Sun Server X4-8 Installation Guide

Part No: E40305-07
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Using This Documentation

This section describes how to get the latest firmware, software, and documentation for Oracle's Sun Server X4-8. It also provides feedback links and a document change history.

- "Sun Server X4-8 Model Naming Convention" on page 9
- "Getting the Latest Firmware and Software" on page 9
- "Documentation and Feedback" on page 10
- "About This Documentation" on page 10
- "Contributors" on page 10
- "Change History" on page 10

Sun Server X4-8 Model Naming Convention

The Sun Server X4-8 name identifies the following:

- X identifies an x86 product.
- The first number, 4, identifies the generation of the server.
- The second number, 8, identifies the number of processors.

Getting the Latest Firmware and Software

Firmware, drivers, and other hardware-related software for each Oracle x86 server, server (blade), and blade chassis are updated periodically.

You can obtain the latest version in one of the following ways:

- Oracle System Assistant – This is a new factory-installed option for Sun Oracle x86 servers. It has all the tools and drivers you need and resides on a USB drive installed in most servers.
- My Oracle Support – `https://support.oracle.com`

Documentation and Feedback

Documentation	Link
All Oracle products	https://docs.oracle.com
Sun Server X4-8	http://www.oracle.com/goto/X4-8/docs
Oracle Integrated Lights Out Manager (ILOM). Refer to the documentation for your supported version of Oracle ILOM as listed in the *Product Notes*.	http://www.oracle.com/goto/ILOM/docs
Oracle Hardware Management Pack. Refer to the documentation for your supported version of Oracle HMP as listed in the *Product Notes*.	http://www.oracle.com/goto/ohmp/docs

Provide feedback on this documentation at: http://www.oracle.com/goto/docfeedback.

About This Documentation

The information in this documentation set is presented in topic-based format (similar to online help) and therefore does not include chapters, appendixes, or section numbering.

Contributors

Primary Authors: Ray Angelo, Michael Bechler, Cynthia Chin-Lee, Lisa Kuder, Mark McGothigan, Ralph Woodley.

Contributors: William Schweickert, Anthony Villamor, Mick Tabor, Richard Masoner, Tamra Smith-Wasel, Denise Silverman.

Change History

The following lists the release history of this documentation set:

- April 2014. Initial publication.
- June 2014. Changes for product release.
- July 2014. Revised procedures and topics, and added illustrations to the service manual. Added content and made editorial improvements to other manuals.

- September 2014. Added warm service for CMOD components, updates for Linux Fault Management Architecture (FMA), and added issues to Product Notes.
- December 2014. Added content to Product Notes and made editorial improvements to Installation Guide.
- August 2015. Added content for updated IPv6 configuration in Oracle ILOM.
- December 2015. Technical updates.

Installation Procedure Overview

The following table summarizes the tasks that you must perform to properly install the server.

Step	Description	Links
1	Review the Sun Server X4-8 Product Notes for any late-breaking information about the server.	`http://www.oracle.com/goto/X4-8/docs`
2	Prepare to install the server.	“Preparing to Install the Server” on page 31
3	Review the server features.	“Server Features and Components” on page 15
4	Install any separately shipped optional components.	*Sun Server X4-8 Service Manual*
5	Review procedures for getting server firmware and software.	“Getting Server Firmware and Software” on page 139
6	Install the server into a rack.	“Rack Installation Instructions” on page 35
7	Attach data cables and power cords to the server.	“Cabling the Server” on page 49
8	Set up your system software and firmware using Oracle System Assistant.	“Launching Oracle System Assistant” on page 71
9	Connect to Oracle Integrated Lights Out Manager (ILOM).	“Connecting to Oracle ILOM” on page 53
10	Prepare server drives and configure RAID.	“Configure Storage Drives for OS Installation” on page 81
11	If applicable, configure a preinstalled operating system.	■ “Configuring the Preinstalled Oracle Solaris OS” on page 119 ■ “Configuring the Preinstalled Oracle Linux OS” on page 133 ■ “Configuring the Preinstalled Oracle VM 3.X Software” on page 127
12	If applicable, install one of the following operating systems or virtual machine software.	*Sun Server X4-8 Installation Guide for Linux Operating Systems* *Sun Server X4-8 Installation Guide for Oracle Solaris Operating System* *Sun Server X4-8 Installation Guide for Oracle VM Server* *Sun Server X4-8 Installation Guide for Microsoft Windows*

Step	Description	Links
		Sun Server X4-8 Installation Guide for VMware ESXi
13	Review procedures for controlling system power.	"Controlling System Power" on page 145
14	Troubleshoot installation issues.	"Troubleshooting Installation Issues" on page 149

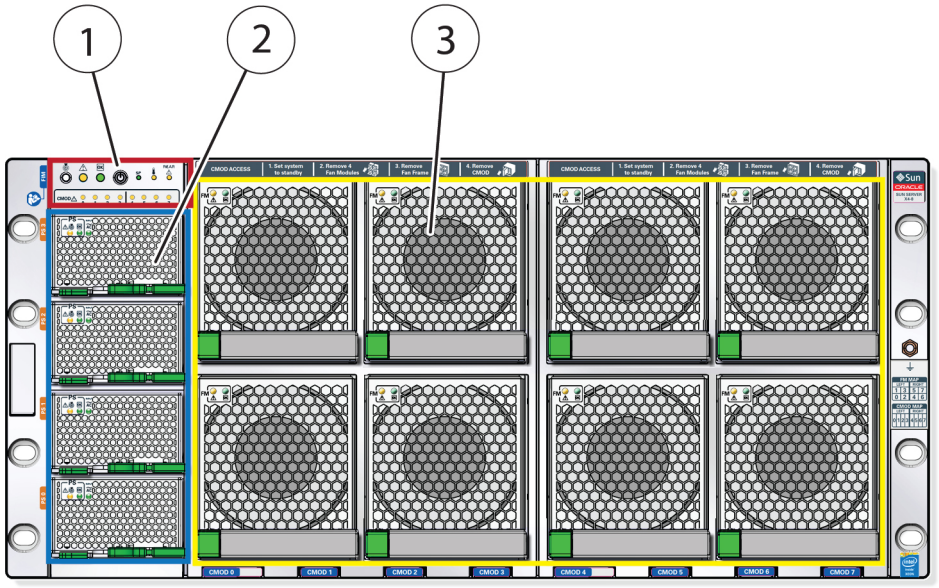
Server Features and Components

This section describes Oracle's Sun Server X4-8 hardware. It includes the following topics:

Description	Links
Locate status indicators, connectors, and storage drives on the server front and back panels.	■ “Front Panel Features” on page 15 ■ “Back Panel Features” on page 19
Review server features and components.	“Server Supported Components” on page 22
Review server management software.	“Managing Your Server” on page 25

Front Panel Features

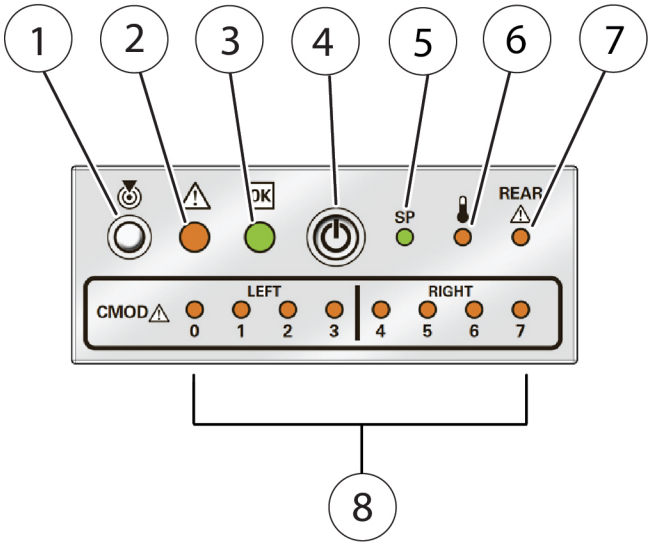
The following figure shows the Sun Server X4-8 front panel and describes its components:



Callout	Description
1	Front indicator module
2	Power supplies 0 (bottom) through 3 (top)
3	Fan modules FM 0 through FM 7: ■ Top row: 1, 3, 5, 7 ■ Bottom row: 0, 2, 4, 6

Front Indicator Module

The following figure shows the controls and indicators on the front indicator module:

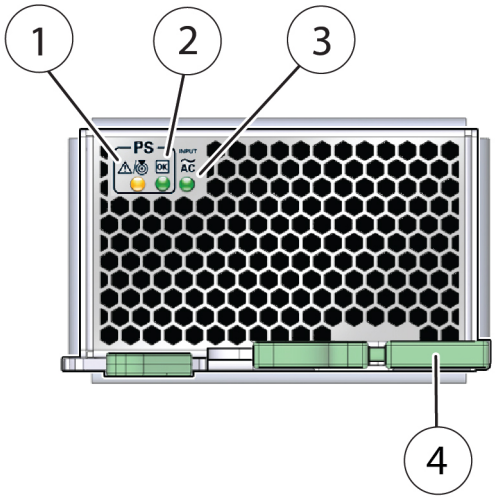


Callout	Description
1	Chassis locator button and indicator
2	Chassis fault indicator
3	Power OK indicator
4	Recessed power button
5	Service processor OK indicator
6	Chassis temperature fault indicator
7	Chassis back fault indicator
8	CMOD fault indicators 0 - 7 (from left to right) **Note -** The server contains either four or eight CMODs (compute modules), located behind the fans, and designated from left to right as CMOD 0 through CMOD 7. Each CMOD has a corresponding indicator.

Note - For details on system power and the related controls and indicators, see “Controlling System Power” on page 145.

Power Supply Controls and Indicators

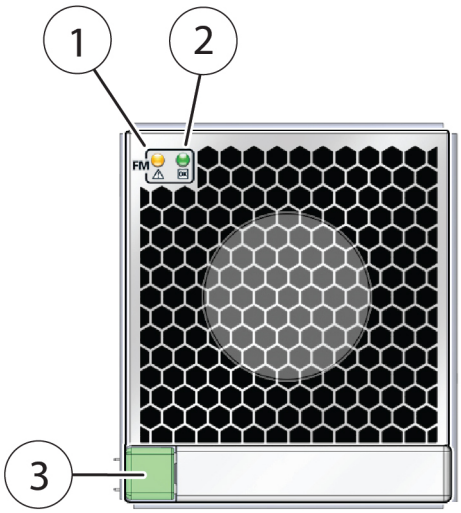
The following figure shows the power supply controls and indicators:



Callout	Description
1	PSU fault/locate indicator
2	PSU OK indicator (power to host is OK)
3	PSU AC OK indicator (AC input power is OK)
4	Release latch

Fan Module Controls and Indicators

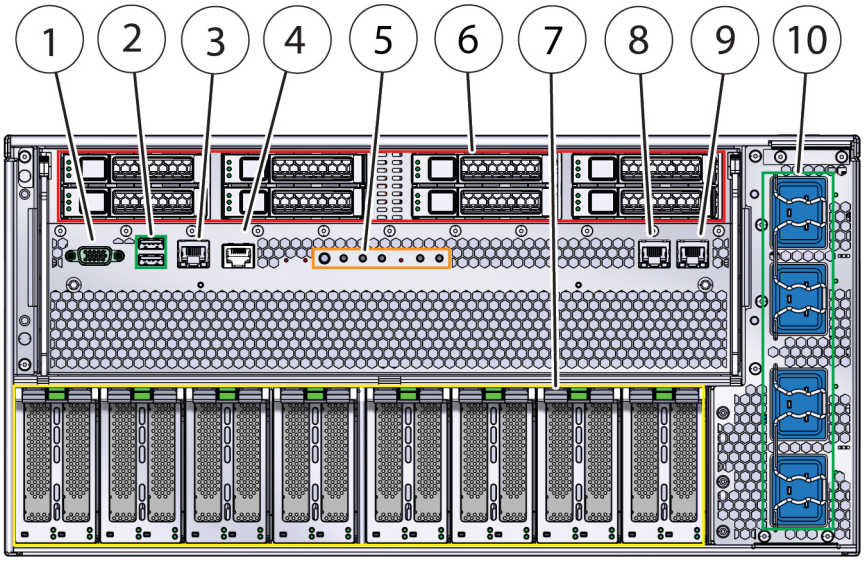
The following figure shows the controls and indicators on the fan module:



Callout	Description
1	Fault indicator
2	OK indicator
3	Release latch

Back Panel Features

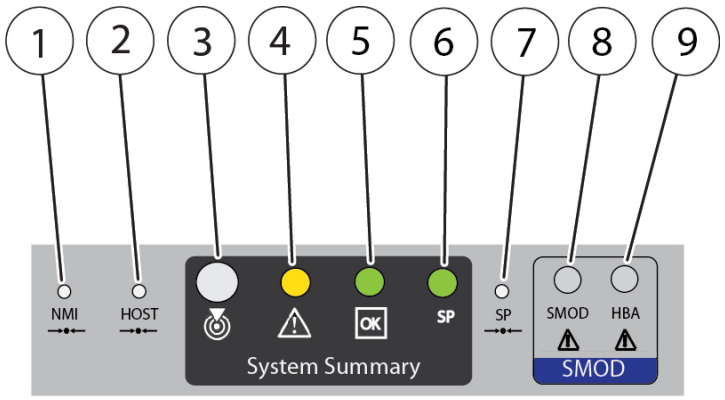
The following figure shows the Sun Server X4-8 back panel and describes its components.



Callout	Description
1	DB-15 video port
2	USB 2.0 ports (2)
3	Net management port
4	Serial management port
5	Status indicators
6	HDD/SSD slots 0 through 7: ■ Top row : 7, 5, 3, 1 ■ Bottom row: 6, 4, 2, 0
7	PCIe card slots 1 through16: ■ PCIe 1 is on the right ■ PCIe 16 is on the left PCIe cards are mounted on dual PCIe card carriers (DPCC). Each DPCC houses two PCIe slots.
8	Net 0 port
9	Net 1 port
10	AC inputs with cable clips (0 through 3): ■ AC input 3 is on top ■ AC input 0 is on the bottom

Back Panel Status Indicators and Buttons

The following figure shows the back panel indicators and buttons.

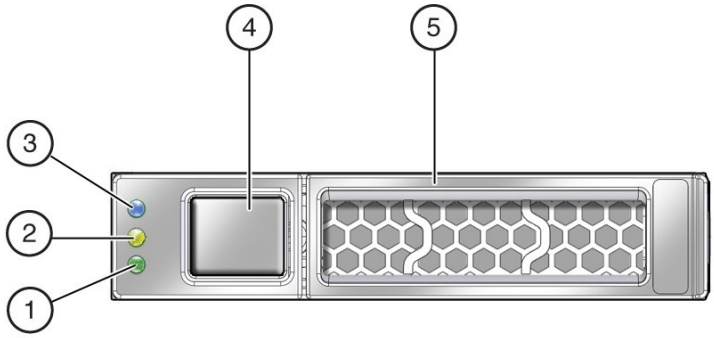


Callout	Description
1	Non-maskable interrupt (NMI) button - Used by Oracle service personnel.
2	Reset button - Used by Oracle service personnel.
3	Locate button/indicator - Used to identify the server. For details, see the *Oracle ILOM Documentation Library* at: `http://www.oracle.com/goto/ILOM/docs`
4	Chassis Fault indicator - For details, refer to *Sun Server X4-8 Service Manual*.
5	Power/OK (Green indicator) - For details, see "Controlling System Power" on page 145.
6	SP OK (Green indicator) - Steady on if SP is operating, blinks while SP is booting, off if SP has no power.
7	SP reset button - Used by Oracle service personnel.
8	SMOD fault indicator- Indicates a system module (SMOD) fault (Amber)
9	HBA fault indicator - Indicates a host bus adaptor (HBA) fault (Amber)

Note - For details on system power and the related controls and indicators, see "Controlling System Power" on page 145.

