Oracle® X4 Series Servers Administration Guide

Part No: E37044-10
April 2016

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Contents

Using This Documentation

The section describes the Sun Server X4 series model naming conventions, and provides other general information. It includes:

Sun X4- Series Model Name

The platform name identifies the following:

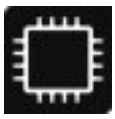
- X identifies an x86 product.
- The first number, 4, identifies the generation of the server.
- The second number identifies the number of processors.
- If a letter is present, L identifies it as a large system and B identifies it as a blade.

Documentation and Feedback

Documentation	Link
Oracle documentation	https://docs.oracle.com/
Feedback on this documentation	http://www.oracle.com/goto/docfeedback
Oracle Integrated Lights Out Manager	http://www.oracle.com/goto/ilom/docs
Oracle Hardware Management Pack	http://www.oracle.com/goto/ohmp/docs

Icons Used in This Document

This document uses icons to identify the tools used for each task. The following table shows the icons and the tools that they represent:

Icon	Tool
	Oracle System Assistant
	Oracle ILOM
	Oracle Hardware Management Pack
	BIOS

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Change History

The following lists the release history of this documentation:

- April 2016. Backup and restore fault data added.
- December 2015. Technical updates.

- September 2015. Added information to Initial Setup, and to Updating BIOS instructions.
- June 2015: Editorial improvement and technical updates.
- September 2014. Added Elastic Computing, updates for Oracle ILOM 3.2.4, and editorial improvements.
- April 2014. Additional updates and improvements.
- April 2014. More editorial improvements.
- December 2013. Updates for Oracle System Assistant 1.2.
- September 2013. Initial publication.

About the Administration Guide

This guide provides administration procedures for single system management. It includes information about the tools used and provides procedures for using the tools to perform administrative tasks.

This section includes:

Related Information

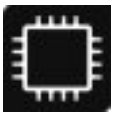
This guide supplements the X4-series servers documentation found in the corresponding documentation libraries.

- Sun Server X4-2: `http://www.oracle.com/goto/x4-2/docs`
- Sun Server X4-2L: `http://www.oracle.com/goto/x4-2/docs`
- Sun Server X4-4: `http://www.oracle.com/goto/x4-4/docs`
- Sun Server X4-8: `http://www.oracle.com/goto/x4-8/docs`

Single System Management Tools

The following table lists the single system management tools and provides links to the sections that describe each tool.

Tool and Associated Icon	Environment	Overview	Access Instructions
Oracle System Assistant	Utility that boots on the host.	"Oracle System Assistant Overview" on page 23	"Accessing Oracle System Assistant" on page 147

Tool and Associated Icon	Environment	Overview	Access Instructions
			
Oracle Integrated Lights Out Manager (Oracle ILOM) 	Available whether the OS is booted or not. Server must be attached to AC power.	“Oracle Integrated Lights Out Manager (ILOM) Overview” on page 26	“Accessing Oracle ILOM” on page 38
Oracle Hardware Management Pack 	Runs from the host OS command line.	“Oracle Hardware Management Pack Overview” on page 28	“Accessing Oracle Hardware Management Pack” on page 47
BIOS Setup Utility 	Accessed by booting the server and interrupting the boot process.	“BIOS Setup Utility Overview” on page 30	“Accessing the BIOS Setup Utility” on page 48

Related Information

- “Multiple System Management Tools” on page 18
- “Using Oracle System Assistant” on page 147

Multiple System Management Tools

To perform system management functions across *multiple* systems simultaneously, consider using **Oracle Enterprise Manager Ops Center**. Oracle Enterprise Manager Ops Center might

be included with your server as part of a server support contract. You can also order Oracle Enterprise Manager Ops Center software from Oracle.

Oracle Enterprise Manager Ops Center is a highly scalable, unified management platform for physical and virtual environments. Use Oracle Enterprise Manager Ops Center to manage multiplatform x86 and SPARC systems that are distributed throughout a global data center and to integrate Oracle systems with existing tool sets. Oracle Enterprise Manager Ops Center facilitates many aspects of compliance reporting (ITIL) and data center automation, enabling you to manage thousands of systems simultaneously.

Refer to the Oracle Enterprise Manager Ops Center product information at: `http://www.oracle.com/technetwork/oem/ops-center/index.html`

Related Information

- “Single System Management Tools” on page 17

System Administration Tasks

The following table lists common administration functions and provides links to the tasks related to each function.

Function	Task
Control server power	“Power On Host Using the Power Button” on page 53. “Power Off Host Using the Power Button” on page 52. “Power Host On and Off (Oracle ILOM)” on page 53. “Setting System-Wide Power Management Settings (Oracle ILOM)” on page 103. “Setting SP Policy for Host Power at Boot (Oracle ILOM)” on page 111.
Configure boot settings	“Modify the Boot Order (BIOS)” on page 55. “Set Next Boot Device (Oracle ILOM)” on page 57. “Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)” on page 198.
Install operating system **Note -** To perform these tasks in order, in HTML, shift-select the first task to open it in a new window. When you have completed the task, close the window and shift-	Prepare Oracle System Assistant for updates. ■ “Configure Network Interface Settings (Oracle System Assistant)” on page 165. ■ “Configure MOS to Enable Oracle System Assistant Updates” on page 168. Download and Install Updates of Platform Software, Drivers, and Firmware.

Function	Task
select the next task. Continue until all tasks are done.	■ "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)" on page 225. ■ "Update Software and Firmware (Oracle System Assistant)" on page 226. Configure RAID. ■ "RAID Configuration Options" on page 59. Install the Operating System. ■ "Install an Operating System (Oracle System Assistant)" on page 118.
Monitor and Troubleshoot	"View and Resolve Open Problems (Oracle ILOM)" on page 124. "View Event Log Entries (Oracle ILOM)" on page 125. "Monitor Open Problems (Oracle Hardware Management Pack)" on page 126. "View and Resolve Error Messages at POST" on page 127. "View Server Information and Inventory (Oracle System Assistant)" on page 121. "View Server or Blade System Information and Inventory (Oracle ILOM)" on page 123. "Viewing Server Information and Inventory" on page 121. "Monitoring and Resolving Open Problems" on page 124. "Diagnostics Overview" on page 127.
Update and back up	Updates ■ "Updates and Tools Overview" on page 217. ■ "Updating System Software and Firmware (Oracle System Assistant)" on page 220. ■ "Updating Server or Blade Chassis Firmware (Oracle ILOM)" on page 229. ■ "Preparing Oracle System Assistant for Updates" on page 165. ■ "Getting Firmware and Software From MOS" on page 233. Backup and Restore Oracle ILOM. ■ "Back Up the Current Oracle ILOM Firmware Configuration (Oracle ILOM)" on page 136. ■ "Restore the Backed Up Oracle ILOM Configuration or Reset the Configuration to Factory Defaults (Oracle ILOM)" on page 138. ■ "Replicate the Oracle ILOM Firmware Configuration on Other Oracle Systems (Oracle ILOM)" on page 140. Backup and Restore BIOS. ■ "Back Up the Current BIOS Firmware Configuration (Oracle ILOM)" on page 132. ■ "Restore the Backed Up BIOS Configuration or Reset BIOS to Factory Defaults (Oracle ILOM)" on page 133. ■ "Sync the Host BIOS Firmware Configuration (Oracle ILOM)" on page 134.
Initial system setup using Oracle System Assistant	■ "Assign System Identification Information (Oracle System Assistant)" on page 85. ■ "Configure Network Interface Settings (Oracle System Assistant)" on page 165.

Function	Task
Note - Since these tasks are normally done in the order that they appear here, to see them in order, shift-click to open each one in a new window, then return here when you are done.	■ "Configure SP Network Settings (Oracle System Assistant)" on page 88. ■ "Add, Modify, or Delete Oracle ILOM User Account (Oracle System Assistant)" on page 93. ■ "Set SP Clock Properties (Oracle System Assistant)" on page 96. ■ "Configure SP DNS (Oracle System Assistant)" on page 98. ■ "Configuration Management (Oracle System Assistant)" on page 174. This selection returns selected Oracle ILOM settings to factory defaults. ■ "Download Oracle Hardware Management Pack (Oracle System Assistant)" on page 99. ■ "Configure TPM Properties (BIOS)" on page 100.
Set up RAID	"Configure Hardware for RAID (Oracle System Assistant)" on page 60 "Configure RAID (Oracle Hardware Management Pack)" on page 63. "Configure RAID (BIOS)" on page 64.
Set up iSCSI	"Modify iSCSI Virtual Drive Properties in Legacy BIOS Boot Mode (BIOS)" on page 66. "Modify iSCSI Virtual Drive Properties in UEFI Boot Mode (BIOS)" on page 72.
Use and maintain Oracle System Assistant	"Oracle System Assistant Overview" on page 23. Using Oracle System Assistant. ■ "Accessing Oracle System Assistant" on page 147. ■ "Using the Oracle System Assistant User Interface" on page 152. ■ "View Help and the Readme File" on page 155. ■ "View Platform Documentation" on page 156. ■ "Browse Oracle System Assistant Content" on page 159. ■ "Accessing Files on the Oracle System Assistant Flash Drive" on page 157. ■ "Importing and Exporting Hardware Configuration (Oracle System Assistant 1.2)" on page 142. Managing Oracle System Assistant. ■ "Preparing Oracle System Assistant for Updates" on page 165. ■ "Enabling and Disabling Oracle System Assistant" on page 170. ■ "Set Oracle System Assistant Keyboard Language" on page 173. ■ "Export Usage Logs (Oracle System Assistant 1.2)" on page 175. "Troubleshoot and Verify Oracle System Assistant" on page 179. Troubleshooting and Restoring Oracle System Assistant. ■ "Troubleshoot and Verify Oracle System Assistant" on page 179. ■ "Check Oracle System Assistant Media Integrity" on page 182. ■ "Restore Oracle System Assistant Software" on page 183.
Use Oracle ILOM	"Oracle Integrated Lights Out Manager (ILOM) Overview" on page 26. Accessing Oracle ILOM ■ "Establish a First-Time Management Connection to Oracle ILOM" on page 38. ■ "Launch and Log In to Oracle ILOM" on page 39. ■ "Launching Oracle ILOM Remote Redirection Sessions for KVMS" on page 41.

Function	Task
	Backing Up Oracle ILOM. ■ “Backing Up, Restoring, or Replicating the Oracle ILOM Firmware Configuration” on page 135.
Use Oracle Hardware Management Pack	“Oracle Hardware Management Pack Overview” on page 28. “Accessing Oracle Hardware Management Pack” on page 47.
Use BIOS Setup Utility	“BIOS Setup Utility Overview” on page 30. “Access the BIOS Setup Utility Menus” on page 190. “Legacy BIOS Boot Mode and UEFI Boot Mode” on page 196. “Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)” on page 198. “Exit the BIOS Setup Utility” on page 192. “Navigate the BIOS Setup Utility Menus” on page 193. “Set UEFI Late Synchronization” on page 195. “Backing Up, Restoring, or Replicating the BIOS Firmware Configuration (Oracle ILOM)” on page 131. “Backup, Restore, and Revert BIOS Settings (Oracle System Assistant 1.1)” on page 141.
Allocate Option ROM and I/O Space	“Option ROM and I/O Space Allocation” on page 201
Configure elastic computing	“Configure Elastic Computing” on page 207

About Single System Management Tools

This section describes the tools used to manage Oracle servers.

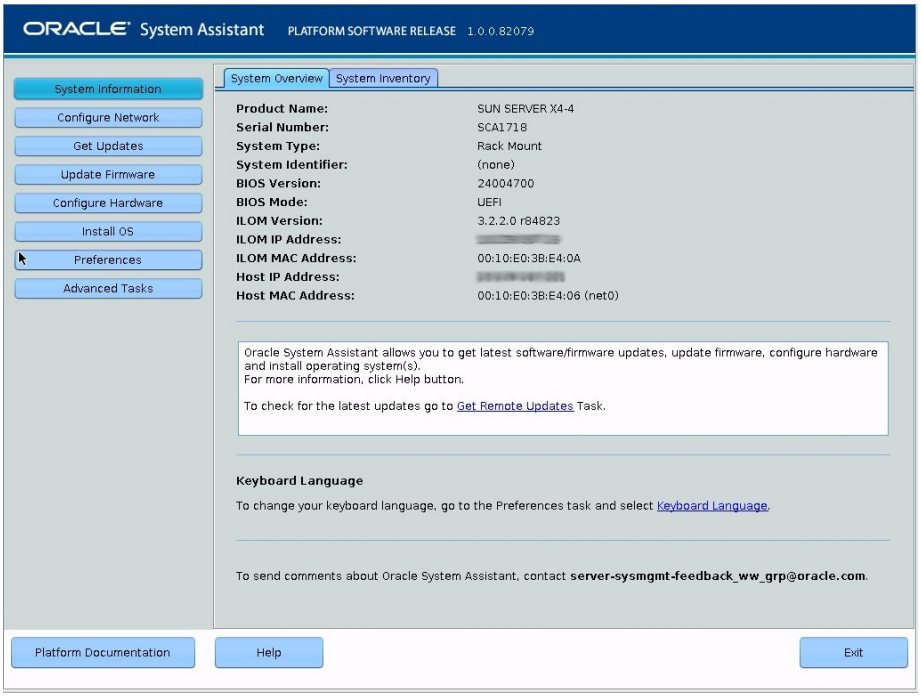
Tool	Link
Oracle System Assistant	“Oracle System Assistant Overview” on page 23
Oracle Integrated Lights Out Manager	“Oracle Integrated Lights Out Manager (ILOM) Overview” on page 26
Oracle Hardware Management Pack	“Oracle Hardware Management Pack Overview” on page 28
Basic Input Output Setup (BIOS) Utility	“BIOS Setup Utility Overview” on page 30
Location of the system management documentation	“Product Documentation” on page 31

Oracle System Assistant Overview

Oracle System Assistant is a startup and maintenance tool embedded on a USB drive inside the server. It includes:

- A bootable, graphical utility used to perform configuration, upgrade, and installation tasks
- Oracle Hardware Management Pack
- Oracle Linux command-line environment
- Operating system drivers and tools
- Server-specific firmware
- Server-related documentation

You can launch Oracle System Assistant using BIOS, the Oracle ILOM web interface, or the Oracle ILOM command-line interface. For startup details, see “Accessing Oracle System Assistant” on page 33.



With the Oracle System Assistant utility, you can:

- Install supported operating systems and update them with the latest drivers and supported tools.
- Get the latest available system BIOS, Oracle ILOM, supported operating systems, firmware, tools, and drivers from Oracle. An Internet connection is required.
- Update the system BIOS, Oracle ILOM, and Oracle-certified device drivers for optional accessory cards and other system hardware.
- Configure the Oracle ILOM service processor (SP) and BIOS.
- Display system overview and server hardware inventory information.
- Configure RAID 0, RAID 1, RAID 5, or RAID 10 for servers that contain an integrated LSI disk controller.
- Access the Oracle System Assistant (Linux) shell terminal window, allowing use of the runtime environment.
- Access Oracle Hardware Management Pack commands (using the Oracle System Assistant shell).
- Access server-specific documentation.
- Disable Oracle System Assistant.

Oracle System Assistant is delivered on a USB storage device embedded in the system. It includes everything you need to start using the server with a supported operating system except for the operating system installation media.

Oracle System Assistant components are updated over the network. The embedded storage drive is factory-configured with a server-specific version of Oracle System Assistant that you maintain by using an online update feature for all components. Alternatively, you can download an UPDATER ISO image from the My Oracle Support web site.

Oracle continually strives to improve its products. To send comments about Oracle System Assistant, contact **server-sysmgmt-feedback_ww_grp@oracle.com**.

Related Information

- "Using Oracle System Assistant" on page 147
- "Managing Oracle System Assistant" on page 165

Revisions of Oracle System Assistant

This manual includes information about two versions of Oracle System Assistant:

- Sun Server X4-2 and earlier systems use Oracle System Assistant Release 1.1.
- Sun Server X4-4 and Sun Server X4-8 use Oracle System Assistant 1.2.

Note - Versions of Oracle System Assistant installed on a platform are subject to change.

Oracle System Assistant 1.2 supports all the features present in Oracle System Assistant 1.1, and includes some new features. The new features are identified in the text as being available only on Oracle System Assistant 1.2.

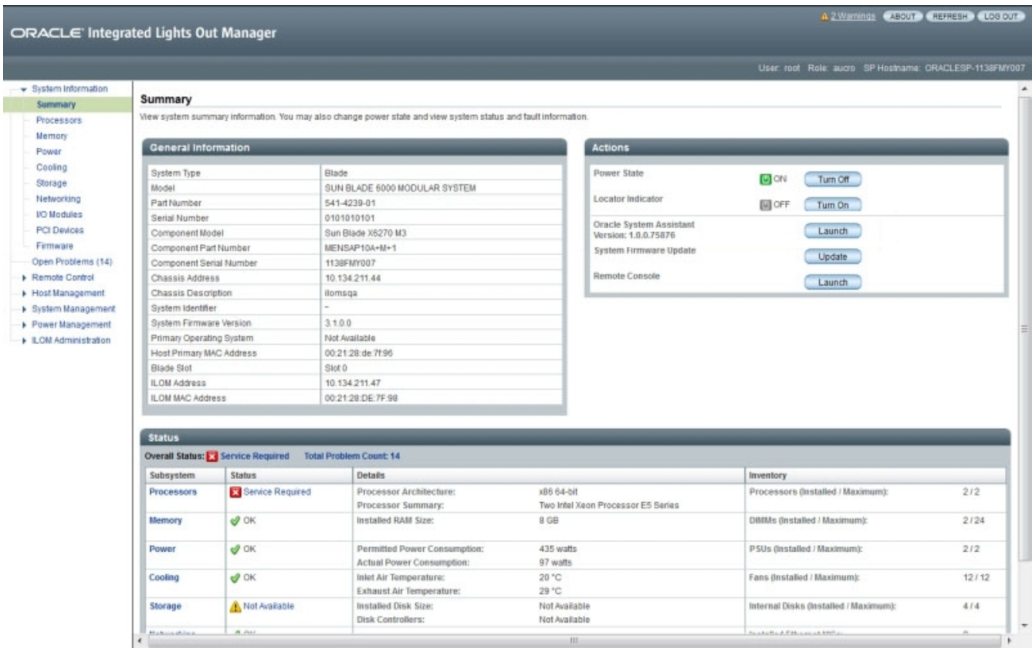
The new features in Oracle System Assistant 1.2 include:

- Ability to download and install release from local media.
- Support for RAID 5.
- Ability to use Oracle System Assistant to get multiple versions of software releases.
- DHCP Renew function.
- Ability to install Linux OS from media on network servers.
- Export usage logs to external media.

Oracle Integrated Lights Out Manager (ILOM) Overview

Oracle Integrated Lights Out Manager (ILOM) is embedded system management firmware that operates after AC power is applied to a server or a blade chassis.

- It provides a web interface and a command-line interface (CLI).
- It is a preinstalled service processor (SP) utility. Some initial configuration is required.



You can access Oracle ILOM locally or remotely from any supported user interface when your system is in Standby or Full power mode.

Oracle ILOM offers a wide range of standard features to help you manage your system. The features include:

Feature	Description
System Health Status	View the overall health status of the system and a total problem count, or drill down to subcomponent health details.
Hardware Inventory and Status	At a glance, identify the hardware associated with a server or blade chassis. Gather system details such as model numbers, part numbers, firmware versions, the primary operating system, and network addresses.

Feature	Description
Power Consumption Management	Monitor the power consumption of a server or a blade chassis. Choose to configure power consumption policies to help control the system power usage.
Fault Management and Alert Notification.	Identify hardware errors on a system as they occur. Troubleshoot and resolve problems by viewing event messages captured in log files or by navigating to knowledge articles. You can also choose to set up email notifications to alert you or others when errors occur.
Host Server Management Actions	Manage the server by performing these types of actions: ■ Select the next boot device. ■ Manage the host power state. ■ Launch Oracle System Assistant. ■ Assign server identification labels. ■ Configure the diagnostics. ■ Make a backup copy of the BIOS and service processor (SP) configuration. ■ Restore backed up configuration properties.
KVMS Consoles for Host Server Redirection	Launch the Oracle ILOM Remote Console (or the Oracle ILOM Remote Console Plus) to gain full control of the host server operating system desktop, and connect peripheral devices such as keyboard, video, mouse, and storage devices (KVMS). Gain command-line access to the host server through a text-based serial console.
Firmware Updates	Take advantage of bug fixes and enhancements and improve the overall quality and security of your system by updating to the latest firmware image available for the system BIOS and Oracle ILOM. Update the service processor (SP) and BIOS firmware for a rackmounted server or blade server module; or, perform firmware updates for one or more upgradeable devices installed in a blade chassis.
Choice of User Interface	Manage your system remotely from the web browser interface, command-line interface (CLI), SNMP interface, or IPMI interface.
Preconfigured Administration Defaults for SP and CMM	Oracle ILOM arrives preconfigured with default properties on the server service processor (SP) and chassis monitoring module (CMM) . Use the default properties or change them as needed.
Choice of Network Management Connection	When setting up your system for the first time, establish a physical network management connection to Oracle ILOM through one of these supported methods: ■ A dedicated network management port (NET MGT) located on the server or blade chassis ■ A shared network management port (NET) located on the server or blade chassis ■ A local serial management port (SER MGT) located on the server or blade chassis ■ An internal dedicated USB over LAN management link between the server service processor (SP) and the host operating system client
Role-Based User Management Accounts	Authenticate users and authorize user access to Oracle ILOM functions through role-based user accounts. Create and store up to 10 local accounts on a server service processor (SP) or chassis monitoring module (CMM). Or configure a centralized authentication service to permit additional user accounts.
Embedded Help for the Command-Line Interface (CLI) and Page-Level Help for the Web Interface (Oracle ILOM 3.2.1 or later only)	Obtain answers to questions about Oracle ILOM features by accessing embedded CLI help for commands and most properties or by accessing the help page associated with each Oracle ILOM web page. View embedded CLI help by issuing the command: `show /help <target>`. Or, access web-based help on systems with Oracle ILOM 3.2.1 or later by clicking the *More details* link on each web page.

Oracle ILOM Tasks Defined In This Guide

This guide provides instructions for a subset of Oracle ILOM tasks. These tasks include:

For complete Oracle ILOM instructions, refer to the Oracle ILOM Documentation Library at:

`http://www.oracle.com/goto/ilom/docs`

Oracle Hardware Management Pack Overview

Oracle Hardware Management Pack provides a family of command-line interface (CLI) tools for managing your servers, and an SNMP monitoring agent.

- You can use the Oracle Server CLI Tools to configure Oracle servers. The CLI Tools work with most supported operating systems. They can be scripted to support multiple servers, as long as the servers are of the same type.
- With the Hardware Management Agent SNMP Plugins, you can use SNMP to monitor Oracle servers and server modules from the operating system using a single host IP address. This prevents you from having to connect to two management points (Oracle ILOM and the host).

  The Hardware Management Agent fetches and pushes information to and from Oracle ILOM. The SNMP Plugins provides an industry-standard SNMP user interface.
- Oracle Hardware Management Pack is an add-on software pack that you can download from the Oracle support web site, or that you can get from Oracle System Assistant.

Note - Beginning with Oracle Solaris 11.2, Oracle Hardware Management Pack has become an integrated component of the operating system and is called Oracle Hardware Management Pack for Oracle Solaris. Do not download and use other versions of Oracle Hardware Management Pack that are not specifically qualified for the Oracle Solaris 11.2 (and later) operating system.

If you have Oracle Solaris 11.1 or earlier or other supported operating system (such as Linux or Windows), Oracle Hardware Management Pack is available as either a separate download from the Oracle support web site, or as an installable component of Oracle System Assistant.

- With `itpconfig` you can configure Oracle ILOM to forward SNMP traps to the host.
- Oracle Hardware Management Pack 2.3 includes Oracle Linux Fault Management Architecture (FMA), which is available for supported servers running Oracle Linux 6.5 or later.

  Oracle Linux FMA is a host-based command-line interface that allows you to view and act on faults from the host operating system using fault management commands similar to those available from the Oracle ILOM Fault Management shell.

  To find out if Oracle Linux FMA is supported on your server, refer to the server documentation .

The following link provides a list of supported systems and tools:

`http://www.oracle.com/technetwork/server-storage/servermgmt/tech/hardware-management-pack/support-matrix-423358.html`

Related Information

- Oracle Hardware Management Pack Documentation Library at:

  `http://www.oracle.com/goto/ohmp/docs`

- Oracle Enterprise Manager Documentation at:

  http://docs.oracle.com/cd/E27363_01/index.htm

Oracle Hardware Management Pack Utilities

The following table lists and describes the Oracle Hardware Management Pack utilities.

Note - Oracle Hardware Management Pack might include additional functionality. Refer to the Oracle Hardware Management Pack documentation for up-to-date information.

Tool	Task
`ubiosconfig`	Preserve BIOS settings and some service processor settings.
`fwupdate`	Update Oracle ILOM and BIOS. Query, update, and validate firmware versions on supported SAS storage devices, embedded SAS storage controllers, SAS storage expanders, storage drives, InfiniBand controllers, and Fibre Channel controllers.
`raidconfig`	View or create RAID volumes on storage drives that are attached to RAID controllers.
`ilomconfig`	Restore, set, and view Oracle ILOM configuration settings, as well as view and set Oracle ILOM properties that are associated with network management, clock configuration, and user management.
`hwtmgmtcli`	Monitor system health.
`ipmitool`	After loading the requisite driver, you can use Oracle Hardware Management Pack to read sensor data repository (SDR) data and display other information about the server. You can also get and set LAN configuraton parameters and perform chassis power control operations.
`snmpwalk`	Read information about the server indicator and sensor readings from the system event log and set the location indicator.
`itpconfig`	Configure Oracle ILOM to forward SNMP traps to the host.

BIOS Setup Utility Overview

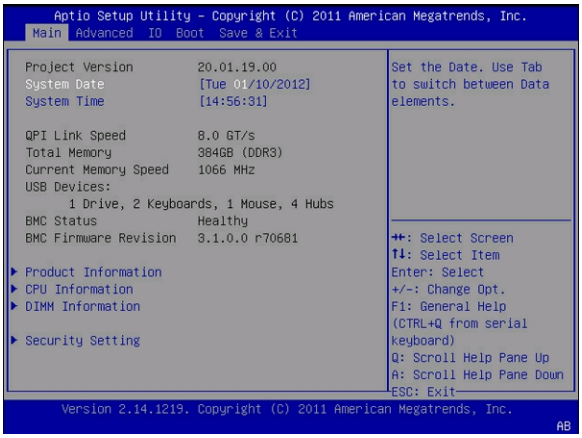
The BIOS Setup Utility allows you to configure system functions such as viewing the boot list, and selecting Unified Extensible Firmware Interface (UEFI) Boot Mode or Legacy BIOS Boot Mode.

To access the BIOS Setup Utility, press the F2 key while the system is booting to interrupt the boot process and display the BIOS setup screens.

- To access the BIOS Setup Utility, see “Accessing the BIOS Setup Utility” on page 48.

- For more about the BIOS Setup Utility, see “Setting Up and Configuring BIOS” on page 189.

For more BIOS screens, see your server service manual.



UEFI Boot Mode and Legacy BIOS Boot Mode

Your system is equipped with UEFI BIOS, which avoids many of the limitations of legacy BIOS. However some operating systems cannot boot in UEFI BIOS, so UEFI BIOS provides the ability to select Legacy BIOS Boot Mode.

The default is Legacy BIOS Boot Mode. See your server product notes for a list of operating systems that support UEFI Boot Mode. For more on UEFI Boot Mode and Legacy BIOS Boot Mode, see “Legacy BIOS Boot Mode and UEFI Boot Mode” on page 196.

Product Documentation

Product documentation is available on the web and from Oracle System Assistant.

- Product documentation is available online at:

  `https://docs.oracle.com/`
- Oracle System Assistant includes a suite of system documentation that can be accessed from Oracle System Assistant as described in “View Platform Documentation” on page 156.

Accessing System Administration Tools

This section provides instructions for accessing the following system administration tools. These include:

- “Accessing Oracle System Assistant” on page 147
- “Accessing Oracle ILOM” on page 38
- “Accessing Oracle Hardware Management Pack” on page 47
- “Accessing the BIOS Setup Utility” on page 48

Accessing Oracle System Assistant

Use Oracle System Assistant to prepare a new system for operation and to perform maintenance tasks such as upgrading software and firmware.

You must reboot the system to Oracle System Assistant to use it.

To launch Oracle System Assistant, use one of the following methods:

Access Method	Link
Access Oracle System Assistant during startup.	“Launch Oracle System Assistant at Startup” on page 34
Access Oracle System Assistant using Oracle ILOM.	“Launch Oracle System Assistant (Oracle ILOM)” on page 35

Oracle System Assistant is enabled by default but can be disabled. For details, see “Enable or Disable Oracle System Assistant (BIOS)” on page 171.

Launch Oracle System Assistant at Startup

Use the following procedure to launch Oracle System Assistant while booting the system.

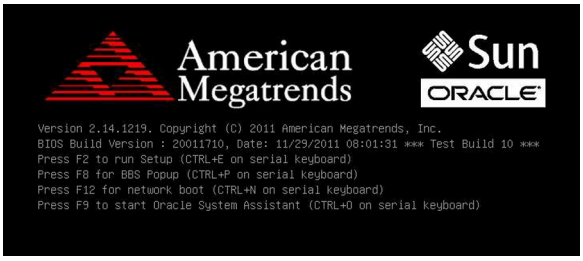
Before You Begin

- "Enable or Disable Oracle System Assistant (BIOS)" on page 171.

1. **Verify that the server is in Standby power mode.**
2. **Verify that a monitor, keyboard, and mouse are attached to the server, either locally or through a remote KVM session.**

   For details, see "Launch a Remote System Console Redirection Session" on page 43.
3. **Power on the server.**

   Boot messages appear on the monitor.



4. **When prompted, press the F9 function key.**

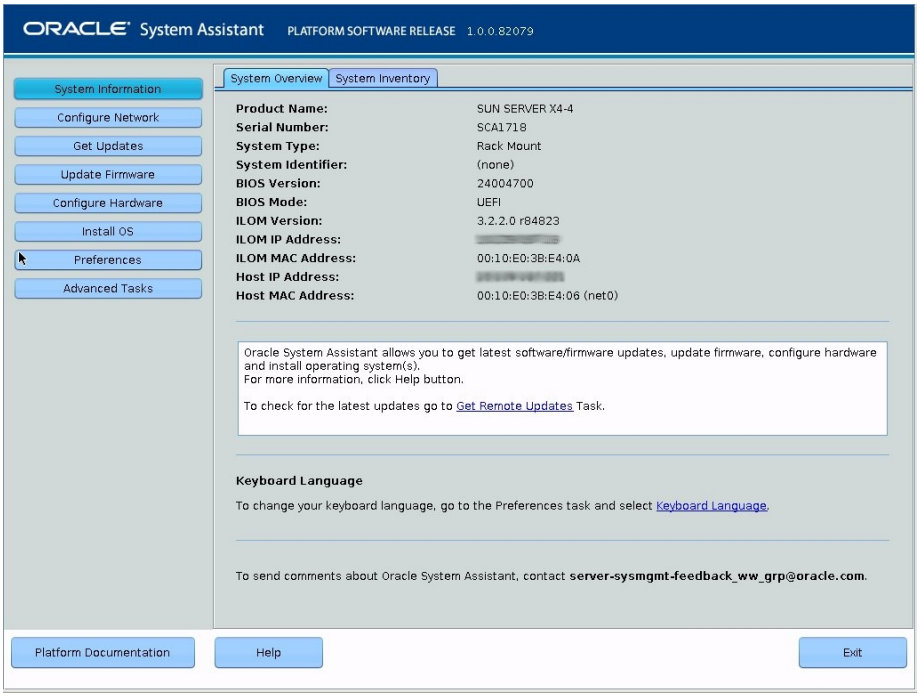
   You can also press CTRL-O on a serial keyboard.

Tip - If you are connected to the server using the Oracle ILOM Remote Console, press F9 several times; otherwise, the server might miss the signal due to delays.

Checkpoint messages appear, including the text `[Oracle System Assistant Selected]`.

If the Software License Agreement (SLA) dialog box appears, click Accept in the SLA dialog box to continue.

The System Information screen appears with the System Overview tab selected.



See Also

- "BIOS Key Mappings" on page 194
- "Troubleshooting Oracle System Assistant" on page 177
- "Controlling Server Power" on page 51

▼ Launch Oracle System Assistant (Oracle ILOM)

Use the following procedure to launch Oracle System Assistant from Oracle ILOM through a remote KVM session established to the server.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM) as a root user or as a user with Admin (a) and Console (c) role privileges.

  For instructions on how to log in to Oracle ILOM as a root user, see "Accessing Oracle ILOM" on page 38.
- Power off the host operating system on the managed server prior to performing this procedure. If you do not, Oracle ILOM prompts you to do so before it launches Oracle System Assistant.
- Ensure that the requirements for launching and using the Oracle ILOM Remote System Console are met.

  For more information about these requirements, see "Launch a Remote System Console Redirection Session" on page 43.

This procedure provides instructions for accessing Oracle System Assistant from a remote KVM session on the Oracle ILOM SP.

- **To launch Oracle System Assistant:**

  - **From the Web interface:**

    a. **Click System Information > Summary.**

    b. **Click the Launch button for Oracle System Assistant.**

Tip - The Launch button is located in the Actions panel that appears on the right side of page.

Note - If the Software License Agreement (SLA) dialog box appears instead of the Oracle System Assistant window, click Accept in the SLA dialog box to continue launching Oracle System Assistant.

    c. **Click the Help button on the individual Oracle System Assistant pages for further information about performing server setup tasks from the Oracle System Assistant window.**

  - **From the CLI:**

    a. **Type:**

    ```
    /HOST/provisioning/start system-assistant
    ```

    A message appears prompting you to start Oracle System Assistant.

b. **Launch the Oracle ILOM Remote Console, as described in "Launch a Remote System Console Redirection Session" on page 43.**

c. **Type `y` to launch Oracle System Assistant (or type `n` to cancel the operation).**

The Oracle System Assistant window appears.

Note - If the Software License Agreement (SLA) dialog box appears instead of the Oracle System Assistant window, click Accept in the SLA dialog box to continue launching Oracle System Assistant.

---

d. **Click the Help button on the individual Oracle System Assistant pages for further information about performing server setup tasks from the Oracle System Assistant window.**

See Also

- "Controlling Server Power" on page 51
- "Launch a Remote System Console Redirection Session" on page 43

▼ Exit Oracle System Assistant

1. **From within Oracle System Assistant, click the Exit button to quit the application session.**

2. **Select whether you want to reboot or power off the system.**

Oracle System Assistant exits. The system reboots or powers off depending on the option selected.

Accessing Oracle ILOM

Access Oracle Integrated Lights Out Manager (ILOM) to configure the system or to monitor the health of the system. You can access Oracle ILOM from a web interface or a command-line interface (CLI). For further details, see:

- "Establish a First-Time Management Connection to Oracle ILOM" on page 38
- "Launch and Log In to Oracle ILOM" on page 39
- "Launching Oracle ILOM Remote Redirection Sessions for KVMS" on page 41

▼ Establish a First-Time Management Connection to Oracle ILOM

Prior to accessing Oracle ILOM for the first time, you must establish a physical network connection or a local serial management connection to Oracle ILOM. See the following instructions:

Note - Chassis Monitoring Module (CMM) is a hot-pluggable monitoring module that works with the service processor (SP) on each blade to form a complete chassis management system.

- **To establish a local or remote management connection to Oracle ILOM, do one of the following:**

Preferred Connection	Instructions
Dedicated Remote Network Management Connection **Note -** Use a dedicated internal network for the service processor (SP) to separate it from the general network. To maintain the most reliable and secure environment for Oracle ILOM, the dedicated network management port on the server	1. Attach an Ethernet cable to the network switch and the NET MGT port on the server or blade chassis. By default, the dynamic IP address for the server service processor (SP) or chassis monitoring module (CMM) is assigned by the DCHP router. 2. Determine the IP address assigned to the server SP or the CMM. To determine the dynamic IP address in Oracle ILOM, establish a serial connection to Oracle ILOM, and then view the properties under the SP or CMM `/network` and `/network/ipv6` targets using the CLI `show` command.

