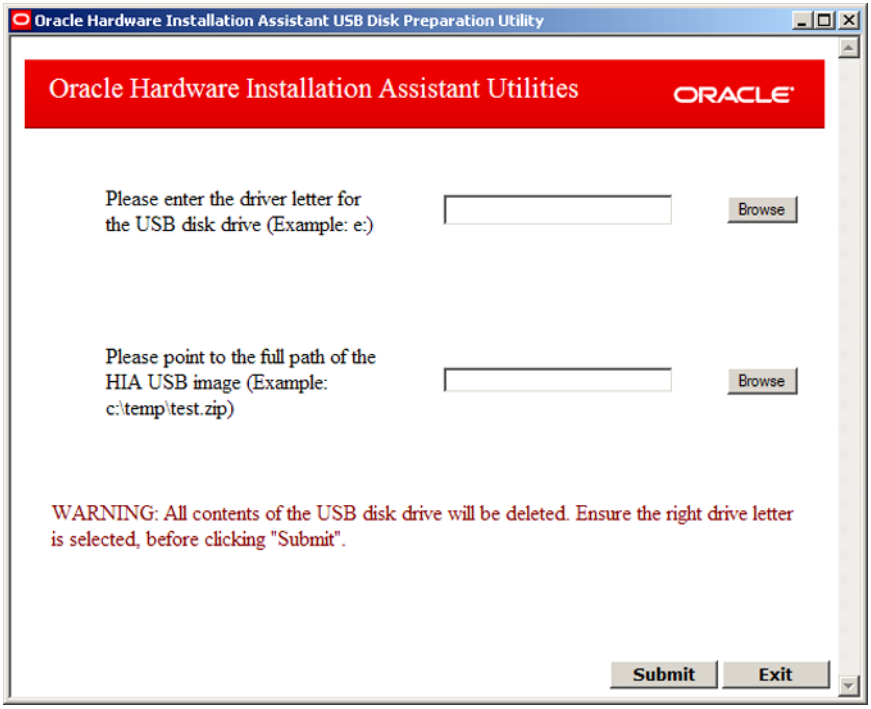


Note – If the autorun html application doesn't automatically launch, point your browser to the **`\resources\autorun\windows\Oracle_HIA-autorun.hta`** file on the DVD.

---

3. **From the autorun main page, click the HIA USB flash disk drive preparation utility option.**

   The USB flash preparation utility screen appears.



Note – If the HIA USB flash disk drive preparation page doesn't launch, point your browser to the **`\resources\autorun\windows\usb-util.hta`** file on the DVD.

4. **Browse or enter the drive letter for the USB flash drive.**

Caution – Possible unintentional data loss. Ensure that the selected drive letter is for the HIA USB flash drive. Do *not* select the drive letter of a system disk. The action initiated by this utility erases existing data.

5. **Browse or enter the full path of the HIA USB zip file (`Oracle_HIA-`*version*`-usb.zip`).**

6. **Click Submit.**

Caution – Data loss. The contents of the USB flash drive are erased and overwritten.

This action creates the boot-capable USB flash drive for launching the Oracle Hardware Installation Assistant application.

Next Steps "How to Boot the USB Flash Drive and Launch Oracle Hardware Installation Assistant " on page 129

▼ How to Create an Oracle Hardware Installation Assistant USB Flash Drive Manually on a Linux (Red Hat/SUSE) System With Syslinux

Before You Begin

- This procedure requires the use of `parted` utility version 1.8.6 or later. **Do not use earlier versions of** `parted`.
- You should have already downloaded the Syslinux and Oracle Hardware Installation Assistant archive files. See "How to Get the Syslinux and Oracle Hardware Installation Assistant Software" on page 119.

1 Extract the contents of the `syslinux-`*version*`.tar.gz` archive file using the following command:

```
# tar -zxvf /path/syslinux-version.tar.gz
```

where *path* is the path to the directory that contains the Syslinux archive file and *version* is the Syslinux version number.