Storage Controls and Indicators

The following figure shows the storage controls and indicators:



Callout	Description
1	OK indicator (Green)
2	Fault indicator (Amber)
3	Ready to remove indicator (Blue)
4	Storage drive release button
5	Storage drive lever

Server Supported Components

The following table lists and describes the components that are supported in the Sun Server X4-8:

Component	Description
CPU module (CMOD)	Four or eight CPU modules, each with one Intel Xeon® E7-8895 V2 processor. Supported configurations: ■ Four CPU modules installed in slots 0 through 3 ■ Eight CPU modules installed in slots 0 through 7 For the latest information on CPU specifications, go to the Sun x86 servers web site and navigate to the Sun Server X4-8 page:

Component	Description
	http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html
Memory	Up to 192 DIMMs (24 per CPU module) 16GB DDR3 ECC Registered DIMMs or 32GB DDR3 Registered ECC LRDIMMs 6 TB maximum memory capacity
Storage devices	Eight 2.5-inch back accessible, hot swappable SAS-2 hard disk drives (HDDs) or eight 2.5-inch eMLC SATA-3 solid state drives (SSDs) for up to 9.6 TB of internal storage
USB 2.0 ports	Four USB ports (two external, two internal)
VGA ports	One VGA 1280 x1024 8MB @ 60 Hz graphics controller port
PCI Express 3.0 I/O slots	Eight dual PCIe card carriers (DPCC) each with two PCIe 3.0 card slots Sixteen PCIe 3.0 slots (eight x8 slots, eight x16 slots) hot-swappable using DPCC
PCI Express I/O cards	For a list of customer-orderable I/O cards, go to the Sun x86 servers web site and navigate to the Sun Server X4-8 page: http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html
Ethernet ports	Two 1 Gbps onboard Ethernet ports
Service processor	Oracle Integrated Lights Out Manager uses an Emulex Pilot 3 baseboard management controller (BMC). It provides: ■ Remote Keyboard, Video, Mouse redirection ■ Full remote management through command-line, IPMI, and browser interfaces ■ Remote media capability (DVD, CD, ISO image) ■ Advanced power management and monitoring ■ Active Directory, LDAP, RADIUS support ■ Dual ILOM flash ■ Signed ILOM
Power supplies	Four redundant, hot-swappable front accessible power supplies
Cooling fans	Eight hot-swappable, redundant fan modules at chassis front; redundant fans in each power supply
Operating systems	■ Oracle Solaris (preinstall option) ■ Oracle Linux (preinstall option) ■ Oracle VM (preinstall option) ■ Red Hat Enterprise Linux ■ SuSE Linux Enterprise Server ■ Microsoft Windows Server ■ VMware ESXi For more information on software go to: http://www.oracle.com/technetwork/server-storage/oracle-x86/overview/index.html
Management software	The following options are available: ■ Oracle Integrated Lights Out Manager (ILOM) on the service processor. ■ Oracle System Assistant (OSA) on an optional internal USB flash drive. ■ Oracle Enterprise Management Ops Center, downloadable from the Oracle site.

Managing Your Server

After you have installed your server, you can manage it using multiple server management tools or single server management tools.

- "Multiple Server Management Tools" on page 25
- "Single Server Management Tools" on page 25

Multiple Server Management Tools

Oracle provides several tools for managing multiple servers. These tools include:

- If your server is one of many x86 and SPARC servers that you want to manage from a single interface, you can use the Oracle Enterprise Manager Ops Center. For more details, refer to `http://www.oracle.com/technetwork/oem/ops-center/index.html`.
- If you want to monitor your enterprise servers, you can take advantage of Sun Management Center. For more details, refer to `http://www.oracle.com/technetwork/systems/patches/sysmgmt/smc-jsp-138444.html`.
- If you already have third-party system management tools, the servers can integrate with many third-party tools. For more details, refer to `http://www.oracle.com/goto/system-management`.

Single Server Management Tools

The following table lists the tools available for managing a single server:

"Oracle System Assistant" on page 26	Preinstalled. Embedded on a USB drive inside the server. No installation required. The tool boots on the host. It has a graphical user interface and includes files that can be	Install supported operating systems and locally or remotely configure and update server hardware.

	accessed from the host operating system using a file browser.	
"Oracle ILOM" on page 26	Preinstalled service processor (SP) utility. No installation required. Some initial configuration is required. Operates independently of the host. Provides a web interface and a command-line interface (CLI).	Configure and manage server components locally or remotely. Connect to a dedicated network port, a sideband port, or a local serial port.
"Oracle Hardware Management Pack" on page 27	Add-on software pack. Get it from Oracle System Assistant or download from `http://www.oracle.com/goto/system-management`. Provides commands and agents that operate at the operating system level, and can be used across multiple systems.	Monitor hardware through the host operating system, either remotely using SNMP or locally using command-line interface tools.
"UEFI BIOS" on page 27	Accessed by booting system and interrupting the boot process. Provides a simple graphical user interface.	Provides hardware-level management of system functionality.

For more details on about these tools, see the *Oracle x86 Administration Guide for X4 Series Servers* at: `http://www.oracle.com/goto/x86AdminDiag/docs`

Oracle System Assistant

Oracle System Assistant is a task-based server provisioning tool that allows you to perform initial server setup and maintenance for Oracle x86 servers. Using Oracle System Assistant, you can install a supported Oracle Solaris, Oracle VM, Linux, or Windows operating system, update your server to the latest software release, and configure server hardware. Oracle System Assistant is a factory-installable option available when you purchase your server. If your server includes Oracle System Assistant, it resides on an internal USB flash drive.

Oracle ILOM

Oracle ILOM is a built-in feature of your server used to monitor and manage server module components.

Oracle ILOM software functions include:

- Configuring network information

- Viewing and editing hardware configurations for the SP
- Monitoring vital system information and viewing logged events
- Managing Oracle ILOM user accounts

You can access the server SP in either of the following ways:

- “Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 55
- “Log In to Oracle ILOM Using a Local Serial Connection” on page 55

Oracle Hardware Management Pack

Oracle Hardware Management Pack (HMP) 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 Oracle Solaris, Oracle Linux, Oracle VM, other variants of Linux, and Windows 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.
- Use Oracle Linux Fault Management Architecture (FMA) host-based command-line interface 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. The Oracle Linux FMA software is available starting with Oracle HMP 2.3 and supported for the Sun Server X4-8 running Oracle Linux 6.5 or later with system software 1.1.0 or later.

For more details on Oracle Hardware Management Pack, refer to:

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

UEFI BIOS

The Sun Server X4-8 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 between UEFI and legacy boot modes. The default is legacy boot mode.

If you change boot modes, the boot candidates from the previous mode disappear. The boot candidates from the new mode appear after you issue the BIOS Save Changes and Reset command. Use the Oracle ILOM BIOS Backup and Restore function to preserve the configuration in case you want to switch back. For information about Oracle ILOM, refer to your Oracle Integrated Lights Out Manager (ILOM) documentation at: http://www.oracle.com/goto/ILOM/docs.

The table below describes the BIOS boot modes.

Boot Mode	Description
Legacy Boot Mode	Choose legacy boot mode to allow host bus adapters (HBAs) to use option ROMs, when software or adapters do not have UEFI drivers, or the system is using option ROM. Legacy boot mode is the default boot mode. In legacy boot mode, only boot candidates that support legacy boot mode appear in the BIOS Setup Utility screens in the Boot Options Priority list. **Note -** Once you choose a boot mode and install an operating system, if you reboot the server and select a different boot mode, the installed image is not accessible and cannot be used.
UEFI Boot Mode	Choose UEFI boot mode to use UEFI drivers when software and adapters have UEFI drivers. UEFI boot mode is manually selected during setup. For instructions for making the selection, refer to the *Oracle x86 Administration Guide for X4 Series Servers* at http://www.oracle.com/goto/x86AdminDiag/docs. In UEFI boot mode, only boot candidates that support UEFI boot mode appear on the BIOS Setup Utility screens in the Boot Options Priority list. The following list shows the minimum operating system versions required to support UEFI boot mode: ■ Oracle Solaris 11.1 ■ Oracle Linux 6.x ■ Red Hat Enterprise Linux 6.x ■ SUSE Linux Enterprise Server 11 SP3 ■ Microsoft Windows Server 2008 R2 SP1 and Microsoft Windows Server 2012 ■ VMware ESXi 5.x All other operating systems must use legacy boot mode. For an up-to-date list, refer to *Sun Server X4-8 Product Notes*.

Boot Mode	Description
	Note - Once you choose a boot mode and install an operating system, if you reboot the server and select a different boot mode, the installed image is not accessible and cannot be used.

For more details on UEFI BIOS, see the *Oracle x86 Administration Guide for X4 Series Servers* at: http://www.oracle.com/goto/x86AdminDiag/docs

Preparing to Install the Server

This section provides the information you need to know before you install the server into a rack. It includes:

Description	Links
Review the server physical, electrical, and environmental specifications.	“Server Specifications” on page 31
Review ventilation and cooling requirements for the rackmounted server.	“Ventilation Guidelines” on page 33
Review ESD requirements and take safety precautions.	“ESD Precautions” on page 34
Install any optional components into the server.	“Optional Component Installation” on page 34

Server Specifications

This section includes physical, electrical and environmental specifications for the system.

Physical Specifications

The following table lists the physical specifications for the Sun Server X4-8.

Parameter	Value
Height	5U / 219.25 mm (8.63 in.)
Width	445 mm (17.5 in.)
Depth	834 mm (32.8 in.)
Weight	114 kg (250 lbs)

Electrical Specifications

The following table lists the electrical specifications for the Sun Server X4-8.

Note - For up-to-date information on power consumption, go to the Sun x86 Servers web site and navigate to the Sun Server X4-8 page:

http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html

Parameter	Value
Nominal input frequencies	50/60 Hz
Operating input voltage range	200-240 VAC
Rated input current	23A @ 200 to 230 VAC 12A max per cord
Maximum power consumption	3400 W
Maximum heat output	11600 BTU/Hr

Environmental Requirements

The following table lists the environmental requirements for the Sun Server X4-8.

Parameter	Value
Operating temperature (single, non-rack system)	At sea level: 5° C to 35° C (41° F to 95° F) At altitude: 5° C to 31° C (41° F to 88° F)
Operating temperature	5° C to 35° C (4° F to 95° F)
Non-operating temperature	-40 °C to 70 °C (-40 °F to 158° F)
Operating humidity	10% to 90% relative humidity, non-condensing
Non-operating humidity	Up to 93% relative humidity, non-condensing
Operating altitude	Up to 3,000 m (9,840 ft), maximum ambient temperature is derated by 1 degree C per 300m above 900 m, except in China where regulations may limit installations to a maximum altitude of 2,000 m
Non-operating altitude	0 m to 12,000 m (0 ft to 40,000 ft)
Acoustic noise	Acoustic noise: 7.7 B operating, 6.8 B idling - (LwAd: 1 B=10 dB)

Ventilation Guidelines

Rackmount servers and equipment, including the Sun Server X4-8, typically draw cool air in from the front of the rack and let warm air out the back of the rack. There is no airflow requirement for the left and right sides due to front-to-back cooling.

Air conditioning facilities usually do not precisely monitor or control temperature and humidity throughout an entire computer room. Generally, monitoring is done at individual points corresponding to multiple exhaust vents in the main unit, and other units in the room.

Special consideration should be paid to humidity when using underfloor ventilation. When underfloor ventilation is used, monitoring is done at each point close to an exhaust vent. Distribution of the temperature and humidity across the entire room is uneven.

The Sun Server X4-8 has been designed to function while installed in a natural convection airflow. The following requirements must be followed to meet the environmental specification:

- Ensure that there is adequate airflow through the system.
- Ensure that air intake is at the front of the system, and the air outlet is at the back of the system.
- Allow a minimum clearance of 1,232 mm (48.5 inches) at the front of the system, and 914 mm (36 inches) at the back of the system for ventilation.
- Ensure unobstructed airflow through the chassis. The server uses internal fans that can achieve a total airflow of 100 CFM in normal operating conditions.
- Ensure that air temperature rise through the server is no greater than 68°F (20°C).
- Ensure that inlet air enters at the front of the server and exits from the back.
- Ensure that ventilation openings such as cabinet doors, for both the inlet and exhaust of the server are not obstructed. For example, Oracle's Sun Rack II has been optimized for cooling. Both the front and back doors have 80 percent perforations that provide a high level of airflow through the rack.
- Ensure that front and back clearance of the server allow a minimum of 1 inch (25.4 mm) at the front of the server and 3.15 inch (80 mm) at the back of the server when mounted.

  These clearance values are based on the inlet and exhaust impedance (available open area) stated above and assume a uniform distribution of the open area across the inlet and exhaust areas. These values also improve cooling performance.

Note - The combination of inlet and exhaust restrictions such as cabinet doors and the spacing of the server from the doors can affect the cooling performance of the server. You must evaluate these restrictions. server placement is particularly important for high-temperature environments.

- Take care to prevent recirculation of exhaust air within a rack or cabinet.
- Manage cables to minimize interference with the server exhaust vent.

ESD Precautions

Electronic equipment is susceptible to damage from static electricity. Use the following precautions when you install or service the server.

- Use a grounded antistatic wrist strap, foot strap, or equivalent safety equipment.
- Place components on an antistatic surface, such as an static discharge mat, an antistatic bag, or a disposable antistatic mat.

Caution - Equipment damage. Electrostatic damage can permanently disable the system or require repair by authorized service technicians.

Optional Component Installation

Standard system components are installed at the factory. Optional components that you purchased independent of the standard configuration are shipped separately, and in most cases they should be installed before you install the server in a rack.

The following optional components can be ordered and purchased separately:

- PCIe cards
- DDR3 DIMM memory kits
- Storage drives
- Software media

To install optional components, refer to the service labels on the top cover of the CPU Module (CMOD) or the System Module (SMOD) and to the component service procedures in the *Sun Server X4-8 Service Manual*.

Supported components and their part numbers are subject to change over time and without notice. For the most up-to-date list, go to:

`https://support.oracle.com/handbook_private/`

Rack Installation Instructions

This section provides instructions for placing the server into a rack using the shelf rail assembly in the rack mount kit. Perform these procedures if the rail assembly is purchased.

The Sun Server X4-8 does not have slide rails. Once it is installed in the rack, you cannot slide it out without uninstalling it. However almost all components can be accessed from the front or back without uninstalling it.

Note - In this guide, the term rack means either an open rack or a closed cabinet.

Description	Links
Review safety precautions.	“Safety Precautions” on page 35
Review the compatibility requirements for your rack.	“Rack Compatibility” on page 36
Unpack the server and inventory the contents	“Unpack the Server and Inventory the Contents” on page 37
Add or remove shipping brackets (optional)	“Install Shipping Bracket (Optional)” on page 45
Install the server into a rack.	“Install the Server into the Rack” on page 47

Safety Precautions

This section describes safety precautions you must follow when installing the server into a rack.

Caution - Equipment damage or personal injury. Always load equipment into a rack from the bottom up so that the rack does not become top-heavy and tip over. Deploy your rack's anti-tilt device to prevent the rack from tipping during equipment installation.

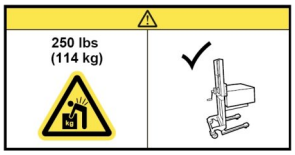
Caution - Component damage. If the server is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient temperature. Always install the equipment in an environment compatible with the maximum ambient temperature (Tma) specified for the server. For server environmental requirements, see "Environmental Requirements" on page 32.

Caution - Equipment damage. Install the equipment in a rack so that the amount of airflow required for safe operation of the equipment is not compromised.

Caution - Circuit overloading. Give consideration to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Appropriate consideration of equipment nameplate power ratings should be used when addressing this concern.

Caution - Equipment damage. Maintain reliable earthing. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

The following table shows images that appear on the equipment to provide additional warnings.

Graphic	Description
	This sign warns you to avoid placing your hand in a place where you might receive an electric shock.
	This sign warns you to avoid lifting the server, and to use a mechanical lift instead.

Rack Compatibility

Check that your rack is compatible with the shelf rail assembly and back brackets. These components are compatible with equipment racks that meet the standards listed in the following table.

Item	Requirement
Structure	Four-post rack (mounting at both front and back). Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60927 standards. Only M6 tapped or 9.5 mm square holes are supported.
Distance between front and back mounting planes	Minimum 610 mm and maximum 915 mm (24 inches to 36 inches).
Clearance depth in front of front mounting plane	Distance to front cabinet door is at least 25.4 mm (1 inch).
Clearance depth behind front mounting plane	Distance to back cabinet door is at least 900 mm (35.5 inches) with the cable management arm, or 770 mm (30.4 inches) without the cable management arm.
Clearance width between front and back mounting planes	Distance between structural supports and cable troughs is at least 456 mm (18 inches).
Server dimensions	Depth: (not including PSU handle): 732 mm (28.82 inches) Width: (not including ears): 436.5 mm (17.19 inches) Height: 129.85 mm (5.11 inches)

▼ Unpack the Server and Inventory the Contents

Use these instructions to remove the server from its container and inventory the contents.

The following items should be packaged with the Sun Server X4-8:

- Power cords, packaged separately with country kit
- Rackmount kit containing shelf rails and installation instructions
- Miscellaneous hardware and cables
- *Sun Server X4-8 Getting Started Guide*
- Legal and safety documents

Required server components and most options are installed at the factory. However, some ordered options might be packaged separately.

Before You Begin This procedure requires a lift.

Caution - Equipment damage or personal injury. Do not attempt to install the server without a lift.

1. **Inspect the shipping cartons for evidence of physical damage.**

If a shipping carton appears damaged, request that the carrier's agent be present when the carton is opened. Keep all contents and packing material for the agent's inspection.

2. **Open the top of the box.**

   a. **Cut the straps.**

   b. **Cut or remove the tape.**

c. **Open the flaps.**

3. **Remove the rack mounting kit (1) and set it and its contents aside.**
4. **Remove the tray (2) and set it aside.**
5. **Lift the box (3) up and away from the server.**
6. **Remove the foam inserts (4).**
   a. **Fold the corrugated flap down to release the front foam insert.**
   b. **Remove the front and rear inserts.**
7. **Remove the anti-static wrapper from the server.**
8. **To remove the server from the pallet, insert the blades of the lift in the gap between the server and the pallet.**

   For rack mounting instructions, see “Rack Installation Instructions” on page 35.