Preferred Connection	Instructions
must always be connected to an internal trusted network or dedicated secure management/ private network.	3. Establish a network connection to Oracle ILOM using the IP address assigned to the SP or CMM. For further instructions, see "Launch and Log In to Oracle ILOM" on page 39.
Dedicated Local Serial Management Connection	1. Attach a serial cable to a console (workstation or terminal) and the SER MGT port on the server or blade chassis. The physical connection provides your initial communication with the server service processor (SP) or chassis monitoring module (CMM). You must set the terminal device communication properties to these values: 9600 baud, 8 bit, no parity, 1 stop bit (9600/8-N-1). 2. To create a local connection to Oracle ILOM, press Return. The Oracle ILOM prompt (>) appears. For further instructions, see "Launch and Log In to Oracle ILOM" on page 39.
Dedicated Interconnect SP Management Connection (also known as embedded USB over LAN)	Choose to auto-configure or manually configure a dedicated local interconnect connection between the server service processor (SP) and the host operating system client. For instructions, refer to "Dedicated Interconnect SP Management Connection" in the *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
Shared Sideband Network Connection **Note -** Using sideband management simplifies cable management and network configuration by preventing the need for two separate network connections. However, it also means that Oracle ILOM traffic could potentially be sent over an untrusted network if the sideband management port is not connected to a trusted network.	Choose to connect to Oracle ILOM through the standard data port provided on the server chassis. **Note -** Implementing a sideband management connection to Oracle ILOM eliminates the need to support two separate network connections for host and management traffic. However, this approach could: (1) potentially decrease the connection performance to Oracle ILOM, and (2) potentially provide risks by transmitting Oracle ILOM traffic over an untrusted network. For instructions, see Sideband Network Management Connection in the *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Launch and Log In to Oracle ILOM

Before You Begin

The following procedure provides web and command-line interface (CLI) instructions for launching and logging in to Oracle ILOM from either a local or network management connection.

If you are setting up Oracle ILOM on your server for the first time, use the default administrative `root` account to log in. Otherwise, all users should log in to Oracle ILOM with their assigned user account name and password.

Note - To enable first-time login and access to Oracle ILOM, a default Administrator account and its password are provided with the system. To build a secure environment and enforce user authentication and authorization in Oracle ILOM, you must change the default password (changeme) for the default Administrator account (root) after your initial login to Oracle ILOM. If this default Administrator account has since been changed, contact your system administrator for an Oracle ILOM user account with Administrator privileges.

1. **Ensure that a physical management connection to Oracle ILOM has been established.**

   For instructions for establishing a physical management connection to Oracle ILOM see "Establish a First-Time Management Connection to Oracle ILOM" on page 38.

2. **To launch and log in to Oracle ILOM, perform one of the following procedures based on the physical management connection established to Oracle ILOM.**

Management Connection	Oracle ILOM Interface	Instructions
Remote Management Connection	Web	1. Navigate to http:// *ILOM_SP_or CMM_ ipaddress* The Oracle ILOM log in page appears. 2. Type your user name and password, and then click Log In. **Note -** If this is the first time you are accessing Oracle ILOM, type `root` for the user name and `changeme` for the password. **Note -** To enable first-time login and access to Oracle ILOM, a default Administrator account and its password are provided with the system. To build a secure environment and enforce user authentication and authorization in Oracle ILOM, you must change the default password (changeme) for the default Administrator account (root) after your initial login to Oracle ILOM. If this default Administrator account has since been changed, contact your system administrator for an Oracle ILOM user account with Administrator privileges. **Note -** To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, see "Adding Oracle ILOM User Accounts" on page 93.
Remote Management Connection	CLI	1. Open a terminal. 2. Type: `ssh` *username@ILOM_SP_or_CMM_ipaddress* 3. Press Return and type your password when prompted.

Management Connection	Oracle ILOM Interface	Instructions
		Note - If this is the first time you are accessing Oracle ILOM, type `root` for the user name and `changme` for the password. **Note -** To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, see "Adding Oracle ILOM User Accounts" on page 93.
Local Serial Management Connection	CLI	■ At the Oracle ILOM prompt (>), type your user name and, when prompted, type your password. **Note -** If this is the first time you are accessing Oracle ILOM, type `root` for the user name and `changeme` for the password. **Note -** To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, see "Adding Oracle ILOM User Accounts" on page 93.

Launching Oracle ILOM Remote Redirection Sessions for KVMS

To help manage a server remotely, Oracle ILOM enables you to redirect a server's keyboard, video, mouse or storage (KVMS) devices through any of the following redirection methods: host serial console redirection, remote system console redirection, and a remote virtual storage device redirection.

For further details on how to establish a remote redirection session from Oracle ILOM, see the following:

- "Launch a Host Serial Console Redirection Session" on page 41
- "Launch a Remote System Console Redirection Session" on page 43
- "Configure a Virtual Storage Device Redirection Session from a Central Repository" on page 45

▼ Launch a Host Serial Console Redirection Session

A host serial console redirection session allows you to connect to the host console using the Oracle ILOM CLI.

Oracle ILOM enables you to launch multiple host serial console redirection sessions from the CLI; however, only one host serial console session user (the initial logged-in session user) on the SP is granted read and write privileges. All other logged-in host serial console session users on the SP are granted read-only privileges. Read and write session privileges are reassigned when the session user with full read and write privileges closes their session, and a new serial session is opened with full read and write privileges.

Before You Begin

Ensure that the following prerequisites are met before you launch a host serial console redirection session:

- Console (c) role is required in Oracle ILOM to launch a serial redirection session to the host server operating system.
- Host serial redirection sessions can only be started from an Oracle ILOM SP CLI.

To launch a host serial console redirection from the Oracle ILOM SP CLI, follow these instructions:

1. **To start a host serial console redirection from the Oracle ILOM SP CLI, perform one of the following:**

   - **For a single-system SP, type:** `start /host/console`.
   - **For a multi-domain server SP, type:** `start /Servers/Pdomains/PDomain_n/host/console`.

   A message prompts for user credentials.

2. **Type the required user credentials to access the host server operating system.**

   You are now logged in to the host server operating system through the host serial console.

   Note - To issue standard Oracle ILOM CLI commands, you must first exit the host serial console.

3. **To terminate the host serial console redirection session, perform the following:**

   a. **Log out of the host server operating system.**

   b. **To terminate the connection between the host serial console and Oracle ILOM, simultaneously press these keys: Escape + (**

Note - To send a break to the host, press the Escape (ESC) key and type uppercase B.

See Also Start Serial Host Console, *Oracle ILOM Configuration and Maintenance Guide* for fimware 3.1 or 3.2.

▼ Launch a Remote System Console Redirection Session

Launch a remote console redirection session from the Oracle ILOM web interface using the Oracle ILOM Remote System Console (Plus) application. This application enables you to install software on your server remotely or manage your server remotely through a serial or video redirection session.

- Oracle X4-2 servers use the original version of the Oracle ILOM Remote System Console application. This application support launching multiple KVMS redrection sessions from the Oracle ILOM web interface, as well as a separate command-line interface (CLI) for redirecting storage devices.

  For further details about launching Oracle ILOM Remote System Console KVMS sessions from the web interface, see the Before You Begin and the procedural instructions that follow in this topic. For further details about setting up and usng the storage redirection CLI feature in Oracle ILOM, see the Oracle ILOM Storage Redirection CLI information in the *Oracle ILOM Configuration and Maintenance Guide* for firmware release 3.1. or 3.2.

  Note - If you have an Oracle X4-2 server, the Oracle ILOM Remote System Console does not enable you to launch a serial redirection session from the web interface. For information about how to launch a serial redirection session from Oracle ILOM, see "Launch a Host Serial Console Redirection Session" on page 41.

- The Oracle X4-4 and X4-8 servers support the Oracle ILOM Remote System Console Plus application. This application provides support for launching a maximum of four video remote console sessions and one serial remote console session from the Oracle ILOM web interface.

Full-redirection control privileges are granted to the first (primary) redirection session user logged-in on the SP. All other redirection session users are granted view-only redirection control privileges.

- A primary user can relinquish full control of the redirection session by exiting the video or serial session window, or by selecting *Relinquish Full-Control* in the KVMS menu of the video session window.
- View only users can take full control of a relinquished full control redirection session by exiting and relaunching the session window, or by selecting *Take Full-Control* from the KVMS menu in the video session window.

Before You Begin

Ensure that the following prerequisites are met before you launch a remote console redirection session from Oracle ILOM:

- Ensure that the appropriate Java Runtime Environment (JRE) is installed.

  For Oracle X4-2 servers, the Oracle ILOM Remote System Console requires JRE 1.5 or later. In addition, Windows Internet Explorer (IE) web browser users must also register the 32-bit JDK file on the management client prior to launching the Oracle ILOM Remote System Console.

  For Oracle X4-4 and X4-8 servers, the Oracle ILOM Remote System Console Plus requires JRE 1.6 or later.
- Ensure that the appropriate KVMS properties are set on the Oracle ILOM SP prior to launching a remote system console session for the first time. To view or set the KVMS properties, click Remote Control > KVMS in the Oracle ILOM web interface.

  The Oracle ILOM Remote System Console requires that the KVMS State is enabled (enabled by default). Optionally, you can set the Host Lock properties on the KVMS page to automatically lock the host operating system desktop upon disconnecting from a remote console session.

  Mouse mode properties (Absolute or Relative) can be configured on the KVMS page for Solaris-based and Linux-based operating systems.

  - Use Absolute Mouse mode if the remote host is running Windows, Oracle Solaris, or a version of Linux that includes driver support for Absolute Mouse mode.
  - Use Relative Mouse mode if the remote host is running a version of Linux that does not include driver support for Absolute Mouse mode.
- Ensure that you have Console (c) role privileges enabled in Oracle ILOM. This role is required to use an Oracle ILOM Remote System Console session.
- Ensure that you have operating system user credentials for the host server prior to logging into the redirected host operating system desktop.

- **To launch a remote system console session from the Oracle ILOM SP web interface, perform the applicable Remote System Console instructions below for your server.**

Oracle ILOM Remote System Console (available on Oracle X4-2 servers) For more details, see the "Oracle ILOM Remote System Console" information in the *Oracle ILOM Configuration and Maintenance Guide* for firmware release 3.1 or 3.2.	1. In the Oracle ILOM web interface, click Remote Control > Redirection. 2. In the Redirection page, click Launch Remote Console. An Oracle ILOM Remote System Console session window appears. **Tip -** To toggle the keyboard or mouse input between the remote client and the local desktop, press : **Alt+M** (for mouse) or **Alt+K** (for keyboard). **Tip -** Alternatively, you can redirect storage devices from the Oracle ILOM SP CLI using the Storage Redirection CLI feature. For further information, see the information for Storage Redirection CLI in the *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
Oracle ILOM Remote System Console Plus (Oracle X4 and X8 servers) For more details, click the More Details link in the Redirection web page.	1. In the Oracle ILOM web interface, click Remote Control > Redirection. 2. In the Redirection page, click the option for serial or video redirection, and then click Launch Remote Console. A text-based Oracle ILOM Remote System Console Plus host session window appears for serial redirection. A graphic-based KVMS Oracle ILOM Remote System Console Plus host session window appears for video redirection. **Tip -** Full redirection control privileges are granted to the first logged-in redirection session (primary) user on the SP. All other logged-in redirection session users on the SP receive view-only redirection control. Exiting a full redirection control session automatically relinquishes the full redirection control privileges and makes it possible for another session user on the SP to gain full-redirection control privileges.

See Also

- Oracle ILOM Remote System Console, *Oracle ILOM Configuration and Maintenance Guide* for firmware release 3.1 or 3.2
- Oracle ILOM Remote System Console Plus, *Oracle ILOM Configuration and Maintenance Guide* for firmware release 3.2

▼ Configure a Virtual Storage Device Redirection Session from a Central Repository

Oracle ILOM enables you to use the Virtual Remote Storage Device feature to mount a storage image file on a central NFS or SAMBA repository, and then redirect the image file to the host server. The image appears to the host server as an attached storage device.

You can only redirect one remote virtual storage image file at a time from any of the Oracle ILOM KVMS user interfaces. If you attempt to redirect an image file when another storage redirection session is in progress on the SP, the storage redirection attempt fails and an error message appears.

Note - The Virtual Remote Storage Device functionality in Oracle ILOM is supported on Oracle X4-4 and X4-8 servers. The Virtual Remote Storage Device functionality in Oracle ILOM is not supported on Oracle X4-2 servers.

Before You Begin

The Virtual Remote Storage Device feature enables you to do the following:

- Boot multiple Oracle servers from a single (ISO) image file that is stored on a remote server.
- Update multiple Oracle servers using a single (VFAT) image file that is stored on a remote server.

Ensure the following prerequistes are met prior to creating a virtual storage device redirection session from a central repository:

- Ensure that Oracle ILOM firmware version 3.2.2 or later is installed.
- Ensure Admin (a) role privileges are enabled in Oracle ILOM. This role is required to configure the properites in Oracle ILOM for mounting and redirecting a storage image file.
- If required, ensure that you have user credentials on the NFS or SAMBA central repository server for where the image file will be mounted and redirected.

- **To configure the virtual remote storage redirection properties in Oracle ILOM:**

  - **From the Web interface:**

    a. **In the Oracle ILOM web interface, click Remote Control > Remote Device.**

    b. **In the Remote Device web page, set values for the configurable properties, and then click Save.**

    c. **View the Status property on the Remote Device page to determine the current status of the virtual storage device redirection.**

- **From the CLI:**

  a. **To set values for the configurable virtual device redirection properties, type:**

  ```
  set /SP/services/kvms/remote_virtual_device servicestate=enabled
  target_URI= [NFS or Samba URI file location] username= [your_username]
  password= [your_password]
  ```

Note - On some systems, use `host_storage_device` instead of `remote_virtual_device`.

  b. **To view the current status of the virtual device redirection, type:**

  ```
  show /SP/services/kvms/remote_virtual_device status
  ```

See Also

- Redirecting an Image File From a Remote Device to the Host Server, *Oracle ILOM Configuration and Maintenance Guide* for firmware release 3.2

Accessing Oracle Hardware Management Pack

Oracle Hardware Management Pack provides tools that can be used in band, from the operating system command line or from the Oracle System Assistant command shell.

- Configure BIOS, RAID volumes, and Oracle Integrated Lights Out Manager (ILOM) service processors on your servers.
- Upgrade server component firmware.
- Configure a Simple Network Management Protocol (SNMP) fault trap proxy that forwards fault traps from your Oracle ILOM service processor over the Host-to-ILOM connection.
- Configure zoning on supported servers running Oracle Solaris.
- View hardware configuration information and the status of your Oracle servers.
- Access server service processors using the IPMI protocol and perform management tasks.
- Enable in-band monitoring of your Oracle hardware over SNMP. You can use this information to integrate your Oracle servers into your data center management infrastructure.

▼ Access Oracle Hardware Management Pack

Before You Begin Ensure that Oracle Hardware Management Pack is installed as described in the Hardware Management Pack Documentation Library at: `http://www.oracle.com/goto/ohmp/docs`

- **Type Oracle Hardware Management Pack commands on the operating system command line.**

See Also

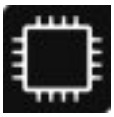
- "Oracle Hardware Management Pack Overview" on page 28

Accessing the BIOS Setup Utility

The BIOS Setup Utility allows you to configure the system by interrupting the boot process. The actual BIOS setup screens might differ slightly from system to system. For a detailed description of the BIOS Setup Utility screens, see your server service manual.

Note - Your system is equipped with UEFI BIOS, which can be configured to boot in legacy boot mode or in UEFI Boot Mode. See "Legacy BIOS Boot Mode and UEFI Boot Mode" on page 196 for details.

▼ Access the BIOS Setup Utility

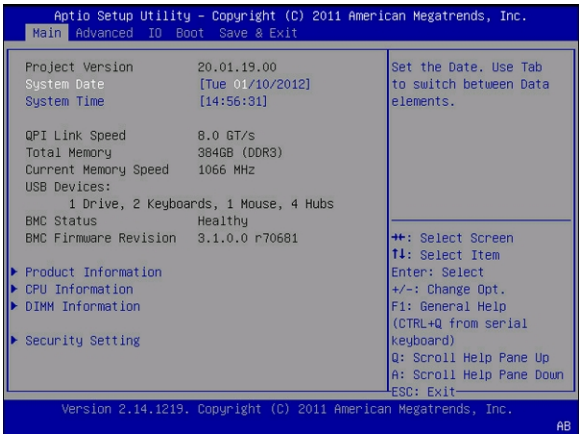


1. **Reset the system. See your server documentation for details.**

   The POST sequence begins. Messages scroll across the monitor.

2. **Press the F2 key (Ctrl + E from a serial monitor) several times.**

The BIOS Setup Utility Main menu appears.



3. To navigate through the menus:

- To navigate across the menus, use the arrow keys.
- To select items, use the + and - keys, or Enter.
- To return from a submenu, use the Escape key.

4. When you are done, press F10.

The utility asks if you want to save your changes or discard your changes and exit.

See Also

- “Setting Up and Configuring BIOS” on page 189
- “Exit the BIOS Setup Utility” on page 192

Controlling Server Power

This section describes how to power the server on and off. It includes:

Note - To configure power policies, see "Setting System and Management Power Policies (Oracle ILOM)" on page 103.

Server Power States

Your server has three power states: powered off, Standby power, and Full power.

Power State	Description
Powered off	Servers are completely powered off only when the AC power cords are disconnected. Server modules are completely powered off when they are disconnected from the chassis, or when the AC power to the chassis is disconnected.
Standby power	In Standby power mode, Oracle ILOM is powered on, but the host is powered off. In Standby power mode, the OK status indicator on the front panel blinks.
Full power	When you power on the host, the server enters Full power mode. In Full power mode, the OK status indicator is steady on. You can power the host off gracefully, or immediately. When you power the host off gracefully, Advanced Configuration and Power Interface (ACPI)-enabled operating systems prepare the operating system before shutting it down. When you power the host off immediately, no such attempt occurs.

Power State	Description
	Caution - Data loss: To prevent data loss, prepare the operating system for shutdown before performing an immediate power off.

You can control power to your host using the recessed Power button, the Oracle ILOM web interface, or the Oracle ILOM command-line interface (CLI).

- To use the power button, see "Power Off Host Using the Power Button" on page 52 and "Power On Host Using the Power Button" on page 53.
- To use Oracle ILOM, see "Power Host On and Off (Oracle ILOM)" on page 53.

Note - If you updated the system firmware and selected the Delay BIOS Upgrade option, Oracle ILOM installs the BIOS firmware upgrade when you reset or power cycle your server. This causes a reset to take longer than normal and causes the server to power cycle during the reset. This is normal, expected behavior during a delayed BIOS upgrade. For more details, see "Update BIOS and SP Firmware or CMM Firmware (Oracle ILOM)" on page 229.

▼ Power Off Host Using the Power Button

1. **Locate the recessed Power button on the server front panel.**

   See your installation manual for the location.

   Note - The Power button is recessed on most systems.

2. **Press the Power button.**

   Use a stylus or other pointed, non-conducting object if required.

   - **To perform a graceful shutdown: Press and release the power button.**

     ACPI-enabled operating systems perform an orderly shutdown. Systems not running ACPI-enabled operating systems might ignore this event, and fail to shut down the host.

     The OK status indicator on the front panel blinks to indicate that the system is in Standby power mode.

   - **To perform an immediate shutdown: Press and hold the Power button for at least 5 seconds.**

     The OK status indicator on the front panel blinks to indicate that the system is in Standby power mode.

Caution - Data loss. An immediate shutdown abruptly closes all applications and files without saving changes.

Caution - To completely power off the server, you must disconnect the power cords from the back panel of the server.

Power On Host Using the Power Button

1. **Ensure that the power supplies are connected to a power source and that the OK status indicator is blinking.**
2. **Verify that the server is in Standby power mode.**
3. **Locate the Power button on the front panel.**

Note - The Power button is recessed on most systems.

Refer to your installation guide for the exact location.

4. **Press the power button.**
   Use a stylus or other pointed, non-conducting object if necessary.
   The host boots and the server enters Full power mode. The OK status indicator goes steady ON when the host is fully booted.

Power Host On and Off (Oracle ILOM)

You can use Oracle Integrated Lights Out Manager (ILOM) to remotely the host power on or off.

Before You Begin

This procedure provides web and command-line interface (CLI) instructions for a server service processor (SP).

- Log in to Oracle ILOM. For instructions on how to log in to Oracle ILOM, see “Accessing Oracle ILOM” on page 38.

- Ensure that you have Admin (a) role privileges in Oracle ILOM.

Caution - Data loss. An immediate shutdown abruptly closes all applications and files without saving changes.

- **To power on, power off, or reset the power on the host server:**

Caution - To completely power off the server, you must disconnect the power cords from the back panel of the server.

- **From the Web interface:**

  a. **Click Host Management > Power Control.**

  b. **From the Settings drop-down menu, select one of the following:**

     - Reset: Reset the server without removing power.
     - Immediate Power-Off: Turn off system power immediately.
     - Graceful Shutdown and Power Off: Shut down the host gracefully and then power off the system.
     - Power On: Turn on full system power.
     - Power Cycle: Turn off power immediately, and then turn it back on.

  c. **Click Save.**

- **From the CLI, enter one of the following commands:**

  - `reset /SYSTEM`: Reset the host without removing power.
  - `stop /SYSTEM`: Shut down the host gracefully and then power off the system.
  - `stop -f /SYSTEM`: Turn off power immediately.
  - `start /SYSTEM`: Turn on full system power

See Also Controlling Host Power, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

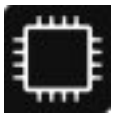
Modifying Boot Order

This section provides instructions for modifying how the server boots.

The boot order list determines which device the server boots from. You can rearrange the boot order list, or you can select a device in the boot order list and boot from it on the next boot.

Task	Link
Modify boot order list	"Modify the Boot Order (BIOS)" on page 55
Select the next boot device	"Set Next Boot Device (Oracle ILOM)" on page 57

▼ Modify the Boot Order (BIOS)



Use this task to change the order of devices in the boot order list.

Before You Begin Ensure that you have console access with a keyboard to perform this task.

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**

      Boot messages scroll across the console screen.

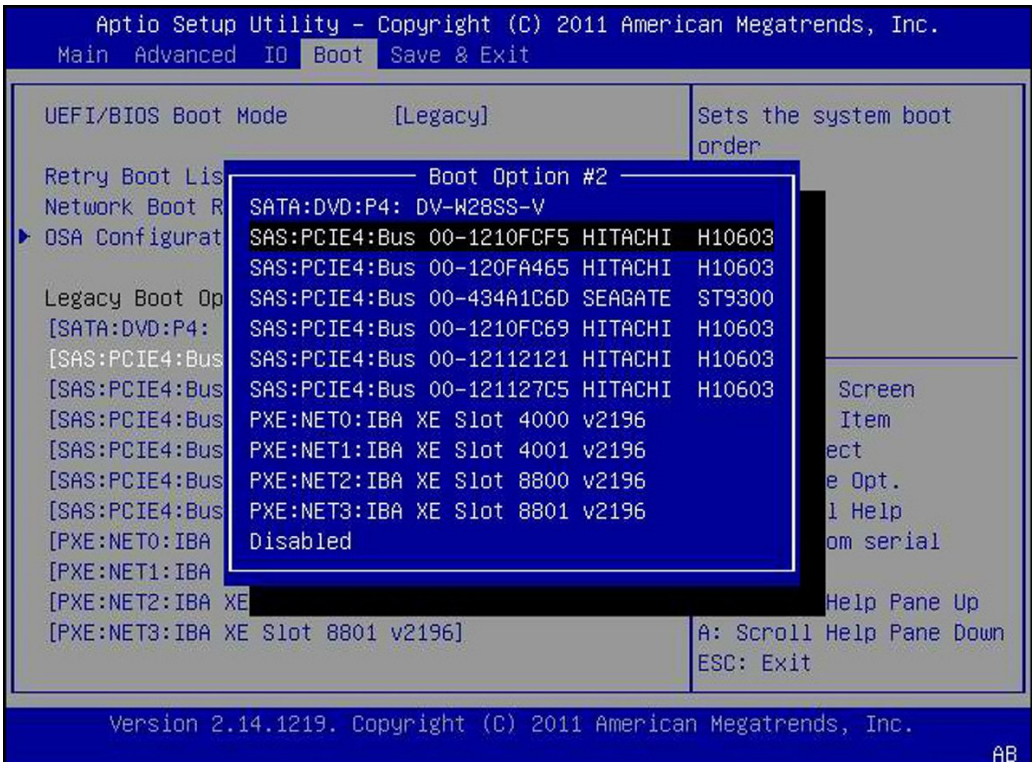
   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**

      The BIOS Setup Utility main screen appears.

2. **Select the slot number where you want to move a device.**

   For example, if you want to move a device to the second slot, select the second item in the list.

A dialog box appears.



3. **In the dialog box, select the device that you want to go into the slot you selected in Step 2 and then press Enter.**

   The dialog box disappears. The device you selected is moved into the indicated slot, and BIOS reorders the rest of the list to accommodate the change.

4. **Press F10 to save your changes.**

   The utility prompts you to save your changes or discard your changes and exit.

Set Next Boot Device (Oracle ILOM)

You can use Oracle Integrated Lights Out Manager (ILOM) to set the next boot device on your server. Setting the next boot device in Oracle ILOM causes your server to boot from the selected device on the next power reset. For subsequent power resets, the server automatically reverts to booting from the boot order list.

The following procedure provides both web and command-line interface (CLI) instructions for the server service processor (SP).

Before You Begin

- Log in to Oracle ILOM. For instructions for accessing and logging in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Reset and Host Control (r) role privileges in Oracle ILOM.

- **To set a boot device for the next power reset:**

  - **From the Web interface:**

    a. **Click Host Management > Host Console, and then select a boot device.**

    b. **Click Save.**

    c. **Click Host Management > Power Control, and then select Power-Cycle.**

    d. **Click Save.**

  - **From the CLI:**

    a. **Type:**

    ```
    set /HOST/boot_device=boot_device
    ```

    Where *boot_device* is one of the following: *disk*, *floppy*, *bios*, *cdrom*, *pxe*, *diagnostics*, or *default*

    b. **Type:**

    ```
    reset /System
    ```

See Also Setting Next Boot Device on x86 Host Server, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Configuring Storage Resources

This section provides instructions for configuring redundant array independent disk (RAID) arrays, and for configuring iSCSI virtual drive properties.

- Redundant array of independent disks (RAID) implementations can provide increased performance and data integrity across the available disk space in the server. By mirroring data across drives, most RAID levels can tolerate disk failures. Additionally, RAID configurations enable you to designate one or more hot spares. A hot spare is an unused drive on which the data on a failed drive can be automatically duplicated. See: “RAID Configuration Options” on page 59

  By default, each physical drive on the server is configured as a RAID 0 volume in a redundant array of independent disks (RAID). If you need to reconfigure the drives, you should do so before you install an operating system on the server.

  Drives that are not included in a RAID configuration are not visible to the operating system.
- If you prefer to run a supported operating system that resides on an external server, you must configure iSCSI virtual drive parameters in the BIOS Setup Utility. See: “Modify iSCSI Virtual Drive Properties in UEFI Boot Mode (BIOS)” on page 72

RAID Configuration Options

Before configuring RAID, review Oracle's recommendations for drive slot population and virtual drive creation. See your hardware installation guide for details.

This section describes some of the tools used to configure RAID arrays:

Description	Links
Configure RAID using Oracle System Assistant. Use to prepare drives, including boot drives, before installing the operating system.	“Configure Hardware for RAID (Oracle System Assistant)” on page 60
Configure RAID using Oracle Hardware Management Pack.	“Configure RAID (Oracle Hardware Management Pack)” on page 63

Description	Links
Configure RAID using BIOS.	Use to create and manage RAID volumes on your server after the operating system is installed, as long as they are not boot drives. "Configure RAID (BIOS)" on page 64 Use the BIOS Setup Utility to create and manage RAID volumes.

Other RAID Options

There are many variations of RAID and the tools used to configure it. This section provides a limited set of instructions. Other methods include:

- **LSI SAS2 2008 RAID Management Utility**: Use the `sas2icru` commands for some HBAs, including the SGX-SAS6-REM-Z.

  You can download this tool from:

  `http://www.lsi.com/sep/Pages/oracle/sg_x_sas6-rem-z.aspx`
- **LSI MegaCLI or MegaRAID Storage Manager**: Use either of these utilities to create and manage RAID volumes for HBAs, including the SGX-SAS6-R-REM-Z (note the "R" in the name to distinguish it from the above HBA).

  You can download these tools from:

  `http://www.lsi.com/sep/Pages/oracle/sg_x_sas6-r-rem-z.aspx`

See Also:

See your HBA and hardware documentation for more information about RAID.

▼ Configure Hardware for RAID (Oracle System Assistant)

The Oracle System Assistant RAID Configuration screen allows you to configure RAID 0, RAID 1, RAID 5, or RAID 10 for the server storage drives.

Note - Perform this task before installing an operating system.

When you configure RAID volumes, the disks must be the same size and the same type (for example, SAS or SATA).

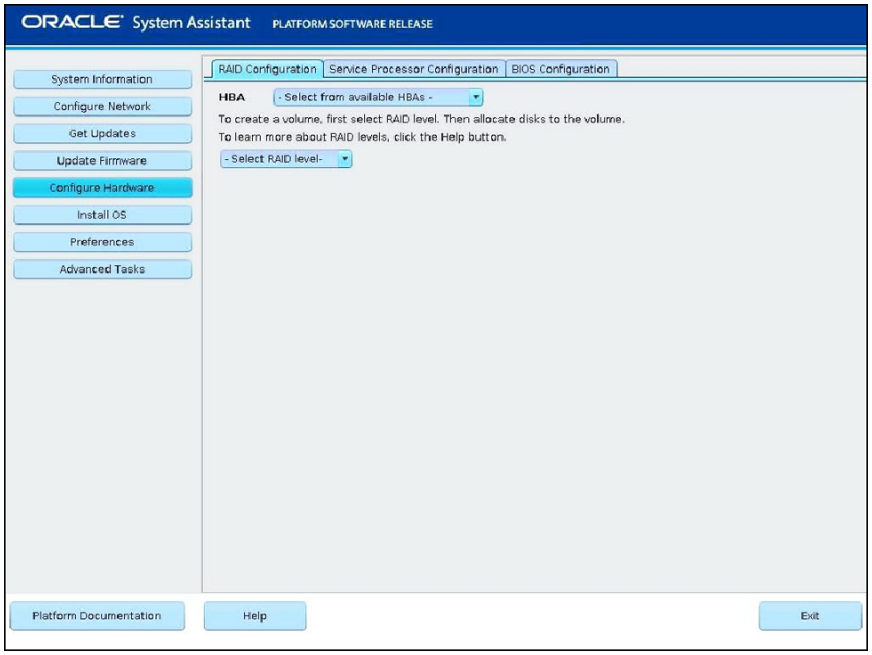
Before You Begin Review Oracle's recommendations for drive slot population and virtual drive creation. See your server documentation for details.

1. **Access Oracle System Assistant.**

   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click Configure Hardware and then click the RAID Configuration tab.**

   The RAID Configuration screen appears.



3. **In the HBA list box, verify the HBA disk controller is correct.**

   For example, your server might support the SGX-SAS6-REM-Z Express Module or the SGX-SAS6-**R**-REM-Z Express Module (if you want to create a bootable volume). For more information about these HBAs, refer to your server hardware documentation.

Note - After you select an HBA, click the View Info button to see details about your controller. This feature is not available on Oracle System Assistant 1.1.

4. **In the Select RAID Level list box, select the RAID level, either RAID 0, RAID 1, RAID 5, or RAID 10.**

Note - You can use Oracle System Assistant to set only these RAID levels. To set other RAID levels, use the HBA Setup Utility.

The number of disks allowed in an array depends on the controller. For example:

- The SGX-SAS6-REM-Z HBA requires two or more disks and uses the Configuration Utility for configuration.
- The SGX-SAS6-R-REM-Z HBA requires one or more disks and uses WebBIOS for configuration.

The Available Disks table appears.

5. **In the Available Disks table, select the storage drives that you want to add to the RAID configuration.**

If a volume already exists on the disk, it appears in the Created Volumes section. If necessary, highlight and delete the existing volume.

Note - Disks must be the same size and type (SAS or SATA).

6. **Click the Create Volume button.**

The Creating RAID Volume message appears.

7. **If desired, type a volume name, and choose a stripe size.**

If you choose, you can leave the volume name empty and add it later.

8. **Click the Create button.**

The volume is created. The Volume Details dialog box displays information about the highlighted volume.

9. **Type the volume name in the Volume Details box if you did not do so earlier, and then click the Save Changes button.**

The RAID Configuration screen appears. This completes the RAID configuration.

10. **To delete a RAID volume, in the RAID Configuration screen, select the volume, and then click the Delete Volume button.**

    This action deletes all data on the existing volume.

11. **To create a bootable volume:**

    Note - Your disk controller might not support this feature.

    a. **Select the volume in the RAID Configuration screen.**

    b. **Click the Details button for that volume.**

    c. **Check Set as Bootable.**

       The RAID Configuration screen now indicates that the volume is bootable. This volume is now the boot device for the HBA.

12. **Click Save Settings.**

See Also

- "Accessing Oracle System Assistant" on page 147

▼ Configure RAID (Oracle Hardware Management Pack)

The Oracle Hardware Management Pack `raidconfig` tool allows you to configure RAID in band from the operating system command line.

Before You Begin

- Verify that your HBA is supported for your server, and review Oracle's recommendations for drive slot population and virtual drive creation. See your server documentation for details.
- Ensure that you have root permission on UNIX-based platforms or administrator privileges on Windows.
- On Oracle Solaris, `raidconfig` is not compatible with the raidctl CLI tool. `raidconfig` supports SAS2, but the raidctl tool does not.

- For servers running Oracle Solaris, after hot-plugging any device, run the `devfsadm -C` command to reenumerate all of the system device nodes before running the `raidconfig` command.

This command does not support some configurations. For details, see:

http://www.oracle.com/goto/ohmp/docs

- **From the operating system command line, type:**

  `raidconfig` *subcommand*

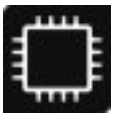
  where *subcommand* is one of:

  - `list`: List information on controllers, RAID volumes and disks, including disks not in a RAID volume. Specific devices can be selected for display.
  - `create`: Create a RAID volume.
  - `delete`: Delete a RAID volume.
  - `add`: Add a specified disk or spare.
  - `remove`: Remove a specified disk or spare.
  - `modify`: Modify a RAID volume or a disk.
  - `start`: Start a maintenance task.
  - `stop`: Stop a maintenance task.
  - `restore`: Find the RAID configuration saved on a disk and restores it.
  - `clear`: Clear the RAID configuration saved on the disks of a defined controller.
  - `export`: Generate an XML file from a RAID configuration.
  - `import`: Read in a RAID configuration and create RAID volumes and spares.

  For more details, see:

  http://www.oracle.com/goto/ohmp/docs

▼ Configure RAID (BIOS)



Use this task to configure RAID from the BIOS Setup Utility.

See your hardware documentation and operating system documentation for additional details.

Before You Begin Verify that your HBA is supported for your server, and review Oracle's recommendations for drive slot population and virtual drive creation. See your server documentation for details.

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**

      Boot messages scroll across the console screen.

   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**

      The BIOS Setup Utility main screen appears.

2. **Navigate to the IDE Configuration menu.**

3. **Select SATA Options, select RAID, and then press F10.**

   The system reboots.

4. **Press <Ctri-I>.**

   The Intel Matrix Storage Manager option ROM dialog box appears.

5. **Create or configure your RAID volume(s) as required, and then select EXIT.**

   After a confirmation dialog, the RAID volumes are configured.

6. **Select F10 to save your changes and exit.**

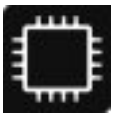
Modifying iSCSI Virtual Drive Properties

This section describes how to configure iSCSI virtual drives using the BIOS Setup Utility iSCSI screens. It includes separate instructions for systems configured to use Legacy BIOS Boot Mode or UEFI Boot Mode:

- “Modify iSCSI Virtual Drive Properties in Legacy BIOS Boot Mode (BIOS)” on page 66
- “Modify iSCSI Virtual Drive Properties in UEFI Boot Mode (BIOS)” on page 72

iSCSI virtual drives are used primarily to run supported operating systems that reside on an external server and that function as the local server host operating system.

▼ Modify iSCSI Virtual Drive Properties in Legacy BIOS Boot Mode (BIOS)



Before You Begin

- You should be familiar with iSCSI theory of operation and with iSCSI server setup procedures.
- Refer to the operating system documentation to verify that iSCSI targets can be mounted on a client.
- Ensure that you have access to an external iSCSI server running on a supported operating system.
- The server must be in Legacy BIOS Boot Mode, not UEFI Boot Mode. For servers in UEFI Boot Mode, use "Modify iSCSI Virtual Drive Properties in UEFI Boot Mode (BIOS)" on page 72.
- Provide iSCSI target parameters. The following table shows examples:

Item	Example
Target name	iqn.1988-12.com.oracle:*platform*-target
iSCSI initiator name	iqn.1988-12.com.oracle:0010E02E458F
Note - iSCSI requires iSCSI Qualified Names (iqn) formats for its initiator and target names.	
Logical Unit Number	LUN 0
IP address of iSCSI server	192.167.1.24 (IPv4)
Port number	3260

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**

      Boot messages scroll across the console screen.