2 Insert the USB flash drive into a working USB 2.0 port.

3 Use the `tail` command to identify the USB flash drive's device name.

```
# tail /var/log/messages
```

You should see the device name (such as, `sda` or `sdb`). Example output is shown below:

```
Nov 12 13:19:29 server kernel: scsi 4:0:0:0: Lexar, Inc. USBdisk PQ: 0 ANSI: 0 CCS
Nov 12 13:19:29 server kernel: sd 4:0:0:0: [sdb] 1030750208 512-byte hardware sectors (1030 MB)
Nov 12 13:19:29 server kernel: sd 4:0:0:0: [sdb] Write Protect is off
Nov 12 13:19:29 server kernel: sd 4:0:0:0: [sdb] Assuming drive cache: write through
Nov 12 13:19:29 server kernel: sdb:
Nov 12 13:19:29 server kernel: sd 4:0:0:0: [sdb] Attached SCSI removable disk
Nov 12 13:19:29 server kernel: sd 4:0:0:0: Attached scsi generic sg2 type 0
```

Caution – Possible unintentional data loss. Be sure to confirm and make a note of the device name of the USB flash drive (`/dev/sda`, `/dev/sdb`). The instructions listed here require you to delete existing partition(s) on the USB flash disk. Making a mistake in identifying the device might cause you to erase a hard disk.

4 Create a single boot partition on the USB flash drive using `parted`, as follows:

Note – This procedure requires the use of `parted` utility version 1.8.6 or later. **Do not use earlier versions of** `parted`.

Note – These steps require superuser (`su - root`) access.

a. If Linux has automatically mounted the device, unmount it first using the following commands:

```
# umount /dev/sdX1
```

where *X* is the drive letter for the USB flash drive (for example, `/dev/sda` or `/dev/sdb`), and `1` indicates the first partition.

b. Use `parted` to delete all partitions and create a new boot FAT32 partition:

```
# /sbin/parted /dev/sdX
```

where *X* is the drive letter for the USB flash drive (for example, `/dev/sda` or `/dev/sdb`).

The `parted` command prompt appears.

c. Enter the following commands in the order listed and follow the prompts to create your boot primary partition:

- `(parted):` **`mklabel`**

  You are prompted to create a disk label type. If `msdos` is not listed as the default, you need to enter `msdos` at the appropriate prompt, as shown in the example below:

  ```
  Warning: The existing label on sdx will be destroyed and all
  data on this disk will be lost. Do you want to continue?
  Yes/No: yes
  New disk label type? msdos
  ```

- `(parted):` **`mkpartfs`**

  Creates a new partition on the disk. Answer the prompts to confirm that this is the `primary` partition, `fat32` format, spanning the entire disk minus the last megabyte (starting at `1`, and ending at `-1`). Example output is shown below:

  ```
  Partition type? primary/extended? primary
  File system type? [ext2] fat32
  Start? 1
  End? -1
  ```

- `(parted):` **`set 1 boot on`**

  Sets the boot flag for this partition.

- `(parted):` **`set 1 lba on`**

  Sets the lba (Linear Block Addressing) flag for this partition.

- (parted): **print**

  Displays the current settings for the new partition. Example output is shown below:

```
Model: Lexar, Inc. USBdisk (scsi)
Disk /dev/sdb: 1031MB
Sector size (logical/physical): 512B/512B
Partition Table: msdos

Minor   Start   End     Size    Type     Filesystem  Flags
 1      16.4kB  931MB   1031MB  primary  fat32       boot, lba
(parted)
```

- (parted): **quit**

  Quits the `parted` utility.

5 Navigate to the Syslinux `mbr` directory:

cd *path*/**mbr**

where *path* is the directory to which you extracted Syslinux.

6 Locate the Syslinux master boot record file `mbr.bin` in the `mbr` directory and write it to the disk using the following command:

cat mbr.bin > /dev/sd*X*

where *X* is the drive letter for the USB flash drive (for example, `/dev/sda` or `/dev/sdb`).

7 To create a label for the USB device, enter the following command:

mkfs.vfat -n OHIA /dev/sd*X***1**

where *X* is the USB device identifier (for example, `/dev/sda` or `/dev/sdb`) and 1 indicates the first partition.

8 Navigate to the Syslinux `unix` directory:

cd *path*/**unix**

where *path* is the directory to which you extracted Syslinux.

Note – For later versions of Syslinux, the `unix` directory might be replaced with a `linux` directory. If so, replace the `unix` directory name with `linux`.

---

9 From the Syslinux `unix` directory, enter the following command:

./syslinux /dev/sd*X***1**

where *X* is the drive letter for the USB flash drive (for example, `/dev/sda` or `/dev/sdb`), and `1` indicates the first partition.