Callout	Description
1	Rack mounting kit
2	Tray
3	Box
4	Foam inserts
5	Server
6	Pallet

▼ Install Shelf Rails and Back Mounting Brackets

Before You Begin

Identify the location in the rack where you plan to place the Sun Server X4-8. It requires five rack units.

Ensure that your rack meets the requirements in “Rack Compatibility” on page 36.

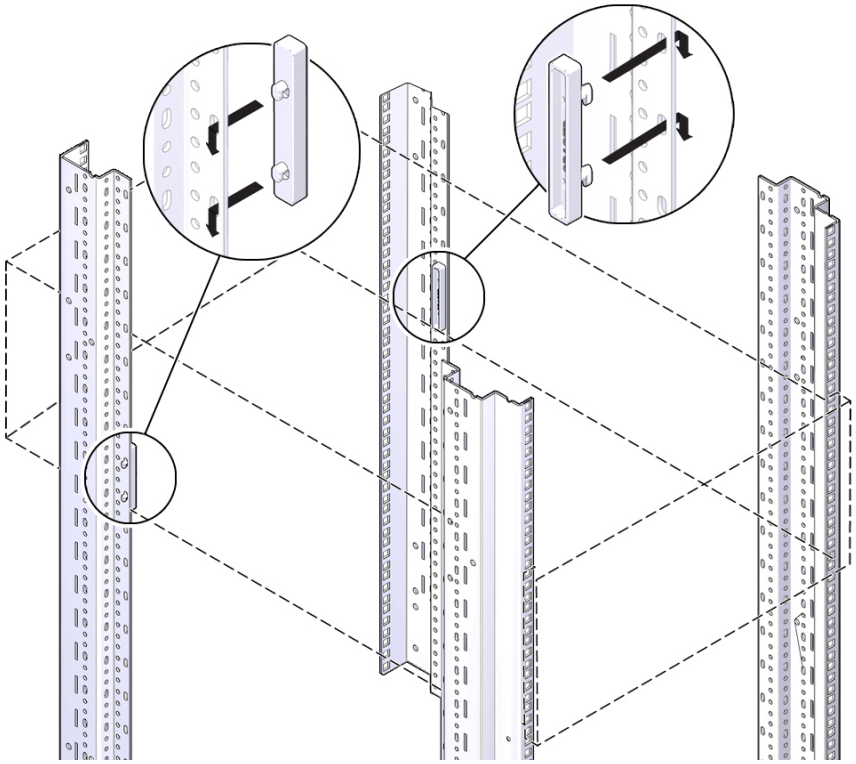
Caution - Equipment damage or personal injury. Always load equipment into a rack from the bottom up so that the rack will not become top-heavy and tip over. Deploy your rack's anti-tip device to prevent the rack from tipping during equipment installation.

1. **Determine your server location in the rack.**

   The Sun Server X4-8 requires five rack units.

2. Install the two spacers in back rack rails.

Studs on the spacers fit into the oval holes on the inside of the back rack rail. Align the bottom of the spacer with the bottom of the system's rack space.

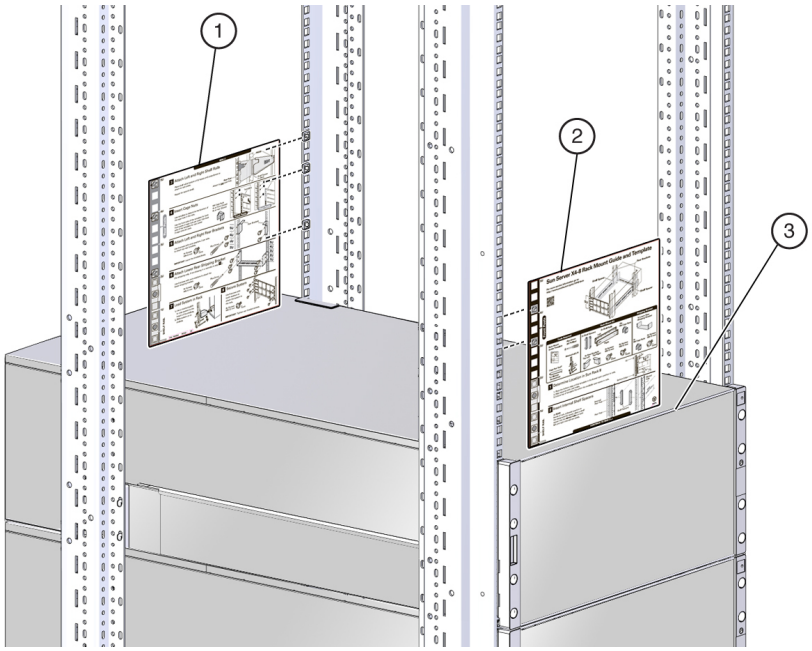


3. For square hole racks, place cage nuts in the locations indicated by the alignment template (2). For round-hole racks, go to Step 4.

a. Align the template with the holes where you intend to place the server.

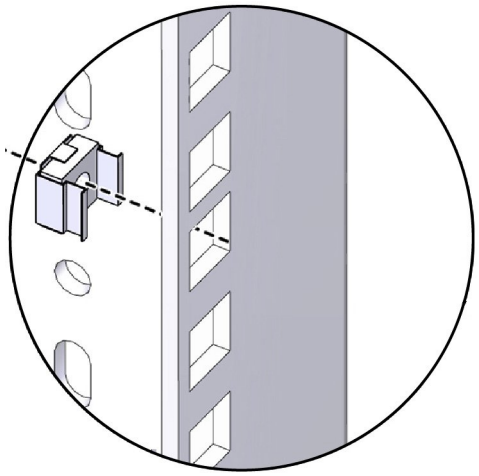
The template has rack alignment images on either side; one for the back rack alignment [1], and one for the front rack alignment [2].

The server should sit directly above the rack unit below it [3] without any unfilled rack spaces.



b. Place cage nuts in the locations indicated by the template.

Place the cage nuts on the inner-facing side of each rail. There should be two cage nuts in each front rail and three cage nuts in each back rail.



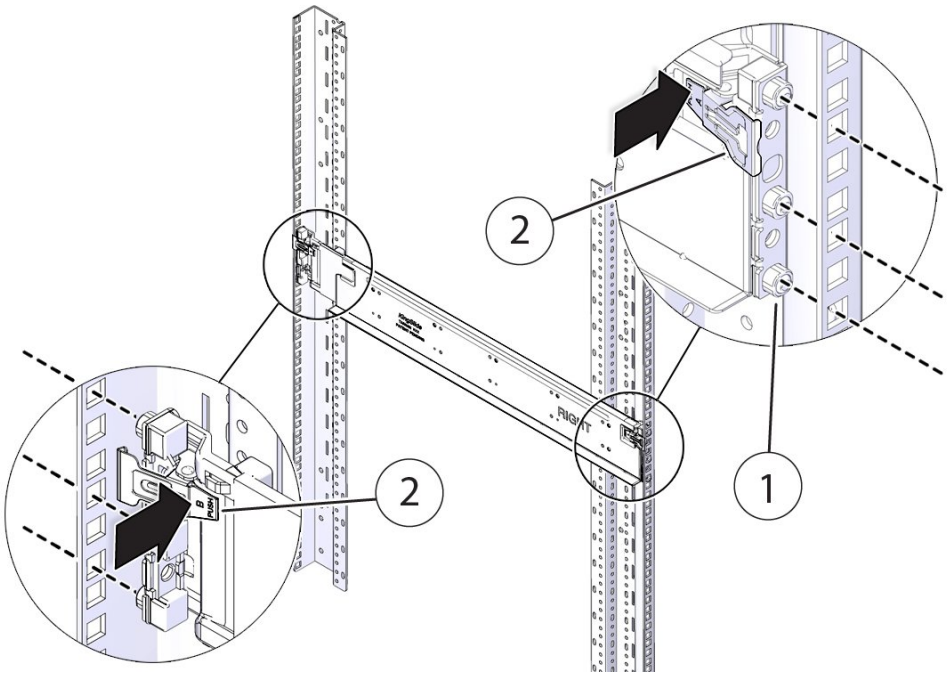
4. **Install the left and right shelf rails.**

   The rails are labeled left and right, front and back.

   The rails have studs and a latch at each end. For each rail:

   a. **Expand the shelf rail to fit the rack.**

b. Insert the studs [1] into the holes on the rack, and then press the tab [2] to open the latch and fasten it to the rack.

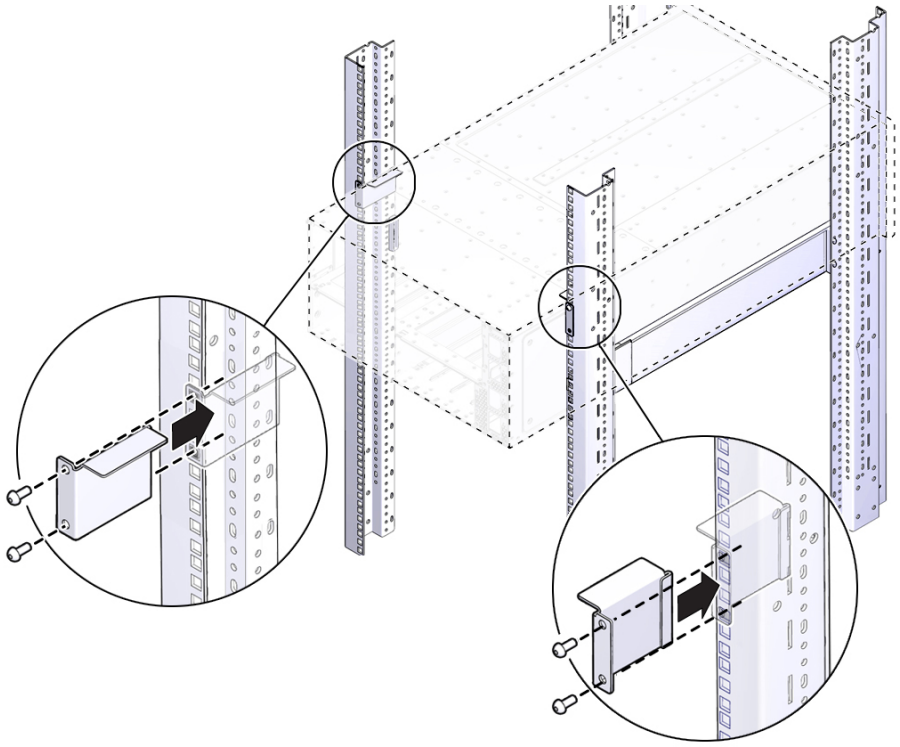


5. Attach the back mounting brackets.

a. Align each bracket so that the flanges will go over the top of the server.

b. Use two screws to fasten each bracket to the rack.

Do not tighten the screws all the way.



See Also “Install the Server into the Rack” on page 47

“Cable the Server” on page 50

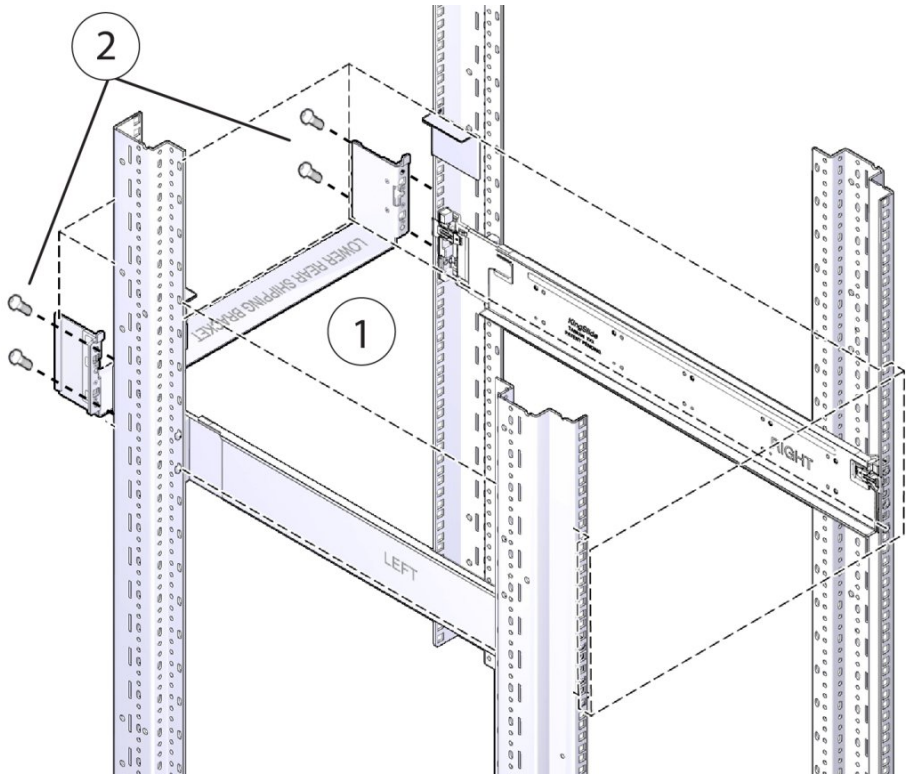
▼ Install Shipping Bracket (Optional)

Install the shipping bracket if you are going to ship your server in a rack. You must install the shipping bracket before mounting the server in the rack.

1. **Insert the shipping bracket directly above the shelf rails [1].**

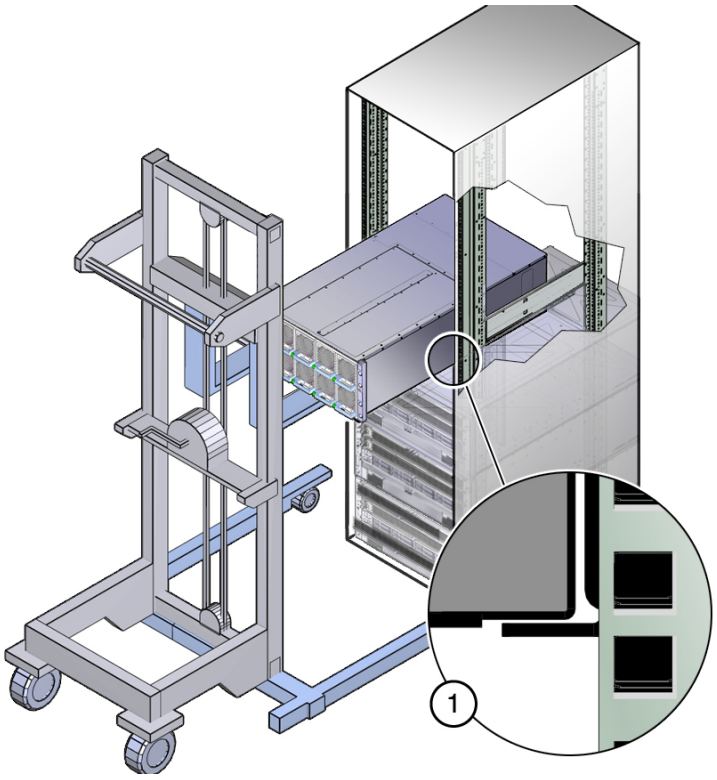
   The horizontal part of the shipping bracket should rest on the shelf rails.

2. **Fasten it to the rack using four M6 screws [2].**



Install the Server into the Rack

1. **Use a lift to raise the server to its position in the rack.**



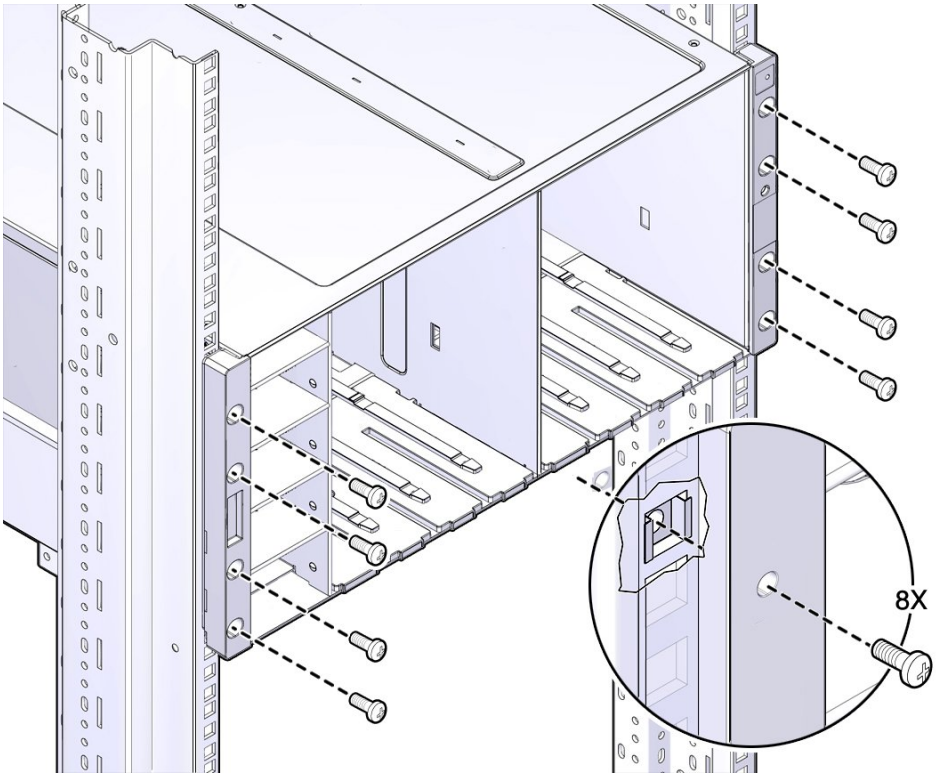
Caution - Personal injury or damage to equipment. Be sure the server is firmly supported by the shelf rails before releasing it from the lift.