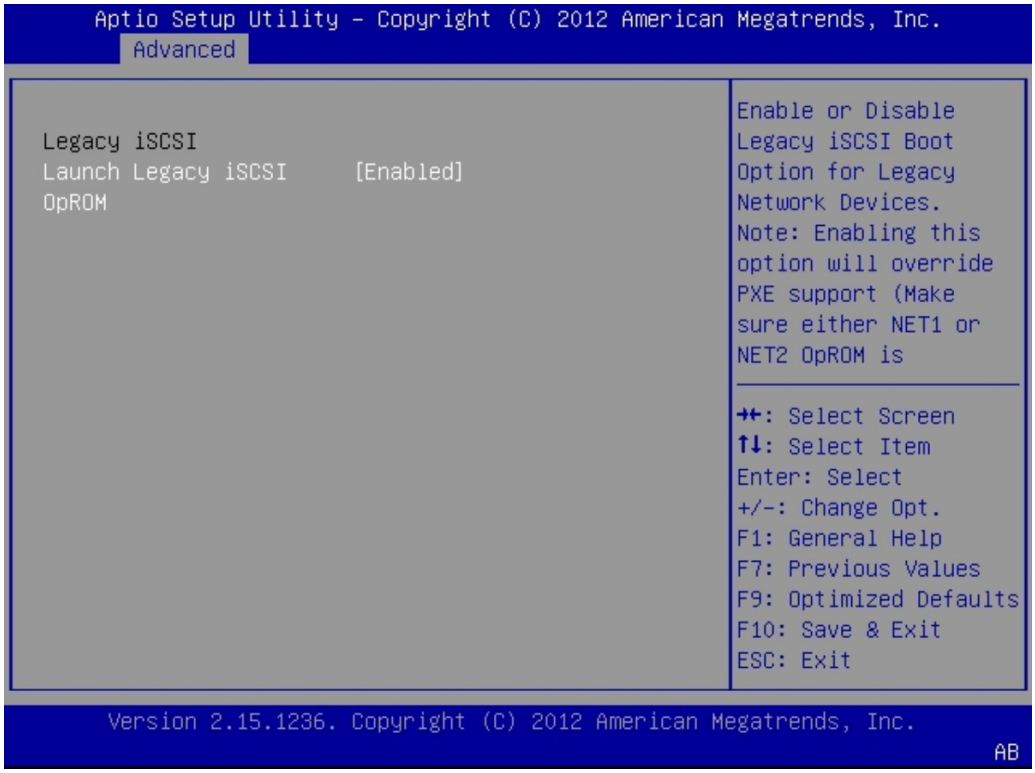
   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**

      The BIOS Setup Utility main screen appears.

2. **Select Advanced and then select Legacy iSCSI.**

Note - If you do not see Legacy iSCSI on the Advanced menu, select the IO menu, and then select Legacy iSCSI.

The Launch Legacy iSCSI window appears.

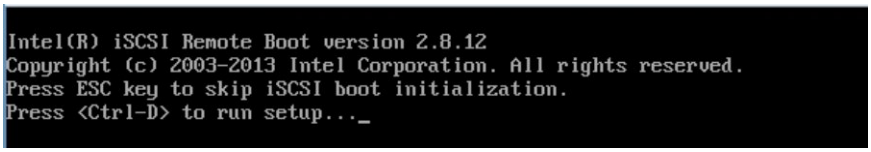


3. **Select Launch Legacy iSCSI OpROM, and then select Enabled.**

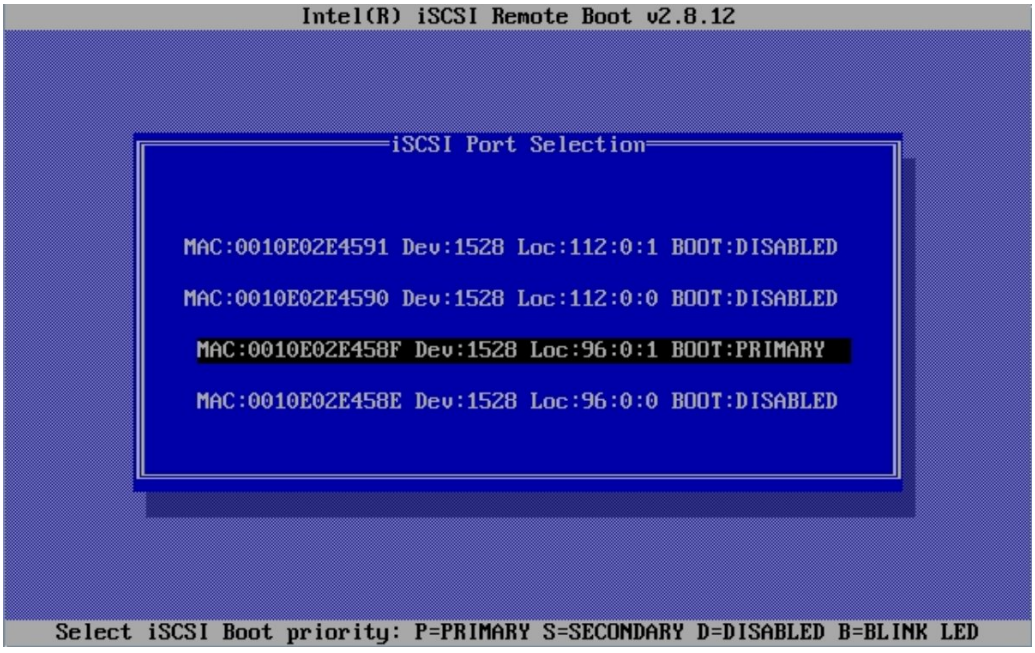
4. **Press F10.**

   The system boots. POST messages appear.

5. **When the following messages appear, press Ctrl+D several times to access the iSCSI option ROM.**



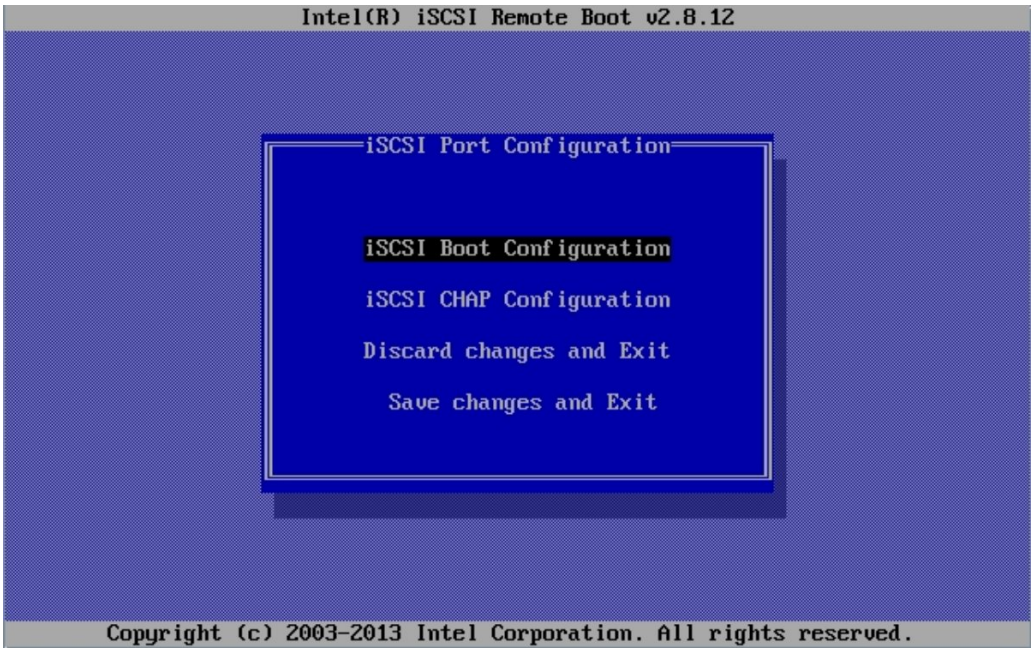
The iSCSI Port Selection screen appears. The following figure shows an example.



6. **Select the network adapter MAC address configured in the iSCSI server and Type "P" to change its state to Boot:PRIMARY.**

7. **Press Return to enter the network adapter MAC address for iSCSI configuration.**

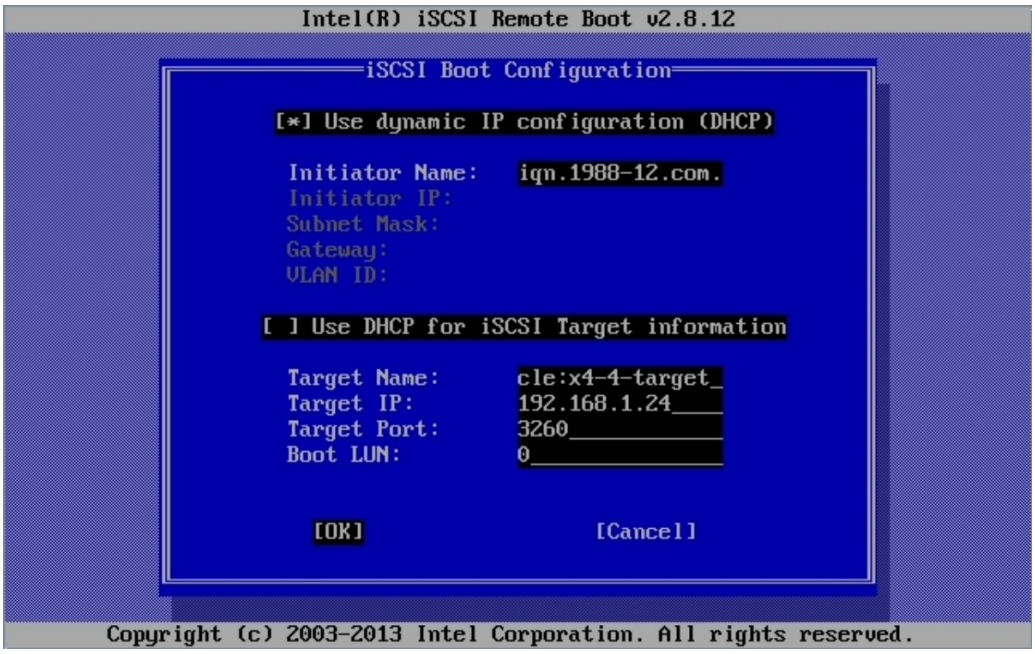
The iSCSI Port Configuration window appears.



8. **Select iSCSI Boot Configuration.**

Note - If you do not see iSCSI boot configuration, select iSCSI Port Configuration instead.

The iSCSI Boot Configuration window appears.



9. **Do the following:**

   a. **Configure the initiator to use DHCP (or not) by selecting or deselecting Use dynamic IP Configuration (DHCP).**

   b. **Type the initiator name in iSCSI Qualified Name (iqn) format. For example:**

      `iqn.1988-12.com.oracle:0010e02e458f`

   c. **If the initiator is not going to use DHCP, fill in the other network information.**

      If the initiator is going to use DHCP, these selections are unavailable.

   d. **Select Use DHCP for iSCSI Target information if you want DHCP to provide the iSCSI target parameters.**

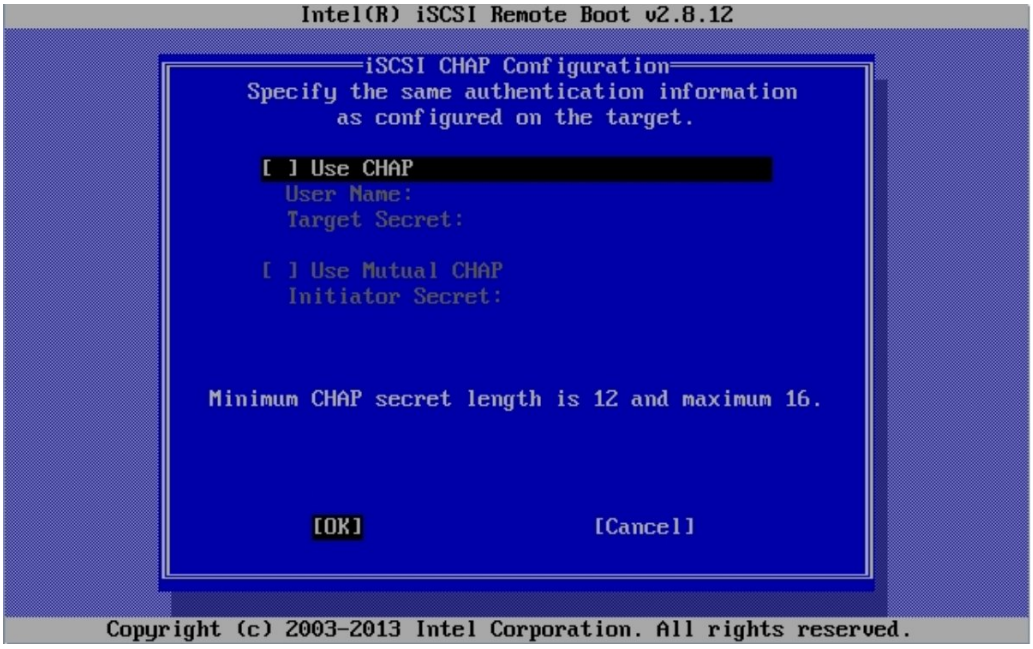
      Otherwise, fill in the Target IP, Target Port, and Boot LUN.

e. **Fill in the target name iSCSI Qualified Name (iqn) format.**

f. **If the target is not going to use DHCP, fill in the Target IP, Target Port, and Boot LUN.**

g. **Select OK.**
The iSCSI Port Configuration window appears.

10. **Select iSCSI CHAP Configuration.**
The iSCSI CHAP Configuration window appears.



11. **Enter the following items:**

a. **Select one of the CHAP options:**

- **If you use CHAP, fill in the User Name and Target Secret.**
- **If you use Mutual CHAP, fill in the Initiator Secret.**

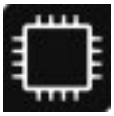
- **Select Cancel if no CHAP service is available.**

b. Select OK.
The iSCSI Port Configuration window appears.

12. Select Save changes and Exit.

See Also
- "Access the BIOS Setup Utility Menus" on page 190
- "Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)" on page 198

▼ Modify iSCSI Virtual Drive Properties in UEFI Boot Mode (BIOS)



Use this task to configure iSCSI virtual drives using the iSCSI BIOS Setup Utility screens on systems configured to use UEFI Boot Mode.

iSCSI virtual drives are used primarily to run supported operating systems that reside on an external server and that function as the local server host operating system.

iSCSI virtual drives must be configured in the UEFI BIOS Setup Utility iSCSI screens.

Before You Begin
- You should be familiar with iSCSI theory of operation and with iSCSI server setup procedures.
- Refer to the operating system documentation to verify that iSCSI targets can be mounted on a client.
- You need access to an external iSCSI server running on a supported operating system.
- The server must be in UEFI Boot Mode, not Legacy BIOS Boot Mode. See "Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)" on page 198.
- You must provide iSCSI target parameters. The following table shows examples:

Item	Example
Target name	iqn.1988-12.com.oracle:*platform*-target

Item	Example
iSCSI initiator name	iqn.1988-12.com.oracle:0010E02E458F
Note - iSCSI requires iSCSI Qualified Names (iqn) formats for its initiator and target names.	
Logical Unit Number	LUN 0
IP address of iSCSI server	192.167.1.24 (IPv4)
Port number	3260

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**

      Boot messages scroll across the console screen.

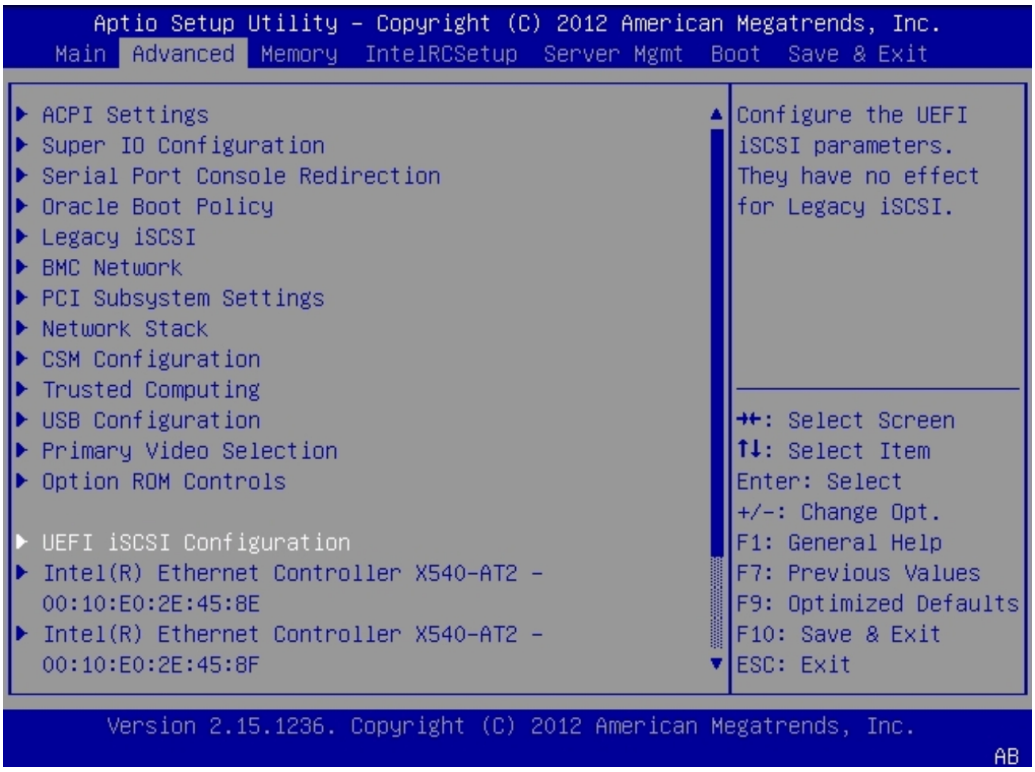
   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**

      The BIOS Setup Utility main screen appears.

2. **In the BIOS Setup Utility menus, select Advanced.**

Note - Ensure Legacy BIOS Boot Mode is not enabled.

A list of all controllable devices appears.



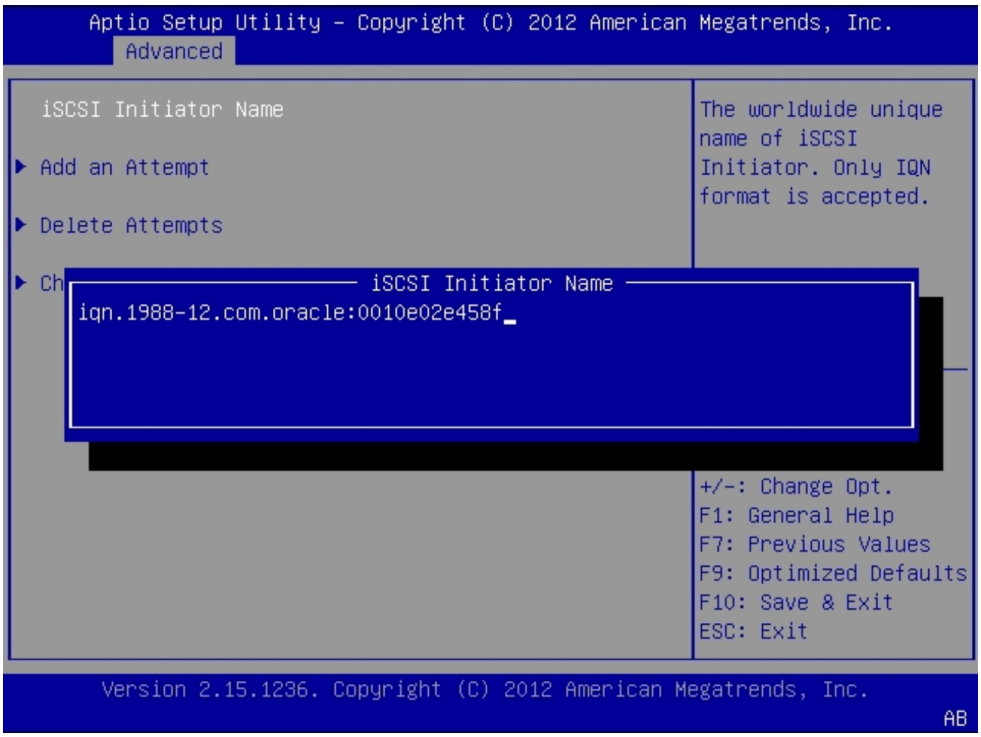
3. **To access the iSCSI screen, select UEFI iSCSI Configuration.**

   The UEFI Driver Control screen appears.

4. **Enter the iSCSI Initiator Name.**

   a. **Select iSCSI Initiator Name.**

The iSCSI Initiator Name dialog box appears.

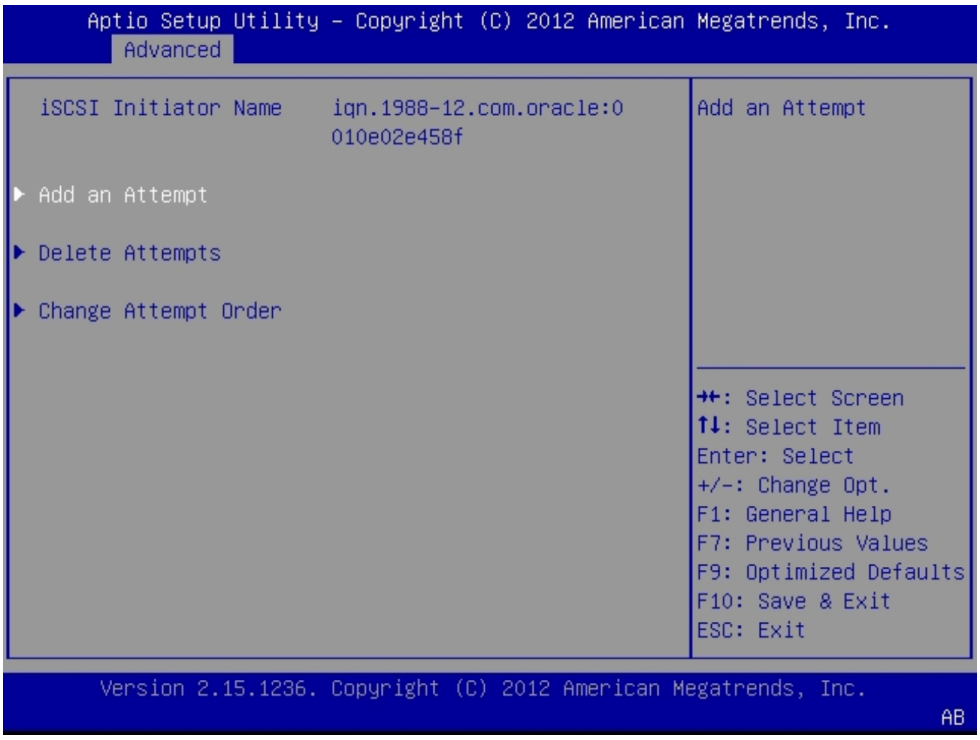


b. Type the initiator name in iSCSI Qualified Name (iqn) format. For example:

`iqn.1988-12.com.oracle:0010e02e458f`

5. Select Add an Attempt, and then do the following:

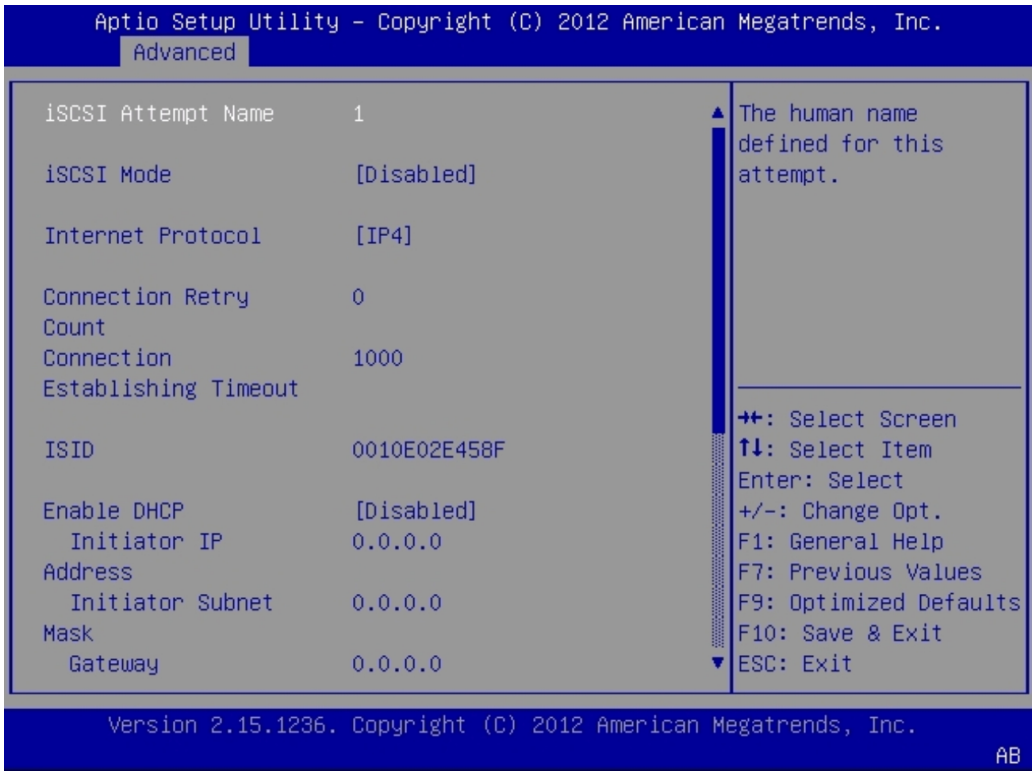
a. **Select the first iSCSI NIC port MAC address.**



6. **To connect to the iSCSI drive, select the appropriate NIC port MAC address, for example:**

   0010e02e458f

The port configuration screen appears.



7. **Set the following values:**

   a. **Set the iSCSI mode to Enabled.**

   b. **Set the Internet Protocol to IPv4.**

   c. **Set the Connection Retry Count to 1.**

   d. **Set the Enable DHCP value to Enabled or Disabled, as required. Enabled is preferred.**

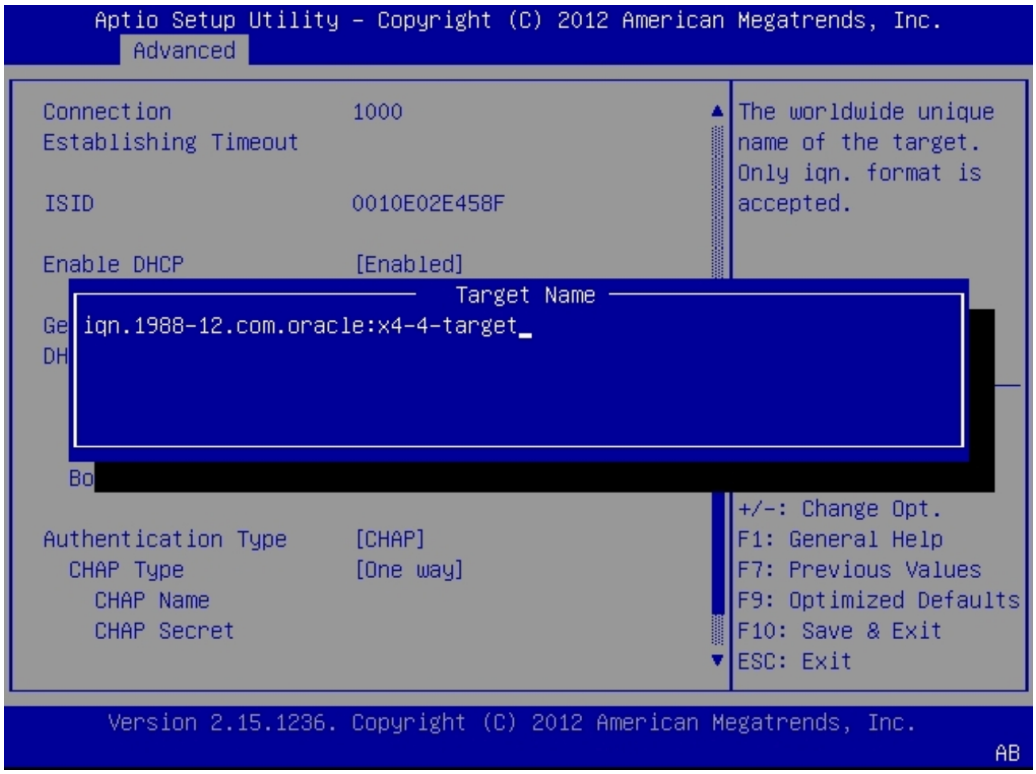
      If DHCP is enabled, the Initiator IP address, Initiator Subnet Mask, and Gateway settings are removed.

e. **If you set DHCP to disabled:**

- **Type the Initiator IP address.**
- **Type the Initiator Subnet Mask.**
- **Type the Gateway.**

Note - Use the same subnet.

8. **Set the Target Name.**



a. **Select Target Name.**

The Target Name dialog box appears.

b. **Type the iSCSI Qualified Name (iqn) of the target. For example:**

`iqn.1988-12.com.oracle:`*platform*`-target`

9. **Set the iSCSI server IP address.**

a. **Select Target IP address.**

The Target IP address dialog box appears.

b. **Type the target IP address of the iSCSI server in dotted-decimal notation, for example:**

`192.168.1.24`.

10. **Set the Target port.**

a. **Select Target port.**

b. **Type the target port of the iSCSI server, for example:**

`3260`.

Note - When iSCSI is enabled on a network port, PXE is disabled for that port.

---

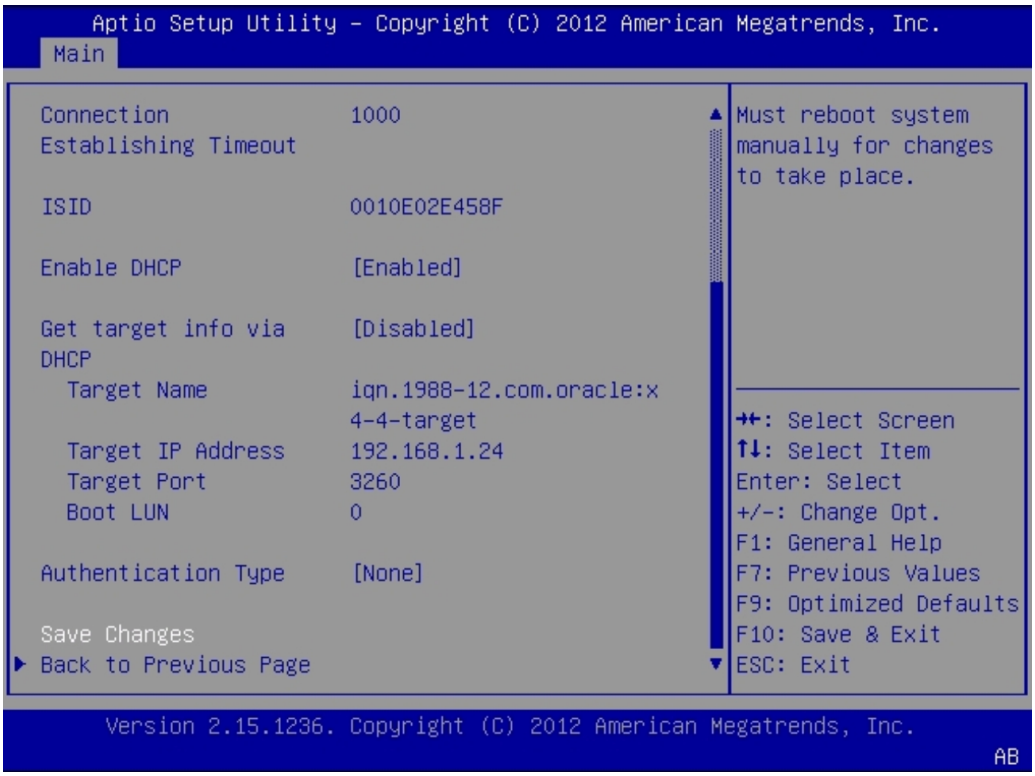
11. **Set the Logical Unit Number.**

a. **Select Boot LUN.**

The Boot LUN dialog box appears.

b. **Type the logical unit number. For example: `0`**

12. **Verify that your settings match the iSCSI target information on the iSCSI server.**



13. **Set the Authentication Type to CHAP or None.**

14. **Save the changes and exit the BIOS Setup Utility.**

15. **Restart the server.**

16. **Press the F8 key (or Ctrl+P from a serial connection) when prompted while the BIOS is running the power-on self-test (POST) checkpoints.**

    The Please Select Boot Device dialog box appears.

17. **Verify that the iSCSI target entry appears in the boot list.**

18. **For instructions on installing an operating system on an iSCSI drive, refer to the supported operating system installation documentation.**

See Also

- “Access the BIOS Setup Utility Menus” on page 190
- “Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)” on page 198

Performing Initial Setup Actions for Server Management

This section provides instructions for configuring server management tools.

Complete the actions in the following table to prepare the management tools on your server for operation.

Section	Tasks and Tools
"Assigning System Identification Information" on page 84	"Assign System Identification Information (Oracle System Assistant)" on page 85 "Assign System Identification Information (Oracle ILOM)" on page 85 "Assign System Identification Information (Oracle Hardware Management Pack)" on page 87
Configure network interface settings.	"Configure Network Interface Settings (Oracle System Assistant)" on page 165
"Configuring Oracle ILOM Network Settings" on page 87	"Configure SP Network Settings (Oracle System Assistant)" on page 88 "Modify Oracle ILOM SP Network Settings (Oracle ILOM)" on page 90 "Configure SP Network Address (BIOS)" on page 92
"Adding Oracle ILOM User Accounts" on page 93	"Add, Modify, or Delete Oracle ILOM User Account (Oracle System Assistant)" on page 93 "Add Local User Account for SP or CMM (Oracle ILOM)" on page 94
"Setting SP Clock Properties" on page 95	"Set SP Clock Properties (Oracle System Assistant)" on page 96 "Set SP Clock Properties (Oracle ILOM)" on page 97
"Configure SP DNS (Oracle System Assistant)" on page 98	N/A
"Downloading Oracle Hardware Management Pack" on page 99	"Download Oracle Hardware Management Pack (Oracle System Assistant)" on page 99

Section	Tasks and Tools
	"Download Oracle Hardware Management Pack From My Oracle Support (MOS)" on page 100
"Configure TPM Properties (BIOS)" on page 100	N/A

You can complete the following tasks using a single drop-down list on the Oracle System Assistant Service Processor Configuration page:

- "Assign System Identification Information (Oracle System Assistant)" on page 85
- "Configure SP Network Settings (Oracle System Assistant)" on page 88
- "Add, Modify, or Delete Oracle ILOM User Account (Oracle System Assistant)" on page 93
- "Set SP Clock Properties (Oracle System Assistant)" on page 96
- "Configure SP DNS (Oracle System Assistant)" on page 98
- "Configuration Management (Oracle System Assistant)" on page 174
- "Download Oracle Hardware Management Pack (Oracle System Assistant)" on page 99

Assigning System Identification Information

System identification information is stored in Oracle ILOM, but is used to identify aspects of the entire system. It includes:

- Hostname: the name assigned to Oracle ILOM. This can be mapped by a DNS server and used to login to Oracle ILOM.
- System Identifier: additional information about the system.
- System Contact: a person to contact for issues with the system.
- System Location: a string that describes the physical location of the system.

These items can be changed using Oracle System Assistant, Oracle ILOM, or Oracle Hardware Management Pack:

- "Assign System Identification Information (Oracle System Assistant)" on page 85
- "Assign System Identification Information (Oracle ILOM)" on page 85
- "Assign System Identification Information (Oracle Hardware Management Pack)" on page 87

▼ Assign System Identification Information (Oracle System Assistant)

Use Oracle System Assistant to modify server identification information.

1. **Access Oracle System Assistant.**
   See “Accessing Oracle System Assistant” on page 147 for details.
2. **Select Configure Hardware, and then click the Service Processor Configuration tab.**
3. **Click Identification Information from the drop-down list.**
   The Identification Information view appears.
4. **Modify the following information as required.**
   - SP Hostname
   - System Identifier
   - SP System Contact
   - SP System Location
5. **Click Apply Settings.**

▼ Assign System Identification Information (Oracle ILOM)

When using Oracle Integrated Lights Out Manager (ILOM) to deploy or manage an Oracle system, you can optionally assign identification labels to the system. For further details about this task, see the instructions below.

Before You Begin

- Launch Oracle ILOM. For instructions on how to launch Oracle ILOM, see "Accessing Oracle ILOM" on page 38.
- Gather the information that you need to configure the hostname, system identifier, system contact, and system location.
- This procedure requires Admin (a) role privileges in Oracle ILOM.

The following procedure provides web and command-line interface (CLI) instructions for both a server service processor (SP) and a chassis monitoring module (CMM).