Note – In the next step you need to specify the mount point. If `autofs` is running, it might have auto–mounted the drive partition to some other mount point. If this happens, unmount it by entering the command:

```
umount /dev/sdX1
```

10 **Mount the drive to a mount point by entering the command:**

```
# mount -t vfat /dev/sdX1 /mnt
```

where *X* is the drive letter for the USB flash drive (for example, `/dev/sda` or `/dev/sdb`), and `1` indicates the first partition. For this example, the mount point is `/mnt`.

11 **Extract (unzip) the contents of the `HIA-`*version*`-usb.zip` archive file to the USB flash drive by entering the following command:**

```
# unzip -q -d /mnt ~/path/HIA-version-usb.zip -x "source/*"
```

where *path* represents the path to the directory where the `.zip` file is located, and *version* represents the Oracle Hardware Installation Assistant version number. The `"source/*"` parameter excludes the any source files from the extraction to save time and disk space.

12 **Unmount the USB flash drive:**

```
# umount /mnt
```

13 **Remove the flash drive from the client machine.**

The USB flash drive is now ready to boot the Oracle Hardware Installation Assistant application.

Next Steps "How to Boot the USB Flash Drive and Launch Oracle Hardware Installation Assistant " on page 129

▼ How to Create an Oracle Hardware Installation Assistant USB Flash Drive Manually on a Windows XP System With Syslinux

Before You Begin

- You should have already downloaded the Syslinux and Oracle Hardware Installation Assistant archive files. See "How to Get the Syslinux and Oracle Hardware Installation Assistant Software" on page 119.
- As an alternative, you can use a Windows autorun HTML application to automate this procedure described in "How to Prepare an Oracle Hardware Installation Assistant USB Flash Drive With Windows Autorun" on page 121.

1. **Extract the contents of the downloaded `syslinux-`*version*`.tar.gz` archive file (where *version* represents the Syslinux version number) to a folder on the Windows XP system where you will be creating your USB bootable flash drive.**

2. **Extract the contents of the downloaded `HIA-`*version*`-usb.zip` archive file (where *version* represents the Oracle Hardware Installation Assistant version number) to a folder on the Windows XP system where you will be creating your USB bootable flash drive.**

3. **Insert the USB flash drive into a USB 2.0 port on the Windows system where you will be creating your USB bootable flash drive.**

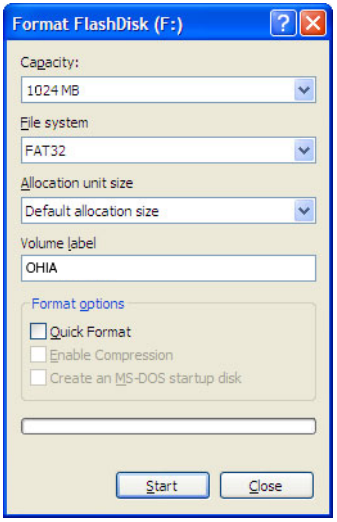
4. **After Windows has found the new hardware, double-click on My Computer from the desktop.**

Caution – Be sure to confirm and make a note of the device name of the USB flash drive (for example, **`A:`** or **`B:`**). The instructions listed here require you to delete an existing partition(s) on the USB flash drive. Misidentifying the device can result in the accidental erasure of content on an existing drive.

5. **Right-click on the flash disk icon in the list of hard disk drives, and then click Format.**

   The format screen box appears.

6. **From the File system drop-down menu, select FAT32 and enter 'OHIA' for the volume label.**



7. **Click the Start button.**

   The flash disk is formatted.

8. **After the formatting has finished, click the Close button.**

   The Format screen box closes.

9. **Click the Start button from the Windows task bar, and then click Run.**

   The Run screen box appears.

10. **Start the `syslinux` executable using the `-ma` option to make the drive boot capable by entering the following command:**

    path`\syslinux.exe -ma` *X*`:`

    where *path* is the path to where syslinux.exe was extracted (typically under `resources\autorun\windows`) and *X* is the drive letter for your USB flash drive (for example, `A:` or `B:`)

    This creates a file `ldlinux.sys` on the drive and makes it boot capable.

11. **Extract (unzip) the contents of the downloaded `HIA-`*version*`-usb.zip` archive file to the USB flash drive.**

12. **To remove the USB flash drive, click the Safe to Remove Hardware icon and remove the flash drive from the system.**

    The USB flash drive is now ready to boot the Oracle Hardware Installation Assistant application.