2. **Slowly slide the server into position on the shelf rails.**

   Do not remove support from the lift until the server is firmly supported by the shelf rails.

3. **Use eight M6 screws to attach the front of the server to the rack.**

The top two screws attach to cage nuts installed previously. The bottom screws attach to threaded holes in the shelf rails.



4. **Press the back mounting brackets against the server and tighten the screws.**

See Also “Install Shelf Rails and Back Mounting Brackets” on page 40

“Cable the Server” on page 50

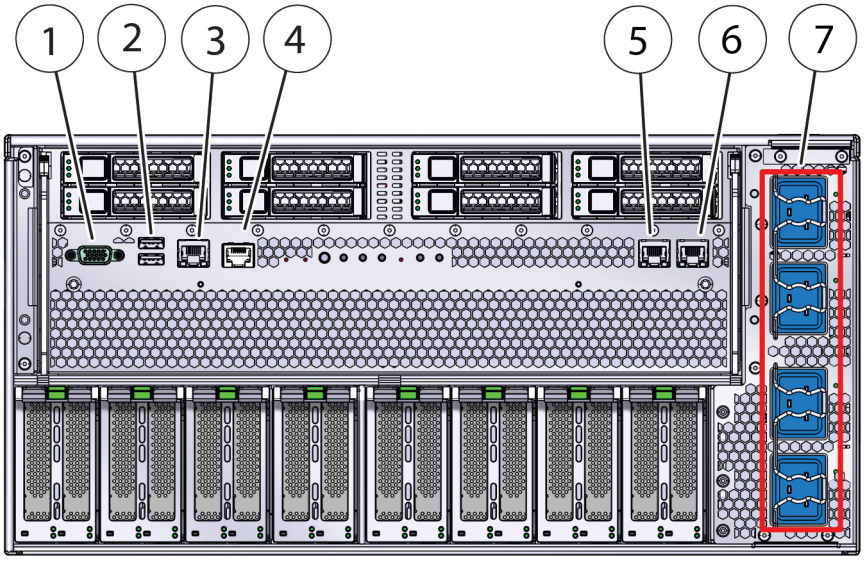
Cabling the Server

This section describes how to connect cables and power on the server for the first time. It includes the following topics:

Description	Links
Review connector port locations.	“Back Panel Connectors and Ports” on page 49
Connect data cables to the server.	“Cable the Server” on page 50
Connect power cords to the server.	“Cable the Server” on page 50

Back Panel Connectors and Ports

The following figure shows the locations of the server back panel connectors and ports.



Callout	Description
1	DB-15 video port
2	USB 2.0 ports (2)
3	Net management port (NET MGT)
4	Serial management port (SER MGT)
5	Net 0 port
6	Net 1 port
7	Power connectors 0 through 3. Connect to 200-240 VAC only.

▼ Cable the Server

Connect external cables to the server in the following order.

Note - The numbers in brackets [ ] correspond to callouts in the back panel figure in “Back Panel Connectors and Ports” on page 49.

1. **Connect an Ethernet cable to the Gigabit Ethernet (NET) ports, as needed [5-6]).**

2. **(Optional) If you plan to interact with the system console directly, connect any external devices, such as mouse and keyboard, to the server's USB ports [2], and a monitor to the DB-15 video port [1]).**

3. **To connect to Oracle Integrated Lights Out Manager (ILOM) over the network, connect an Ethernet cable to the Ethernet port labeled NET MGT [3]).**

Note - The service processor (SP) uses the NET MGT (out-of-band) port by default. You can configure the SP to share one of the server's two 10/100/1000 Ethernet ports instead.

---

4. **To access the Oracle ILOM command-line interface (CLI) using the serial management port, connect a serial null modem cable to the RJ-45 serial port labeled SER MGT [4]).**

   For more information about viewing system output from a serial console see “Log In to Oracle ILOM Using a Local Serial Connection” on page 55.

5. **Connect four grounded server power cords to grounded 200-240V electrical outlets on two different circuits.**

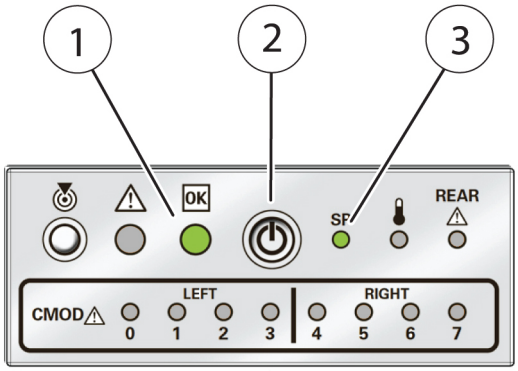
6. **Connect the server power cords to the AC connectors on the back panel of the server and secure each cord using the connector's cable clip [7].**

   To provide redundancy in case of power failure, and to prevent the system from tripping a breaker, connect the top two power cords to a different circuit from the bottom two.

   When power is connected, the SP boots into standby power mode.

   - The SP OK/Fault indicator [3] flashes while Oracle ILOM is starting, and the main Power/OK indicator [1] remains off until Oracle ILOM is ready for system log in.

- After a few minutes, the main Power/OK indicator flashes the standby blink pattern (a quick flash every three seconds), indicating that the SP is ready for use. At this time the host is not initialized or powered on yet.



Callout	Description
1	Main Power /OK indicator
2	Recessed power button
3	SP OK indicator

See Also “Controlling System Power” on page 145

“Log In to Oracle ILOM Using a Local Serial Connection” on page 55

Connecting to Oracle ILOM

Oracle Integrated Lights Out Manager (ILOM) is an embedded tool used to monitor and manage server components. You can perform the following tasks with Oracle ILOM:

- Manage the server locally or remotely, with the host power on or off
- Monitor vital system information, view logged events, obtain notifications and run troubleshooting tools
- View and edit server hardware configurations
- Manage Oracle ILOM user accounts using your company's secure infrastructure
- Access the host console remotely
- Backup Oracle ILOM and server BIOS configuration information

This section describes how to configure and access the Oracle ILOM command-line interface (CLI) or the web interface to manage the server.

Description	Link
Learn about Oracle ILOM hardware and interfaces.	“Oracle ILOM Hardware and Interfaces” on page 54
Learn about network ports and defaults.	“Oracle ILOM Network Defaults” on page 54
Log in directly to Oracle ILOM using a terminal connected to the serial port.	“Log In to Oracle ILOM Using a Local Serial Connection” on page 55
Log in to Oracle ILOM over the network using an Ethernet connection.	“Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 55
Configure Oracle ILOM network settings.	■ “Modify IPv4 Network Settings From the Oracle ILOM CLI” on page 57 ■ “Modify Network Settings From the Oracle ILOM Web Interface” on page 63 ■ “Test IPv4 or IPv6 Network Configuration From the Oracle ILOM CLI” on page 65 ■ “Test IPv4 or IPv6 Network Configuration From the Oracle ILOM Web Interface” on page 66
Exit Oracle ILOM.	“Exit Oracle ILOM” on page 67
Troubleshoot the service processor connection.	“Troubleshooting the Service Processor Connection” on page 68

Related Information

- “Launching Oracle System Assistant” on page 71
- For complete instructions on using Oracle ILOM, refer to the documentation for your supported version of Oracle ILOM (supported versions are listed in the *Product Notes*): `http://www.oracle.com/goto/ILOM/docs`

Oracle ILOM Hardware and Interfaces

The following table lists the components and functions of Oracle ILOM.

Component	Function
Hardware	■ Embedded service processor (SP) chipset that monitors the status and configuration of components such as fans, storage drives, and power supplies. ■ Two back panel external connections: NET MGT port Ethernet connection and SER MGT RJ-45 serial management port. See “Back Panel Features” on page 19.
Interfaces	■ Web browser interface ■ SSH command-line interface (CLI) ■ IPMI v2.0 CLI ■ SNMP v3 interface

Oracle ILOM Network Defaults

The Sun Server X4-8 supports dual-stack IPv4 and IPv6 settings, which enable Oracle ILOM to fully operate in an IPv4 and IPv6 network environment.

- For IPv4 configurations, DHCP is enabled by default, allowing a DHCP server on the network to automatically assign network settings to the server.
- For IPv6 configurations, IPv6 stateless auto-configuration is enabled by default, allowing an IPv6 router on the network to assign the network settings. In a typical configuration, the server accepts the settings assigned by the DHCP server or IPv6 router.

Note - To determine the IP address or host name assigned by the DHCP server, use the network tools provided with the DHCP server or IPv6 router.

The procedures in this section enable you to test that the assigned settings are working correctly and to establish a connection to Oracle ILOM locally and remotely.

See Also:

- "Log In to Oracle ILOM Using a Local Serial Connection" on page 55
- "Log In to Oracle ILOM Using a Remote Ethernet Connection" on page 55

Log In to Oracle ILOM Using a Local Serial Connection

This procedure does not require that you know the IP address of the server SP. It does require that you log in to an Oracle ILOM account with administrator privileges.

Note - The default Oracle ILOM administrator account is `root` and its password is `changeme`. If this default account has since been changed, contact your system administrator for an Oracle ILOM user account with administrator privileges.

---

1. **Verify that your serial console connection through the server's SER MGT port is secure and operational.**
2. **Ensure that the following serial communication settings are configured:**
   - **8N1: eight data bits, no parity, one stop bit**
   - **9600 baud**
   - **Disable hardware flow control (CTS/RTS)**
3. **Press Enter to establish a connection between your serial console and Oracle ILOM.**
   A login prompt to Oracle ILOM appears.
4. **Log in to the Oracle ILOM command-line interface (CLI) using an administrator account.**
   Oracle ILOM displays a default command prompt (->), indicating that you have successfully logged in to Oracle ILOM.

Log In to Oracle ILOM Using a Remote Ethernet Connection

This procedure requires that you log in to an Oracle ILOM account with administrator privileges, and that you know the IP address or hostname of the server SP. Steps for logging in using the command-line interface (CLI) or web interface are described below.

Note - The default Oracle ILOM administrator account is `root` and its password is `changeme`. If this default account has since been changed, contact your system administrator for an Oracle ILOM user account with administrator privileges.

1. **Establish a connection to Oracle ILOM.**

   - **Command-line interface (CLI): Initiate a secure shell session. Type:**

     `ssh` *username*`@`*host*

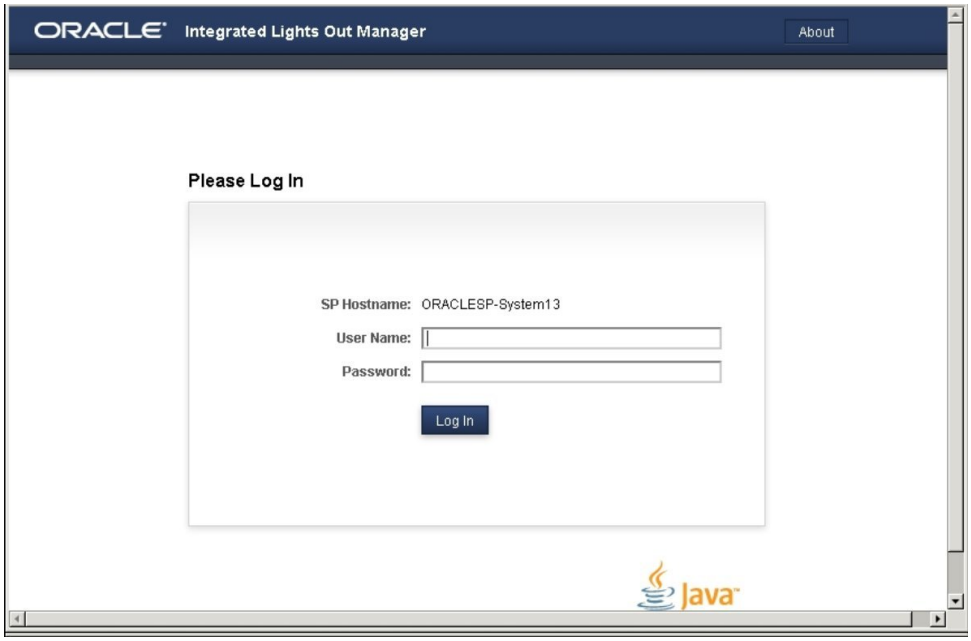
     Where *username* is the user name of an account with Administrator privileges and *host* is either the IP address or hostname (when using DNS) of the server SP.

     The Oracle ILOM password prompt appears.

     ```
     Password:
     ```

   - **Web interface: Type the IP address of the server in the address field of your web browser and press Enter.**

     The Oracle ILOM login screen appears.



2. **Log in to Oracle ILOM.**

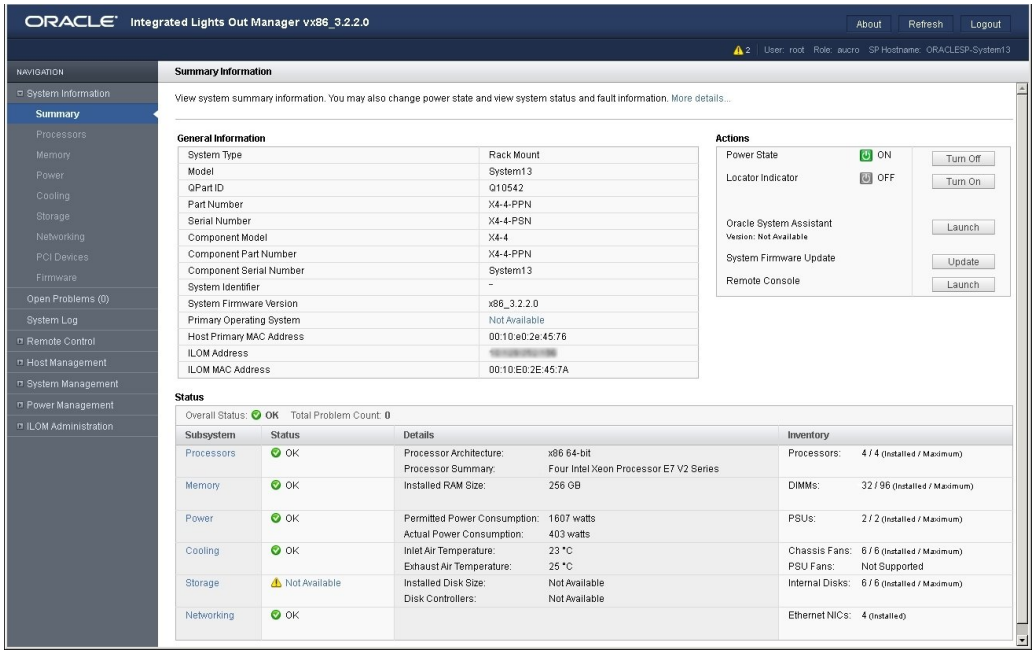
   - **CLI: At the Oracle ILOM password prompt, type your password and press Enter. For example:**

     ```
     Password: changeme
     ```

     Oracle ILOM displays a default command prompt (->), indicating that you have successfully logged in to Oracle ILOM.

   - **Web interface: At the Oracle ILOM login screen, type your user name and password, and click Log In.**

     The Summary screen appears, indicating that you have successfully logged in to Oracle ILOM. For example:



▼ Modify IPv4 Network Settings From the Oracle ILOM CLI

Use this procedure to modify the server's IPv4 network settings using the Oracle ILOM CLI.

To modify IPv6 network settings, see "Modify IPv6 Network Settings From the Oracle ILOM CLI" on page 60.

Note - You can also change network settings using the BIOS Setup Utility. For instructions, see the *Sun Server X4-8 Service Manual*.

---

1. **Log in to the Oracle ILOM CLI. See:**

   - **"Log In to Oracle ILOM Using a Local Serial Connection" on page 55**
   - **"Log In to Oracle ILOM Using a Remote Ethernet Connection" on page 55**

Note - If you are logged in to Oracle ILOM using an Ethernet connection, your connection is terminated when you set `commitpending` to `true`. When this happens, log back in using the new settings.