- **To set server identification labels:**

  - **From the Web interface:**

    a. **Click ILOM Administration > Identification.**

    b. **Set the appropriate identification labels, and then click Save.**

  - **From the CLI:**

    a. **To view the identification labels, type:**

    ```
    show /[SP|CMM]
    ```

    b. **Issue the `set` command to set system identification labels.**

    For example:

    ```
    set /[SP|CMM] hostname=[hostname] system_identifier=[id]
    system_contact=[name] system_location=[building_floor_lab]
    ```

See Also Set Identification Labels for a Managed Device, *Oracle ILOM Quick Start Guide* for firmware 3.1, or *Oracle ILOM Getting Started Guide* for firmware 3.2

▼ Assign System Identification Information (Oracle Hardware Management Pack)

Use Oracle Hardware Management Pack to modify system identification information from your operating system command line:

- **Use the `ilomconfig modify identification` command to modify the following parameters.**
  - SP Hostname
  - System Identifier
  - SP System Contact
  - SP System Location

See Also For details, see the Oracle Hardware Management Pack Documentation Library at `http://www.oracle.com/goto/ohmp/docs`.

Configuring Oracle ILOM Network Settings

These tasks configure the network settings used by Oracle ILOM to access networks. They include:

- “Configure SP Network Settings (Oracle System Assistant)” on page 88
- “Modify Oracle ILOM SP Network Settings (Oracle ILOM)” on page 90
- “Configure SP Network Address (BIOS)” on page 92

Configure SP Network Settings (Oracle System Assistant)

Before You Begin Obtain the Oracle ILOM network information, such as DHCP settings and IP addresses.

1. **Access Oracle System Assistant.**

   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click Configure Hardware, and then click the Service Processor Configuration tab.**

   The Service Processor Configuration screen appears.

3. **Select Network Configuration from the drop-down list.**

   The Network Configuration appears.

4. **Set the network settings to the desired values.**

   - **Enter the following values for IPv4:**

     a. **IP Discovery Mode**

        Select whether the system uses Dynamic Host Configuration Protocol (DHCP) or a static IP assignment.

     b. **IP Address**

        If you selected a static IP assignment, provide the IP address of the SP.

     c. **Netmask**

        If you selected a static IP assignment, provide the netmask for the SP.

     d. **Gateway**

        If you selected a static IP assignment, provide the gateway address for the SP.

   - **Enter the following values for IPv6:**

a. **State**

Click the Enabled check box to enable IPv6 network settings.

b. **Autoconfig**

When enabled, the IPv6 Stateless autoconfiguration learns the IPv6 address.

c. **DHCPv6Autoconfig**

When enabled, the DHCPv6 Stateless autoconfiguration learns the DNS and domain information.

When enabled, the DHCPv6 Stateful autoconfiguration learns the IPv6 addresses and DNS information.

When enabled, the None state will only set the Link Local address in Oracle ILOM.

d. **Static IP Address**

This is the static IP address for the SP.

e. **Link-Local IP Address**

This is a non-routable address that you can use to connect to the SP from another IPv6 enabled node on the same network.

f. **Gateway**

This is the gateway address for IPv6.

g. **Dynamic IP List**

This field is read-only. Oracle System Assistant gets these values from Oracle ILOM.

5. **When you are done, click Apply Settings.**

Some changes are applied immediately. Others cannot be applied until the next boot.

Modify Oracle ILOM SP Network Settings (Oracle ILOM)

When you use Oracle ILOM to deploy or manage the server, you can optionally modify the default network settings provided for the service processor (SP).

This procedure provides web and command-line interface (CLI) instructions for viewing and modifying the network settings that are assinged to the SP. For further details about this task, see the instructions below.

Note - Earlier releases of Oracle ILOM support the ability to configure an IPv4 network connection or a dual-stack (IPv4 and IPv6) network connection. Newer enhanced releases of Oracle ILOM support the ability to configure a static IPv6 gateway address and any of the following: IPv4 network connection only, IPv6 network connection only, or a dual-stack network connection (where IPv4 and IPv6 are both enabled). Refer to your product notes to determine which Oracle ILOM release supports these enhancements.

1. **Log in to Oracle ILOM as an Administrator.**
   For instructions on how launch Oracle ILOM from the CLI or web interface, see: "Accessing Oracle ILOM" on page 38

2. **To modify the SP network settings, perform one of the following:**

   - **From the web interface, perform these steps:**

     a. **Click ILOM Administration > Connectivity > Network.**

     b. **Modify the settings on the Network Settings page as required.**
     For further details about how to configure the properties on the Network Settings page, click the *More Details* link.

     c. **Click Save to save your network property changes in Oracle ILOM.**

Note - All user sessions on the SP are terminated when you save IP network property changes. To log back in to Oracle ILOM, use the newly assigned service processor IP address.

- **From the CLI interface, perform these steps:**

  a. **To view the assigned IPv4 and IPv6 network settings on the SP, type:**

     For IPv4, type: **`show /SP/network`**

     For IPv6, type: **`show /SP/network/ipv6`**

  b. **To view the descriptions about each IPv4 and IPv6 network property, type:**

     For IPv4, type: **`help /SP/network`**

     For IPv6, type: **`help /SP/network/ipv6`**

  c. **To modify the IPv4 and IPv6 network properties on the SP, use the `set` command.**

     IPv4 Example:

     `set /SP/network state=`*enabled*|*disabled* **`pendingipdiscovery=`***static*|*dhcp* **`pendingipaddress=`***value* **`pendingipgateway=`***value* **`pendingipnetmask=`***value*

     IPv6 Example:

     `set /SP/network/ipv6 state=`*enabled*|*disabled* **`pending_static_ipaddress=`** *value/subnet_mask_value***`pending_static_ipgatewayaddress=`** value

---

Note - For servers that include the enhanced version of Oracle ILOM, the `/SP/network/state=enabled` command does not enable IPv6. Instead, use the command `/SP/network/ipv6 state=enabled`.

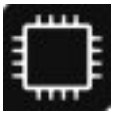
---

  d. **To commit pending network changes in Oracle ILOM, type:**

     `set /SP/network commitpending=true`

Note - All user sessions on the SP are terminated when you save IP network property changes. To log back in to Oracle ILOM, use the newly assigned service processor IP address.

Configure SP Network Address (BIOS)



Use this procedure to modify the network settings for the server SP using the BIOS Setup Utility.

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**
   Boot messages scroll across the console screen.

   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**
   The BIOS Setup Utility main screen appears.

2. **Navigate to the Advanced menu.**

3. **Select BMC Network.**

4. **Select Dynamic or Static.**

5. **Select IPv4 or IPv6.**
   The screen expands to show the IPv4 or IPv6 address settings.
   Some selections are grayed out if (for example) you chose Dynamic IP assignment.

   - **If you selected IPv4:**

     a. **Select Dynamic or Static IP addressing.**

     b. **If you selected Static IP addressing, specify an IPv4 Address, IPv4 Subnet Mask, and IPv4 Default Gateway.**

   - **If you selected IPv6:**

     a. **In the IPv6 State field, select Enabled.**

     b. **In the Auto IPv6 Configuration, select an auto-configuration option.**

c. **If you selected Disabled in the Auto IPv6 Configuration field, specify a Static IPv6 Address.**

6. **To make the changes to the latest values, select Commit.**

7. **To save the changes and exit the BIOS Setup Utility, press F10.**

See Also "Configure SP DNS (Oracle System Assistant)" on page 98

Adding Oracle ILOM User Accounts

Use Oracle Integrated Lights Out Manager (ILOM) user accounts to authenticate users logging in to the system and to authorize user access to discrete Oracle ILOM features. You can configure up to 10 user accounts locally, and you can configure additional user accounts remotely using a separate authentication server.

Creating a local Oracle ILOM user account involves assigning a user name and password, and assigning one or more user roles.

You can create local user accounts using the Oracle ILOM command-line interface (CLI) or web interface. You can also create a local Oracle ILOM user account for the SP using Oracle System Assistant. For more details, see the following procedures:

- "Add, Modify, or Delete Oracle ILOM User Account (Oracle System Assistant)" on page 93
- "Add Local User Account for SP or CMM (Oracle ILOM)" on page 94

▼ Add, Modify, or Delete Oracle ILOM User Account (Oracle System Assistant)

1. **Access Oracle System Assistant.**
   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click Configure Hardware, and then click the Service Processor Configuration tab.**

   The Service Processor Configuration screen appears.

3. **Select User Accounts Settings from the drop-down list.**

   The User Accounts Settings screen appears.

4. **Click the desired action.**

   - **If you click Add User, an empty configuration window appears. Fill in the information and click Add User.**

   Note - Oracle System Assistant does not support the creation of a user account with the user name "user." However, Oracle ILOM supports the creation of an account named as such, and while such an account can be viewed in Oracle System Assistant, it cannot be modified or deleted. If you need to create or manage this account, use Oracle ILOM.

   - **If you select a user and then click Modify User, the user configuration information appears in the window. Modify it, and then click Modify User.**
   - **If you select a user and then click Delete User, a dialog box asks you to confirm. Select Yes to confirm or No to exit without changing.**

5. **When you are done, click Apply Settings.**

   Oracle System Assistant either applies the changes or displays a message stating that the changes cannot be applied until the next boot.

▼ Add Local User Account for SP or CMM (Oracle ILOM)

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM) as a `root` user or as a user with user management (u) role privileges. For instructions on how to log in to Oracle ILOM as a `root` user, see "Launch and Log In to Oracle ILOM" on page 39.

This procedure provides web and CLI instructions for both a server service processor (SP) and a chassis monitoring module (CMM).

- **To define a new local Oracle ILOM user account and to set user roles for that account:**

  - **From the Web interface:**

    a. **Click ILOM Administration > User Management > User Accounts.**

    b. **In the Users table, click Add.**

    c. **In the User Account dialog box, specify a user name and password for the local account, and then assign a user profile.**

    d. **Click Save.**

  - **From the CLI:**

    a. **To assign a user name and password to a new local account, type:**

    `set /[`*SP*`|`*CMM*`]/users/[`*username*`] password=[`*password*`]`

    b. **To assign either individual user roles or a predefined user profile to the user name specified in Step 1, type:**

    `set /[`*SP*`|`*CMM*`]/users/[`*username*`] role=[`*a*`|`*u*`|`*c*`|`*r*`|`*o*`|`*s*`|`*Operator*`|`*Administrator*`]`

See Also

- Managing User Credentials, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
- Add New Users to Oracle ILOM, *Oracle ILOM Quick Start Guide* for firmware 3.1, or *Oracle ILOM Getting Started Guide* for firmware 3.2

Setting SP Clock Properties

You can set the service processor clock properties using Oracle System Assistant or using Oracle ILOM.

- "Set SP Clock Properties (Oracle System Assistant)" on page 96
- "Set SP Clock Properties (Oracle ILOM)" on page 97

Set SP Clock Properties (Oracle System Assistant)

Use Oracle System Assistant to set the SP clock properties when your are configuring your system.

1. **Access Oracle System Assistant.**

   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click Configure Hardware, and then click the Service Processor Configuration tab.**

   The Service Processor Configuration screen appears.

3. **Select Clock Settings from the drop-down list.**

   The Clock Settings screen appears.

4. **View or modify the following clock settings:**

   a. **Date**

      Use the drop-down list to select the month, day, and year.

   b. **Time**

      Use the drop-down list to set the time using 24-hour format.

   c. **Timezone**

      Use the drop-down list to select the time zone.

   d. **Synchronize Time Using NTP**

      Click the check box to enable synchronization with a Network Time Protocol (NTP) server.

   e. **If you selected to synchronize time using NTP, add IP addresses for NTP Servers 1 and 2.**

5. **When you are done, click Apply Settings.**

Oracle System Assistant either applies the changes or displays a message stating that the changes cannot be applied until the next boot.

▼ Set SP Clock Properties (Oracle ILOM)

Choose to configure the Oracle ILOM clock by either synchronizing the Oracle ILOM clock with an NTP server or setting the date and time based on the local host time zone.

Before You Begin

Launch Oracle ILOM. For instructions, see "Accessing Oracle ILOM" on page 38.

To modify the clock properties in Oracle ILOM the Admin (a) role is required.

The following procedure provides web and CLI instructions for both the server SP and CMM.

- **To modify the SP or CMM clock properties:**

  - **From the Web interface:**

    a. **Perform one of the following:**

       - To configure the clock properties to represent the local date and time that is associated with the host operating system clock, configure the date and time properties and then configure the time zone property. To do this, click ILOM Administration → Date and Time → Clock -or- Timezone.
       - To configure the Oracle ILOM clock to synchronize with the date and time associated with an NTP server, enable the property for synchronizing with an NTP server and provide the IP addresses or host name of the NTP server(s). To do this, click ILOM Administration → Date and Time → Clock.

    b. **Click Save to apply your changes.**

  - **From the CLI:**

    a. **To set the date and time using the local host timezone, type:**

       `set` */SP|CMM*/**`clock datetime=`** *MMDDhhmmYYYY* **`timezones=`** *3_to_4_characters*

b. To sychronize the Oracle ILOM clock with the date and time of an NTP server, type:

```
set /SP|CMM/clock usentpserver=enabled

set /SP|CMM /clients/ntp/
server
1|2=ip_address_or_hostname
```

See Also Setting Properties for SP or CMM Clock, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Configure SP DNS (Oracle System Assistant)

Use this procedure to configure network settings for Oracle ILOM using Oracle System Assistant.

1. **Access Oracle System Assistant.**

   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click Configure Hardware, and then click the Service Processor Configuration tab.**

   The Service Processor Configuration screen appears.

3. **Select DNS Configuration from the drop-down list.**

   The DNS Configuration screen appears.

4. **Fill in or select the following DNS settings for Oracle ILOM.**

   The DNS name server and DNS search path are unavailable if Auto DNS is enabled.

   - Auto DNS via DHCP
   - DNS Name Server
   - DNS Search Path
   - DNS Timeout and DNS Retries

5. **If you did not select Auto DNS via DHCP, fill in the DNS name server and DNS search path information.**

6. **When you are done, click Apply Settings.**
   Oracle System Assistant applies the changes.

Downloading Oracle Hardware Management Pack

This section provides instructions for downloading Oracle Hardware Management Pack. It includes:

- "Download Oracle Hardware Management Pack (Oracle System Assistant)" on page 99
- "Download Oracle Hardware Management Pack From My Oracle Support (MOS)" on page 100

▼ Download Oracle Hardware Management Pack (Oracle System Assistant)

1. **Access Oracle System Assistant.**
   For details, see "Accessing Oracle Hardware Management Pack" on page 47.

2. **Download the software update as described in "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)" on page 225.**
   The software update should include the latest version of Oracle Hardware Management Pack.

   - **If the operating system is already installed, install the new version of Oracle Hardware Management Pack as described in the Oracle Hardware Management Pack Documentation Library at `http://www.oracle.com/goto/ohmp/docs`.**
     When you use Oracle System Assistant to install a new operating system, Oracle System Assistant installs the latest downloaded version of Oracle Hardware Management Pack automatically.

Download Oracle Hardware Management Pack From My Oracle Support (MOS)

1. **Access My Oracle Support and navigate to your product.**

   For details, see "Download Firmware and Software Using My Oracle Support" on page 233.

2. **Select your software release from the drop-down list in the Release field.**

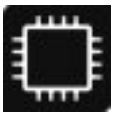
3. **Click Search.**

   The screen displays a list of downloads (patches).

4. **Click the boxes next to any patches that you want to download, and then click Download.**

   The download begins automatically.

Configure TPM Properties (BIOS)



If you intend to use the Windows Server 2008 Trusted Platform Module (TPM) feature set, you must configure the server to support this feature.

TPM enables you to administer the TPM security hardware in your server. For additional information about implementing this feature, refer to the Windows Trusted Platform Module Management documentation provided by Microsoft.

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**

      Boot messages scroll across the console screen.

   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**

      The BIOS Setup Utility main screen appears.

2. **Navigate to the Advanced > Trusted Computing screen.**

The TPM Support property is either set to Enable or Disable.

3. **To change the state, select TPM Support and make your selection in the dialog box.**

4. **To verify that your choice is implemented:**

   a. **Power the server off and on.**

   b. **Navigate back to Advanced > Trusted Computing.**

   c. **Verify that your choice is implemented.**

See Also For BIOS screen details,.see your server service manual.

Setting System and Management Power Policies (Oracle ILOM)

Set system management policies in Oracle Integrated Lights Out Manager (ILOM) to meet the power and cooling requirements for Oracle server systems in your data center. This section describes some of the ways you can manage the energy consumption of an Oracle server system:

- Reduce power requirements for an Oracle server system without affecting the system performance. For details, see “Setting System-Wide Power Management Settings (Oracle ILOM)” on page 103.
- Virtually control the behavior of host power at boot. For details, see “Setting SP Policy for Host Power at Boot (Oracle ILOM)” on page 111.
- Satisfy cooler operating requirements for PCIe cards, or enable a cooling down period prior shutting down the host. For details, see “Setting Server Cooling Down Policies (Oracle ILOM)” on page 112.
- Force blade chassis NEMs to run SAS2 capable links at a slower rate. For details, see “Forcing Blade To Be SAS2 Capable (Oracle ILOM)” on page 113.
- Set the low line AC override mode policy on Sun Server X4-4. For details, see “Set Low-Line Power Override Mode Policy for Sun Server X4-4” on page 115.

Setting System-Wide Power Management Settings (Oracle ILOM)

You can change system-wide power management settings in Oracle Integrated Lights Out Manager (ILOM) to:

- Reduce server power consumption by setting a target limit. For more details about configuring this property, see “Set Power Target Limit Property on Server SP” on page 104.
- Enforce a server power target limit by applying a power capping policy. For more details about configuring this policy, see “Set Power Capping Policy on Server SP” on page 105.

- Reduce blade slot power consumption by setting a power grant limit. For more details about configuring this property, see “Set Blade Slot Grant Limit Property on Chassis Monitoring Module (CMM)” on page 107.
- Prevent loss of power to an Oracle blade chassis system by setting a redundancy policy. For more details about configuring this policy, see “Set Power Supply Redundancy Policy on CMM” on page 108.
- Achieve a higher efficiency level for Oracle blade chassis power supplies by setting efficiency policies. For more details about configuring these policies, see “Set Power Supply Light Load Efficiency Policies on CMM” on page 109.
- Control Oracle blade chassis power supply fan speeds by setting fan speed policies. For more details about these policies, see “Set Power Supply Fan Speed Policies on CMM” on page 110.

▼ Set Power Target Limit Property on Server SP

You can control the amount of power an Oracle server is permitted to consume by setting the Power Target Limit property in Oracle Integrated Lights Out Manager (ILOM).

Before You Begin

- Log in to Oracle ILOM. For instructions on how to log in to Oracle ILOM, see “Launch and Log In to Oracle ILOM” on page 39.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

Note - The server Power Target Limit property in Oracle ILOM is disabled by default.

This procedure provides both web and command-line interface (CLI) instructions for the server service processor (SP).

● **To define a power target limit for an Oracle ILOM-managed server:**

- **From the Web interface:**

  a. **Click Power Management > Limit.**

b. **Enter a Target Limit in watts or as a percentage.**

Note - The Target Limit should be set between the minimum power drawn by the installed hardware components and the maximum power the managed server is permitted to consume (peak permitted).

---

c. **Enable Power Limiting by selecting the Power Limiting check box.**

d. **Click Save to apply your changes.**

- **From the CLI to set a power limit and activate the power limit state on the managed server, type:**

  ```
  set /SP/powermgmt/budget pending_power_limit=[ value ]
  pendingactivation_state=enabled commit_pending=true
  ```

  Where the *value* represents the target limit value in watts or as a percentage.

Note - The Target Limit should be set between the minimum power drawn by the installed hardware components and the maximum power the managed server is permitted to consume (peak permitted).

See Also Set SP Power Target Limit Properties, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Set Power Capping Policy on Server SP

You can define a power capping policy in Oracle Integrated Lights Out Manager (ILOM) to enforce a power target limit.

Before You Begin

- Log in to Oracle ILOM. For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.

- Set a power target limit on the managed server prior to setting the Power Capping Policy. For instructions, see "Set Power Target Limit Property on Server SP" on page 104.
- Ensure that you have Admin (a) user role privileges in Oracle ILOM.

Note - Some systems do not support power capping. For these systems, the commands and or the web elements are not present.

This procedure provides both web and command-line interface (CLI) instructions for the server service processor (SP).

- **To define a power capping policy for the Oracle ILOM-managed server:**

  - **From the Web interface:**

    a. **Click Power Management > Limit.**

    b. **In the Advanced Settings panel, select one of the Policy options: Soft Cap (default) or Hard Cap**

    c. **Select a policy violation action in the Violation Actions list box: None or Hard Power Off**

    d. **Click Save to apply your changes.**

  - **From the CLI to set a power capping policy, type:**

    `set /SP/powermgmt/budget pendingtimelimit=[` *default*|*integer between 1 and 99999*|*0* `] pendingviolation_actions=[` *none* `|` *hardpoweroff* `] commit_pending=true`

See Also Set Advanced Power Capping Policy, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Set Blade Slot Grant Limit Property on Chassis Monitoring Module (CMM)

You can control the amount of power an Oracle blade server module consumes by setting the blade slot grant limit property on the chassis monitoring module (CMM).

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM).

  For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

Note - The default blade slot grant limit property in Oracle ILOM is 1200 watts (the maximum slot limit).

Note - The blade slot grant limit should not be set lower than the wattage already granted by the CMM to the blade slot. Setting the blade slot grant limit to 0 prevents an installed blade server module from powering on.

This procedure provides both web and command-line interface (CLI) instructions for the CMM.

● **To define a blade slot grant limit in an Oracle blade chassis system:**

- **From the Web interface:**

  a. **Click Power Management > Allocation.**

  b. **In the Power Grants table, select a blade server module and click Edit.**

  c. **Enable one of the following options for the Power Grant Limit Policy: Slot Maximum (default, 1200 watts) or Custom**

     If Custom is enabled, enter a grant limit value for the chassis blade slot in watts.

d. **Click Save to apply your changes.**

- **From the CLI to set a power grant limit for a blade slot, type:**

  ```
  set /CMM/powermgmt/powerconf/ bladeslots/BLn grant_limit=[ watts ]
  ```

  Where *watts* represents the blade slot power limit.

See Also

- Set CMM Blade Slot Grant Limit Property, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
- "BIOS Key Mappings" on page 194

Set Power Supply Redundancy Policy on CMM

You can prevent the Oracle blade chassis system from losing power in the event of a power supply failure by setting a Power Supply Redundancy Policy.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM). For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.

This procedure provides both web and command-line interface (CLI) instructions for the chassis monitoring module (CMM).

- **To define the power supply redundancy policy in an Oracle blade chassis system:**

  - **From the Web interface:**

    a. **Click Power Management > Redundancy.**

    b. **Enable one of these options for the power supply redundancy policy: N +N (default) or None**

c. **Click Save to apply your changes.**

- **From the CLI, type:**

  ```
  set /CMM/powermgmt redundancy=[ redundancy|none ]
  ```

See Also Set CMM Power Supply Redundancy Policy, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Set Power Supply Light Load Efficiency Policies on CMM

To increase the efficiency of the power supplies, you can monitor how much power the power supplies are using and shut down one side of a power supply unit.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM). For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.
- The default settings for the Light Load Efficiency Policies in Oracle ILOM include the following:
  - The Light Load Efficiency Mode is Disabled by default.
  - The Monitor Power Supply 0 Side 0 or Monitor Power Supply 0 Side 1 properties are Enabled by default.
  - The Monitor Power Supply 1 Side 0 or Monitor Power Supply 1 Side 1 properties are Enabled by default.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

This procedure provides both web and command-line interface (CLI) instructions for the chassis monitoring module (CMM).

● **To define light load efficiency policies for power supplies installed in an Oracle blade chassis system:**

- **From the Web interface:**

  a. **Click System Management > Policy.**

  b. **In the Chassis Monitoring Module Policies table, select the appropriate power supply policy (for example, Load Efficiency or Monitor Power Supply Side), and then in the Actions list box click either Enable or Disable.**

- **From the CLI, type:**

  `set /CMM/policy LIGHT_LOAD_EFFICIENCY_MODE=[` *enabled*|*disabled* `] MONITOR_PS`*n*`_SIDE`*n* `=[` *enabled*|*disabled* `]`

  Where *n* represents the power supply slot location (0 or 1) and side (0 or 1).

See Also System Management Power Supply Policies Configurable from CMM, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Set Power Supply Fan Speed Policies on CMM

When necessary, you can force the speed of the blade chassis power supply fans to high or low.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM). For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

Note - The power supply fan speed policies in Oracle ILOM are disabled by default.

This procedure provides both web and command-line interface (CLI) instructions for the chassis monitoring module (CMM).

- **To modify the power supply fan speed:**

- **From the Web interface:**
  a. **Click System Management > Policy.**
  b. **In the Chassis Monitoring Modules table, select the appropriate Force Power Supply Fan policy (for high or low speed), and then select Enable or Disable in the Actions list box.**
  c. **Click Save to apply your changes.**
- **From the CLI, type:**

```
set /CMM/policy PS_FANS_[ HIGH|LOW ]=[ enabled|disabled ]
```

See Also System Management Power Supply Policies Configurable from CMM, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Setting SP Policy for Host Power at Boot (Oracle ILOM)

To control the behavior of the host power at boot, you can set a host power policy.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM). For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

Note - The policies for host power at boot in Oracle ILOM are disabled by default.

The following procedure provides both web and command-line interface (CLI) instructions for the server service processor (SP).

▼ Set SP Host Power Policy at Boot

- **To modify the policies controlling host power at boot:**
  - **From the Web interface:**
    a. **Click System Management > Policy.**
    b. **In the Service Processor Policies table, click the appropriate host power at boot property, and then select Enable or Disable in the Actions list box.**
  - **From the CLI, type:**

    `set /SP/policy HOST_AUTO_POWER_ON=[` *enabled*|*disabled* `] HOST_LAST_POWER_STATE=[` *enabled*|*disabled* `]`

See Also Power-On and Cooling-Down Policies Configurable From the Server SP, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Setting Server Cooling Down Policies (Oracle ILOM)

To satisfy cooler operating requirements for the server, set a cooling down policy for either the host or the installed PCIe cards.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM). For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

Note - The cooling down policies in Oracle ILOM are disabled by default.

The following procedure provides both web and command-line interface (CLI) instructions for the server service processor (SP).

▼ Set SP Cooling Down Policies

- **To modify cooling down policies on the server SP:**

Note - Not all Oracle servers support cooling down policies in Oracle ILOM. If a server does support these policies, they can be configured in the web interface on the System Management > Policy Configuration page or in the CLI under the `/SP/policy` target.

- **From the Web interface:**

  a. **Click System Management > Policy.**

  b. **In the Service Processor Policies table, click the appropriate cooling down policy (for PCIe or host), and then click Enable or Disable in the Actions list box.**

- **From the CLI, type:**

```
set /SP/policy ENHANCED_PCIE_COOLING_MODE=[ enabled|disabled ]
HOST_COOLDOWN=[enabled|disabled ]
```

See Also Power-On and Cooling-Down Policies Configurable From the Server SP, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Forcing Blade To Be SAS2 Capable (Oracle ILOM)

Enable this policy at the blade level to force the NEM(s) to run the SAS link at a slower rate, for those rare cases when this action is necessary.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM). For instructions on how to log in to Oracle ILOM, see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

Note - The Force SAS2 3 Gbps property in Oracle ILOM is disabled by default.

This procedure provides both web and command-line interface (CLI) instructions for the chassis monitoring module (CMM).

▼ Force Server Blade to be SAS2 Capable

- **To force NEMs to run SAS2 links at a slower rate (3Gbps) in an Oracle blade chassis system:**
  - **From the Web interface:**
    a. **Click System Management > Policy.**
    b. **In the Chassis Monitoring Module Policies table, select Force server blade to be SAS2 capable at 3Gbps for the appropriate blade server module, and then select Enable or Disable in the Actions list box.**
    c. **Click Save to apply your changes.**
  - **From the CLI, type:**

    ```
    set /CH/BLn/policy FORCE_SAS2_3GBPS= enabled|disabled
    ```

See Also Set CMM Blade Slot Grant Limit Property, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Setting the Low-Line AC Override Mode Policy on Sun Server X4-4 (Oracle ILOM)

On a Sun Server X4-4 with four processors, the default Oracle ILOM configuration is to prevent the system from powering on if the power supplies are not connected to high-line (220-

240VAC) power. However, for special test purposes with systems that include few options (and therefore have lower power demands), you can choose to override the default power policy and use low-line AC power (100-127VAC) to power-on the system.

Overriding the power policy disables power supply redundancy. When connected to low-line power, a minimally configured four-processor system still consumes more power than a single power supply can provide.

Powering on a four-processor system with low-line power and with low-line mode enabled causes a fault to be generated, and causes the fault indicator on the system to light. This fault is to be expected; it clears automatically once you go back to high-line power.

For more information refer to the Sun Server X4-4 documentation library at: `http://www.oracle.com/goto/x4-4/docs`

▼ Set Low-Line Power Override Mode Policy for Sun Server X4-4

- **To modify low-line power override on a Sun Server X4-4 with four processors:**

Note - This action is only available on a Sun Server X4-4 with four processors.

- **From the Web interface:**
  a. **Click System Management > Policy.**
  b. **In the Service Processor Policies table, select the desired low-line AC override policy.**
- **From the CLI, type:**

```
set /SP/policy/ LOW_LINE_AC_OVERRIDE_MODE=[ enabled|disabled]
```

See Also Power-On and Cooling-Down Policies Configurable From the Server SP, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Installing an Operating System

This section provides instructions for installing an operating system on a single server. It includes instructions for preparing the single server for operating system installation.

See the following sections:

Description	Link
Prepare a single server for operating system installation.	“Preparing to Install an Operating System” on page 117
Install an operating system on a single server using Oracle System Assistant. **Note -** This section provides the basic steps required to install an operating system. However all operating systems have their own unique variations. See your operating system installation guide for details.	“Install an Operating System (Oracle System Assistant)” on page 118

Note - To install an operating system on multiple servers, see the Oracle Enterprise Manager Ops Center product information page at `http://www.oracle.com/technetwork/oem/ops-center/index.html`.

Preparing to Install an Operating System

Before you install the operating system, you must perform a number of actions to prepare the server. You can complete all of these actions using Oracle System Assistant (recommended), or you can complete them without Oracle System Assistant. The following table lists both options.

Action	Oracle System Assistant	Without Oracle System Assistant
Prepare Oracle System Assistant for updates	“Configure Network Interface Settings (Oracle System Assistant)” on page 165	N/A

Action	Oracle System Assistant	Without Oracle System Assistant
	"Configure MOS to Enable Oracle System Assistant Updates" on page 168	
Configure Oracle ILOM.	"Configuring Oracle ILOM Network Settings" on page 87	See your Oracle ILOM documentation at: `http://www.oracle.com/goto/ilom/docs`
Download and Install Updates of Platform Software, Drivers, and Firmware	"Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)" on page 225. "Update Software and Firmware (Oracle System Assistant)" on page 226..	"Getting Firmware and Software From MOS" on page 233 "Updating Server or Blade Chassis Firmware (Oracle ILOM)" on page 229
Configure RAID **Note -** There are many ways to configure RAID. This section provides instructions for using Oracle System Assistant as well as other options.	"RAID Configuration Options" on page 59	"RAID Configuration Options" on page 59
Install the Operating System.	"Install an Operating System (Oracle System Assistant)" on page 118	See your operating system installation guide.

▼ Install an Operating System (Oracle System Assistant)

Oracle System Assistant is the preferred method of installing an operating system and drivers, as it provides a complete suite of tools for preparing the system, installing the operating system, and updating the drivers.

Note - Oracle System Assistant Operating System installation task is available only for supported versions of **Solaris**, **Windows**, and **Linux** operating systems, and **Oracle VM** software. For Windows, only the Full Installation options are supported. (The Server Core Installation options are not supported). For more information about installing a supported operating system, refer to the operating system-specific installation guide for your server.

Use this procedure to install a supported operating system on the server using Oracle System Assistant.

Caution - Before you install Oracle Solaris 11.3, you might have to update your firmware. See your platform product notes for details.

Note - This section provides the basic steps required to install an operating system. However all operating systems have their own unique variations. See your operating system installation guide for details.

Before You Begin

Obtain the operating system media or image.

Complete the preparations in "Preparing to Install an Operating System" on page 117.

1. **Click the Install OS task button.**

   The Install Operating System screen appears.

2. **From the Supported OS drop-down list, select the operating system to install.**

   The list contains only the supported operating systems that can use the Install OS task.

3. **In the Select the desired BIOS mode for booting operating system portion of the screen, select UEFI or Legacy BIOS mode.**

   The choice of BIOS modes is available only if the target operating system supports booting in UEFI mode.

   See "Legacy BIOS Boot Mode and UEFI Boot Mode" on page 196.

4. **In the Select your install media location portion of the screen, select the location of your operating system installation media.**

   Options are Physical CD/DVD, Virtual ISO images, or Network Location. Network Location is available for installing Linux operating systems using Oracle System Assistant 1.2 or newer.

   If you launched Oracle System Assistant locally and you want to install an operating system from a network location, ensure that you have configured the network settings as described in "Configure Network Interface Settings (Oracle System Assistant)" on page 165.

   Note - If you select Network Location, use lowercase letters for the http or ftp portion of the URL. For more information see "Oracle System Assistant Known Issues" on page 178.

   Click the Refresh button to update the list of devices.

Tip - If you are installing the operating system remotely using Oracle Remote System Console, choose Devices on the KVM menu and then click CD-ROM Image to get the remote CD-ROM to appear. Then on the Oracle System Assistant screen, click Refesh and select the CD/DVD location.

5. **In the Select the boot disk portion of the screen, select the boot device from the Boot disk drop-down list.**

   This is the device on which you install the operating system.

   - If you select a Linux distribution, the Select the boot disk portion of the screen appears.
   - If you select a Windows distribution, the Select the boot disk portion of the screen does not appear.

   Oracle System Assistant prepares the selected disk with the preinstallation environment and the components required to install the operating system.

Caution - Data loss: The operating system installation erases the contents of the disk.

6. **To confirm your selection of the boot device, click Yes.**

7. **Click View Installation Options.**

   The Operating System Installation Details dialog box displays the operating system and driver software components.

   Deselect any components you do not want to install. For most operating systems, all components listed are required.

8. **To exit the dialog box, click Close.**

   The Install Operating System screen appears.

9. **Click the Install OS button.**

10. **Respond to the prompts until the process finishes.**

    After the installation is complete, the server boots.

See Also

- “Accessing Oracle System Assistant” on page 147
- “Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)” on page 198
- See the operating system installation documentation for your server.

Monitoring Server Inventory and Health

This section provides instructions for monitoring system inventory and error messages, and provides an overview of the diagnostics available. It includes:

Viewing Server Information and Inventory

You can view the system information and inventory using Oracle ILOM or Oracle System Assistant:

▼ View Server Information and Inventory (Oracle System Assistant)

The System Overview and System Inventory screens provide information about the contents of your system.

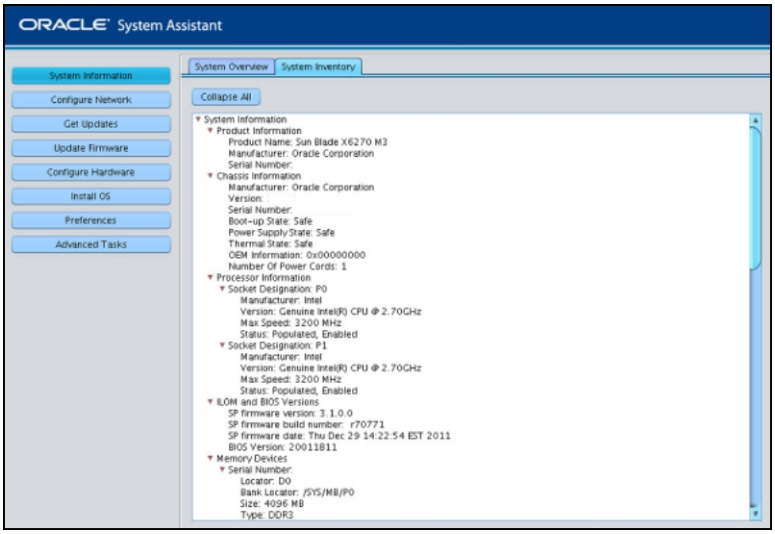
Before You Begin Open Oracle System Assistant. For details, see "Accessing Oracle System Assistant" on page 147.

1. **Access Oracle System Assistant.**

See “Accessing Oracle System Assistant” on page 147 for details.

2. **Click the System Information task button.**
   The System Overview screen provides the following information about the system.
   - Product name
   - Serial number
   - System type
   - System identifier
   - BIOS version
   - ILOM version
   - ILOM IP address
   - ILOM MAC address
   - Host IP address
   - Host MAC address

3. **Click the System Inventory tab.**
   The System Inventory screen appears.



4. **To view detailed information, click on one of the entries.**

5. **To expand or collapse information for all entries, click Expand All or Collapse all.**

View Server or Blade System Information and Inventory (Oracle ILOM)

Use Oracle Integrated Lights Out Manager (ILOM) to collect information about the Oracle servers or blade chassis systems in your lab environment. For further details, follow this procedure.

Before You Begin

- Log in to Oracle ILOM. For details, see "Launch and Log In to Oracle ILOM" on page 39.

The following procedure provides web and command-line interface (CLI) instructions for both the server service processor (SP) and the chassis monitoring module (CMM).