Next Steps "How to Boot the USB Flash Drive and Launch Oracle Hardware Installation Assistant " on page 129

▼ How to Boot the USB Flash Drive and Launch Oracle Hardware Installation Assistant

The procedures in this section refer to the server upon which you are installing an OS.

Note – You must be set up to view the system console boot messages.

Before You Begin See "Creating an Oracle Hardware Installation Assistant USB Flash Drive" on page 120.

1. **Insert the Oracle Hardware Installation Assistant USB flash drive into an available USB 2.0 port.**

2. **Reboot the system, watch the display for the BIOS prompt, and when prompted enter the BIOS Setup Utility.**

   The BIOS Setup Utility main screen appears.

3. **Navigate to the Advanced > USB Configuration > USB controller setup screen, and configure the controller for USB 2.0 (high speed) mode.**

4. **Navigate to the Boot > Hard Disk setup screen, and make your USB flash drive the first boot device.**

   The USB flash drive must be the first listed boot device.

5. **To save your changes and boot the Oracle Hardware Installation Assistant application, select Save and Exit.**

   The system exits the BIOS Setup Utility and boots from the Oracle Hardware Installation Assistant USB flash drive.

Next Steps "Launching the Application and Performing Provisioning Tasks" on page 19

Installing Service Tags

Oracle's Sun Service Tags enable automatic discovery of Oracle systems, software, and services (gear). A service tag uniquely identifies each tagged piece of gear, and allows static information about the gear to be shared over a local network in a standard XML format. You can leverage this discovery capability and use it as an administrative tool for managing distributed inventory.

Some of the benefits of Sun Service Tags include:

- A small footprint (about 100 kilobytes).
- Configurable for discovery per gear.
- Can be used by the system administrator to register new equipment with Oracle.
- Can be used by Oracle service (with the system administrator's permission) to aid in troubleshooting.
- Runs only when queried (does not run in the background).

Additionally, Sun Service Tags do not contain personal information and do not automatically collect or send any information to Oracle. The service tag information you share with Oracle is used solely to identify Sun gear and better support Oracle customers. Registration data is only collected when the system administrator requests gear discovery.

Sun Service Tags are copied to the system when you perform an assisted OS installation using the Oracle Hardware Installation Assistant application. However, they are not installed. Oracle recommends the installation of Sun Service Tags to register and help keep track of your Sun gear.

To install Sun Service Tags, follow the instructions that apply to your server's OS:

- "How to Install Service Tags in Linux" on page 131
- "How to Install Service Tags in Windows" on page 132

▼ How to Install Service Tags in Linux

A service tag enables automatic discovery of systems, software, and services (gear). A service tag uniquely identifies each tagged piece of gear, and allows information about the gear to be shared over a local network in a standard XML format.

Before You Begin

- You must have used Oracle's Hardware Installation Assistant to install a supported Linux operating system.
- You must have `xinetd` installed. If you do not, a version is available at the location where the Oracle Hardware Installation Assistant application copied the service tags.

1. **On the Linux server, navigate to the following directory:**

   `/var/optional`

2. **Install the hardware registration client by entering the command:**

   `rpm –i sun-hardware-reg-`*version***`.i386.rpm`**

   where *version* is the version number of the .rpm file.

3. **Install the service tags by entering the command:**

   `rpm –i sun-servicetag-`*version***`.i386.rpm`**

   where *version* is the version number of the .rpm file.

Note – The service tags and documentation can be found in the extracted directory.

▼ How to Install Service Tags in Windows

A service tag enables automatic discovery of systems, software, and services (gear). A service tag uniquely identifies each tagged piece of gear, and allows information about the gear to be shared over a local network in a standard XML format.

Before You Begin

- You must have used the Oracle Hardware Installation Assistant application to install a supported Windows operating system.

1. **On the Windows server, use Windows Explorer to navigate to the following folder:**

   `C:\sun\optional`

2. **Install the hardware registration client by double-clicking the file:**

   `sun-hardware-reg-`*version***`.msi`**

   where *version* is the version number of the `.msi` file.

3. **Install the service tags by double-clicking the file:**

   `sun-servicetag-`*version***`.msi`**

   where *version* is the version number of the `.msi` file.

Note – The service tags and documentation can be found in the extracted directory.

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