---

2. **Use the `cd` command to navigate to the `/SP/network` directory:**

   ```
   -> cd /SP/network
   ```

3. **Do one of the following:**

   - **If you have a DHCP server on the network, type the following command to view the settings assigned to the server by the DHCP server:**

     ```
     -> show /SP/network
     ```

   - **If there is no DHCP server, or if you want to assign settings, use the `set` command to assign values for the properties listed in the following table. For example:**

     ```
     -> set /SP/network/ pendingipdiscovery=static
     -> set /SP/network/ pendingipaddress=192.168.183.106
     -> set /SP/network/ pendingipnetmask=255.255.255.0
     -> set /SP/network/ pendingipgateway=192.168.183.254
     -> set /SP/network/ commitpending=true
     ```

Note - These steps do not include all of the network configuration commands. For more complete information, see "Configuring Oracle ILOM Network Settings" in *Oracle X4 Series Servers Administration Guide* or the Oracle ILOM documentation at `http://www.oracle.com/goto/ILOM/docs`.

Property	Set Property Value	Description
`state`	`set state=enabled`	The state parameter modifies both IPv4 and IPv6 as follows: ■ enabled - IPv4 enabled, IPv6 unchanged **Note -** To enable IPv6, use `/SP/network/ipv6 state = enabled` or `/SP/network/ipv6_only`. ■ ipv4_only - IPv4 enabled, IPv6 disabled ■ ipv6_only - IPv4 disabled, IPv6 enabled ■ disabled - ipv4 disabled, IPv6 disabled **Note -** Older versions of Oracle ILOM do not include the `ipv4-only` or `ipv6-only` commands. On these versions, you cannot enable IPv6 if IPv4 is disabled. To obtain the options shown here, upgrade to SW 1.2 or newer.
`pendingipdiscovery`	`set pendingipdiscovery=static`	To enable a static network configuration, set `pendingipdiscovery` to `static`. By default, `pendingipdiscovery` is set to `dhcp`.

`pendingipaddress`
`pendingipnetmask`
`pendingipgateway`
	`set pendingipaddress=`<*ip_address*>
	`pendingipnetmask=`<*netmask*>
	`pendingipgateway=`<*gateway*>
		To assign multiple static network settings, type the `set` command followed by the `pending` command for each property value (IP address, netmask, and gateway), then type the static value that you want to assign.

`commitpending`	`set commitpending=true`	Type `set commitpending=true` to commit changes.

Note - If you are logged in to Oracle ILOM using an Ethernet connection, your connection is terminated when you set `commitpending` to `true`. When this happens, log back in using the new settings.

4. **Test the IPv4 network configuration from Oracle ILOM using the Network Test Tool (Ping).**

   For details, see "Test IPv4 or IPv6 Network Configuration From the Oracle ILOM CLI" on page 65.

Modify IPv6 Network Settings From the Oracle ILOM CLI

Use this procedure to modify the server's IPv6 network settings using the Oracle ILOM CLI.

To modify IPv4 network settings, see "Modify IPv4 Network Settings From the Oracle ILOM CLI" on page 57.

Note - You can also change network settings using the BIOS Setup Utility. For instructions, see the *Sun Server X4-8 Service Manual*.

---

1. **Log in to the Oracle ILOM CLI. See:**

   - **"Log In to Oracle ILOM Using a Local Serial Connection" on page 55**
   - **"Log In to Oracle ILOM Using a Remote Ethernet Connection" on page 55**

Note - If you log in to Oracle ILOM using an Ethernet connection, your connection is terminated after you modify the network settings. You must log back in using the new settings.

---

2. **Use the `cd` command to navigate to the `SP/network/ipv6` directory:**

   ```
   -> cd SP/network/ipv6
   ```

3. **Type the `show` command to view the IPv6 network settings configured on the device.**

   For example:

   ```
   -> show
   /SP/network/ipv6
   Targets:

   Properties:
    state = enabled
    autoconfig = stateless
    dhcpv6_server_duid = (none)
    link_local_ipaddress = 2001:db8:214:4fff:feca:5f7e/64
    static_ipaddress = ::/128
   ```

```
 ipgateway = 2001:db8:211:5dff:febe:5000/128
 pending_static_ipaddress = ::/128
 pending_static_ipgateway = ::
 dynamic_ipaddress_1 2001:db8:8:b7:214:4fff:feca:5f7e/64

Commands:
 cd
 show
```

4. To configure an IPv6 auto-configuration option, use the `set` command to specify the following auto-configuration property values:

Property	Set Property Value	Description
`state`	`set state=enabled`	Use the state parameter to enable or disable IPv6: ■ `enabled`: Enable IPv6 ■ `disabled`: Disable IPv6 **Note -** With SW 1.2 or newer, you can use `set /SP/network/state = ipv6-only` to enable IPv6 and disable IPv4. **Note -** Older versions of Oracle ILOM do not include the `ipv4-only` or `ipv6-only` commands. On these versions, you cannot enable IPv6 if IPv4 is disabled. To obtain the options shown here, upgrade to SW 1.2 or newer.
`autoconfig`	`set autoconfig=` <*value*>	Specify this command followed by the `autoconfig` value you want to set. Options include: ■ `stateless` (default setting) Automatically assigns IP address learned from IPv6 network router. ■ `dhcpv6_stateless` Automatically assigns DNS information learned from the DHCPv6 server.The `dhcpv6_stateless` property value is available in Oracle ILOM as of 3.0.14. ■ `dhcpv6_stateful` Automatically assigns the IPv6 address learned from the DHCPv6 server.The `dhcpv6_stateful` property value is available in Oracle ILOM as of 3.0.14. ■ `disable` Disables all auto-configuration property values and sets the read-only property value for link local address.

Note - The IPv6 configuration options take affect after they are set.

Note - You can enable the `stateless` auto-configuration option to run at the same time as the option for `dhcpv6_stateless` or `dhcpv6_stateful` is enabled. However, the auto-configuration options for `dhcpv6_stateless` and `dhcpv6_stateful` should not be enabled to run at the same time.

5. **To set a static IPv6 address, complete these steps:**

   a. **Specify the following property types:**

Note - These steps do not include all of the network configuration commands. For more complete information, see "Configuring Oracle ILOM Network Settings" in *Oracle X4 Series Servers Administration Guide* or the Oracle ILOM documentation at `http://www.oracle.com/goto/ILOM/docs`.

Property	Set Property Value	Description
`state`	`set state=enabled`	The IPv6 network state is enabled by default. To enable a static IP address, you must set this state to enabled.
`pendingipaddress`	`set pending_static_ipaddress` = *<ipv6_address> / <subnet mask length in bits>*	Type this command followed by the property value for the static IPv6 address and netmask that you want to assign to the device. IPv6 address example:`2001:db8:8:b7:214:4fff:feca:5f7e/64`

   b. **Commit the pending IPv6 static network parameters by typing the following command:**

```
-> set /SP/network/commitpending=true
```

Note - Pending settings remain pending until you commit them. Assigning a new static IP address to the server ends all active Oracle ILOM sessions to the server. To log back in to Oracle ILOM, create a new session using the newly assigned IP address.

6. **Test the IPv6 network configuration from Oracle ILOM using the Network Test Tool (Ping6).**

For details, see “Test IPv4 or IPv6 Network Configuration From the Oracle ILOM CLI” on page 65.

▼ Modify Network Settings From the Oracle ILOM Web Interface

If you want to modify the network settings currently configured for the server from the Oracle ILOM web interface, use the following procedure.

Note - You can also change network settings using the BIOS Setup Utility. For instructions, see the *Sun Server X4-8 Service Manual*.

---

1. **Log in to the Oracle ILOM web interface.**

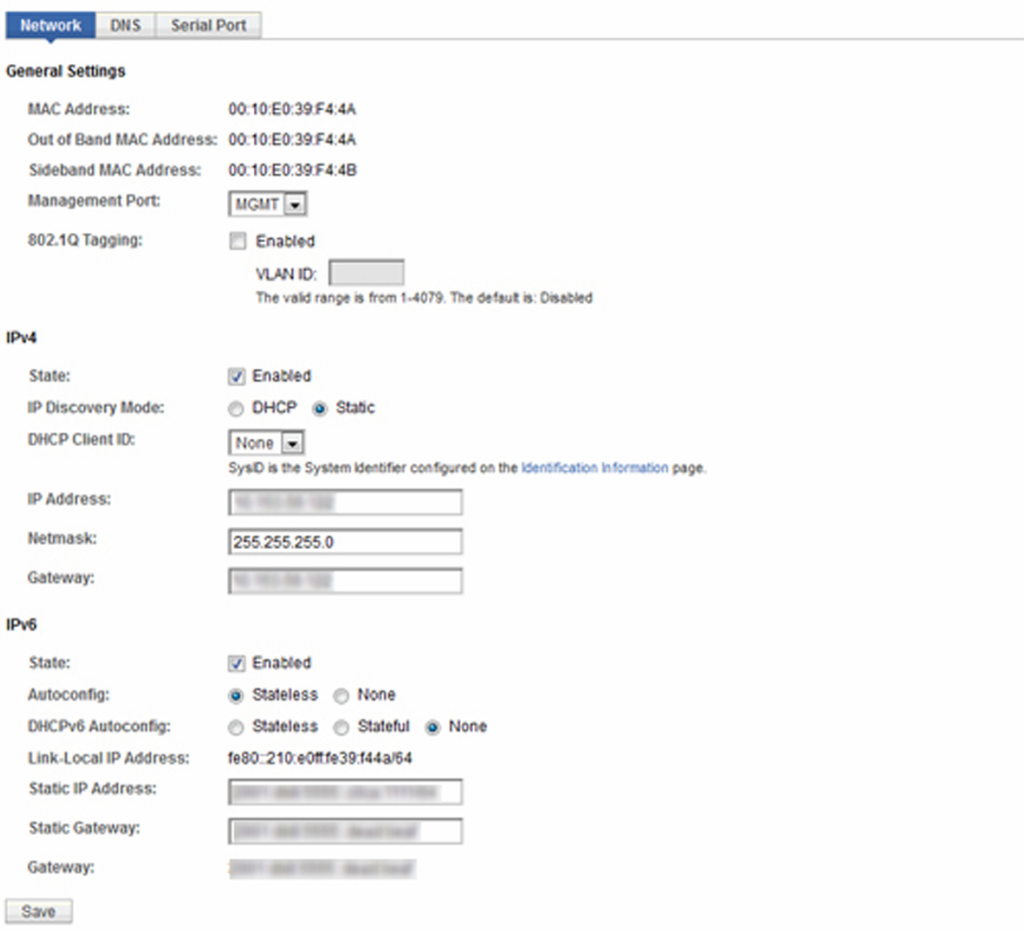
   See “Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 55.

Note - When you log in to Oracle ILOM using an Ethernet connection, your connection is terminated after you modify the network settings. You must log back in using the new settings.

---

2. **Select ILOM Administration > Connectivity from the navigation tree on the left.**

The Network Settings screen appears. Oracle ILOM displays the settings configured on your device.



3. **Perform the network configuration instructions that apply to your network environment:**

Note - On systems equipped with SW 1.1 or older, there is a single Enabled button in General Settings, and it enables both IPv4 and IPv6. Also there is no IPv6 Static Gateway field. On these systems, you cannot enable IPv6 unless you also enable IPv4. Update to SW 1.2 or newer to obtain the selections shown here.

- **IPv4:**
  - To allow the DHCP server on your network to assign network settings, ensure that the DHCP radio button is selected and click Save.
  - To assign network settings, select the Static radio button and fill in the IP Address, Netmask, and Gateway fields. Then, click Save.
- **IPv6:**
  - To configure an auto-configuration option, ensure that the Enabled check box next to the State property is selected. Then, select an auto-configuration value and click Save.
  - To set a static IPv6 address, ensure that the Enabled check box next to the State property is selected. Then, type the values for *ipv6_address*/*subnet mask length in bits* in the Static IP Address field and click Save.

Note - You can enable the Autoconfig Stateless option to run at the same time as the option for DHCPv6 Autoconfig Stateless is enabled or at the same time as the option for DHCPv6 Autoconfig Stateful is enabled.

---

4. **Test the IPv4 or IPv6 network configuration from Oracle ILOM using the Network Test Tools (Ping and Ping 6).**

   For details, see "Test IPv4 or IPv6 Network Configuration From the Oracle ILOM CLI" on page 65.

▼ Test IPv4 or IPv6 Network Configuration From the Oracle ILOM CLI

1. **At the CLI prompt, type the `show` command to view the network `test` targets and properties.**

   For example, the following output shows the test target properties.

```
-> show
/SP/network/test
Targets:

Properties:
 ping = (Cannot show property)
 ping6 = (Cannot show property)

Commands:
 cd
```

```
set
show
```

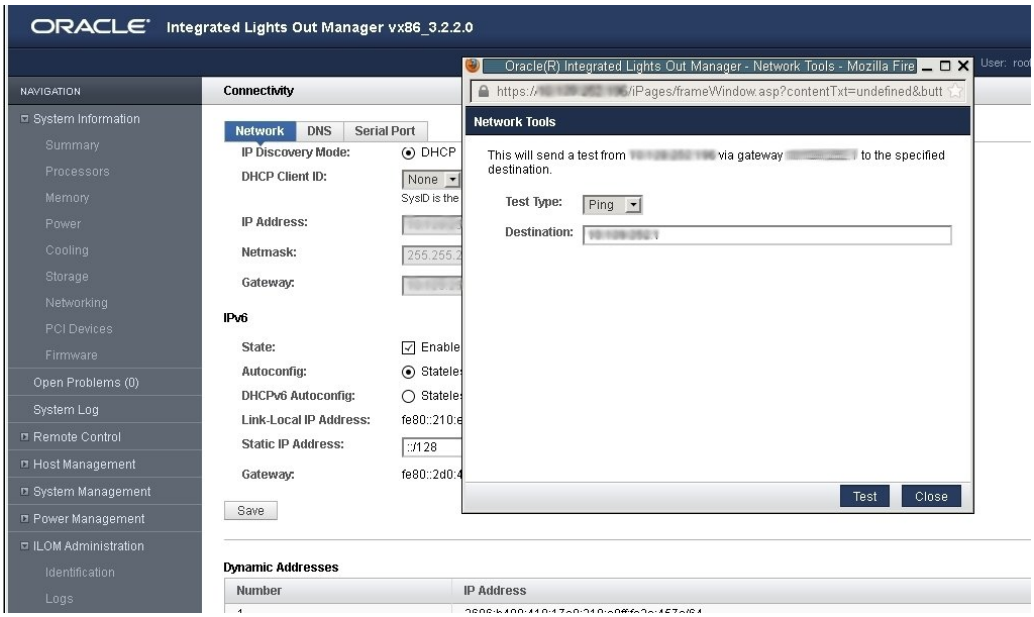
2. **Use the `set ping` or `set ping6` command to send a network test from the device to a network destination specified in the following table:**

Property	Set Property Value	Description
`ping`	`set ping=`<*IPv4_address*>	Type the `set ping=` command at the command prompt followed by the IPv4 test destination address. For example:`-> set ping=192.168.10.106` `Ping of 192.168.10.106 succeeded`
`ping6`	`set ping6=` <*IPv6_address*>	Type the `set ping6=` command followed by the IPv6 test destination address. For example:`-> set ping6=2001::db8:5dff:febe:5000` `Ping of 2001::db8:5dff:febe:5000 succeeded`

▼ Test IPv4 or IPv6 Network Configuration From the Oracle ILOM Web Interface

1. **From the ILOM Administration > Connectivity screen, click the Tools button at the bottom of the screen.**

The Network Configuration Test screen appears.



2. **Select Ping or Ping6 from the Test Type list box.**

   Choose a Ping test for an IPv4 network configuration. Choose a Ping6 test for an IPv6 network configuration.

3. **Type the IPv4 or IPv6 test destination address in the Destination field and click Test.**

   If the test was successful, a "Ping of *ip_address* succeeded" message appears below the Destination field in the Network Configuration Test screen.

▼ Exit Oracle ILOM

- **To end an Oracle ILOM session:**

  - **From the Oracle ILOM CLI, type `exit` at the CLI prompt.**
  - **From the Oracle ILOM web interface, click the Log Out button at the top-right corner of the screen.**

Troubleshooting the Service Processor Connection

This section addresses two issues that might occur regarding the Oracle ILOM service processor (SP):

- The Oracle ILOM SP becomes unresponsive and needs to be reset.
- As the system administrator, you have forgotten the root account password and you need to recover it.

For instructions on how to handle each of these problems, see the following sections:

- "Reset the Service Processor Using Oracle ILOM" on page 68
- "Reset the Service Processor Using the SP Reset Switch" on page 68
- "Recover Root Account Password" on page 69

▼ Reset the Service Processor Using Oracle ILOM

- **If the Oracle ILOM service processor (SP) is hung, use one of the following methods to reset it:**

  - **From the Oracle ILOM command-line interface (CLI), enter the command:**
    `reset /SP`

  - **From the Oracle ILOM web interface, click Administration > Maintenance > Reset SP.**

Note - Resetting the Oracle ILOM SP disconnects your current Oracle ILOM session. You must log in again to continue working in Oracle ILOM.

▼ Reset the Service Processor Using the SP Reset Switch

Use this step if the Oracle ILOM SP hangs and you cannot reset it using the Oracle ILOM web interface or the Oracle ILOM CLI.