- **To collect basic configuration information or hardware inventory information for an Oracle system:**

  - **Using the Web interface:**

    a. **In the SP or CMM navigation pane, click the name of the subsystem for which you want to view information. For instance:**
    Server SP options include: Summary, Processors, Memory, Networking PCI Devices, and Firmware
    CMM options include: Summary, Blades, Power, Cooling, Storage, I/O Modules, and Firmware

  - **Using the CLI:**

    a. **To view the system status summary, type:**

    ```
    show /System
    ```

    b. **To view component-level and firmware inventory and statuses, do the following:**
    For a server SP, type:

    ```
    show /System/[Processors|Memory|Power
    ```

|*Cooling*|*Storage*|*PCI_Devices*|*Firmware*]

For a CMM, type:

`show /System [`*Power*|*Cooling*|*Storage*|*IO_Modules*
|*Firmware*|*Blades*]

See Also

- Collecting System Information, *Oracle Integrated Lights Out Manager (ILOM) User's Guide* for firmware release 3.1 or 3.2
- “View and Resolve Open Problems (Oracle ILOM)” on page 124

Monitoring and Resolving Open Problems

Prevent unnecessary down time by using Oracle system management tools to proactively monitor the health of your system and to notify you when problems occur. For further details about how to determine the health status of your system and how to locate information about resolving detected hardware issues, see:

- “View and Resolve Open Problems (Oracle ILOM)” on page 124
- “View Event Log Entries (Oracle ILOM)” on page 125
- “Monitor Open Problems (Oracle Hardware Management Pack)” on page 126
- “View and Resolve Error Messages at POST” on page 127

▼ View and Resolve Open Problems (Oracle ILOM)

Discover and resolve problems through the Oracle Integrated Lights Out Manager (ILOM) Open Problems table. This table identifies hardware problems as they occur and provides a URL to information for resolving reported problems. For further details about this task, follow these instructions:

Before You Begin

- Log in to Oracle ILOM. For instructions see “Launch and Log In to Oracle ILOM” on page 39.

This procedure provides web and command-line interface (CLI) instructions for both a server service processor (SP) and a chassis monitoring module (CMM).

- **To view and resolve open problems:**

  - **To use the web interface:**

    a. **Click Open Problems to view reported open problems.**

    b. **Navigate to the Reference Document URL (located in the problem description for each entry) in a web browser to view the suggested corrective action.**

  - **To use the CLI:**

    a. **To view reported problems, type:**

    ```
    show /System/Open_Problems
    ```

    b. **Navigate to the Reference Document URL (located in the problem description for each entry) in a web browser to view the suggested corrective action.**

See Also

- Administering Open Problems, *Oracle Integrated Lights Out Manager (ILOM) User's Guide* for firmware release 3.1 or 3.2
- Setting Up Alert Notifications, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2

▼ View Event Log Entries (Oracle ILOM)

Use the Oracle Integrated Lights Out Manager (ILOM) event log to help monitor the performance of your server or to troubleshoot hardware failures. The event log presents information about hardware faults, hot swap and remove actions, upper and lower non-

recoverable events, and upper and lower critical events. For details about viewing the event log, follow these instructions.

Before You Begin

- Log in to Oracle ILOM. For instructions see "Launch and Log In to Oracle ILOM" on page 39.

This procedure provides web and command-line interface (CLI) instructions for both a server service processor (SP) and a chassis monitoring module (CMM).

- **To view event log entries:**
  - **To use the web interface click ILOM Administration > Logs > Event.**
  - **To use the CLI, type:**

    `show /[`*SP*`|`*CMM*`]/Logs/event/lists`

See Also

- Managing Oracle ILOM Log Entries, *Oracle Integrated Lights Out Manager (ILOM) 3.1 User's Guide* for firmware release 3.1 or 3.2
- Setting Up Alert Notifications, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2

Monitor Open Problems (Oracle Hardware Management Pack)

- **Use the Oracle Hardware Management Pack hwmgtcli command to monitor open problems.**

  Refer to the `hwmgmtcli` command in the Hardware Management Agents documentation and in the Oracle Hardware Management Pack Documentation Library at:

  `http://www.oracle.com/goto/ohmp/docs`

▼ View and Resolve Error Messages at POST

Oracle servers perform a low-level diagnostic power-on self-test (POST) to pinpoint faults in specific hardware components. If the POST discloses an error, it typically reports the following information:

- Type of error detected
- When or where the error occurred

If several error messages are detected at POST, troubleshoot and fix the cause of the first error. In some cases, fixing the cause of the first error can resolve other error messages the next time you run POST.

For details about the POST error messages appearing on your screen, refer to the *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x.*

To detect possible hardware failures during POST, follow these instructions.

1. **Connect a terminal to the physical server, or establish a remote KVMS redirection session to the server from Oracle Integrated Lights Out Manager (ILOM).**

   For details on how to locally connect a terminal, refer to your server installation guide. For details on how to establish a remote KVMS connection through Oracle ILOM, see "Launching Oracle ILOM Remote Redirection Sessions for KVMS" on page 41.

2. **Reset the power on the server.**

   The POST sequence begins and the test output appears on your screen.

   If the test detects errors, error messages appear on the screen. Otherwise, the operating system is launched.

See Also

- "Controlling Server Power" on page 51
- BIOS POST Errors, *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x*

Diagnostics Overview

Run Oracle diagnostic tests to verify server installations, troubleshoot problems, or to validate hardware repairs.

The following table provides an overview of the diagnostic tools. For more details, see the *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x* at `http://www.oracle.com/goto/x86admindiag/docs`.

Tool	Description	For More Details
U-Boot Diagnostics	U-Boot automatically tests basic hardware functions to ensure that there is enough functionality to boot the SP. To launch U-Boot diagnostics, restart the server and type “e”, “q”, or “n” to start the appropriate diagnostics test.	Refer to the U-Boot Diagnostics section in the *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x*.
Oracle ILOM Preboot Menu	Use the Oracle Integrated Lights Out Manager (ILOM) preboot menu to fix problems with Oracle ILOM that cannot be fixed while Oracle ILOM is running. For instance, you can use this menu to interrupt the Oracle ILOM boot process, configure settings, and continue booting. Among other things, the Oracle ILOM preboot menu enables you to reset the Oracle ILOM `root` password to the factory default, restore Oracle ILOM access to the serial port, and update the service processor (SP) firmware. To launch the preboot menu you must reset the SP and interrupt the boot process. Locally, you can do this by pressing and holding the Locate button on the server while resetting the SP. Remotely, you can do this by typing `xyzzy` during a pause in the bootstrap process.	Refer to the Oracle ILOM Preboot Menu section in the *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x*.
BIOS POST	At system startup, the system BIOS performs a power-on self-test (POST) that checks the hardware on your server to ensure that all components are present and functioning properly. It displays the results of this test on the system console. To launch the power-on self-test and view the test output, reset the power on the server.	Refer to the BIOS POST section in the *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x*; or see “View and Resolve Error Messages at POST” on page 127.
OracleVTS	Oracle VTS is a comprehensive diagnostic tool that verifies the connectivity and functionality of most hardware controllers and devices. Oracle VTS is the preferred test for diagnosing I/O and host bus adapter (HBA) problems. Launch Oracle VTS on a system running the Oracle Solaris operating system. Alternatively, you can download the Oracle VTS ISO image to your Oracle server or to a CD/DVD and then use Oracle ILOM redirection to boot the image.	Refer to the Oracle VTS section in the *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x*.
Run Diagnostics on Boot[†] or PC-Check[‡]	Run a predefined set of diagnostics tests to detect problems on motherboard components, drives, ports, and slots. Launch these tests from the Oracle Integrated Lights Out Manager (ILOM) web interface or command-line interface (CLI): **Web:** 1. Click Host Management > Diagnostics.	Refer to the Run Pc-Check Diagnostics section in the *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide for Servers with Oracle ILOM 3.1 and Oracle ILOM 3.2.x*. For systems with Oracle ILOM 3.2.1 or later, click the *More details* link on the Oracle ILOM Diagnostics web page.

Tool	Description	For More Details
	2. In the Run Diagnostics on Boot list box, select the level of diagnostics you want to run (Enable, Disable, Extended, or Manual), and then click Save. **CLI:** ■ Type: set /HOST/diag [*enable*|*disable*|*extended*| *manual*]	Type the following in the Oracle ILOM CLI: `help /HOST/diag`
Service processor (Oracle ILOM)	Oracle ILOM displays the status of system components. You can then replace failed components, which often resolves the problem.	See “Monitoring and Resolving Open Problems” on page 124.

†The“Run Diagnostics on Boot” name appears in Oracle ILOM for UEFI BIOS systems.

‡The “PC-Check” tool name appears in Oracle ILOM for legacy BIOS systems.

-

Backing Up and Restoring Firmware Configurations and BIOS Settings

Use the procedures in this section to back up, restore, and replicate system firmware, Oracle ILOM configurations, and BIOS configurations, and to replicate those settings on multiple systems. The procedures include:

Backing Up, Restoring, or Replicating the BIOS Firmware Configuration (Oracle ILOM)

When the configuration for the BIOS firmware changes on an Oracle server, use Oracle Integrated Lights Out Manager (ILOM) to do the following:

- Back up the BIOS configuration to prevent the loss of the current working configuration. For more details, see "Back Up the Current BIOS Firmware Configuration (Oracle ILOM)" on page 132.
- Recover from unwarranted configuration changes by restoring the BIOS configuration to its last saved working or factory default configuration. For more details, see "Restore the Backed Up BIOS Configuration or Reset BIOS to Factory Defaults (Oracle ILOM)" on page 133.
- Verify that the current BIOS configuration settings on the host are in sync with the configuration settings stored by Oracle ILOM. If necessary, you can sync the host BIOS settings with Oracle ILOM. For more details, see "Sync the Host BIOS Firmware Configuration (Oracle ILOM)" on page 134.

Back Up the Current BIOS Firmware Configuration (Oracle ILOM)

Use Oracle Integrated Lights Out Manager (ILOM) to prevent the loss of working BIOS settings by backing up the current BIOS configuration.

Before You Begin

- Log in to Oracle ILOM. For instructions see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Reset and Host Control (r) and Admin (a) role privileges in Oracle ILOM.

This procedure provides web and command-line interface (CLI) instructions for a server service processor (SP).

- **To create a backup copy of the current BIOS configuration:**

  - **From the Web interface:**

    a. **Click System Management > BIOS.**

    b. **Select a Transfer Method for the Backup process.**

    c. **Click Start Backup.**

  - **From the CLI, type:**

```
set /SYSTEM/BIOS/Config/dump_uri=
transfer_method://username:password@
ipaddress_or_hostname/ directorypath/filename
```

See Also Back up the BIOS Configuration, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Restore the Backed Up BIOS Configuration or Reset BIOS to Factory Defaults (Oracle ILOM)

When changes to the host BIOS firmware configuration no longer work, use Oracle Integrated Lights Out Manager (ILOM) to either:

- Restore the host BIOS configuration with the settings from a backed up BIOS configuration.

  or
- Restore the host BIOS configuration with the default BIOS settings shipped from the factory.

Before You Begin

- Log in to Oracle ILOM. For instructions see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Reset and Host Control (r) and Admin (a) role privileges in Oracle ILOM.

This procedure provides web and command-line interface (CLI) instructions for a server service processor (SP).

- **To restore the BIOS configuration with settings from a backup configuration file or with factory default settings, do one of the following:**

  - **From the Web interface:**

    a. **Click System Management > BIOS.**

    b. **Perform one of the steps below:**

       - To reset the BIOS configuration settings to the settings shipped from the factory, select Factory in the Reset to Defaults drop-down list, and then click Save.
       - To restore the backed up BIOS configuration, do the following in the Restore Panel:

         i) Select a Restore Option.

         ii) Select a Transfer Method.

iii) Enter the location of the backup file.

iv) Click Start Restore.

- **From the CLI:**
  - To restore the BIOS configuration to factory defaults, type:

    ```
    set /System/BIOS reset_to_defaults=factory
    ```
  - To restore the BIOS configuration to the last backed up BIOS configuration, type:

    ```
    set load_uri=restore_option/transfer_method:
    //username:password@ipaddress_ or_
    hostname/directorypath/filename
    ```

See Also

- Restore BIOS Configuration, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
- Reset BIOS Configuration to Factory Defaults, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Sync the Host BIOS Firmware Configuration (Oracle ILOM)

If the BIOS configuration settings in the host data store become out-of-sync with the settings stored by Oracle ILOM, it might be necessary to manually sync the host settings with Oracle ILOM.

To use Oracle ILOM to identify the BIOS sync status or to manually sync the host BIOS settings, follow these instructions:

Before You Begin

- Log in to Oracle ILOM. For instructions see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

This procedure provides web and command-line interface (CLI) instructions for the server service processor (SP).

- **To identify the sync status or to manually sync the host BIOS configuration with Oracle ILOM:**

  - **From the Web interface:**

    a. **Click System Management > BIOS.**

    b. **Perform one or both of the steps below:**

    - To view the current sync status, locate the Configuration Sync Status field at the top of the page.
    - To sync the host BIOS settings with Oracle ILOM, power cycle the host system by clicking Host Management > Power Control > Power Cycle.

  - **From the CLI:**

    - To view the current sync status, type:

      ```
      show /System/BIOS/Config
      ```

    - To manually sync the host BIOS settings with Oracle ILOM, type:

      ```
      reset /System
      ```

See Also

- Performing BIOS Configuration Tasks, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
- For BIOS screen details, see your server service manual.

Backing Up, Restoring, or Replicating the Oracle ILOM Firmware Configuration

When the Oracle Integrated Lights Out Manager (ILOM) firmware configuration changes on an Oracle server service processor (SP) or chassis monitoring module (CMM), use Oracle ILOM to do the following:

- Back up the Oracle ILOM configuration to prevent the loss of the current working configuration settings. For more details, see "Back Up the Current Oracle ILOM Firmware Configuration (Oracle ILOM)" on page 136.

- Recover from unwarranted configuration changes by restoring the Oracle ILOM configuration to its last saved working or factory default configuration. For more details, see “Restore the Backed Up Oracle ILOM Configuration or Reset the Configuration to Factory Defaults (Oracle ILOM)” on page 138.
- Replicate the current Oracle ILOM configuration on other Oracle servers by: 1) capturing a model SP or CMM configuration, 2) customizing the captured configuration for use by other Oracle servers, and 3) provisioning other Oracle servers with the captured configuration. For further details, see “Replicate the Oracle ILOM Firmware Configuration on Other Oracle Systems (Oracle ILOM)” on page 140.

▼ Back Up the Current Oracle ILOM Firmware Configuration (Oracle ILOM)

Use Oracle Integrated Lights Out Manager (ILOM) to prevent the loss of service processor (SP) or chassis monitoring module (CMM) configuration settings by backing up the current Oracle ILOM configuration.

Before You Begin

Log in to Oracle Integrated Lights Out Manager (ILOM). For instructions see “Launch and Log In to Oracle ILOM” on page 39.

- **To back up a copy of the current working SP or CMM firmware configuration:**
  - **From the Web interface:**
    a. **Click ILOM Administration > Configuration Management > Backup/ Restore System.**
    b. **Select Backup in the Operations drop-down list.**
    c. **Select a Transfer Method for the Backup process.**
    d. **To encrypt sensitive data (like passwords), specify and confirm a passphrase.**

The backup file is encrypted using the passphrase. You need this passphrase later to restore the backed up file.

Note - Oracle ILOM 3.2.6 or newer provides a selection to include fault data in the backup. It is reserved for Oracle service personnel when they replace the SP. It requires a passphrase.

---

e. Click Run to start the back up process.

- **From the CLI:**

a. Navigate to the SP or CMM configuration target. For example:

```
cd /SP/config
```

or

```
cd /CMM/config
```

b. To encrypt sensitive data like passwords, and to include fault data in the backup file (available with Oracle ILOM 3.2.6 or newer), use:

`set passphrase=[`*value*`] include_faultdata=[`*true*|*false*`]`

Where:

- `passphrase` is a passphrase used to encrypt sensitive data in the backup file. If you specify a passphrase, the passphrase is required to restore the backed up configuration. If you do not specify a passphrase, sensitive data is not included in the backup file.
- `include_faultdata=true` includes fault data in the backup. The default is `false`.

Note - The fault data backup and restore is reserved for Oracle service personnel when they replace the SP. It is available with Oracle ILOM 3.2.6 or newer.

---

c. To start the back up process, type:

`set dump_uri=`
transfer_method://username:password@
ipaddress_or_hostname/directorypath/filename

Where:

- `transfer_method` is one of the following protocols: `tftp`, `ftp`, `sftp`, `scp`, `http`, or `https`.
- `username` and `password` are your credentials on the remote system where the backup file will be saved.
- `host` is the IP address or hostname of the system where the backup file will be saved.
- `filepath` is the relative path to the backup file.

See Also Back Up the Oracle ILOM Configuration Settings, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Restore the Backed Up Oracle ILOM Configuration or Reset the Configuration to Factory Defaults (Oracle ILOM)

When changes to the Oracle Integrated Lights Out Manager (ILOM) firmware configuration no longer work, use Oracle ILOM to restore the service processor (SP) or chassis monitoring module (CMM) configuration with either: 1) settings saved in a backup configuration file, or 2) default settings shipped from the factory.

Before You Begin

- Log in to Oracle ILOM. For instructions see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have the privileges associated with the following roles in Oracle ILOM: Admin (`a`), User Management (`u`), Console (`c`), and Reset and Host Control (`r`).

This procedure provides web and command-line interface (CLI) instructions for a server service processor (SP) and a chassis monitoring module (CMM).

● **To restore the Oracle ILOM configuration with settings from a backup configuration file or with settings shipped from the factory:**

- **From the Web interface:**

a. Click ILOM Administration > Configuration Management.

b. Perform one of the steps below:

- To reset the SP or CMM configuration to factory default settings, click the Reset Defaults tab. In the Reset Defaults page, select Factory, and then click Reset Defaults.
- To restore a backed up SP or CMM configuration file, do the following:

  i) Click the Backup/Restore tab.

  ii) Select the Restore operation.

  iii) Specify a Transfer Method, and then specify any required file paths or host information.

  iv) If the backup configuration file was encrypted, specify the passphrase used to encrypt the file.

  Note - With Oracle ILOM 3.2.6 or newer, if you included fault data in a backup, you can select Include Fault Data to restore it. This selection is reserved for Oracle service personnel when they replace the SP. It requires a passphrase.

  ---

  v) Click Run to start the restore process.

  Note - While the Restore operation is taking place, client sessions to the Oracle ILOM SP or CMM are suspended. The sessions resume after the Restore operation is complete.

- **From the CLI, perform one of the following:**

  - To reset the SP or CMM configuration to factory defaults, type:

    `set /[`*SP*|*CMM*`] reset_to_defaults=factory`

  - To restore the SP or CMM configuration to the last backed up configuration, do the following:

    i) Navigate to the SP or CMM `config` target. For example: `cd /[`*SP*|*CMM*`]/config`

    ii) If required, set a value for the passphrase. For example: `set passphrase=`*value*

    iii) On systems with Oracle ILOM 3.2.6 or newer, to include backed up fault data in the restore, type:

```
set include_faultdata=true
```

Note - The fault data backup and restore is reserved for Oracle service personnel when they replace the SP.

iv) To initiate the restore operation, type:

```
set load_uri=transfer_method://username:password
@ipaddress_or_hostname/directorypath/filename
```

See Also

- Restore the Oracle ILOM Backup XML File, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
- Reset the Oracle ILOM Configuration to Factory Defaults, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

▼ Replicate the Oracle ILOM Firmware Configuration on Other Oracle Systems (Oracle ILOM)

Use Oracle Integrated Lights Out Manager (ILOM) to enhance consistency and standardize the service processor (SP) or chassis monitoring module (CMM) configuration on multiple Oracle systems by: 1) capturing the configuration settings from a model server SP or CMM, and 2) replicating the captured configuration on other server SPs or CMMs.

Before You Begin

- Log in to Oracle ILOM. For instructions see "Launch and Log In to Oracle ILOM" on page 39.
- Ensure that you have the privileges associated with the following roles in Oracle ILOM: Admin (`a`), User Management (`u`), Console (`c`), Reset and Host Control (`r`), and Read-Only (`o`).

Follow these steps to replicate Oracle ILOM configuration parameters from one server SP or CMM on other server SPs or CMMs.

1. **Create a model SP or CMM configuration by customizing the Oracle ILOM configuration parameters as required.**
   For instance, define user accounts, modify network settings, set alert notifications, define system policies, and so on.

2. **Make a backup copy of the model SP or CMM configuration using the Configuration Backup operation in Oracle ILOM.**
   For details, see "Back Up the Current Oracle ILOM Firmware Configuration (Oracle ILOM)" on page 136.

3. **Edit the backup copy of the model configuration using an XML editor.**
   Editing Guidelines: Consider editing configuration parameters for network settings, such as the static IP address, or other Oracle ILOM settings that are *not* applicable to the target server SP or CMM.
   For further guidance, refer to the *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

4. **Provision the target server SP or CMM with a copy of the model Oracle ILOM configuration by using the Configuration Restore operation in Oracle ILOM.**
   For details, see "Restore the Backed Up Oracle ILOM Configuration or Reset the Configuration to Factory Defaults (Oracle ILOM)" on page 138.

▼ Backup, Restore, and Revert BIOS Settings (Oracle System Assistant 1.1)

The BIOS Configuration task allows you to back up and restore customized server BIOS settings. You can back up and restore settings to and from an XML file. You can also restore the server to the factory default settings.

Use this procedure to backup and restore BIOS settings on systems equipped with Oracle System Assistant 1.1.

Note - On systems equipped with Oracle System Assistant, see "Importing and Exporting Hardware Configuration (Oracle System Assistant 1.2)" on page 142.

---

1. **Click the Configure Hardware task button.**
2. **Click the BIOS Configuration tab.**
3. **Select a backup or restore option from the drop-down list.**

   The back up and restore options are:

   - Backup (Export XML file)
   - Restore (Import XML file)
   - Restore to Factory Settings

4. **For the backup option and the restore option, select a transfer method. To restore to factory settings, click the Factory radio button.**

   The transfer method options include:

   - Local drive
   - TFTP
   - FTP
   - SFTP
   - SCP
   - HTTP
   - HTTPS

5. **For the file-based options, browse for a file location.**
6. **For the file-based options, click Run; for the Restore to Factory option, click Apply.**

   Changes to the BIOS settings are applied during the next server boot.

See Also

- For BIOS screen details, see your server service manual.

Importing and Exporting Hardware Configuration (Oracle System Assistant 1.2)

This section provides instructions for importing and exporting RAID, Oracle ILOM, and BIOS hardware configuration information.

This feature can be used to backup and restore configuration information and to migrate it to a different system.

All information is imported and exported in xml files; one for each selected configuration (RAID, Oracle ILOM, and BIOS). These xml files are contained in a single zip file.

- On export, Oracle System Assistant creates a zip file containing an xml file for each selected configuration.
- On import, Oracle System Assistant expects a zip file containing an xml file for each selected configuration.

▼ Export Hardware Configuration (Oracle System Assistant 1.2)

Use this task to export RAID, Oracle ILOM, and BIOS configuration information into xml files that can be imported into servers to replicate the corresponding configurations. The xml files are delivered in a single zip file.

Exported configurations can be used:

- To back up a system, export the configuration, and then import the zip file to the originating system to restore the settings.
- To replicate the settings on a different system, export the configuration and then import the zip file to the new system.

To import the settings, "Import Hardware Configuration (Oracle System Assistant 1.2)" on page 144.

1. **Select Advanced > Export Hardware Configuration.**

   The Export Hardware Configuration window appears.

2. **Select the configurations to import.**

   If you select Service Processor Configuration, type and confirm the Passphrase.

3. **Select a transfer method.**

   Additional fields appear, depending on the selection you made. Fill in the required details.

4. **Select Export.**

The system creates the xml files, zips them, and writes the zip file to the destination selected by the transfer method.

▼ Import Hardware Configuration (Oracle System Assistant 1.2)

Use this task to import RAID, Oracle ILOM, and BIOS configuration information from xml files into your server. When you execute the import, the system configures the corresponding hardware to match the information in the xml files.

Caution - Loss of service: If the information in the xml files is not configured correctly, or if it was exported from a mismatched system, it could disable your server.

The xml files should be generated using the Export Hardware Configuration function described in "Export Hardware Configuration (Oracle System Assistant 1.2)" on page 143.

Before You Begin You must have an xml file for each configuration that you import, and these must be included in a single zip file.

The content of the xml files must be accurate and complete. The system used to export the file must match the system where the file is imported. They must have the same:

- Model number
- Oracle ILOM and BIOS versions
- Disk drive configuration
- Option cards

1. **Select Advanced > Import Hardware Configuration.**

   The Import Hardware Configuration window appears.

2. **Select the configurations to import.**

   If you select Service Processor Configuration, type and confirm the Passphrase.

3. **Select a transfer method.**

Additional fields appear, depending on the selection you made. Fill in the required details.

4. **Select Import.**

   The system imports the configuration information from zipped xml files identified by the transfer method.

   If the files are not configured correctly, the system displays a warning message and asks if you to confirm or exit.

Using Oracle System Assistant

This section provides basic use instructions for Oracle System Assistant. It describes how to start and use Oracle System Assistant and how to access the content on the Oracle System Assistant flash drive. It includes:

Note - For information about potential problems and workarounds for Oracle System Assistant, see "Oracle System Assistant Known Issues" on page 178 and your platform product notes.

Accessing Oracle System Assistant

Use Oracle System Assistant to prepare a new system for operation and to perform maintenance tasks such as upgrading software and firmware.

You must reboot the system to Oracle System Assistant to use it.

To launch Oracle System Assistant, use one of the following methods:

Access Method	Link
Access Oracle System Assistant during startup.	"Launch Oracle System Assistant at Startup" on page 34
Access Oracle System Assistant using Oracle ILOM.	"Launch Oracle System Assistant (Oracle ILOM)" on page 35

Oracle System Assistant is enabled by default but can be disabled. For details, see “Enable or Disable Oracle System Assistant (BIOS)” on page 171.

▼ Launch Oracle System Assistant at Startup

Use the following procedure to launch Oracle System Assistant while booting the system.

Before You Begin

- “Enable or Disable Oracle System Assistant (BIOS)” on page 171.

1. **Verify that the server is in standby mode or Full power mode.**
2. **Verify that a monitor, keyboard, and mouse are attached to the server, either locally or through a remote KVM session.**

   For details, see “Launch a Remote System Console Redirection Session” on page 43.
3. **Boot the server.**

   Boot messages appear on the monitor.

4. **When prompted, press the F9 function key.**

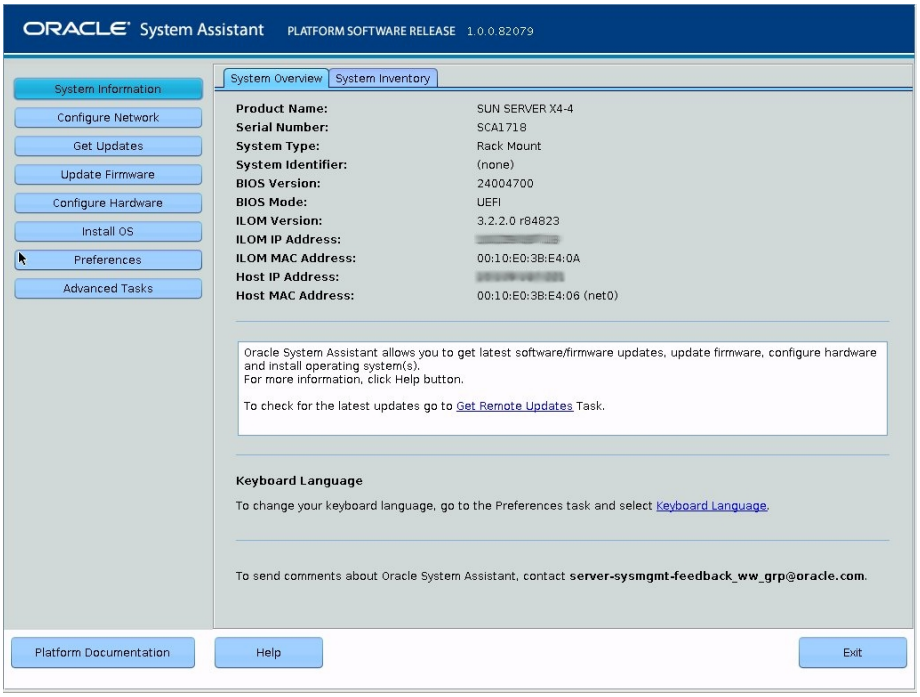
   You can also press CTRL-O on a serial keyboard.

Tip - If you are connected to the server using the Oracle ILOM Remote Console, press F9 several times; otherwise, the server might miss the signal due to delays.

Checkpoint messages appear, including the text `[Oracle System Assistant Selected]`.

If the Software License Agreement (SLA) dialog box appears, click Accept in the SLA dialog box to continue.

The `Launching Oracle System Assistant` screen appears, followed by the System Overview screen.



See Also

- "BIOS Key Mappings" on page 194
- "Troubleshooting Oracle System Assistant" on page 177
- "Controlling Server Power" on page 51

▼ Launch Oracle System Assistant (Oracle ILOM)

Use the following procedure to launch Oracle System Assistant from Oracle ILOM through a remote KVM session established to the server.

Before You Begin

- Log in to Oracle Integrated Lights Out Manager (ILOM) as a root user or as a user with Admin (a) and Console (c) role privileges.

  For instructions on how to log in to Oracle ILOM as a root user, see "Accessing Oracle ILOM" on page 38.
- Power off the host operating system on the managed server prior to performing this procedure; otherwise, Oracle ILOM prompts you to power off the host operating system prior to launching Oracle System Assistant.
- Ensure that the requirements for launching and using the Oracle ILOM Remote System Console are met.

  For more information about these requirements, see "Launch a Remote System Console Redirection Session" on page 43.

This procedure provides instructions for accessing Oracle System Assistant from a remote KVM session on the Oracle ILOM SP.

● **To launch Oracle System Assistant:**

- **From the Web interface:**

  a. **Click System Information > Summary.**

  b. **Click the Launch button for Oracle System Assistant.**

Tip - The Launch button is located in the Actions panel that appears on the right side of page.

Note - If the Software License Agreement (SLA) dialog box appears instead of the Oracle System Assistant window, click Accept in the SLA dialog box to continue launching Oracle System Assistant.

c. **Click the Help button on the individual Oracle System Assistant pages for further information about performing server setup tasks from the Oracle System Assistant window.**

- **From the CLI:**

a. **Type:**

```
/HOST/provisioning/start system-assistant
```

A message appears prompting you to start Oracle System Assistant.

b. **Launch the Oracle ILOM Remote Console, as described in "Launch a Remote System Console Redirection Session" on page 43.**

c. **Type `y` to launch Oracle System Assistant (or type `n` to cancel the operation).**

The Oracle System Assistant window appears.

Note - If the Software License Agreement (SLA) dialog box appears instead of the Oracle System Assistant window, click Accept in the SLA dialog box to continue launching Oracle System Assistant.

Click the Help button on the individual Oracle System Assistant pages for further information about performing server setup tasks from the Oracle System Assistant window.

See Also

- "Controlling Server Power" on page 51
- "Launch a Remote System Console Redirection Session" on page 43

▼ Exit Oracle System Assistant

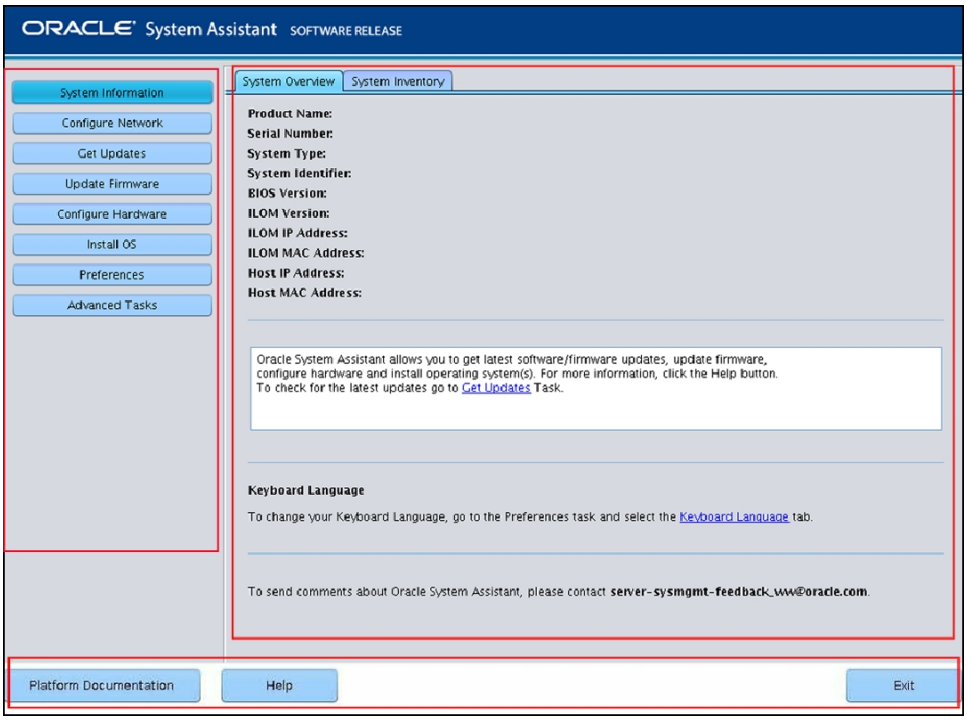
1. **From within Oracle System Assistant, click the Exit button to quit the application session.**

2. **Select whether you want to reboot or power off the system.**

   Oracle System Assistant exits. The system reboots or powers off if you selected one of those options.

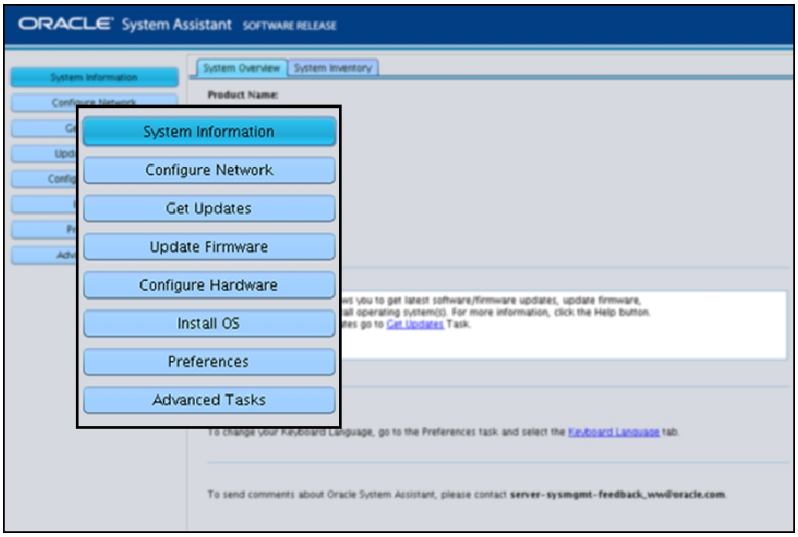
Using the Oracle System Assistant User Interface

The Oracle System Assistant user interface (UI) is divided into three sections, the left side Task pane, the center Main pane, and the Platform Documentation, Help, and Exit pane, which is located at the bottom of the UI.

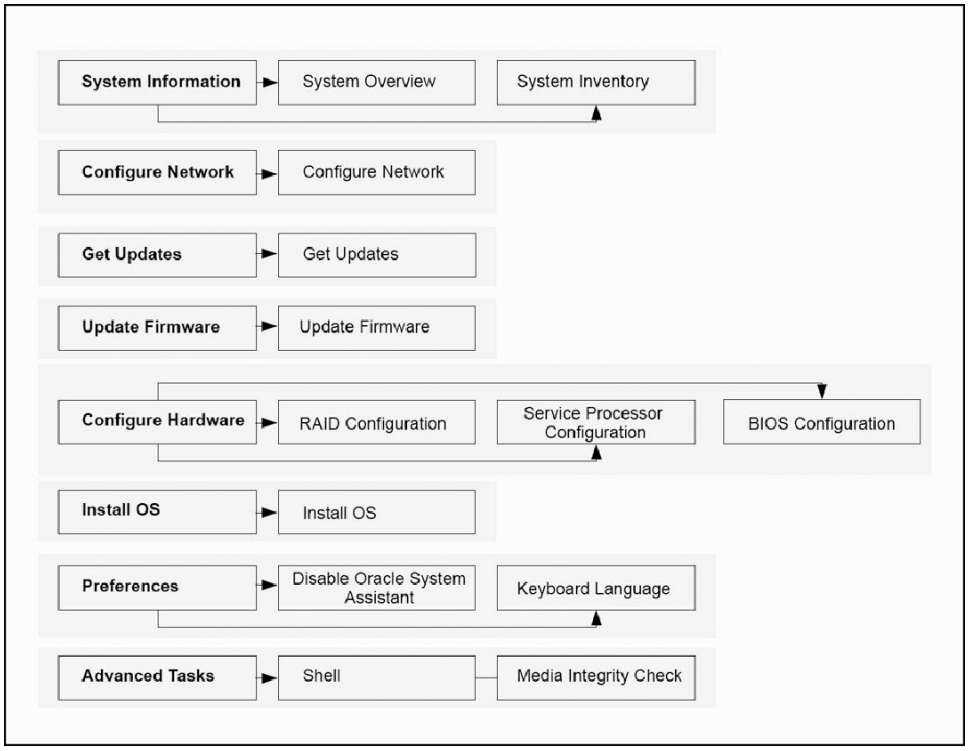


Task and Main Pane

Oracle System Assistant is organized by tasks. The eight task buttons are located on the left side of the interface in the Task pane.