- **Use the Oracle ILOM reset switch to manually reset the Oracle ILOM SP.**

  To locate the SP reset switch, see "Back Panel Features" on page 19.

Recover Root Account Password

If necessary, system administrators can recover the preconfigured Oracle ILOM local root account or the password for the local root account by using the preconfigured Oracle ILOM default password.

To recover the root account password you need a local serial management port (SER MGT) connection to Oracle ILOM. In addition, if the Physical Presence State is enabled (the default) in Oracle ILOM, you must prove that you are physically present at the server.

To recover the `root` account password, perform these steps:

1. **Establish a local serial management connection to Oracle ILOM and log in to Oracle ILOM using the default user account. For example:**

```
SUNSP-000000000 login: default

Press and release the physical presence button

Press return when this is completed...
```

2. **Prove physical presence at the server.**

   To prove physical presence at the server, press the Locator button on the front of the server.

   For the location of the Locator button, see "Front Panel Features" on page 15.

3. **Return to your serial console and press Enter.**

   You will be prompted for a password.

4. **Enter the password for the default user account: `defaultpassword`**

5. **Reset the account password or re-create the root account.**

Setting Up Software and Firmware Using Oracle System Assistant

This section provides instructions for starting Oracle System Assistant, preparing Oracle System Assistant for use, and preparing the server for operating system installation.

Description	Link
Launch Oracle System Assistant	"Launching Oracle System Assistant" on page 71
Configure Oracle System Assistant's network interfaces so you can use it. **Note -** You only need to do this once, when you first open Oracle System Assistant.	"Prepare Oracle System Assistant" on page 76
Complete a list of tasks required before you can install an operating system.	"Preparing the Server for OS Installation" on page 77

Launching Oracle System Assistant

This section describes how to launch Oracle System Assistant.

Oracle System Assistant is the preferred application for setting up your system software and firmware. Oracle System Assistant is an embedded, task-based server provisioning tool that enables you to perform initial server setup and maintenance for most Oracle x86 servers. Using Oracle System Assistant, you can install a supported Oracle Solaris, Linux, Oracle VM, or Windows operating system, update your server to the latest software release, and configure server hardware.

Description	Links
Launch Oracle System Assistant remotely from Oracle ILOM.	"Launch Oracle System Assistant Using the Oracle ILOM Web Interface" on page 72
Launch Oracle System Assistant locally.	"Launch Oracle System Assistant Locally" on page 74

See Also

- For additional information about Oracle System Assistant, see: Oracle x86 Administration Guide for X4 Series Servers (`http://www.oracle.com/goto/x86AdminDiag/docs`)

▼ Launch Oracle System Assistant Using the Oracle ILOM Web Interface

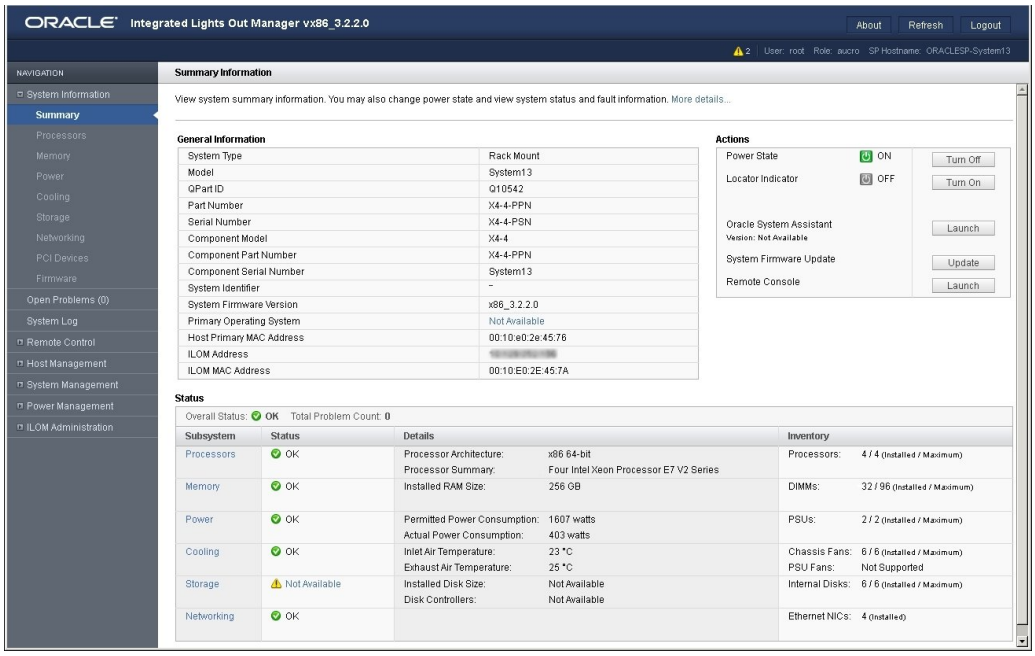
1. **Ensure that the server is in standby power mode.**

   When the server is in standby power mode, the Service Processor OK indicator is on, and the Power/OK indicator blinks slowly. See “Front Panel Features” on page 15 for the location of these indicators.

2. **Log in to the Oracle ILOM web interface.**

   In your browser's address field, enter the server's SP IP address. If you have not yet set up Oracle ILOM for network access, see “Connecting to Oracle ILOM” on page 53.

The System Summary screen appears.



3. Click the Oracle System Assistant Launch button in the upper right panel.

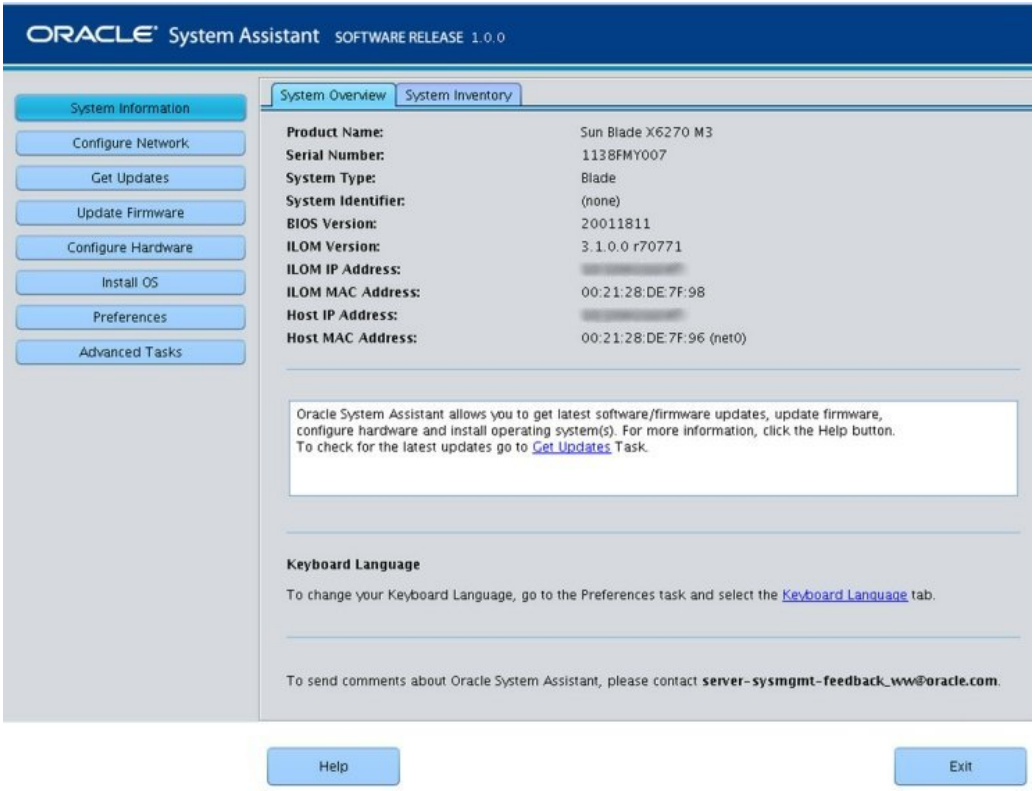
If you try to launch Oracle System Assistant and the server is not in standby power mode but is fully powered on, it prompts you to shut down the host first. See "Power Host On and Off Using Oracle ILOM" on page 147. Once the host is powered down, continue with this step.

4. To continue to launch Oracle System Assistant, click Yes.

The server boots. This might take several minutes.

- The server powers on.
- Oracle System Assistant application boots.

- Oracle System Assistant main screen appears.



See Also

- "Prepare the Server for OS Installation" on page 78

▼ Launch Oracle System Assistant Locally

Before you launch Oracle System Assistant locally, you must be physically present at the server and have access to a VGA monitor, a USB keyboard, and a USB mouse.

1. **Ensure that the server is in standby power mode.**
   Verify that the Power/OK indicator blinks slowly. See "Front Panel Features" on page 15.

2. **Connect locally to the server.**

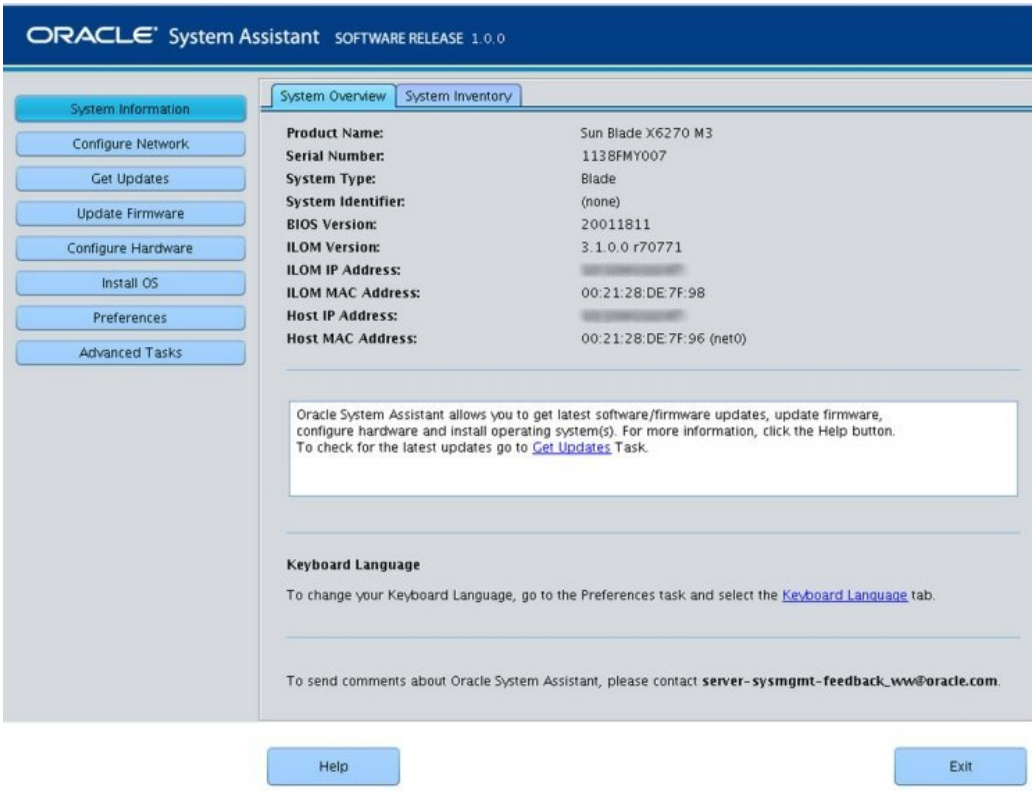
See: “Log In to Oracle ILOM Using a Local Serial Connection” on page 55.

3. **Press and release the front-panel Power button to power on the server to full power mode.**

   The server boots and POST messages appear on the monitor.

4. **After you see the POST message for Oracle System Assistant, press the F9 function key.**

Oracle System Assistant boots and the Oracle System Assistant main screen appears.



See Also ■ "Prepare the Server for OS Installation" on page 78

▼ Prepare Oracle System Assistant

This section describes how to set up a network connection so you can use Oracle System Assistant.

When Oracle System Assistant starts, it tries to connect to DHCP on Net 0.

- If Net 0 is connected to a network that is DHCP enabled, it succeeds. No more configuration is necessary.

- If Net 0 is connected to a network that is not DHCP enabled, you must configure a network connection.

These settings normally need to be set once, the first time you use Oracle System Assistant.

1. **Launch Oracle System Assistant as described in "Launching Oracle System Assistant" on page 71.**
2. **Select the Network Configuration tab.**
3. **Fill in the network configuration details.**

   For details, see *Configure Network Interface Settings (Oracle System Assistant)* in Oracle x86 Administration Guide for X4 Series Servers (`http://www.oracle.com/goto/x86AdminDiag/docs`).

Preparing the Server for OS Installation

This section describes how to prepare your server for operating system installation.

A number of tasks must be completed before you can install an operating system. These include:

- Getting firmware and software updates
- Installing firmware updates
- Configuring Oracle ILOM network addresses
- Configuring RAID

Once these things are done, you can install the operating system.

You can do these things using Oracle System Assistant, or using other methods. Oracle recommends that you use Oracle System Assistant.

- To use Oracle System Assistant, see "Prepare the Server for OS Installation" on page 78.
- To prepare the server for OS installation using other methods, see:

  Oracle x86 Administration Guide for X4 Series Servers (`http://www.oracle.com/goto/x86AdminDiag/docs`)

Note - For Oracle Solaris installations, Oracle System Assistant does not install recommended drivers or tools. For Linux, Oracle VM, and Windows, Oracle System Assistant installs the recommended drivers and tools that are supported by the specific operating system or virtual machine software. For the list of optional software that can be installed when you use Oracle System Assistant to install operating systems, refer to the Oracle System Assistant ReadMe.

Related Information

- "Launching Oracle System Assistant" on page 71
- "Prepare the Server for OS Installation" on page 78

▼ Prepare the Server for OS Installation

1. **Launch Oracle System Assistant as described in "Launching Oracle System Assistant" on page 71.**

2. **Use Oracle System Assistant to perform the tasks shown in the following table.**

   Refer to the Oracle x86 Administration Guide for X4 Series Servers (`http://www.oracle.com/goto/x86AdminDiag/docs`) or the embedded help on Oracle System Assistant for more information about Oracle System Assistant.

Step	Task	Oracle System Assistant Screen	For More Information
1	Set up Oracle System Assistant network connection.	Network Configuration	"Prepare Oracle System Assistant" on page 76
2	Get latest software and firmware updates that will be used by Oracle System Assistant.	Get Updates	"Getting Server Firmware and Software" on page 139
3	Update Oracle ILOM, BIOS, disk expander, or HBA firmware, if needed. Oracle recommends using the latest supported BIOS and firmware versions available.	Update Firmware	"Installing Updates" on page 142
4	Configure Oracle ILOM. This helps prepare your service processor for access.	Configure Hardware > Service Processor Configuration	"Connecting to Oracle ILOM" on page 53 You might have done this.
5	Configure RAID. The Oracle System Assistant RAID configuration utility is used to create volumes on your disks. A volume can then be used for an OS, or be included in a RAID set.	Configure Hardware > RAID Configuration	"Configuring RAID Using Oracle System Assistant" on page 83.

Step	Task	Oracle System Assistant Screen	For More Information
	Caution - Data loss. Do not use this option on a disk with a preinstalled OS.		
6	Install an operating system using the Oracle System Assistant Install OS wizard. Supported operating systems include Oracle Solaris, Linux, Windows, or Oracle VM software. **Caution -** Data loss. Do not use this option on a disk with a preinstalled OS.	Install OS	Refer to your operating system installation guide for details.

Configure Storage Drives for OS Installation

This section describes how to configure a server boot disk for operating system installation and configure RAID.

Description	Links
Learn about storage drive configuration options. Supported options depend on your server's host bus adapter (HBA), and whether or not you have a preinstalled OS.	"Storage Drive Configuration" on page 81
Configure server storage drives into RAID volumes using Oracle System Assistant.	"Configuring RAID Using Oracle System Assistant" on page 83
Configure server storage drives into RAID volumes using the BIOS RAID configuration utilities.	"Configuring RAID Using the BIOS RAID Configuration Utilities" on page 101
Learn about the operating system installation and update tasks.	"Set Up an Operating System and Drivers" on page 117

See Also

- Host Bus Adapter (HBA) Documentation Collection at: `http://www.oracle.com/technetwork/documentation/oracle-storage-networking-190061.html`

Storage Drive Configuration

The following paragraphs describe the tools and conditions required for configuring storage drives:

Preinstalled Operating System: If you plan to use a preinstalled operating system or virtual machine software, you cannot configure the server storage drives into RAID volumes because the preinstalled operating system does not support RAID configurations. In this case proceed to one of the following sections:

- "Configuring the Preinstalled Oracle Solaris OS" on page 119

- “Configuring the Preinstalled Oracle Linux OS” on page 133
- “Configuring the Preinstalled Oracle VM 3.X Software” on page 127

Type of Host Bus Adapter (HBA): Your server supports two types of SAS-2 HBAs:

- *Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z)*: RAID is optional with this HBA.
- *Sun Storage 6 Gb SAS PCIe RAID Internal HBA (SGX-SAS6-R-INT-Z)*: This HBA requires a RAID configuration. If you do not wish to use a RAID array, you must configure a single storage drive with a RAID 0 volume (also called a "virtual disk") and make that volume bootable.

RAID Configuration Tools: You can use Oracle System Assistant (recommended) or BIOS RAID configuration utilities to configure RAID on either type of HBA.

Once you have installed your operating system, you can use supported OS-based RAID management utilities included with your server to manage RAID storage drives.

Installing a new OS: The following table lists the conditions for configuring RAID volumes when you are installing a new operating system:

Type of Configuration	HBA Type	Link
RAID	Either supported HBA	To use Oracle System Assistant, see “Configuring RAID Using Oracle System Assistant” on page 83 To use the BIOS configuration utility, see “Configuring RAID Using the BIOS RAID Configuration Utilities” on page 101
No RAID Configure a single storage drive with a RAID 0 volume (also called a "virtual disk") and make that volume bootable.	Sun Storage 6 Gb SAS PCIe RAID Internal HBA (SGX-SAS6-R-INT-Z)	To use Oracle System Assistant, see “Configure RAID With a Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 92 To use the BIOS configuration utility, see“Configuring RAID Using the BIOS With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 104
No RAID	Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z	Refer to your operating system installation documentation. ■ *Sun Server X4-8 Installation Guide for Oracle Solaris Operating System* ■ *Sun Server X4-8 Installation Guide for Oracle VM Server* ■ *Sun Server X4-8 Installation Guide for Linux Operating Systems* ■ *Sun Server X4-8 Installation Guide for Microsoft Windows* ■ *Sun Server X4-8 Installation Guide for VMware ESXi*

Type of Configuration	HBA Type	Link
		Note - You do not need to configure RAID volumes for this configuration.

Configuring RAID Using Oracle System Assistant

Use Oracle System Assistant to configure RAID on the server.

See the following procedures:

- “Configure RAID With a Sun Storage 6 Gb SAS PCIe Internal HBA” on page 83
- “Configure RAID With a Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 92

If your server does not have Oracle System Assistant, you can configure RAID using the BIOS RAID configuration. See “Configuring RAID Using the BIOS RAID Configuration Utilities” on page 101.

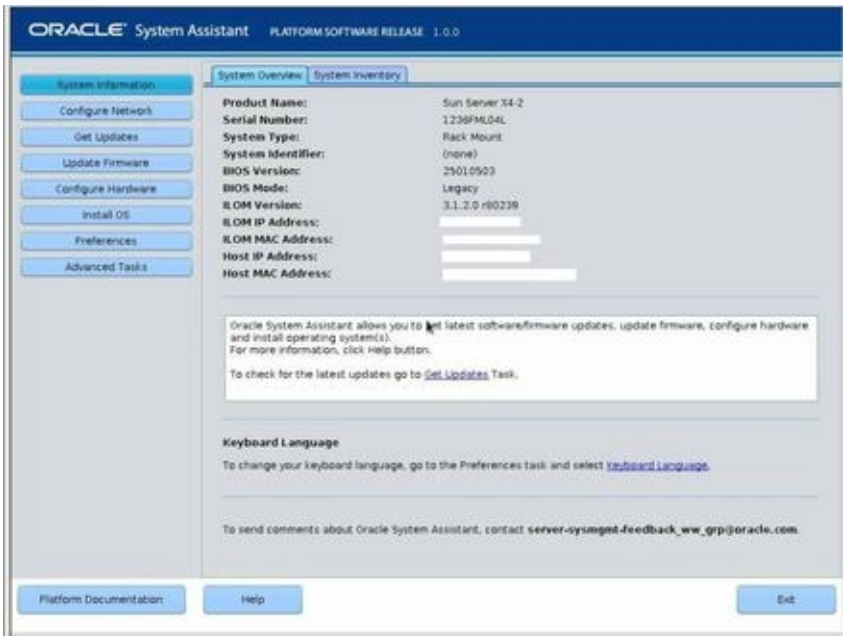
▼ Configure RAID With a Sun Storage 6 Gb SAS PCIe Internal HBA

Use Oracle System Assistant to prepare a server hard drive for an OS installation by creating a bootable RAID 0 volume.

1. **Launch Oracle System Assistant.**

   See “Launching Oracle System Assistant” on page 71.

The Oracle System Assistant System Overview screen appears.



2. **In the System Overview screen, verify that the BIOS Mode is set to the boot mode (UEFI or Legacy BIOS) that you plan to use when you install the operating system.**

Note - The BIOS boot mode used for the RAID configuration must match the mode that you use when you install the operating system. Additionally, not all supported operating systems support UEFI boot mode. For a list of operating systems that support UEFI boot mode, see "UEFI BIOS" on page 27.

To switch between UEFI and legacy boot modes, see the Oracle x86 Administration Guide for X4 Series Servers at `http://www.oracle.com/goto/x86AdminDiag/docs`.

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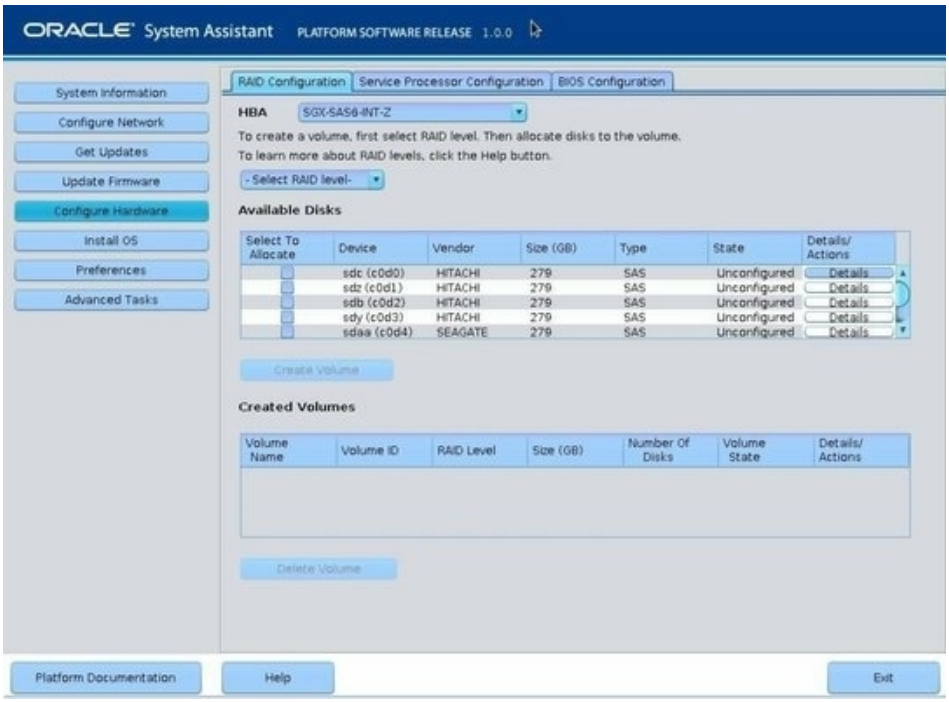
3. **Click the Configure Hardware button, then select the RAID Configuration tab.**

The RAID Configuration screen appears.



4. **In the HBA list box, select the SGX-SAS6-R-INT-Z HBA.**

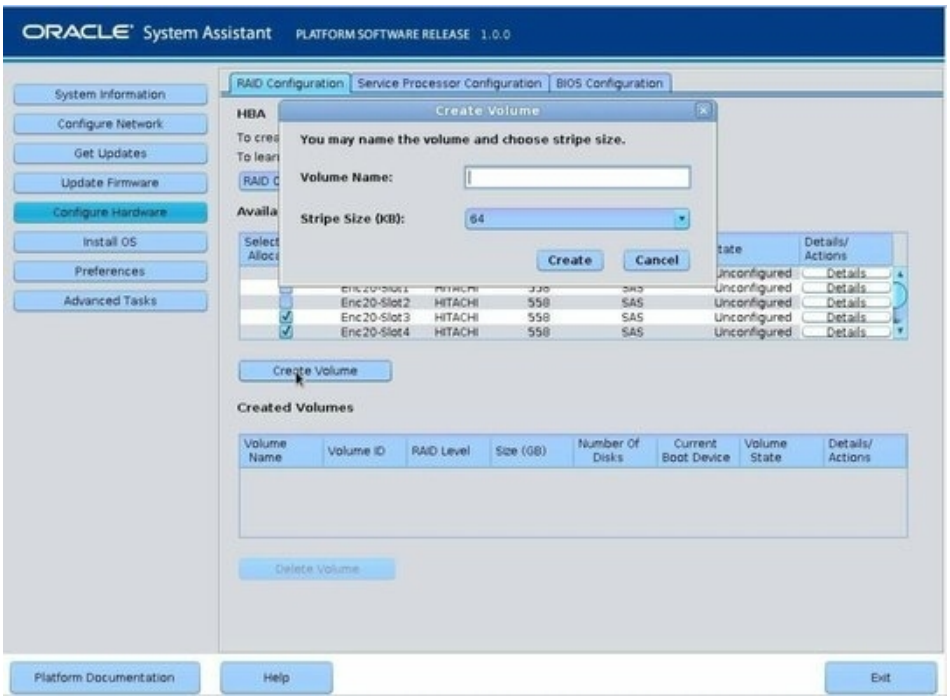
   This is the Sun Storage 6 Gb SAS PCIe RAID Internal HBA.

5. **In the Select RAID Level list box, select the desired RAID level.**

   Choose RAID-0.

6. **In the Available Disks table, select the storage drives that you want to add to the RAID volume, and click the Create Volume button.**

The Create Volume dialog box appears.



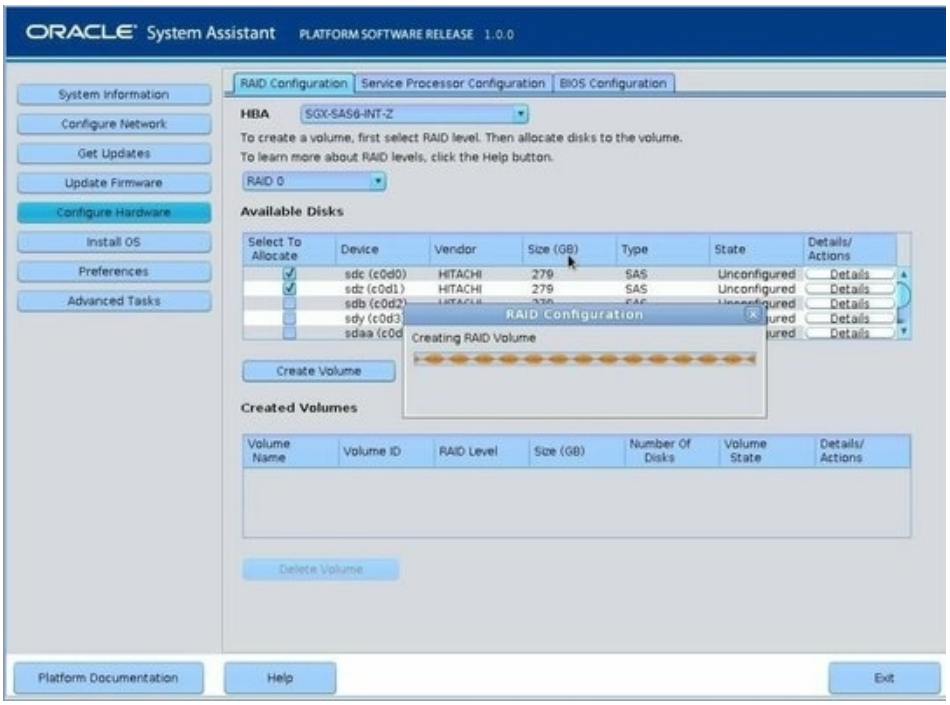
7. **In the Create Volume dialog box:**

   a. **(Optional) Enter the volume name.**

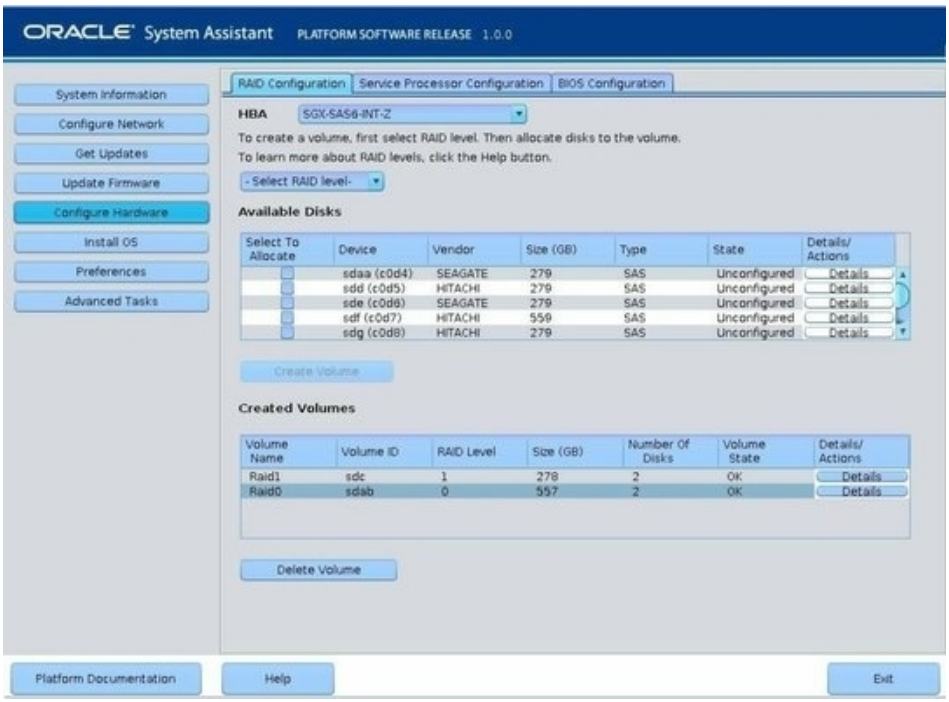
      Entering a volume name is optional. If you do not name the volume, Oracle System Assistant creates a volume without a name.

   b. **Click Create.**

The Creating RAID Volume information box appears.

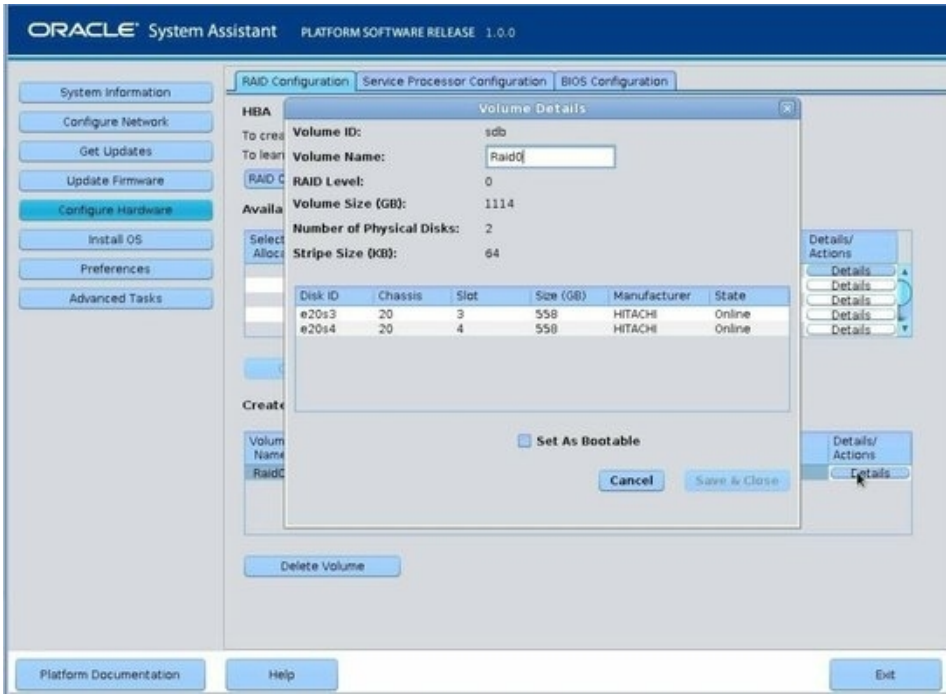


After the volume is created, it appears in the Created Volumes table.



8. **In the Details/Action column of the Created Volumes table, click the Details button.**

The Volume Details dialog box appears.



9. In the Volume Details dialog box:

a. Review the volume details.

b. (Optional) In the Volume Name field, enter a volume name or modify it.

If you did not enter a volume name earlier, the Volume Details dialog box gives you a second chance to do so. If you entered a volume name earlier, you can modify it here; however, you cannot delete the name entirely.