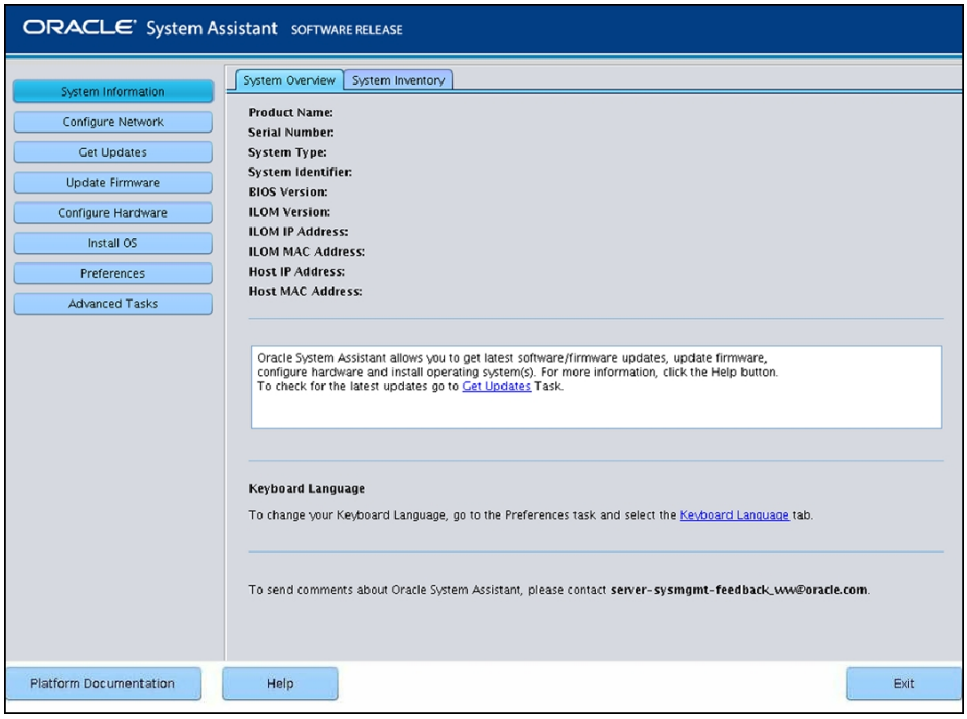


Clicking a task button populates the center Main pane. Some tasks contain tabs that allow you to access additional task screens. The following figure shows the organization of the Oracle System Assistant functions and the various sub-tabs and tasks.



Oracle System Assistant Home Screen

The System Information, System Overview screen is the Oracle System Assistant home screen. The home screen is the first screen that appears when you launch Oracle System Assistant, and it provides an overview of important server hardware identifier information and server system firmware versions.



▼ View Help and the Readme File

Use this procedure to view the Oracle System Assistant help and the readme file (Release Notes) for the installed platform software release.

The readme file contains Release Notes, which provide information about Oracle System Assistant including information specific to your software release.

1. **Access Oracle System Assistant.**

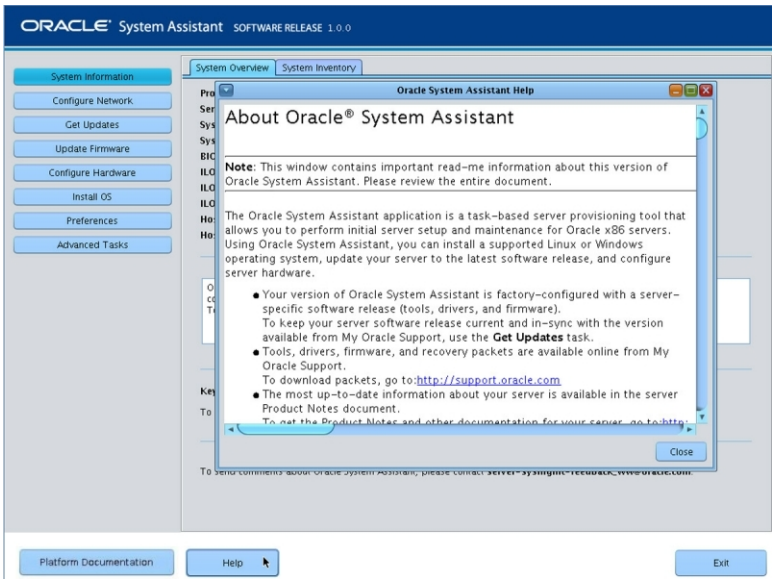
   For details, see “Accessing Oracle System Assistant” on page 147.

   The System Overview task screen appears.

2. **At the bottom of the System Overview task screen, click the Help button.**

   The readme file appears. .

Note - You can also access the readme file on My Oracle Support, and by browsing to the top level of the flash drive . For details, see "Accessing Files on the Oracle System Assistant Flash Drive" on page 157.



3. **Click other buttons to display help as required.**

▼ View Platform Documentation

1. **Access Oracle System Assistant.**

   For details, see "Accessing Oracle System Assistant" on page 147.

The System Overview task screen appears.

2. **Click the Platform Documentation button located at the bottom of the screen.**

   The server-specific documentation appears in a new window.

Note - The latest and most up-to-date documentation for your server also is available online at the server documentation library page.

Accessing Files on the Oracle System Assistant Flash Drive

This section provides instructions for accessing the files on the Oracle System Assistant flash drive. It includes:

The Oracle System Assistant flash drive contains firmware, software, and product documentation files. These can be accessed by navigating to the drive using the command line or a file browser.

The flash drive includes system documentation that you can view with a web browser.

Note - The latest and most up-to-date documentation for your server also is available online at the server documentation library page.

Updated documentation is downloaded with every Oracle System Assistant update. For details, see "Updating System Software and Firmware (Oracle System Assistant)" on page 220.

Access Flash Drive Files from an Operating System

You can access the flash drive files from the operating system using a command line or a file browser.

- **Use a command line or file browser to navigate to the flash drive.**

  The label for the drive is:

  - Oracle Solaris and Linux: ORACLE_SSM
  - Oracle VM: ORACLE SSM
  - Windows: ORACLE_SSM

  If you cannot access the flash drive:

  - If you cannot see the flash drive, Oracle System Assistant is probably disabled. See "Enable or Disable Oracle System Assistant (BIOS)" on page 171.
  - If you can see the flash drive but cannot not access it, you must mount it. This might be necessary with Oracle Solaris 10 and Oracle VM operating systems, but is normally not necessary on Windows, Linux operating systems, or the Solaris 11 operating system.
    - Oracle Solaris: "Mount Oracle System Assistant Flash Drive on Solaris 10 Host" on page 161
    - Oracle VM: "Mount Oracle System Assistant Flash Drive on Oracle VM Host" on page 162
    - Linux: "Mount Oracle System Assistant Flash Drive on a Linux Host" on page 163
    - Windows: Mounting is not necessary

  To see the system documentation, navigate to the `/documentation` directory.

▼ Browse Oracle System Assistant Content

1. **Access Oracle System Assistant.**

   For details, see “Accessing Oracle System Assistant” on page 147.

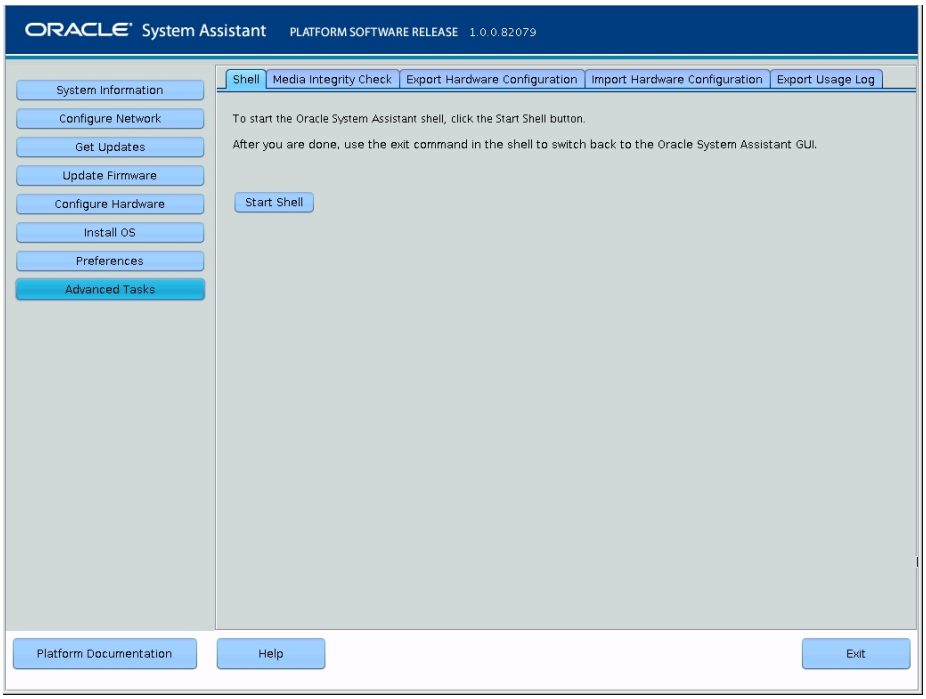
   The System Overview task screen appears.

Caution - Data loss or loss of Oracle System Assistant functionality: Only advanced users should use the Oracle System Assistant shell.

2. **Click Advanced Tasks, and then click the Shell tab.**

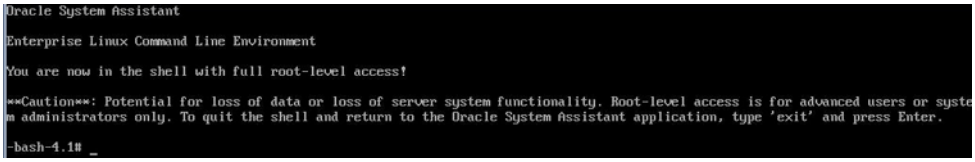
   The Shell screen appears.

Note - The Import and Export tabs are only present on Oracle System Assistant 1.2 or newer.



3. **Click the Start Shell button.**

   The Oracle System Assistant command-line shell window appears.



4. **To view content on the Oracle System Assistant flash drive, type:**

   ```
   cd /sysroot
   ```

5. **To exit the shell, type `exit`.**

See Also

- "Accessing Oracle System Assistant" on page 147
- "Mount Oracle System Assistant Flash Drive on Solaris 10 Host" on page 161
- "Mount Oracle System Assistant Flash Drive on Oracle VM Host" on page 162
- "Mount Oracle System Assistant Flash Drive on a Linux Host" on page 163

▼ Mount Oracle System Assistant Flash Drive on Solaris 10 Host

If the server is running the Oracle Solaris operating system, you must mount the Oracle System Assistant USB flash drive before you use the file system to display or access its contents.

1. **To turn off the volfs service, type:**

```
# svcadm disable volfs
```

2. **To identify the USB flash drive, type:**

```
# rmformat -l
```

The system displays a list of devices:

```
Looking for devices...
1. Logical Node: /dev/rdsk/c1t0d0p0
Physical Node:
/pci@0,0/pci108e,484e@1a/hub@1/storage@2/disk@0,0
Connected Device: ORACLE    SSM    PMAP
Device Type: Removable
#
```

3. **To manually mount the USB flash drive in read-only mode, type:**

```
# mount -F pcfs -o ro /dev/dsk/c1t0d0p1 /mnt
```

4. **To retrieve the Oracle Solaris content, type:**

```
# cd /mnt/Solaris
```

```
# ls
```

The system displays:

```
10U10 11
#
```

5. **To unmount the Oracle System Assistant device, type:**

```
# cd /
# umount /mnt
```

6. **To restart volfs, type:**

```
# svcadm enable volfs
```

The Oracle System Assistant USB flash drive is now mounted.

Mount Oracle System Assistant Flash Drive on Oracle VM Host

If the server is running the Oracle VM, you must mount the Oracle System Assistant USB flash drive before you use the file system to display or access its contents.

1. **Connect to your Oracle VM server as the root user.**

2. **To determine the device mapping of the Oracle System Assistant USB flash drive, type the `lsscsi` command.**

An example of how this command displays the storage devices on the server is shown below.

```
# lsscsi
[0:0:0:0]  disk    SEAGATE ST360057SSUN600G 0805 /dev/sda
[0:0:1:0]  disk    SEAGATE ST32000SSSUN2.0T 0313 /dev/sdb
[0:0:2:0]  disk    SEAGATE ST32000SSSUN2.0T 0313 /dev/sdc
[0:0:3:0]  disk    ATA INTEL SSDSA2BZ30     0362 /dev/sdd
[0:0:4:0]  enclosu ORACLE BLADE14           0903 -
[7:0:0:0]  disk    SUN StorEdge 3511        421F /dev/sde
[7:0:0:1]  disk    SUN StorEdge 3511        421F /dev/sdf
[7:0:0:2]  disk    SUN StorEdge 3511        421F /dev/sdg
[7:0:0:3]  disk    SUN StorEdge 3511        421F /dev/sdh
[9:0:0:0]  disk    SUN CSM200_R             0660 /dev/sdi
[9:0:0:1]  disk    SUN CSM200_R             0660 /dev/sdj
[9:0:0:2]  disk    SUN CSM200_R             0660 /dev/sdk
[9:0:0:3]  disk    SUN CSM200_R             0660 /dev/sdl
[9:0:0:4]  disk    SUN CSM200_R             0660 /dev/sdm
[9:0:0:5]  disk    SUN CSM200_R             0660 /dev/sdn
[11:0:0:0] disk     ORACLE SSM              PMAP /dev/sdo
```

The Oracle System Assistant USB flash drive is the disk labelled ORACLE SSM and in this example is mapped to `/dev/sdo`.

3. **To determine the name of the partition on the Oracle System Assistant USB device, type the `fdisk -l /dev/sdo` command.**

   An example of the output produced by this command is shown below.

```
# fdisk -l /dev/sdo
Disk /dev/sdo: 3880 MB, 3880452096 bytes
4 heads, 32 sectors/track, 59211 cylinders
Units = cylinders of 128 * 512 = 65536 bytes

Device Boot Start End   Blocks  Id System
/dev/sdo1 * 17    57344 3668992 ef EFI (FAT-12/16/32)
```

4. **(Optional) Create a mount point to use when mounting the Oracle System Assistant USB flash drive.**

   For example:

```
# mkdir /mnt/OSA
```

5. **To mount the Oracle System Assistant USB device, use the partition name determined in Step 3 and an existing mount point or the mount point that you created in Step 4.**

   Here is an example of a mount command:

```
# mount -t vfat -o codepage=850 /dev/sdo1 /mnt/OSA
# ls /mnt/OSA
boot          Firmware    LiveOS       OracleVM    syslinux.cfg
Documentation ldlinux.sys manifest.xml readme.html Versions.txt
EFI           Linux       Oracle       Solaris     Windows
#
```

   The Oracle System Assistant USB flash drive is now mounted at the `mount` location specified.

▼ Mount Oracle System Assistant Flash Drive on a Linux Host

If the server is running a Linux operating system, you might have to mount the Oracle System Assistant USB flash drive before you use the file system to display or access its contents.

- **To mount the Oracle System Assistant USB flash drive, enter the commands shown below:**

```
#>mkdir /mnt/OSA
```

```
#>mount LABEL=ORACLE_SSM /mnt/OSA
#>cd /mnt/OSA
#>ls -l
total 916
drwxr-xr-x 2  root root 4096   Nov 21 07:42 boot
drwxr-xr-x 3  root root 4096   Nov 21 07:42 Documentation
drwxr-xr-x 3  root root 4096   Oct 26 21:05 EFI
drwxr-xr-x 16 root root 4096   Nov 21 07:42 Firmware
-r-xr-xr-x 1  root root 15218  Oct 26 19:10 ldlinux.sys
drwxr-xr-x 5  root root 4096   Nov 21 07:41 Linux
drwxr-xr-x 2  root root 4096   Oct 26 21:05 LiveOS
-rwxr-xr-x 1  root root 787672 Nov 21 08:17 manifest.xml
drwxr-xr-x 2  root root 4096   Nov 21 08:00 Oracle
-rwxr-xr-x 1  root root 78879  Nov 21 07:42 readme.html
drwxr-xr-x 4  root root 4096   Nov 21 07:41 Solaris
-rwxr-xr-x 1  root root 263    Oct 26 21:05 syslinux.cfg
-rwxr-xr-x 1  root root 3755   Nov 21 07:42 Versions.txt
drwxr-xr-x 3  root root 4096   Nov 21 07:42 VMware
drwxr-xr-x 4  root root 4096   Nov 21 07:42 Windows
#>
```

The Oracle System Assistant USB flash drive is now mounted at the location specified.

Managing Oracle System Assistant

This section provides procedures for maintaining Oracle System Assistant. It includes:

Preparing Oracle System Assistant for Updates

Before you can update the system using Oracle System Assistant you must:

- Configure the network interface.
  See "Configure Network Interface Settings (Oracle System Assistant)" on page 165.
- Configure My Oracle Support to entitle your server to get the updates.
  See "Configure MOS to Enable Oracle System Assistant Updates" on page 168.

▼ Configure Network Interface Settings (Oracle System Assistant)

Use this procedure to configure the network settings for the port that Oracle System Assistant uses to access exterior networks. This allows it to get firmware and operating system drivers.

When Oracle System Assistant starts, it tries to connect to DHCP on Net0.

- If Net0 is connected to a network that is DHCP enabled, it succeeds.
- If Net0 is not connected to a network that is DHCP enabled, you must configure a network connection.

The number of network interfaces depends on the server hardware. They are designated Net0, Net1 up to the maximum number installed.

Note - Oracle System Assistant must have a working network connection before you can use the Get Updates task.

Before You Begin Obtain your network information, such as the name server for a static IP and the proxy information.

1. **Access Oracle System Assistant.**

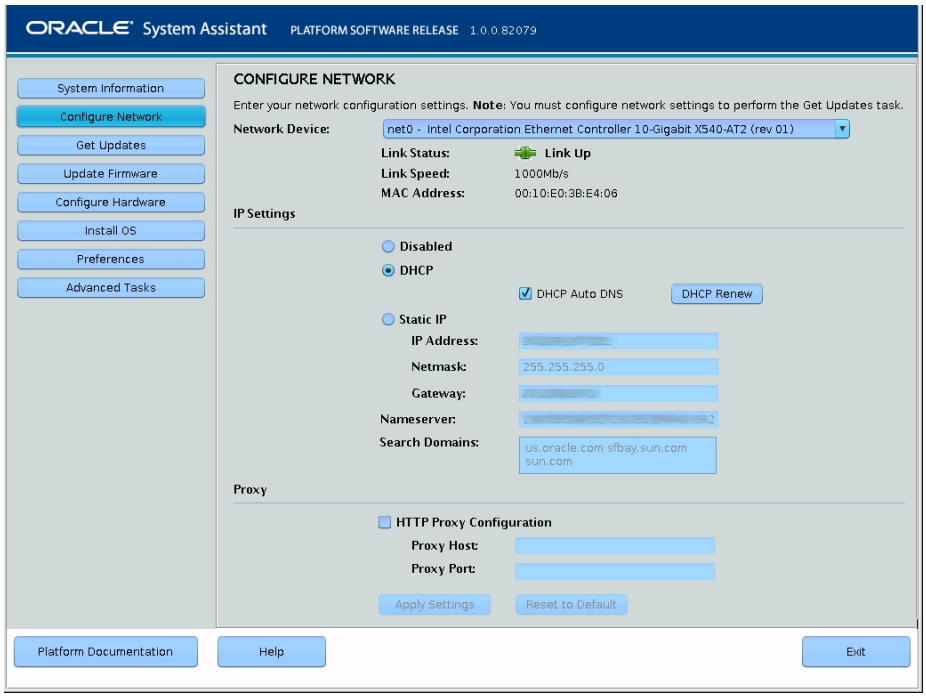
   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click the Configure Network task button.**

   If your server is connected to the network through a proxy that requires authentication:

   - With Oracle System Assistant 1.1, it displays a message stating that the server could not be reached.
   - With Oracle System Assistant 1.2, it prompts for the authentication server username and password.

The Configure Network screen appears:



3. Select the network interface device from the drop-down list.

The drop-down list identifies the devices that are visible to the server.

4. Configure the address settings for the network interface device.

Select one of the following methods to determine the IP address of the server:

- **Disabled**: Do not allow network access for this device.
- **DHCP**: Automatically assign an IP address to the server using Dynamic Host Control Protocol (DHCP). When this option is selected, you can select the Auto DNS via DHCP option to automatically assign the name server IP address and search domain. If you do not select the Auto DNS via DHCP option, you must also provide the following information:
  - Name server IP address
  - (Optional) Search domain
- **Static**: Assign a fixed IP address to the server. You must provide the following information:

- Server IP address
- Netmask
- Gateway

- **HTTP Proxy Configuration**: Select this option if you want to use a proxy server. You must provide the following information:
  - Proxy host
  - Proxy port

Note - Clicking the DHCP Renew button causes Oracle System Assistant to try to acquire a DHCP address (Oracle System Assistant 1.2 only).

---

5. **Click Apply Network Settings.**

   The system prompts for confirmation to apply the network settings and to disable all other interfaces.

6. **In the confirmation dialog box, click Yes to proceed.**

See Also "Accessing Oracle System Assistant" on page 147

▼ Configure MOS to Enable Oracle System Assistant Updates

Before downloading a platform software release update, Oracle System Assistant verifies that the server is entitled to obtain downloads from My Oracle Support (MOS). In order for the update to take place, the server serial number must be associated with a valid MOS Customer Support Identifier (CSI). If this association has not been made, then the update process halts at the Get Updates Sign-in screen.

Use this procedure to associate the server with the CSI at MOS.

Note - This is a one-time setup procedure. Once the association is made, the configuration persists.

Before You Begin You must have one of the following:

- Customer Support Identifier (CSI), which is printed on the Oracle Premier Support for Systems purchase confirmation letter or available in the server warranty contract documents.
- Server serial number, which is available on the Oracle System Assistant System Overview tab.
- Organization name.

1. **Log in to MOS at `https://support.oracle.com`.**
2. **Select the Settings tab from the More drop-down list.**
3. **In the left-side pane under Personal, click Accounts/Privileges.**
4. **Click the Request Access button in the Support Identifiers window.**

   The Request Access to a Support Identifier window appears.
5. **Do one of the following:**

   - **If you have the CSI, enter it in the Support Identifier field of the Request Access tab and click Request Access.**

   Approval *might* be required, but once access is granted, the Oracle System Assistant Get Updates capability is enabled for all servers associated with the CSI.

Note - If you cannot obtain the CSI or are unable to download updates for the server using Oracle System Assistant, contact Oracle Support.

   - **If you have the server serial number but do not have the CSI, do the following:**

a. **Click the Find a Support Identifier tab.**

b. **Type the server serial number in the System Serial Number field.**

c. **Type the organization name in the Organization field.**

d. **Click Search.**

e. **Highlight the CSI in the search results table and click Request Access.**

Approval *might* be required, but, once access is granted, the Oracle System Assistant Get Updates capability is enabled for all servers associated with the CSI.

Note - If you cannot obtain the CSI or are unable to download updates for the server using Oracle System Assistant, contact Oracle Support.

Enabling and Disabling Oracle System Assistant

This section provides instructions for performing tasks that affect the operation and status of Oracle System Assistant. It includes:

- "Disable Oracle System Assistant (Oracle System Assistant)" on page 171
- "Enable or Disable Oracle System Assistant (BIOS)" on page 171

▼ Disable Oracle System Assistant (Oracle System Assistant)

Use this procedure to disable Oracle System Assistant. This makes it unbootable and prevents the host operating system from accessing the files on the USB drive. This might be desirable for security reasons.

To re-enable Oracle System Assistant, use the BIOS Setup Utility Boot menu, as described in "Enable or Disable Oracle System Assistant (BIOS)" on page 171.

1. **Click Preferences, and then click the Disable Oracle System Assistant tab.**
   The Disable Oracle System Assistant screen appears.
2. **Click Disable Oracle System Assistant.**
3. **To confirm, click Yes.**
   The system reboots.

See Also

- "Accessing Oracle System Assistant" on page 147
- "Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)" on page 198
- "Enable or Disable Oracle System Assistant (BIOS)" on page 171

▼ Enable or Disable Oracle System Assistant (BIOS)

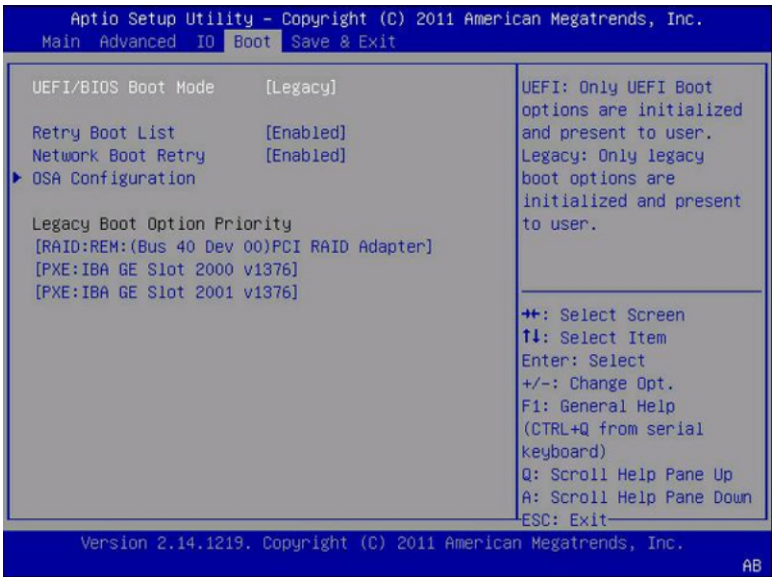
Use the Oracle System Assistant Configuration setting in the BIOS Setup Utility Boot menu to disable or enable Oracle System Assistant.

Disabling Oracle System Assistant makes it unbootable and prevents the host operating system from accessing the files on the USB drive. This might be desirable for security reasons.

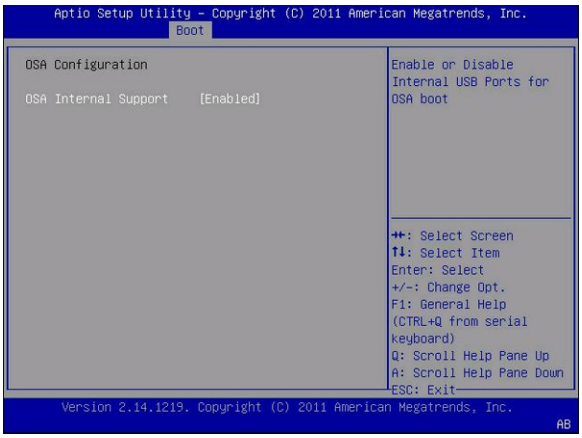
To enable or disable the Oracle System Assistant USB device:

1. **Access the server BIOS Setup Utility.**
   See “Access the BIOS Setup Utility Menus” on page 190.

2. **Navigate to the Boot screen.**



3. **Navigate to the OSA Configuration screen.**



4. **Select Enabled (or Disabled) for the OSA Internal Support setting.**

   Press Enter.

5. **To save and exit the BIOS utility, press F10.**

   The server boots.

See Also

- "Accessing the BIOS Setup Utility" on page 48
- For BIOS screen details, see your server service manual.

▼ Set Oracle System Assistant Keyboard Language

The Keyboard Language task enables you to select the keyboard language for Oracle System Assistant.

Note - The Keyboard Language task setting applies only to Oracle System Assistant. It does not apply to the shell command-line interface, nor does it set the keyboard language for the server operating system.

Use this procedure to set the Oracle System Assistant keyboard language.

1. **Click Preferences, and then click the Keyboard Language tab.**

   The Keyboard Language screen appears.

2. **From the drop-down list, select the keyboard language.**

   Options include: English (US), French, German, Italian, Spanish, and Swedish.

3. **Click Save Setting.**

See Also "Accessing Oracle System Assistant" on page 147

▼ Configuration Management (Oracle System Assistant)

Use the Configuration Management screen to make global changes to the Oracle ILOM settings.

1. **Access Oracle System Assistant.**

   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click Configure Hardware, and then click the Service Processor Configuration tab.**

   The Service Processor Configuration screen appears.

3. **Select Configuration Management from the drop-down list.**

   The Configuration Management screen appears.

4. **Select one of the following options:**

   The Factory and All selections take place when the system is rebooted.

Caution - Loss of service. Selecting Factory or All erases the current Oracle ILOM configuration and returns the configuration to factory defaults. This can make Oracle ILOM unusable until it is reconfigured.

- Factory: Returns all SP settings to factory defaults and clears all log files.
- All: Returns all SP settings to factory defaults but preserves log files.
- None: Nullifies any pending All or Factory selections (if the system has not been rebooted).

5. **When you are done, click Apply Settings.**

   Oracle System Assistant applies your selection on the next boot.

Export Usage Logs (Oracle System Assistant 1.2)

Oracle System Assistant release 1.2 allows you to export usage log files to a USB drive, an FTP server, or a network location using Secure Copy (SCP).

These files contain tracking information for each Oracle System Assistant task. They are useful for fixing problems.

Caution - Information Security. The usage log files might contain secure information, and should be protected from unauthorized access.

1. **Click the Advanced Tasks button and then click the Export Usage Log tab.**

   The Export Usage Log page appears.

2. **Select an export method (destination) and fill in the required information.**

   You cannot save the logs to the Oracle System Assistant USB drive.

3. **Click the Export Usage Log button.**

   Oracle System Assistant exports the file to the configured location.

Troubleshooting Oracle System Assistant

If Oracle System Assistant does not launch or is not available to the server, or if you are unsure whether your server has it installed, use the procedure in this section to troubleshoot and verify Oracle System Assistant, and to restore its functionality.

Note - For information about potential problems and workarounds for Oracle System Assistant, see “Oracle System Assistant Known Issues” on page 178 and your platform product notes.

This section includes the following tasks:

When troubleshooting or verifying Oracle System Assistant, consider the following:

- Oracle System Assistant is installed in each supported server. However, you can opt-out of having Oracle System Assistant installed. The opt-out option occurs during the server order process.
- You can launch and operate Oracle System Assistant manually while located at the serve, or you can launch and operate it remotely from Oracle ILOM using the Remote Console application.

  Regardless of the launch method, the server must boot into Oracle System Assistant.
- Oracle System Assistant is installed on an embedded USB drive that appears to the server operating system as a storage device. You can see the device in a file browser or using a command-line interface, and you can to navigate to the device and browse the Oracle System Assistant file system.
- Because Oracle System Assistant resides on a physical device, you can check for the presence of the USB drive by accessing the inside of the server.
- A safety and security feature allows you to disable the USB drive and place it in an offline state where it is not visible or accessible to the operating system, Oracle ILOM, or the BIOS Setup Utility. When the device is in this disabled state, it is not possible to launch Oracle

System Assistant, and you can only enable it and bring it back online using the server BIOS Setup Utility.

- Oracle System Assistant launches if it is installed in the server, it is enabled in the BIOS Setup Utility, and it is not corrupted.
- If Oracle System Assistant becomes corrupted, you can recover the Oracle System Assistant image, provided it was initially installed on your server.

Oracle System Assistant Known Issues

This section describes known issues with Oracle System Assistant.

Oracle System Assistant Does Not Provide Complete Support for Oracle VM 3.3.1 Installation (19870207, 19870253)

If you use Oracle System Assistant to install Oracle VM 3.3.1, the network and boot loader configuration screens do not appear during the installation process. The boot loader default values are applied to the installation.

Workaround

Do one of the following:

- If you want to configure the network and boot loader during installation, use a different method to install Oracle VM 3.3.1.
- If you wish to accept default boot loader values, install Oracle VM 3.3.1 using Oracle System Assistant with one of the following methods:
  - Use the network-based installation method, which will allow you to set the network configuration during the installation process.
  - Use the CD, DVD, or virtual ISO method and complete the network configuration after Oracle VM is installed.

Use Lowercase Letters for Oracle System Assistant Network OS Installation Location (19872922)

Oracle System Assistant does not recognize upper case "HTTP" or "FTP" as part of a URL in OS Install screen.

Workaround

When doing network-based OS installation using Oracle System Assistant, use lowercase letters for the http or ftp portion of the URL.

▼ Troubleshoot and Verify Oracle System Assistant

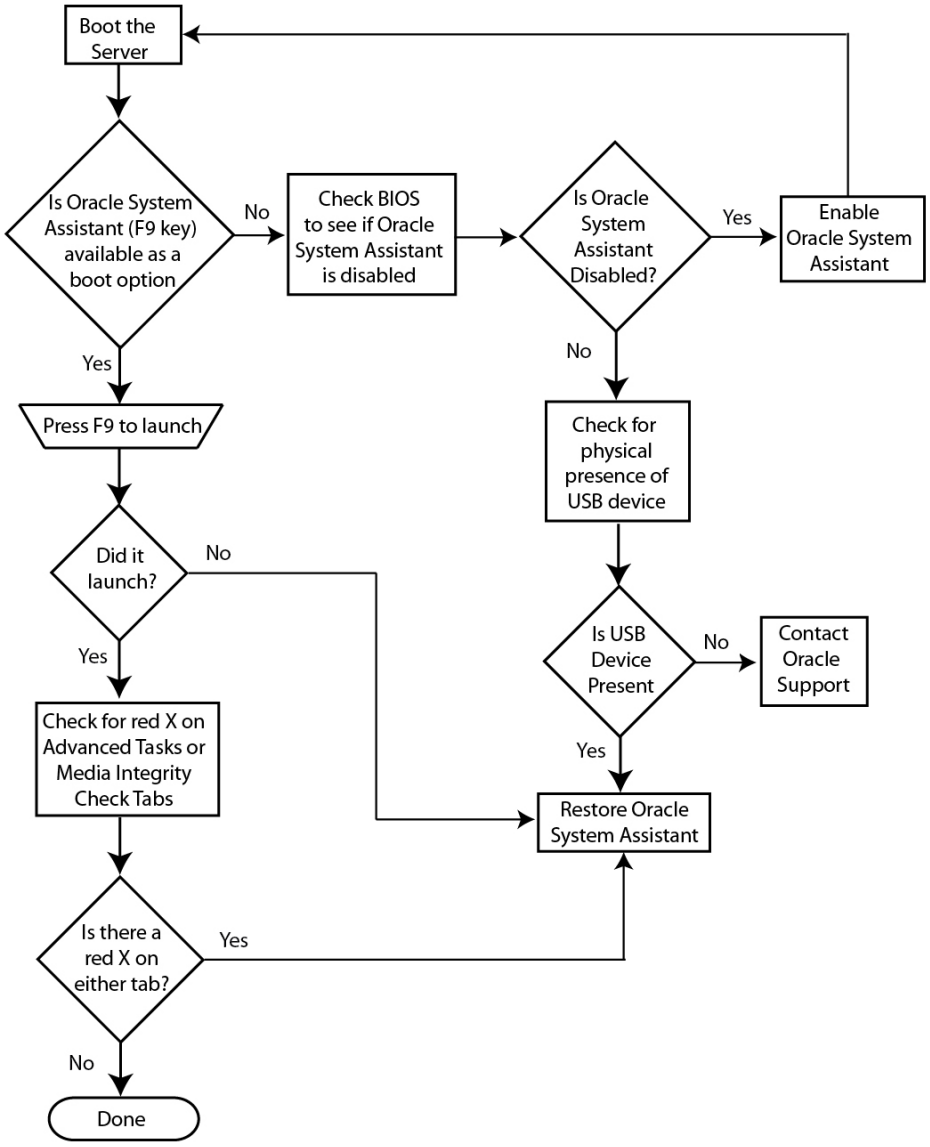
Your server supports Oracle System Assistant, and, unless you have opted out, it is preinstalled in the server. If Oracle System Assistant is not visible from the file system, or if you are unable to launch it, it could be offline, corrupted, or not installed.

Use this procedure to determine the state of Oracle System Assistant and to verify that it is installed in your server.

1. **Use the following flowchart or the following steps to troubleshoot Oracle System Assistant.**

   Launch Oracle System Assistant locally.

For instructions, see “Launch Oracle System Assistant at Startup” on page 34.



2. **Boot the server.**

3. **To determine whether Oracle System Assistant is in the boot list, perform one of the following actions:**

   - See if F9 appears in BIOS POST, or
   - Select F2 to access the BIOS Setup Utility, then select the Boot menu.

     Oracle System Assistant should appear in the list of boot options.

4. **If Oracle System Assistant appears in the boot list, try to launch it. See "Launch Oracle System Assistant at Startup" on page 34.**

   - If it launches, proceed to Step 7.
   - If it does not launch, restore it.

     See "Restore Oracle System Assistant Software" on page 183.

5. **If Oracle System Assistant does not appear in BIOS POST or as a boot option, access the BIOS Setup Utility and check if Oracle System Assistant is disabled.**

   - If Oracle System Assistant is disabled, enable it in the BIOS Setup Utility.

     See "Enable or Disable Oracle System Assistant (BIOS)" on page 171.
   - If Oracle System Assistant is NOT disabled, check to see if it is physically present in the server. Check your hardware documentation for details and contact Oracle Support.

6. **Perform one of the following actions:**

   - If Oracle System Assistant is enabled in BIOS and physically present but you still cannot launch it, restore Oracle System Assistant.

     See "Restore Oracle System Assistant Software" on page 183.
   - If Oracle System Assistant is not physically present, contact Oracle Support.

7. **If you can launch Oracle System Assistant successfully, look at the Advanced Tasks and Media Integrity tabs.**

   - If you see a red "X" in either tab, restore Oracle System Assistant.

     See "Restore Oracle System Assistant Software" on page 183.
   - If you do not see a red "X" in either tab, Oracle System Assistant is working correctly.

See Also "Accessing Oracle System Assistant" on page 147

Check Oracle System Assistant Media Integrity

The Media Integrity Check task verifies the integrity of the internal Oracle System Assistant media files and displays a report. You should perform this task when the USB device produces errors or when requested by Oracle Service personnel.

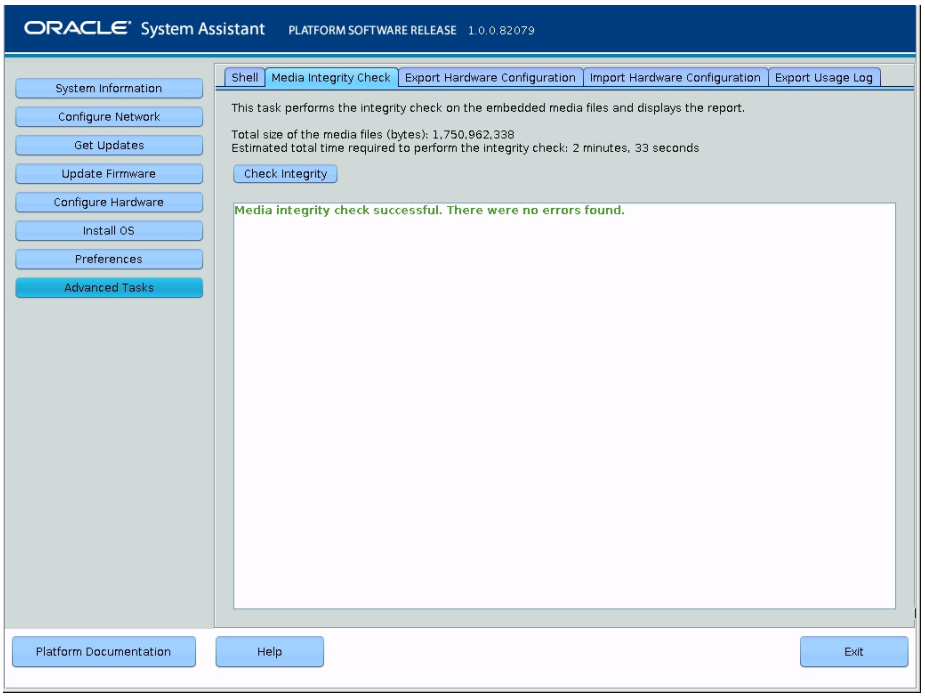
Note - Oracle System Assistant 1.2 checks the master boot record. Oracle System Assistant 1.1 does not.

If your version of Oracle System Assistant is damaged, download the Oracle System Assistant updater image file for your server from the My Oracle Support site. For more information, see "Restore Oracle System Assistant Software" on page 183.

Use this procedure to verify the integrity of the Oracle System Assistant USB media.

1. **Click Advanced Tasks, and then click the Media Integrity Check tab.**

The Media Integrity Check screen appears.



2. **Click the Check Integrity button.**

   The system tests the internal Oracle System Assistant USB device and generates a report. The test provides an estimated run time. You can cancel the test at any time.

See Also

- "Restore Oracle System Assistant Software" on page 183
- "Accessing Oracle System Assistant" on page 147

▼ Restore Oracle System Assistant Software

If the Oracle System Assistant software has been overwritten, erased, or corrupted, you can download the image file that is available from the My Oracle Support site to restore Oracle System Assistant to the USB device.

Use this procedure to restore the Oracle System Assistant software.

Before You Begin

- You must have local or remote view and response access to the server boot messages. For more information, refer to your server installation guide.

1. **Download the appropriate image file from the My Oracle Support web site.**

   Download the image that is specific to your server. The package name for the update image for the server is:

   system_name and SW version `-- Oracle System Assistant`

   For information about accessing My Oracle Support and downloading this image, see "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)" on page 225.

2. **To make the update image available to the server, do one of the following:**

   - **Use the image file to burn a physical DVD image.**

     Install the DVD in a DVD drive attached to the server.

   - **Make the update image file available to the server as an ISO image using the Oracle ILOM Remote Console application.**

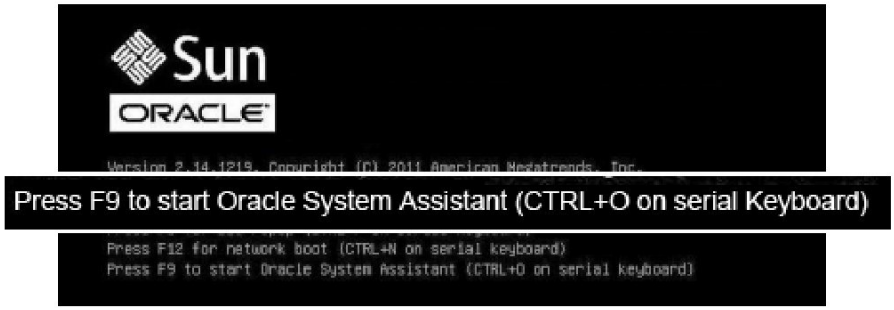
3. **Reset or power on the server.**

   Choose one of the following methods:

   - **From the local server, press the Power button (approximately 1 second) on the server front panel to power off the server, and then press the Power button again to power on the server.**

   - **From the Oracle ILOM web interface, click Host Management > Power Control, and select Reset from the Select Action drop-down list.**

- **From the Oracle ILOM CLI on the server SP, type** `reset /System`**.**



Note - These events occur very quickly. Please watch carefully for these messages as they appear only briefly on the screen.

4. **In the BIOS screen, press F8 to specify a temporary boot device for the Oracle System Assistant installation.**

The Please Select Boot Device screen appears.

5. **Depending on the method you used to make the recovery image available to the server, perform one of the following steps:**

Note - The items listed in the Please Select Boot Device menu might differ, depending on whether the system was booted in Legacy BIOS Boot Mode or UEFI boot mode.

- **If you chose to burn a recovery DVD and have placed the DVD into an attached DVD drive, select `SATA:HDD:P4:TSSTcorp CDDVDW TS-T633C` as shown in the Please Select Boot Device menu, and then press `Enter`.**

- **If you chose to use the Oracle ILOM Remote Console application to make the recovery image available to the server as a redirected DVD or as an ISO image, select `USB:VIRTUAL:AMI Virtual CDROM 1.00` as shown in the Please Select Boot Device menu, and then press `Enter`.**

A message appears, and a prompt asks whether you want to continue the recovery process.

6. **To recover the Oracle System Assistant image, type `yes`, and then press Enter.**

The following message appears, indicating the progress of the recovery process. Do *not* interrupt the recovery process.

When the recovery process is finished, you have the option to verify the integrity of the files on the USB drive.

7. **At the verification prompt, do one of the following:**

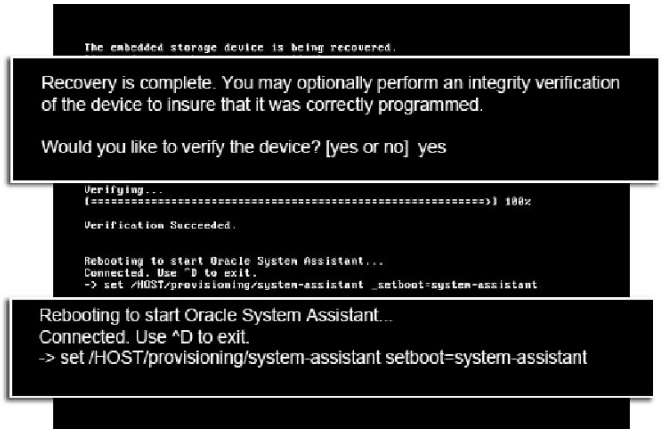
   The following screen appears and indicates that the Oracle System Assistant USB device was verified successfully. The system then reboots and launches the Oracle System Assistant application.

   - **To skip a verification of the USB drive, type `no`, and then press Enter.**

     The server boots to Oracle System Assistant.

   - **To verify the USB drive, type `yes`, and press Enter.**

The verification process starts. When the process is finished, the server boots to Oracle System Assistant.



Setting Up and Configuring BIOS

This section describes how to use the BIOS Setup Utility on your system, and provides guidelines and instructions for selecting Legacy BIOS Boot Mode or UEFI Boot Mode. It includes:

Your system is equipped with Unified Extensible Firmware Interface-compatible BIOS (UEFI BIOS), which avoids many of the limitations of legacy BIOS. However some operating systems cannot boot in UEFI Boot Mode, so UEFI BIOS provides the ability to select boot modes. The default is Legacy BIOS Boot Mode.

See your server documentation for more details about the BIOS Setup Utility.

BIOS Setup Utility

This section describes how to access and use the BIOS Setup Utility.

BIOS Setup Utility Menu Overview

The BIOS Setup Utility is accessed by starting or resetting the system and then pressing F2 to interrupt the BIOS power-on self tests (POST). For details, see "Access the BIOS Setup Utility Menus" on page 190.

This section includes:

- “Set UEFI Late Synchronization” on page 195

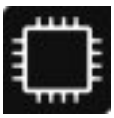
The following table describes the top-level BIOS Setup Utility menu tabs.

Menu	Description
Main	Includes general product information, including memory, time and date, security settings, system serial number, and CPU and DIMM information.
Advanced	Provides configuration settings for the CPU, including trusted computing, USB, and others.
IO	Enable and disable Option ROMs.
Boot	Enable or disable internal Oracle System Assistant support, set the boot mode to Legacy or UEFI, and configure the boot device priority.
UEFI Driver Control	Appears only if the boot mode is set to UEFI Boot Mode. Only UEFI boot options are present to the user.
Save and Exit	Save changes and exit, discard changes and exit, discard changes, or load optimal or fail-safe defaults.

Related Information

- “Access the BIOS Setup Utility Menus” on page 190
- “Navigate the BIOS Setup Utility Menus” on page 193

▼ Access the BIOS Setup Utility Menus



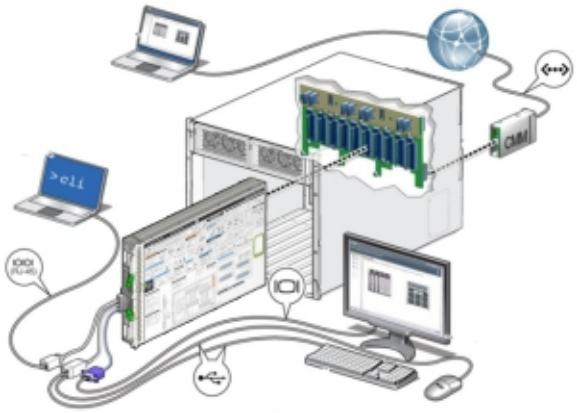
Before You Begin

Select one of the following access interfaces:

- Use a USB keyboard and VGA monitor connected directly to the server. (A mouse is not required to operate the BIOS Setup Utility.)
- Use a terminal or terminal emulator connected to a computer through the serial port on the back panel of the server.
- Connect to the server using the Oracle ILOM Remote Console application.

  For details, see “Launch a Remote System Console Redirection Session” on page 43.

The following picture shows the connection interfaces in a blade system.



1. **Reset or power on the server using one of the following methods:**

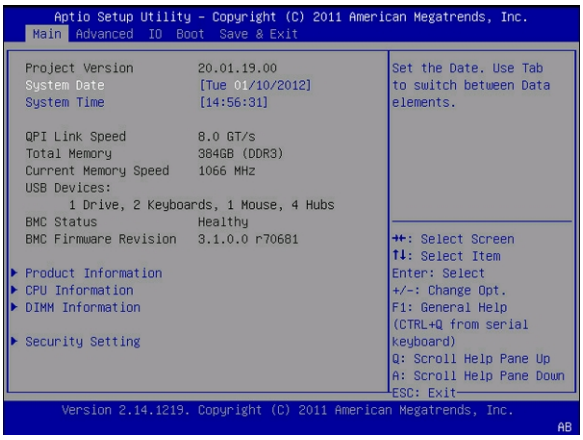
   - **From the local server: Press the Power button on the front panel of the server to power off the server, and then press the Power button again to power on the server.**
   - **From the Oracle ILOM web interface: Click Host Management > Power Control, and select Reset from the Select Action drop-down list.**
   - **From the Oracle ILOM CLI on the server SP: Type `reset /System`.**

   The POST sequence begins.

   Refer to your server service manual for more details.

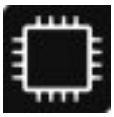
2. **To enter the BIOS Setup Utility, press the F2 key (Ctrl+E from a serial connection) when prompted.**

The BIOS Setup Utility Main appears.



See Also
- "Navigate the BIOS Setup Utility Menus" on page 193
- "BIOS Key Mappings" on page 194

▼ Exit the BIOS Setup Utility



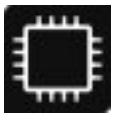
1. **Navigate to the top-level Save & Exit menu.**
2. **Use the up and down arrows to select the exit action you want.**
3. **To select the option, press the Enter key.**
   A confirmation dialog box appears.
4. **To exit the BIOS Setup Utility, select OK in the confirmation dialog box.**
   Save the changes and exit the BIOS Setup Utility, or select an alternative exit option.

- **Alternatively, to save your changes and exit the BIOS Setup Utility, you can select the Save & Exit Menu and then select Save Changes and Reset.**
- **Or to stop the exit process, select Cancel.**

Note - After modifying any BIOS settings and selecting Save Changes and Reset from the Save & Exit menu, the subsequent reboot might take longer than a typical reboot when no settings were modified. The additional delay is required to ensure that changes to the BIOS settings are synchronized with Oracle ILOM.

See Also "Access the BIOS Setup Utility Menus" on page 190

▼ Navigate the BIOS Setup Utility Menus



To navigate the menus or options listed on a screen, use the arrow keys. The options or fields that you can configure on a menu appear in color.

For further instructions on how to navigate and change settings in the BIOS Setup Utility, refer to the online navigation information provided on lower right side of the menu. The upper right side of the menu provides information about the menu selection.

1. **Access the BIOS Setup Utility.**
   a. **Boot the system.**
      Boot messages scroll across the console screen.
   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**
      The BIOS Setup Utility main screen appears.
2. **To select the different primary menu options, use the left and right arrow keys.**
   As you select each menu option, the top-level screen for that menu option appears.
3. **To select an option on a top-level screen, use the up and down arrow keys to navigate the options presented.**

- Options that can be modified are highlighted when you press the up and down arrow keys.
- If a field can be modified, as you select the option, instructions for modifying the option appear in the right column of the screen.
- If a field is a link to a sub-screen, a description of the sub-menu content appears in the right column.

4. **Modify the setup field by pressing the + or - keys (plus or minus keys) or by pressing Enter and selecting the option you want from the dialog box menus.**

5. **To return from a sub-menu to the previous menu screen, press the Esc key.**

   Pressing Escape from a top-level menu is equivalent to selecting the Discard Changes and Exit option from the Save and Exit menu.

6. **Modify parameters as needed.**

7. **To save or discard your changes and exit the BIOS Setup Utility, press F10.**

   To save your changes and exit the BIOS Setup Utility, you can select the Save & Exit menu and then select Save Changes and Reset.

Note - After you modify any BIOS settings and select Save Changes and Reset from the Save & Exit menu, the subsequent reboot might take longer than a typical reboot where no settings were modified. The additional delay is required to ensure that changes to the BIOS settings are synchronized with Oracle ILOM.

Note - If the BIOS Setup Utility setup data is invalid, the BIOS settings return to their factory default values.

See Also

- For BIOS screen details, see your server service manual.

BIOS Key Mappings

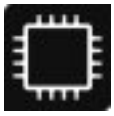
When you view the BIOS output from a terminal using the Oracle ILOM remote console feature, some terminals do not support function keys. BIOS supports the mapping of function keys to Control key sequences when serial redirection is enabled. The following table provides a description of the function key to Control key mappings.

Function Key	Control Key Sequence	BIOS POST Function	BIOS Setup Function
F1	Ctrl+Q	Not applicable.	Activate the BIOS Setup Utility Help menu.
F2	Ctrl+E	Enter the BIOS Setup Utility while the system is performing the power-on self-test (POST).	Not applicable.
F7	Ctrl+D	Not applicable.	Discard changes. Not applicable to the UEFI Driver Control Menu.
F8	Ctrl+P	Activate the BIOS Boot menu.	Not applicable.
F9	Ctrl+O	Launches Oracle System Assistant. BIOS boots to Oracle System Assistant, bypassing the current Boot Option Priority list for this one-time boot method.	Activate Load Optimal Values dialog box menu. Not applicable to the UEFI Driver Control Menu.
F10	Ctrl+S	Not applicable.	Activate the Save and Exit dialog box menu. Not applicable to UEFI Driver Control Menu.
F12	Ctrl+N	Activate Network boot.	Not applicable.

See Also

"Access the BIOS Setup Utility Menus" on page 190

▼ Set UEFI Late Synchronization



If you have changed certain BIOS settings, the boot process might be interrupted, and then restarted. This is necessary to synchronize the settings between various system components.

- If UEFI Late Synchronization is enabled, this interruption happens after POST messages are finished.

- If UEFI Late Synchronization is **not** enabled, this interruption happens before POST messages start.

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**

      Boot messages scroll across the console screen.

   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**

      The BIOS Setup Utility main screen appears.

2. **From the BIOS Main menu screen, select Advanced > UEFI Configuration Synchronization.**

3. **For Synchronization Late select Enabled or Disabled.**

   The default is Enabled.

4. **To save the changes and exit the screen, press F10.**

See Also

- For BIOS screen details, see your server service manual.

Legacy BIOS Boot Mode and UEFI Boot Mode

Your system is equipped with UEFI BIOS, which is based on the Unified Extensible Firmware Interface (UEFI) specification.

UEFI BIOS offers advantages over legacy versions of BIOS, but the way it boots is not compatible with some operating systems, and it might not be the best choice for some configurations. For this reason, the system can be configured to boot in *Legacy BIOS Boot Mode* or *UEFI Boot Mode*. **Legacy BIOS Boot Mode is the default.**

Normally, you set the boot mode only once, before installing the operating system. Once you have installed the operating system, if you change the boot mode, you cannot boot the operating system.

See your installation guide for a list of the operating systems that support UEFI boot mode.

When to Select Legacy or UEFI BIOS Boot Mode

When the option is available to choose between Legacy BIOS Boot Mode or UEFI Boot Mode, the advantages of UEFI Boot Mode include:

- Boots faster.
- Avoids legacy option ROM address constraints. For more information, see "Other BIOS Boot Mode Considerations" on page 197.
- Supports operating system boot partitions greater than 2 terabytes (2 TB). For more information about limitations for supported operating systems, refer to your server product notes.
- Integrates PCIe device configuration utilities with BIOS Setup Utility menus.
- Displays bootable operating system images in the boot list as labeled entities. For example, it displays Windows boot manager labels instead of raw device labels.
- Provides efficient power and system management.
- Includes robust reliability and fault management.
- Uses UEFI drivers.

Choose Legacy BIOS Boot Mode:

- If your operating system does not support booting in UEFI Boot Mode
- To allow HBAs and Express Module devices to use option ROM

Other BIOS Boot Mode Considerations

Choosing Legacy BIOS Boot Mode allows HBAs and Express Module devices to use option ROMs. Choosing UEFI Boot Mode uses UEFI drivers.

Note - The operating system can only boot with the boot mode property value that was initially set at installation. If you change the boot mode property value after installing the operating system, the operating system will become inoperable (will not boot). To resolve this issue, you must change the boot mode property value back to its initial setting.

Only devices that support the selected boot mode are listed on the BIOS Boot screen. If you select UEFI Boot Mode, only boot candidates that support UEFI BIOS Boot Mode are listed on the BIOS Setup Utility screens in the boot order list. If you select Legacy BIOS Boot Mode, only boot candidates that support Legacy BIOS Boot Mode are listed in the boot order list.

Note - If you change the boot mode, the installed operating system is unable to boot. Also the boot candidates from the previous boot mode disappear. Boot candidates for the newly changed boot mode appear after the `Save Changes and Reset` BIOS command is issued and also appear in the screens after the next boot to the BIOS Setup Utility.

When you switch between Legacy BIOS Boot Mode and UEFI Boot Mode (in either direction), BIOS settings that affect the *Boot Option Priority List* settings are changed and the original settings are lost. If you intend to switch back, back up your BIOS configuration. See "Backup, Restore, and Revert BIOS Settings (Oracle System Assistant 1.1)" on page 141.

See your server product notes for a list of the operating systems that support UEFI Boot Mode.

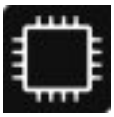
Some operating systems require Legacy BIOS Boot Mode, and some can work with either mode. However, once an operating system is installed, it must use the boot mode that was used during the installation.

Viewing and Changing the Boot Mode

You can view or set the boot mode on your server using the following interfaces:

- **BIOS Setup Utility**. You can use the BIOS Setup Utility to view or set the target boot mode. For further details, see "Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)" on page 198.
- **Oracle System Assistant**. If you are installing an operating system using the Oracle System Assistant, you can view or set the target boot mode for your server on the Oracle System Assistant Install Operating System screen, as described in "Install an Operating System (Oracle System Assistant)" on page 118.
- **Oracle ILOM**. You can view the boot mode from the Oracle ILOM SP CLI or web interface. To view the server's target boot mode from the Oracle ILOM SP web interface, click System Management > BIOS. Or, to view it from the Oracle ILOM SP CLI, type: `show /System/BIOS`.

▼ Select UEFI Boot Mode or Legacy BIOS Boot Mode (BIOS)



Your system supports both UEFI Boot Mode and Legacy BIOS Boot Mode.

Note - The operating system can only boot with the boot mode property value that was initially set at installation. If you change the boot mode property value after installing the operating system, the operating system will become inoperable (will not boot). To resolve this issue, you must change the boot mode property value back to its initial setting.

To view or set the target boot mode on your server using the BIOS Setup Utility, follow these steps:

1. **Access the BIOS Setup Utility.**

   a. **Boot the system.**

      Boot messages scroll across the console screen.

   b. **Press the F2 key (or Ctrl +E from a serial terminal) continuously.**

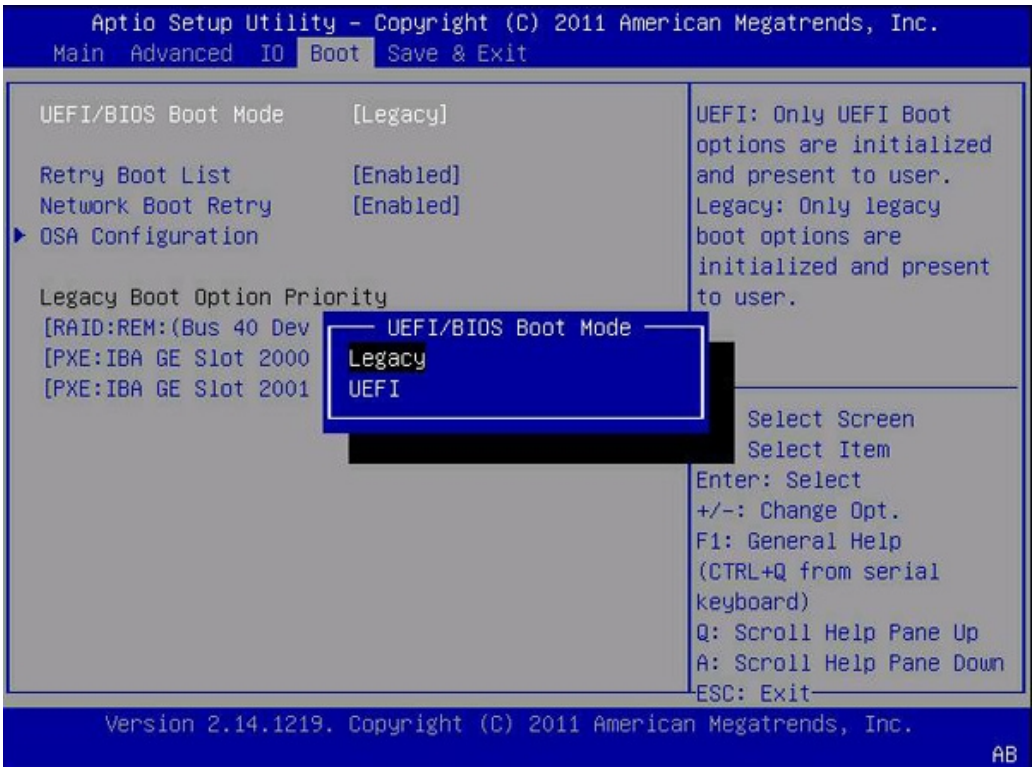
      The BIOS Setup Utility main screen appears.

2. **From the BIOS Main menu screen, select Boot.**

3. **From the Boot screen, select UEFI/BIOS Boot Mode, and press Enter.**

   The UEFI/BIOS Boot Mode dialog box appears.

Note - You cannot configure the boot order list after switching the boot mode. A system reboot is required to properly populate the boot order list with devices that support the chosen boot mode.



4. **Use the up and down arrows to select Legacy BIOS Boot Mode or UEFI Boot Mode, and then press Enter.**

5. **To save the changes and exit the screen, press F10.**

See Also

- "Legacy BIOS Boot Mode and UEFI Boot Mode" on page 196
- For BIOS screen details, see your server service manual.

Option ROM and I/O Space Allocation

Bootable devices such as onboard I/O or PCIe express cards require option ROM and I/O space to boot. However the total option ROM and I/O space for the system is limited by the PC architecture and is allocated automatically when the system is booted. If your system includes many potentially bootable devices, you must decide which ones you wish to boot from, and configure the BIOS to allocate these resources to them.

Option ROM is also required to run some configuration utilities, such as RAID configuration utilities.

Note - These limitations apply to systems configured to use Legacy BIOS Boot Mode. Systems configured to use UEFI Boot Mode do not normally encounter option ROM or I/O space limitations.

This section includes:

▼ Determine Whether You Need to Allocate Option ROM and I/O Space

If you add a PCIe express card to your server, when the server boots, the BIOS might not be able to allocate option ROM or I/O space to all the devices that require it.

If this happens, when you boot, POST generates error messages. These identify any devices that have not had option ROM or I/O space allocated.

1. **Power on the system to start the BIOS.**
2. **During POST, look for one or more messages, such as these.**
   - For option ROM, the messages look like this:

```
Warning: Out of option ROM space for <device path | address>
```

- For I/O space, the messages look like this:

```
Warning: Not enough IO address space allocated for device path | address
Warning: Not enough IO address space allocated for device device path | address
Warning: Not enough IO address space allocated for device device path | address
Warning: Not enough IO address space allocated for device device path | address
Warning: Not enough IO address space allocated for device device path | address
Warning: Not enough IO address space allocated for device device path | address
```

Each slot can generate several messages. This is normal.

It is possible that the device you added has been assigned option ROM and/or I/O space at the expense of some other device. If this is the case, the device you added does not appear in the list, but the original device does. This depends on the position of each device in the probe order.

3. **Decide whether you need to configure option ROM or I/O space allocation for one of the following reasons.**

- Error messages inform you that a device that you wish boot from has not been allocated option ROM and/or I/O space.
- You wish to be able to run a utility such as a RAID configuration utility on a device that has not been allocated option ROM.
- (Optional) You wish to make the error messages go away.

Note - There is no need to configure option ROM or I/O space allocation simply because of these messages, unless you require the functionality provided by the option ROM and the I/O space.

See Also

- "Configure Option ROM and I/O Space Allocation" on page 202
- For BIOS screen details, see your server service manual.

▼ Configure Option ROM and I/O Space Allocation

Before You Begin Identify the devices on which you need to configure option ROM and/or I/O space allocation. See "Determine Whether You Need to Allocate Option ROM and I/O Space" on page 201.

1. **Start the BIOS.**

a. Power on the system.

b. To enter the BIOS setup menu, when the POST appears, press:

- F2 if you're connected through a Java console.
- Control-E if you're connected through a serial console.

The BIOS setup menu appears.

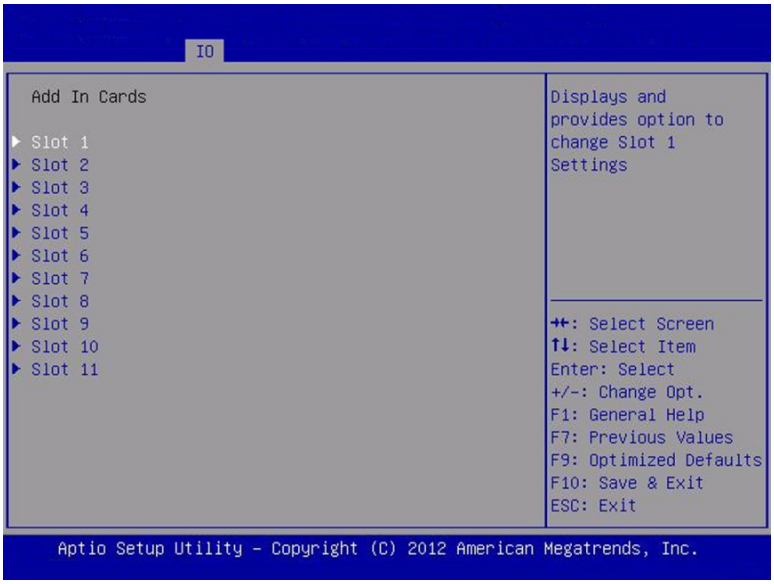
- Use the arrow and tab keys to navigate through the BIOS setup utility.
- Use the Enter key to make selections.
- When you are done, press F10, or navigate to the Exit menu screen to exit and save your changes.

2. Select one of the following:

- For PCIe cards, select Select IO > Add In Cards
- For Net 0, 1, 2, or 3, select IO > Internal Devices.

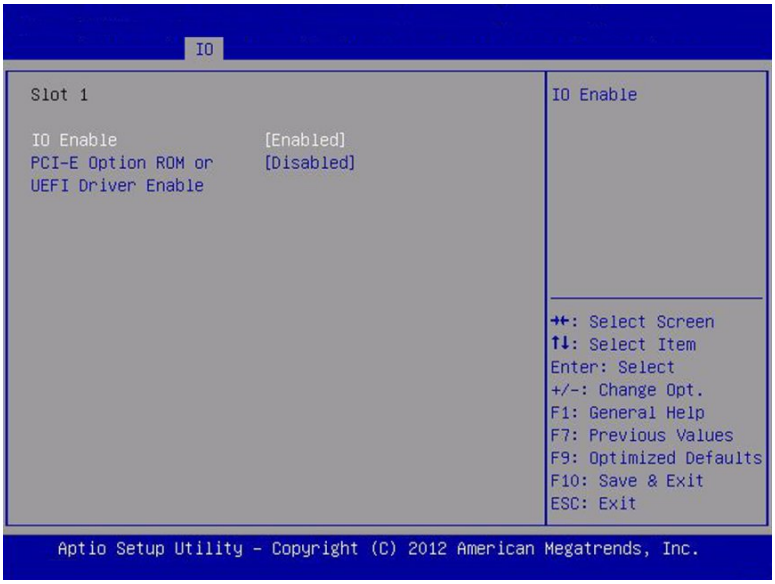
The corresponding IO screen appears.

The following figures shows the IO Add In Cards screen.



3. **Select a network port or a slot number from the drop-down list.**

   A screen displays options for the selected slot.



4. **Select one of the following:**

   - **IO Enable to enable or disable I/O to and from the device in the selected PCIe slot.**

     This selection is not available for network ports.

   - **PCI-E Option ROM or UEFI Driver Enable to enable or disable option ROM for the device in the selected slot.**

     - Option ROM only applies to servers configured to use legacy boot mode.
     - UEFI Driver Enable only applies to servers configured to use UEFI Boot Mode.

5. **Use the enter key to toggle the Enabled/Disabled function.**

6. **When you have made all of your selections, select F10 to save your changes and exit.**

   The BIOS enables or disables option ROM, and reallocates I/O space based on your selections the next time the server boots.

See Also

- For BIOS screen details, see your server service manual.

Configure Elastic Computing

The elastic computing feature allows you to maximize the performance of your server for your specific workload at runtime. Oracle servers with the elastic computing capability use an Intel Xeon® E7-8895v2 processor that combines the capabilities of multiple other Intel processors into one This allows you to adjust the core counts and processor speeds dynamically at runtime, as often as you need.

Note - Elastic computing is supported on Sun Server X4-4 and Sun Server X4-8. For best performance, use the latest Oracle Solaris operating system or the latest version of Oracle Linux with UEK kernel.

During some periods, your enterprise applications or databases might benefit from having as many cores as possible, while at other times having fewer but faster cores results in greater overall performance. Rather than requiring you to pre-select a processor that is optimized for only one fixed workload, Oracle servers with the Intel Xeon E7-8895 v2 processor allow you to dynamically adjust to your enterprise or database workload at runtime to enable maximum performance at all times.

Oracle firmware and operating systems have been extended to allow you to take advantage of the elastic capabilities of the Intel Xeon E7-8895v2 processor by efficiently handling the processor state changes required to vary the core count and maximum frequency of the processor at runtime.

The elastic computing capability is simple to configure. As you deactivate cores, the remaining cores are able to achieve higher maximum frequencies. You can adjust the number of active cores at any time and as often as desired.

- "Understanding Elastic Computing" on page 208
- "Configure Elastic Computing (Oracle Solaris Operating System)" on page 211
- "Configure Elastic Computing (Oracle Linux Operating System)" on page 212
- "Configure Elastic Computing (BIOS Setup Utility)" on page 215

Understanding Elastic Computing

Elastic computing refers to the ability to maximize performance by selectively activating and deactivating processor cores, which causes a subsequent increase or decrease in maximum frequency of the remaining active cores. This allows you to set the optimal balance between core count and maximum frequency for a given workload.

Each core supports one or two virtual processors, depending on whether hyperthreading is enabled or not. Virtual processors support *threads*; increasing the number of active cores increases the number of virtual processors, which allows the application to support more threads.

Deactivating *all of the virtual processors* associated with a core deactivates the core.

Note - For Linux operating systems, *virtual processors* are called *logical processors*.

Some workloads are not able to take advantage of having many threads, but instead benefit from having fewer threads running at higher frequencies.

Before elastic computing, you had to order your server with a processor designed to have the optimal core count and frequency for your specific workload. Elastic computing gives you the ability to configure a single server dynamically to meet the needs of many types of workloads.

You can activate or deactivate cores using the Solaris or Oracle Linux OS, or the BIOS Setup Utility.

- Using the OS commands, you can activate and deactivate virtual processors while the application is running, causing the corresponding cores to become inactive. This is the preferred method; however it requires that you have the Oracle Linux or Oracle Solaris operating systems. *Using this method you can adjust performance dynamically, as often as necessary.*
- If you have any other supported operating system, you can activate or deactivate cores using the BIOS Setup Utility. While you can change the settings whenever you wish, this method requires rebooting the server.

Note - If hyperthreading is enabled, to deactivate a core, you must deactivate both virtual processors associated with that core.

Cores and Maximum Frequency

The following table shows the relationship between active cores and maximum frequency.

Note - The Intel Xeon E7-8895v2 processor has a core frequency of 2.8 GHz, but has a maximum frequency of 3.2 to 3.6 GHz. Changing the number of active cores changes the maximum frequency, not the core frequency.

Number of Active Cores	Maximum Frequency (GHz)
1 to 2	3.6
3 to 6	3.5
7 to 10	3.4
11 to 15	3.2

▼ Calculate Socket and Core Numbers

To activate or deactivate a core using operating system commands, you must know the number or numbers of the virtual or logical processors associated with that core. This task provides instructions for calculating those numbers.

- Your server has two, four, or eight sockets numbered 0 through 1, 3, or 7.
- Each socket has 15 cores numbered 0 through 14.
- Each core has one or two virtual processors associated with it, depending on whether hyperthreading is enabled or not. To deactivate a core, you must deactivate both virtual processors associated with that core.

You can also use operating system commands to display virtual processor numbers. See:

- “Configure Elastic Computing (Oracle Solaris Operating System)” on page 211
- “Configure Elastic Computing (Oracle Linux Operating System)” on page 212

1. **Calculate the number of the first virtual processor.**

   a. **Multiply the socket number by 15.**

   b. **Add the core number to the socket number.**

For example, to calculate the number of the first virtual processor for core 2 on socket 2:

2 x 15 +2 = 32

Note - If hyperthreading is disabled, this is the only number you need to activate or deactivate the core.

2. **If hyperthreading is enabled, calculate the number of the second virtual processor.**

   a. **Calculate the number of the first virtual processor by using the number or the calculation from Step 1.**

      For example: 2 x 15 +2 = 32

   b. **To calculate the total number of first virtual processors in the system, multiply the number of sockets by 15.**

      For example, in an 8 socket system: 8 x 15 = 120

   c. **Add the number of the first virtual processor to the total number of first virtual processors in the system.**

      For example: 120 + 32 = 152

3. **To obtain the core number, divide the first virtual processor number by 15.**

   - The quotient is the socket number.
   - The remainder is the core number.

   For example 32 / 15 = 2 with a remainder of 2. Virtual processor 32 runs on socket 2, core 2.

Note - To calculate the remainder using a calculator:

1. Divide the core number by the number of processors per core. This produces a whole number and a decimal. For example:

   32 / 15 = 2.133333333333333

2. The whole number is the socket. Subtract it from the total. For example:

   2.133333333333333 - 2 = .133333333333333

3. Multiply the decimal by 15 to find the remainder, which is the core number on this socket. For example:

   .133333333333333 X 15 = 2.

Core 32 is processor 2, core 2.

Configure Elastic Computing (Oracle Solaris Operating System)

Use this procedure to activate or deactivate cores using the Oracle Solaris operating system. You can do this as often as you need, while the application is running.

Note - If a core is deactivated in BIOS, it cannot be activated in the OS.

Before You Begin This task requires root privileges.

Elastic computing requires Intel Speed Step, which can be enabled or disabled in the Advanced - CPU Power Management Configuration screen in the BIOS Setup Utility. This setting is enabled by default.

1. **If you do not know the number of the virtual processors associated with the core you wish to deactivate, use the `psrinfo -vp` command.**
   The following sample shows the output on a four-socket server:

```
# psrinfo -vp

The physical processor has 15 cores and 30 virtual processors (0-14 60-74)
  The core has 2 virtual processors (0 60)     Socket 0, core 0, VPs (0, 60)
  The core has 2 virtual processors (1 61)
  The core has 2 virtual processors (2 62)
  The core has 2 virtual processors (3 63)
  The core has 2 virtual processors (4 64)
  The core has 2 virtual processors (5 65)
  The core has 2 virtual processors (6 66)
  The core has 2 virtual processors (7 67)
  The core has 2 virtual processors (8 68)
  The core has 2 virtual processors (9 69)
  The core has 2 virtual processors (10 70)
  The core has 2 virtual processors (11 71)
  The core has 2 virtual processors (12 72)
  The core has 2 virtual processors (13 73)
  The core has 2 virtual processors (14 74)     Socket 0, core 14, VPs (14, 74)
    x86 (GenuineIntel 306E7 family 6 model 62 step 7 clock 2793 MHz)
      Intel(r) Xeon(r) CPU E7-8895 v2 @ 2.80GHz
    ... To conserve space, physical processors 1 and 2 are not shown here

The physical processor has 15 cores and 30 virtual processors (45-59 105-119)
  The core has 2 virtual processors (45 105)     Socket 3, core 0, VPs (45, 105)
  The core has 2 virtual processors (46 106)
  The core has 2 virtual processors (47 107)
  The core has 2 virtual processors (48 108)
```

```
The core has 2 virtual processors (49 109)
The core has 2 virtual processors (50 110)
The core has 2 virtual processors (51 111)
The core has 2 virtual processors (52 112)
The core has 2 virtual processors (53 113)
The core has 2 virtual processors (54 114)
The core has 2 virtual processors (55 115)
The core has 2 virtual processors (56 116)
The core has 2 virtual processors (57 117)
The core has 2 virtual processors (58 118)
The core has 2 virtual processors (59 119)     Socket 3, core 15 VPs (50, 119)
  x86 (GenuineIntel 306E7 family 6 model 62 step 7 clock 2793 MHz)
    Intel(r) Xeon(r) CPU E7-8895 v2 @ 2.80GHz
```

To obtain the core number, divide the first virtual processor number by 15.

- The quotient is the socket number.
- The remainder is the core number.

Note - You can also find the virtual processor and core numbers using the instructions in "Calculate Socket and Core Numbers" on page 209.

2. **To activate or deactivate cores, use the `psradm` command to activate or deactivate the corresponding virtual processors.**

   - To activate cores, use `psradm -f` to deactivate individual virtual processors.

     To deactivate a core when hyperthreading is enabled, you must deactivate both virtual processors associated with the target core.

     For example:

     `psradm -f 59 119` deactivates virtual processors 59 and 119, thereby deactivating core 59.
   - To activate cores and virtual processors, use the `psradm -a` command.

     Activating either virtual processor associated with a core activates the core.

     `psradm -a 59 119` activates both virtual processors associated with core 59.

See Also "Understanding Elastic Computing" on page 208

▼ Configure Elastic Computing (Oracle Linux Operating System)

Use this procedure to activate or deactivate cores using the Oracle Linux operating system. You can do this as often as you need, while the application is running.

Note - If a core is deactivated in BIOS, it cannot be activated in the OS.

Before You Begin

This task is supported on Oracle Linux 5.10 and 6.5 (x64-bit) or newer, based on UEK R3 (Unbreakable Enterprise Kernel Release 3).

This task requires root privileges.

Elastic computing requires Intel Speed Step, which can be enabled or disabled in the Advanced - CPU Power Management Configuration screen in the BIOS Setup Utility. This setting is enabled by default.

Note - For Linux operating systems virtual processors are called logical processors.

In the Linux command line, logical processors are referred to as `cpu`*NN*, where *NN* is the logical processor number. For example, logical processor 15 appears as `cpu15`.

1. **To find out how many logical processors your server has, use the command:**

```
ls /sys/devices/system/cpu/cpu*/online | wc -l
```

- If hyperthreading is enabled, this returns the number of sockets x 30.
- If hyperthreading is disabled, this returns the number of sockets x 15.

2. **To find the logical processor mapping, use the command:**

```
grep . /sys/devices/system/node*/cpulist
```

Note - You can also find the logical processor and core numbers using the instructions in "Calculate Socket and Core Numbers" on page 209.

This returns a list of sockets and logical processors.

- If hyperthreading is enabled, this returns two ranges of 15 logical processors per socket.
- If hyperthreading is disabled, this returns one range of 15 logical processors per socket.

The following example shows a four-socket server with hyperthreading enabled:

```
# grep . /sys/devices/system/node*/cpulist

socket 0:   0-14, 60-74
socket 1:   15-29, 75-89
socket 2:   30-44, 90-104
socket 3:   45-59, 105-119
```

3. **Use the `echo 0` command to deactivate logical processors.**

   For example, to deactivate the last core on the first socket on a four-socket server:

   - `echo 0 > /sys/devices/system/cpu/cpu14/online` deactivates logical processor 14.
   - `echo 0 > /sys/devices/system/cpu/cpu74/online` deactivates logical processor 74.

     Disabling logical processor 74 on a four-socket server is only necessary if hyperthreading is enabled.

4. **Use the `echo 1` command to enable logical processors.**

   For example, to activate the last core on the first socket on a four-socket server:

   - `echo 1 > /sys/devices/system/cpu/cpu14/online` to enable logical processor 14.

     Enabling either logical processor activates the core.
   - `echo 1 > /sys/devices/system/cpu/cpu74/online` to enable logical processor 74.

     Logical processor 74 only exists on a four-socket server if hyperthreading is enabled.

   The following sample shows the commands to deactivate the last core on every socket of a four-socket server with hyperthreading enabled:

```
# echo 0 > /sys/devices/system/cpu/cpu14/online
# echo 0 > /sys/devices/system/cpu/cpu74/online
# echo 0 > /sys/devices/system/cpu/cpu29/online
# echo 0 > /sys/devices/system/cpu/cpu89/online
# echo 0 > /sys/devices/system/cpu/cpu44/online
# echo 0 > /sys/devices/system/cpu/cpu104/online
# echo 0 > /sys/devices/system/cpu/cpu59/online
# echo 0 > /sys/devices/system/cpu/cpu119/online
```

   The following sample shows how to reverse this action and reactivate all the logical processors and cores that were deactivated in the previous example:

```
# echo 1 > /sys/devices/system/cpu/cpu14/online
# echo 1 > /sys/devices/system/cpu/cpu74/online
# echo 1 > /sys/devices/system/cpu/cpu29/online
# echo 1 > /sys/devices/system/cpu/cpu89/online
# echo 1 > /sys/devices/system/cpu/cpu44/online
# echo 1 > /sys/devices/system/cpu/cpu104/online
# echo 1 > /sys/devices/system/cpu/cpu59/online
# echo 1 > /sys/devices/system/cpu/cpu119/online
```

See Also "Understanding Elastic Computing" on page 208

Configure Elastic Computing (BIOS Setup Utility)

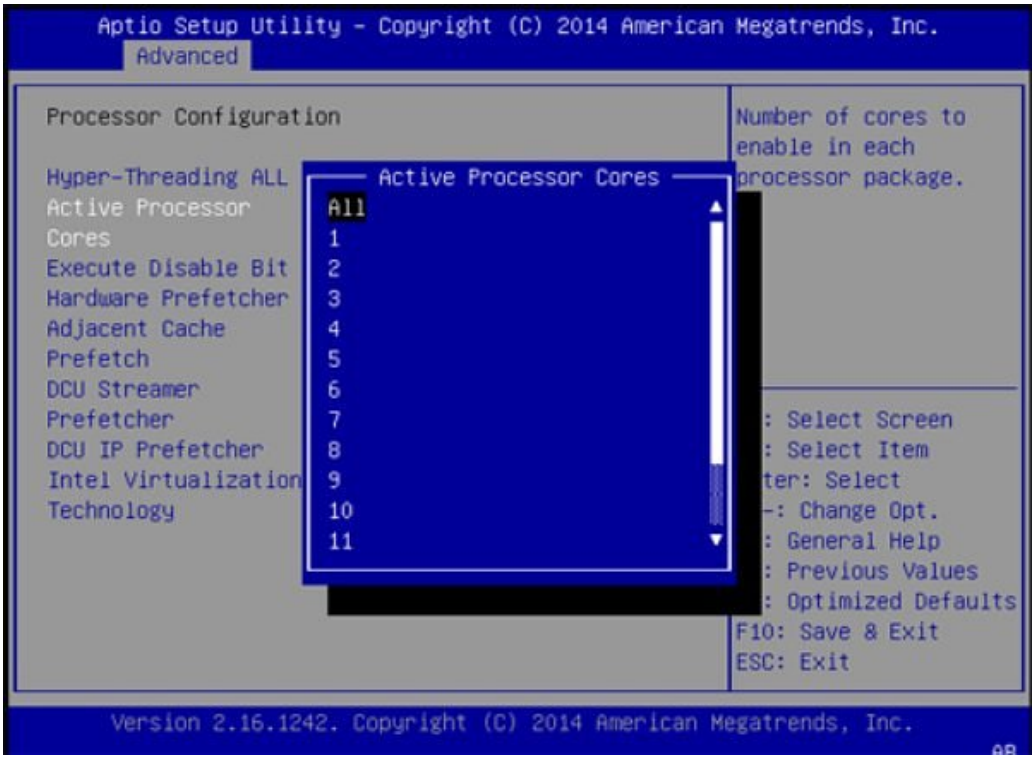
Use this task to activate or deactivate cores using the BIOS Setup Utility.

- If a core is deactivated in BIOS, it cannot be activated in the OS.
- When you activate or deactivate cores in BIOS, it applies the change to all sockets in the server equally.
- The BIOS Setup Utility provides the ability to select how many cores are active (1 through 15). It does not allow you to select individual cores or ranges of cores.

Before You Begin Elastic computing requires Intel Speed Step, which can be enabled or disabled in the Advanced - CPU Power Management Configuration screen. This setting is enabled by default.

1. **Start the BIOS Setup Utility.**
2. **Select Advanced > Processor Configuration.**
3. **Use the Active Processor Cores pull-down menu to select the number of cores you want to be active.**
   a. **Highlight the desired number of active cores in the list.**
   b. **Press the Enter key.**

The Active Processor Cores dialog exits and the selected number of cores appears on the Advanced -> Processor Configuration screen.



4. **Check Advanced > CPU Power Management Configuration and verify that Intel Speed Step is enabled.**

5. **After you are finished, select F10 to save your work and exit the BIOS Setup Utility.**

See Also

- “Understanding Elastic Computing” on page 208
- “BIOS Setup Utility” on page 189
- For BIOS screen details, see your server service manual.

Downloading and Updating System Firmware and Software

This section describes how to download and install updated firmware and software for your server.

Updates come in multiple forms, and can be installed using one of many tools. This section describes the updates and the tools, and provides instructions for downloading and installing the updates. It includes:

Tool	Capability	Link
All tools	Provides an overview of the tools and the types of downloads.	“Updates and Tools Overview” on page 217
Oracle System Assistant	Get updates and install them.	“Updating System Software and Firmware (Oracle System Assistant)” on page 220
Oracle ILOM	Update the Oracle ILOM and BIOS firmware.	“Updating Server or Blade Chassis Firmware (Oracle ILOM)” on page 229
Oracle Hardware Management Pack	Use Oracle Hardware Management Pack to install firmware updates.	“Updating SP and BIOS Firmware, and HBA Firmware (Oracle Hardware Management Pack)” on page 232
My Oracle Support	Get updates from My Oracle Support.	“Getting Firmware and Software From MOS” on page 233

Updates and Tools Overview

Firmware and software for your server are updated periodically. These updates are available as software releases, which are a set of downloadable files (patches) containing the available firmware, software, hardware drivers, tools, and utilities for the server. All these files have been tested together and verified to work with your server.

You should update your server firmware and software as soon as possible after a new software release becomes available. Software releases often include bug fixes, and updating your server ensures that it has the latest firmware and software.

The readme document that is included with each patch in a software release contains information about the patch, such as what has changed or not changed from the prior software release, as well as bugs that are fixed with the current release.

The server *Product Notes* identify the latest software release supported on your server.

Software Updates Naming Conventions

The update names take the form: *server_and_release DOWNLOAD_NAME operating system*, where:

- *server_and_release* is the name of the server and the release number. For example, Sun Server X4-2 SW 1.0.
- *DOWNLOAD_NAME* identifies the type of content, from the following table.
- *operating system* identifies operating system-specific content. This appears in OS PACK downloads only.

For example, a download for Sun Server X4-2, SW 1.1 for Oracle Linux 5 might be:

```
X4-2 SW1.1 OS PACK OL_5U7
```

Types of Software Downloads

The following tables explain the downloads and the tools used with them.

- The following table lists and describes the different types of downloads.
- The next table lists the tools, and for each tool, lists the types of download and installs the tool supports, and the environment it requires.

Download Name	Description
OS PACK	Includes a package of all tools, drivers, and utilities for a specific operating system. An OS Pack is available for each supported operating system version. Software includes Oracle Hardware Management Pack and LSI MegaRAID software. For the Windows operating system, the OS Pack also includes Intel Network Teaming.
FIRMWARE PACK	Contains all system firmware, including Oracle ILOM, BIOS, and option card firmware.
DIAGNOSTICS	Includes Oracle VTS diagnostics image. For more information, refer to http://www.oracle.com/pls/topic/lookup?ctx=OracleVTS7.0.
ALL PACKS	Includes the Firmware Pack, all OS Packs, and all documents. This pack does not include Oracle VTS or the Oracle System Assistant image.

Download Name	Description
ORACLE SYSTEM ASSISTANT UPDATER	Bootable file that replaces older versions of Oracle System Assistant and provides updated versions of firmware, server-specific drivers for supported operating systems, server management tools. This patch updates the firmware, drivers, and server management tools on the USB drive, but does not install them.
LOCAL UPDATE CONTENT (Available Oracle System Assistant 1.2 only)	Updates the existing version of Oracle System Assistant, and provides updated versions of firmware, server-specific drivers for supported operating systems, server management tools. This patch updates the firmware, drivers, and server management tools on the USB drive, but does not install them.

Tools Used to Download Software

The following table shows the types of downloads, and the tools that use each type, and the environment required for each tool.

Tool	Downloads	Environment
My Oracle Support	All downloads types are available. Search by product and release.	Online. My Oracle Support provides downloads but no capability to install them. See “Getting Firmware and Software From MOS” on page 233.
Oracle System Assistant	Downloads everything that is out of date except DIAGNOSTICS.	Out of band. System must be booted to Oracle System Assistant. Installation options allow you to install selected updates or to install all of them See “Updating System Software and Firmware (Oracle System Assistant)” on page 220.
Oracle ILOM	FIRMWARE PACK for Oracle ILOM and BIOS only.	Oracle ILOM. Download possible while the operating system is running, but the operating system must be rebooted during installation. See “Update BIOS and SP Firmware or CMM Firmware (Oracle ILOM)” on page 229.
Hardware Management Pack	All FIRMWARE PACKs including Oracle ILOM and BIOS.	Inband from operating system command line or shell. Operating system boots when updates are installed. Updates must be downloaded from My Oracle Support first. See “Updating SP and BIOS Firmware, and HBA Firmware (Oracle Hardware Management Pack)” on page 232.
Command line or shell	OS PACKS and DIAGNOSTICS.	OS packs can be installed from the command line or shell but often require rebooting the server. See the operating system documentation or the readme file with the pack for details.

Tool	Downloads	Environment
		Install the Oracle VTS diagnostics as described in http://www.oracle.com/pls/topic/lookup?ctx=OracleVTS7.0.

Updating System Software and Firmware (Oracle System Assistant)

This section provides instructions for using Oracle System Assistant to update all or some of your system software and firmware.

Updating system firmware with Oracle System Assistant takes place in two stages:

1. Download the updates. See "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)" on page 225 or "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant 1.2 or Newer)" on page 222.

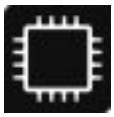
   Note - Downloading updates using Oracle System Assistant applies any updates to Oracle System Assistant itself. Other updates such as firmware are made available on the Oracle System Assistant USB drive but are NOT applied.

2. Install all or some of the updates. See "Update Software and Firmware (Oracle System Assistant)" on page 226.

Oracle System Assistant downloads all available updates and provides the ability to install all the updates or to install only selected updates.

Before updating your server using Oracle System Assistant, you must configure the network port that Oracle System Assistant uses to access the web, and you might have to configure My Oracle Support so that your server has permission to obtain the downloads. For details, see "Preparing Oracle System Assistant for Updates" on page 165.

▼ Replace Oracle System Assistant and Update the Firmware Files on the Oracle System Assistant USB Drive (BIOS)



This procedure replaces the Oracle System Assistant application, and places the latest versions of the firmware and drivers on the USB drive so that they are available to be installed. It does *not* install the updated firmware and drivers.

To install the updated firmware and drivers, see "Update BIOS and SP Firmware or CMM Firmware (Oracle ILOM)" on page 229.

You can use this procedure to replace Oracle System Assistant on a server that is not connected to the network.

1. **Obtain a copy of the ORACLE SYSTEM ASSISTANT UPDATER patch. For details, see "Getting Firmware and Software From MOS" on page 233.**

   If the server you are updating is not connected to the network, after you get the bootable updater ISO file, make it available to the server using a CD/DVD drive, network location, or USB drive.

2. **Configure BIOS to boot from the updater ISO file.**

   For details, see "Access the BIOS Setup Utility" on page 48.

3. **Boot from the updater ISO file.**

   The server boots from the updater ISO file.

4. **Follow the prompts to complete the installation.**

   This installs new version of Oracle System on your server and updates the firmware, software, and driver files on the Oracle System Assistant USB drive.

   To install the updated firmware, sofrware, and drivers, see "Update Software and Firmware (Oracle System Assistant)" on page 226.

Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant 1.2 or Newer)

This procedure updates the Oracle System Assistant application, and places the latest versions of the firmware and drivers on the USB drive so that they are available to be installed. It does *not* install the updated firmware and drivers.

To install the updated firmware and drivers, see "Update BIOS and SP Firmware or CMM Firmware (Oracle ILOM)" on page 229.

Note - To update Oracle System Assistant release 1.1, see "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)" on page 225.

Before You Begin

This task requires Oracle System Assistant 1.2 or newer.

If you are going to use the local updates option obtain a copy of the non-bootable ISO file. To update a server that is not connected to the web, make the ISO file available on the unconnected server using a CD/DVD drive, network location, or USB drive.

1. **Launch Oracle System Assistant.**

   For instructions, see "Accessing Oracle System Assistant" on page 33.

2. **In the navigation pane, click Get Updates, and then click one of the following tabs:**

   - **Get Remote Updates**
   - **Get Local Updates**

3. **If you selected the Get Remote Updates tab, perform the following steps:**

   a. **Ensure that you have performed the procedures in "Preparing Oracle System Assistant for Updates" on page 165.**

b. Click the Check for Updates button.

If updates are available, they appear in the Available Updates drop-down list.

c. Select an update from the Available Updates drop-down list.

d. Click the Download and Apply Updates button.

The Get Updates Sign-In screen appears.

e. Provide your My Oracle Support (MOS) credentials.

Enter your MOS user name and password.

Note - If the sign-in process stops, it might be because your user name and password do not match, or because My Oracle Support is not configured to enable your server to get updates. To configure My Oracle Support to enable your server to get updates, see "Configure MOS to Enable Oracle System Assistant Updates" on page 168.

The server downloads the updates and then displays a message asking to reboot the server.

f. Select OK.

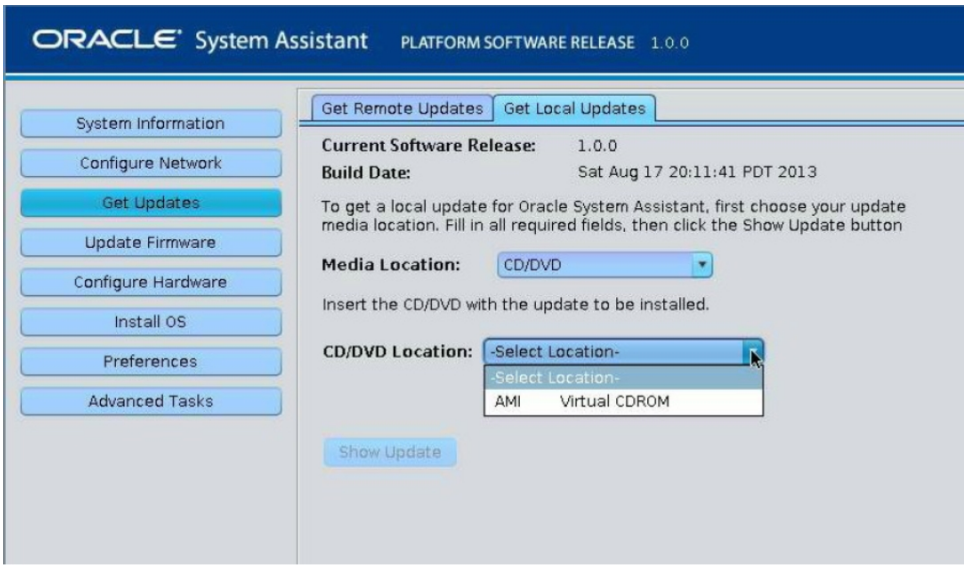
The server reboots and restarts Oracle System Assistant.

4. If you selected the Get Local Updates tab, perform the following steps:

Note - To update Oracle System Assistant on a server that is not connected to the network, use this method.

---

a. **Use the drop-down lists on the Get Local Updates screen to navigate to the updater ISO file.**



b. **Click the Show Update button.**

A browser appears.

c. **In the browser, select the update you want to install, and then click Get Updates.**

For best results, keep your version of Oracle System Assistant synchronized with the latest version available from My Oracle Support.

The server reboots and restarts Oracle System Assistant.

To install the updated firmware, sofrware, and drivers, see "Update Software and Firmware (Oracle System Assistant)" on page 226.

Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)

Use this procedure to update Oracle System Assistant release 1.1 using the Get Updates task.

Note - To update Oracle System Assistant release 1.2 or newer, see "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant 1.2 or Newer)" on page 222.

When you perform this task, Oracle System Assistant connects with My Oracle Support and downloads a single bundle containing all the software for your system.

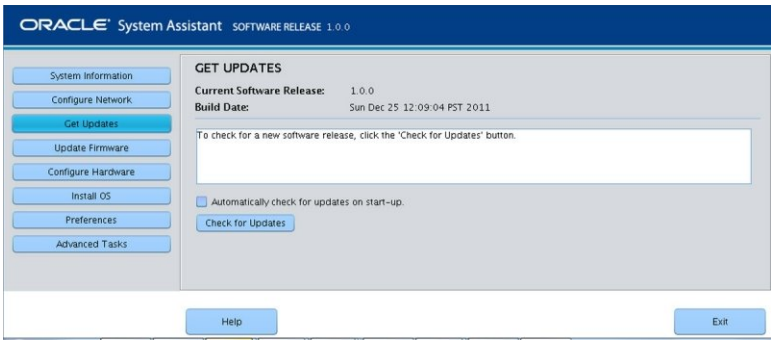
Before You Begin Configure Oracle System Assistant to access the web before you can complete this task. For details, see "Configure Network Interface Settings (Oracle System Assistant)" on page 165.

1. **Access Oracle System Assistant.**

   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click the Get Updates task button.**

   The Get Updates page appears.



Note - To automatically check for updates each time the system is started, click the check box.

3. **To check for a new software release, click the Check for Updates button.**
   If an update is available, the update's readme file appears.

4. **To get the update, click the Download and Apply Updates button.**
   The Get Updates Sign-In screen appears.

5. **Provide your My Oracle Support (MOS) credentials.**
   Enter your MOS user name and password.

Note - If the sign-in process stops, it might be because your user name and password do not match, or because My Oracle Support is not configured to enable your server to get updates. To configure My Oracle Support to enable your server to get updates, see "Configure MOS to Enable Oracle System Assistant Updates" on page 168.

The server downloads the updates and then displays a message asking to reboot the server.

6. **Select OK.**
   The server reboots and restarts Oracle System Assistant.
   To install the updated firmware, sofrware, and drivers, see "Update Software and Firmware (Oracle System Assistant)" on page 226.

See Also

- "Using the Oracle System Assistant User Interface" on page 152

▼ Update Software and Firmware (Oracle System Assistant)

Use this procedure to update server firmware using Oracle System Assistant.

The Update Firmware task allows you to update system firmware (BIOS and Oracle ILOM SP) and hardware device firmware in the system to the latest versions. It allows you to preview the

changes, compare version numbers, manually select the components to update, or choose to update all firmware components.

For the best result, update all firmware components to the latest versions.

Note - Some firmware components require a server reboot immediately after a firmware update. If required, the server might automatically reboot one or more times during the update process.

The time it takes to perform an Oracle ILOM/SP update depends on the Local Host Interconnect setting in Oracle ILOM.

- If the Local Host Interconnect setting in Oracle ILOM is configured as host managed (true), it uses the internal Host-to-ILOM interconnect. This is the default, and it is the fastest.
- If the Local Host Interconnect setting in Oracle ILOM is configured as host managed (false), it takes longer.

Before You Begin

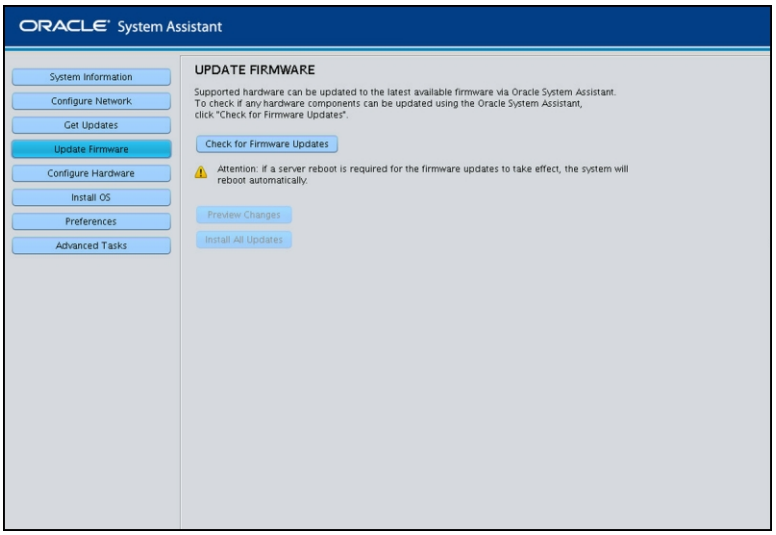
- Prepare Oracle System Assistant for updates. For details, see "Preparing Oracle System Assistant for Updates" on page 165.
- Use Oracle System Assistant to get the update package. For details, see "Update Oracle System Assistant and the Firmware Files on the Oracle System Assistant USB Drive (Oracle System Assistant Release 1.1)" on page 225.

1. **Access Oracle System Assistant.**

   See "Accessing Oracle System Assistant" on page 147 for details.

2. **Click Update Firmware.**

The Update Firmware screen appears.



3. **To view the components that can be updated, click the Check for Firmware Updates button.**

   The Firmware Update Check progress box appears as the task polls the components and performs the firmware update check.

4. **(Optional) Click the Preview Changes button.**

   The Firmware Update Install Changes dialog box appears.

5. **View the list of firmware components that need updates and compare current and available version numbers.**

   You can also review the Component Name, Device Name, Firmware/BIOS Installed, and Firmware/BIOS Available.

6. **To proceed, select one of the following:**

   - **To perform a selective firmware update, select the firmware updates that you want to install, and then click the Install Updates button.**

Note - Components that are up-to-date cannot be selected.

- **To install all the firmware updates, click the Install All Updates button.**

7. **Wait while the system updates the firmware.**

   The update firmware progress bar appears.

   The system might reboot several times. If it has more updates to install, it reboots back to Oracle System Assistant and continues with the firmware update.

   If the firmware update includes updating Oracle ILOM, the Oracle ILOM Remote Console session might get disconnected and you might have to restart it.

   Oracle System Assistant displays a completion message when the updates are all installed.

Caution - Data corruption and loss of functionality. Do not interrupt the firmware update process. The server might reboot automatically several times. Do not interrupt it until you are certain that it is done.

See Also

- "Accessing Oracle System Assistant" on page 147

Updating Server or Blade Chassis Firmware (Oracle ILOM)

Use Oracle Integrated Lights Out Manager (ILOM) to update the system BIOS, service processor (SP), or chassis monitoring module (CMM) firmware image. To perform this task, see "Update BIOS and SP Firmware or CMM Firmware (Oracle ILOM)" on page 229.

▼ Update BIOS and SP Firmware or CMM Firmware (Oracle ILOM)

Before You Begin

- Download the firmware pack for your system from the My Oracle Support website at `https://support.oracle.com`. The firmware pack contains the Oracle Integrated Lights

Out Manager (ILOM) update `.pkg` file for the system BIOS and service processor (SP) or for the chassis monitoring module (CMM). For instructions on how to download the firmware pack from My Oracle Support, see "Getting Firmware and Software From MOS" on page 233.

- To load additional firmware such as SAS expanders, host bus adapters, or controllers, see "Updating System Software and Firmware (Oracle System Assistant)" on page 220.

  This procedure loads the BIOS and SP or CMM packages, but not other firmware, such as SAS expanders, host bus adapters, or controllers.

  Alternatively, for blades, you can use Oracle ILOM to load the complete package. Refer to Update Blade Chassis Component Firmware Images in the *Oracle ILOM Configuration and Maintenance Guide for firmware release 3.1 or 3.2*.
- Log in to Oracle ILOM. For instructions see "Accessing Oracle ILOM" on page 38.
- Ensure that you have Admin (a) role privileges in Oracle ILOM.

The following procedure provides web and command-line interface (CLI) instructions for both a service processor (SP) and a chassis monitoring module (CMM).

Note - The firmware update process takes several minutes to complete. During this time, do not perform any operations on the target server SP or CMM.

- **To update the firmware for a single system SP or for a CMM:**

  - **From the Web interface:**

    a. **Click ILOM Administration > Maintenance > Firmware Upgrade.**

    b. **Set the appropriate fields on the Firmware Upgrade page, and then click Start.**

    When the firmware process completes, the system reboots to apply the new firmware image.

  - **Select the following options, if they are available on your system. Some systems do not offer these options:**

    - Preserve Configuration: Enable this option to save and restore the existing Oracle ILOM firmware settings.
    - Preserve BIOS Configuration: Enable this option to save and restore existing BIOS configurations. This option is not supported on all servers.
    - Delay BIOS Upgrade: Postpone the BIOS upgrade until after the next time the system is reset or power-cycled.

Note - If you select the Delay BIOS Upgrade option, Oracle ILOM updates the BIOS firmware the next time you power cycle your system.

On some systems, Oracle ILOM upgrades the BIOS firmware the next time you reset your system even though you didn't choose to power cycle it. In this case, the reset takes longer than usual, and includes a power cycle, and in some cases can take up to 26 minutes. This is normal behavior when a delayed BIOS upgrade is applied during a reset.

If you selected Delay BIOS Upgrade, the system terminates your Oracle ILOM session. If you did not select Delay BIOS Upgrade, the system power cycles and terminates your Oracle ILOM session.

- **From the CLI:**

  a. **To update the firmware on the server SP or CMM, type:**

  load -source/[*protocol*]://[*username*]:[*password@server_ip*]/[*path_to_image*]/[.*pkg*]

  Where *protocol* can be `http`, `https`, `ftp`, `tftp`, `sftp`, or `scp`.

  b. **Type `Y` to load image and then type `Y` to enable the applicable firmware update options.**

  When the firmware process completes, the system reboots to apply the new firmware image.

  c. **Select the following options, if your system offers them. Some systems do not offer these options:**

  - Preserve Configuration: Enable this option to save and restore the existing Oracle ILOM firmware settings.
  - Preserve BIOS Configuration: Enable this option to save and restore existing BIOS configurations. This option is not supported on all servers.
  - Delay BIOS Upgrade: Postpone the BIOS upgrade until after the next time the system is reset or power-cycled.

Note - If you select the Delay BIOS Upgrade option, Oracle ILOM updates the BIOS firmware the next time you power cycle your system.

On some systems, if you reset your server when there is a pending BIOS upgrade, Oracle ILOM executes the BIOS upgrade. This power cycles the server and causes the reset to take longer than usual (in some cases as much as 26 minutes). This is normal behavior when a delayed BIOS upgrade is applied during a reset.

Caution - Service interruption. Do not interrupt the update process while the server is upgrading the BIOS firmware. This can result in corrupted firmware and server down time.

If you selected Delay BIOS Upgrade, the system terminates your Oracle ILOM session. If you did not select Delay BIOS Upgrade, the system power cycles and terminates your Oracle ILOM session.

See Also

- Update the Server SP or CMM Firmware Image, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.
- Update Blade Chassis Component Firmware Images, *Oracle ILOM Configuration and Maintenance Guide* for firmware version 3.1 or 3.2.

Updating SP and BIOS Firmware, and HBA Firmware (Oracle Hardware Management Pack)

The Oracle Hardware Management Pack `fwupdate` command can be used to update the service processor and BIOS firmware, and the system HBA firmware.

Like all Oracle Hardware Management Pack commands, it can be run from the operating system command line.

Oracle Hardware Management Pack does not download the firmware updates; you must download them from My Oracle Support. For details, see "Getting Firmware and Software From MOS" on page 233.

Getting Firmware and Software From MOS

You can use Oracle System Assistant to easily download and then use the latest software release. For further information, see “Updating System Software and Firmware (Oracle System Assistant)” on page 220.

However, you can also obtain updated firmware and software by using My Oracle Support (MOS). For information, see:“Download Firmware and Software Using My Oracle Support” on page 233

▼ Download Firmware and Software Using My Oracle Support

1. **Go to the My Oracle Support web site:**

   `https://support.oracle.com`.

2. **Sign in to My Oracle Support.**

3. **At the top of the page, click the Patches & Updates tab.**

   The Patch Search pane appears at the right of the screen.

4. **Within the Search tab area, click Product or Family (Advanced).**

   The Search tab area appears with search fields.

5. **In the Product field, select the product from the drop-down list.**

   Alternatively, type a full or partial product name (for example, Sun Server X4-2) until a match appears.

6. **In the Release field, select a software release from the drop-down list.**

   Expand the list to see all available software releases.

7. **Click Search.**

   The Patch Advanced Search Results screen appears, listing the patches for the software release.

   See your server product notes for a description of the available software releases.

8. **To select a patch for a software release, click the patch number next to the software release version.**

   You can use the Shift key to select more than one patch.

A dialog box appears. The panel contains several action options, including the readme, Download, and Add to Plan options. For information about the Add to Plan option, click the associated button and select "Why use a plan?".

9. **To review the readme file for this patch, click readme.**

10. **To download the patch for the software release, click Download.**

11. **In the File Download dialog box, click the patch zip file name.**

    The patch for the software release downloads.

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