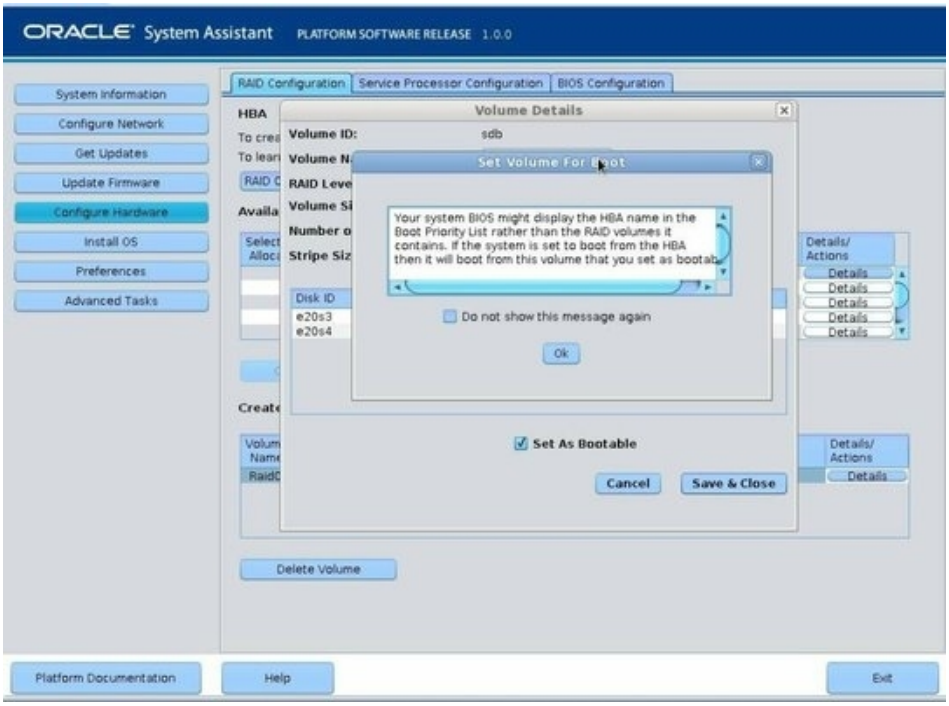
Note - Naming the volume is optional. If you do not name the volume, Oracle System Assistant creates a volume without a name. Additionally, if at any time you want to change the volume name, you can do so by clicking on the Details button in the Created Volumes table; however, once a volume name is assigned, you cannot delete it.

---

c. Check the Set As Bootable box.

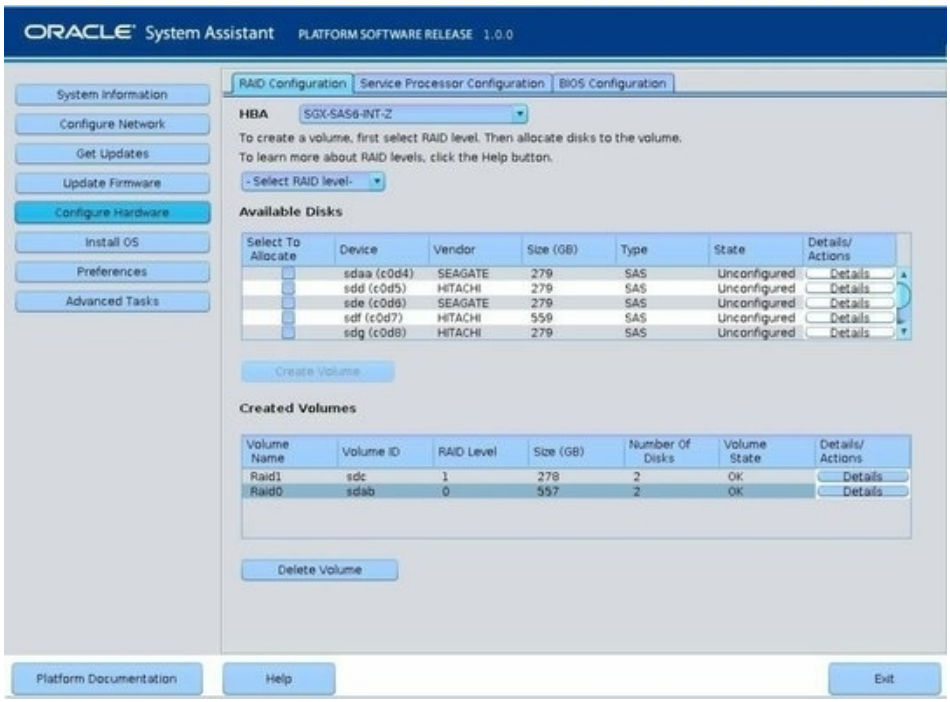
d. Click Save & Close.

The Set Volume For Boot confirmation dialog appears.



10. Click OK.

The RAID Configuration screen appears and lists the RAID volume as the current boot device.



11. **If you want to delete a volume, select it and click the Delete Volume button.**

    This completes the RAID configuration task.

12. **Do one of the following:**

    - To select any other Oracle System Assistant task, click the corresponding button in the left panel menu. For example, after configuring RAID, you might want to select the Install OS task and perform an operating system installation.
    - To return to the Oracle System Assistant System Overview screen, click System Information in the left menu panel.
    - To quit Oracle System Assistant, click Exit.

See Also

- "Set Up an Operating System and Drivers" on page 117

Configure RAID With a Sun Storage 6 Gb SAS PCIe RAID Internal HBA

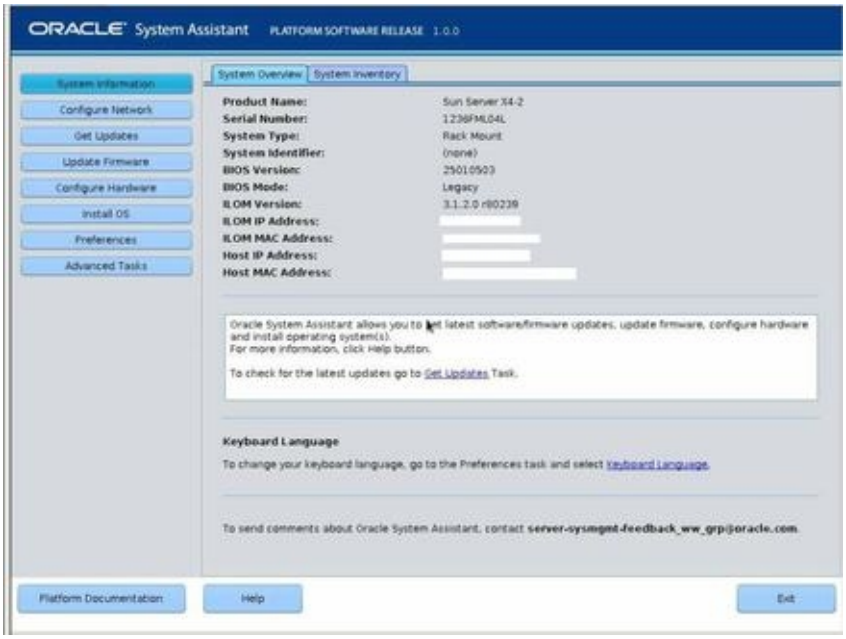
Before You Begin

For systems with the Sun Storage 6 Gb SAS PCIe RAID Internal HBA, you *must* create a bootable volume on a drive before installing an OS. The system does not recognize a drive unless it has a volume on it created by the Sun Storage 6 Gb SAS PCIe RAID Internal HBA. If there is more than a single volume on the drive you intend to use as the boot drive, set the volume that you will install the OS on as the boot device.

1. **Launch Oracle System Assistant.**

   See "Launching Oracle System Assistant" on page 71.

   The Oracle System Assistant System Overview screen appears.



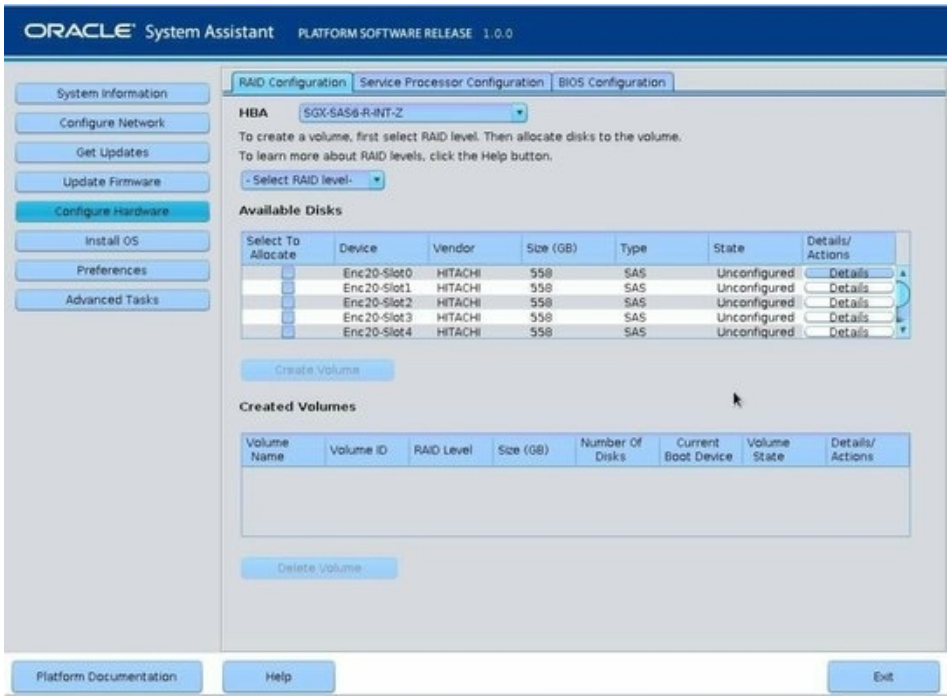
2. **In the System Overview screen, verify that the BIOS Mode is set to the boot mode (UEFI or Legacy BIOS) that you plan to use when you install the operating system.**

Note - The BIOS boot mode used for the RAID configuration must match the mode that you use when you install the operating system. Additionally, not all supported operating systems support UEFI boot mode. For a list of operating systems that support UEFI boot mode, see "UEFI BIOS" on page 27.

To switch between UEFI and legacy boot modes, see the Oracle x86 Administration Guide for X4 Series Servers at `http://www.oracle.com/goto/x86AdminDiag/docs`.

3. **Click the Configure Hardware button, then select the RAID Configuration tab.**

   The RAID Configuration screen appears.



4. **In the HBA list box, select the SGX-SAS6-R-INT-Z HBA.**

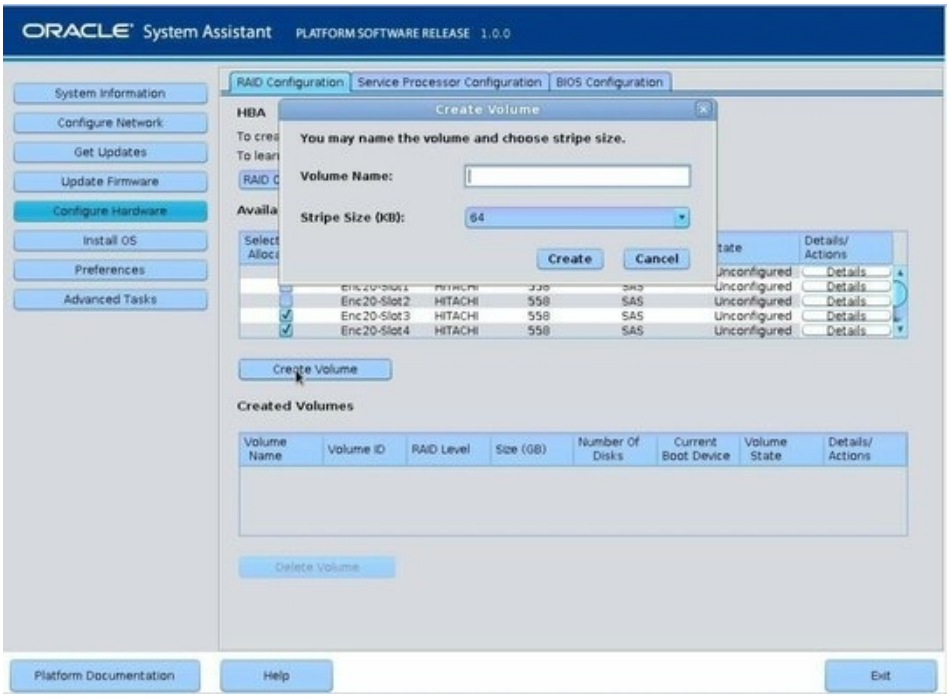
   This is the Sun Storage 6 Gb SAS PCIe RAID Internal HBA.

5. **In the Select RAID Level list box, select the desired RAID level.**

   Oracle System Assistant supports RAID-0, RAID-1, and RAID-10.

6. **In the Available Disks table, select the storage drives that you want to add to the RAID volume, and click the Create Volume button.**

   The Create Volume dialog box appears.



7. **In the Create Volume dialog box:**

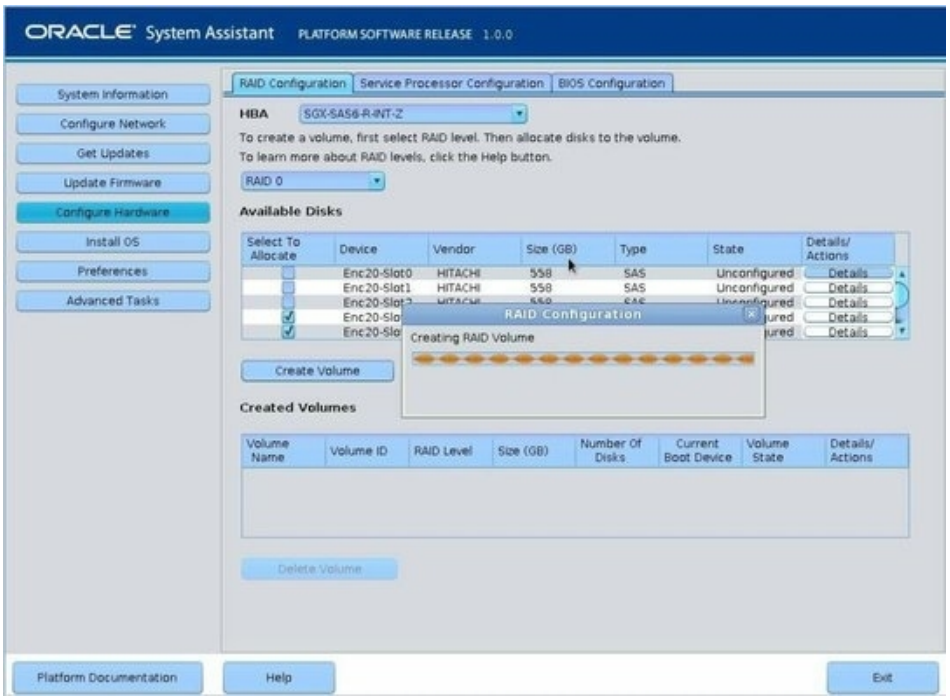
   a. **(Optional) Enter the volume name.**

      Entering a volume name is optional. If you do not name the volume, Oracle System Assistant creates a volume without a name.

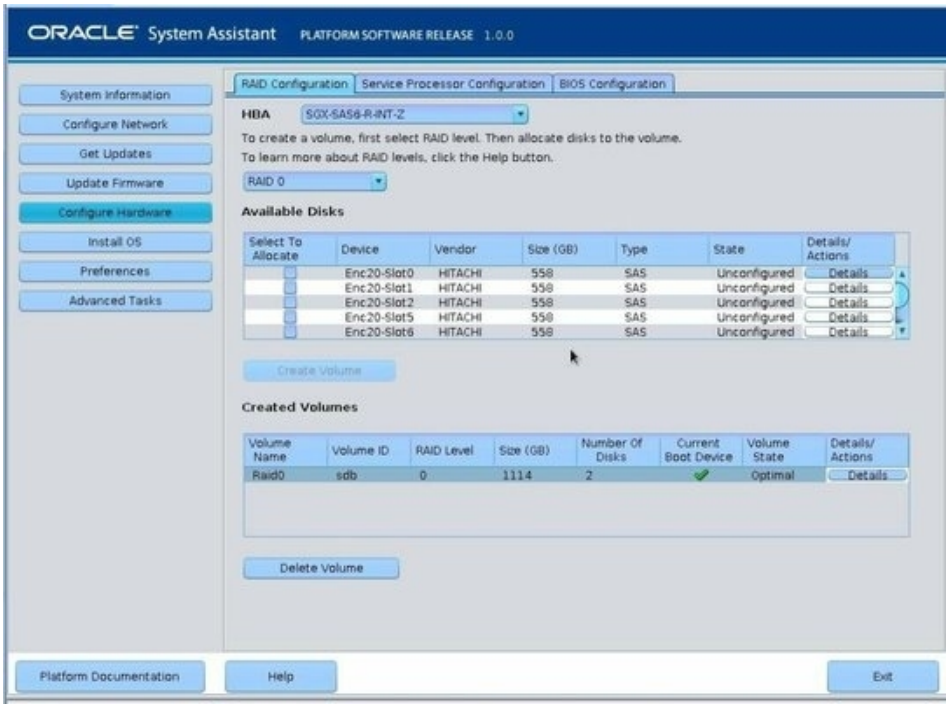
   b. **Select the volume stripe size.**

   c. **Click Create.**

The Creating RAID Volume information box appears.

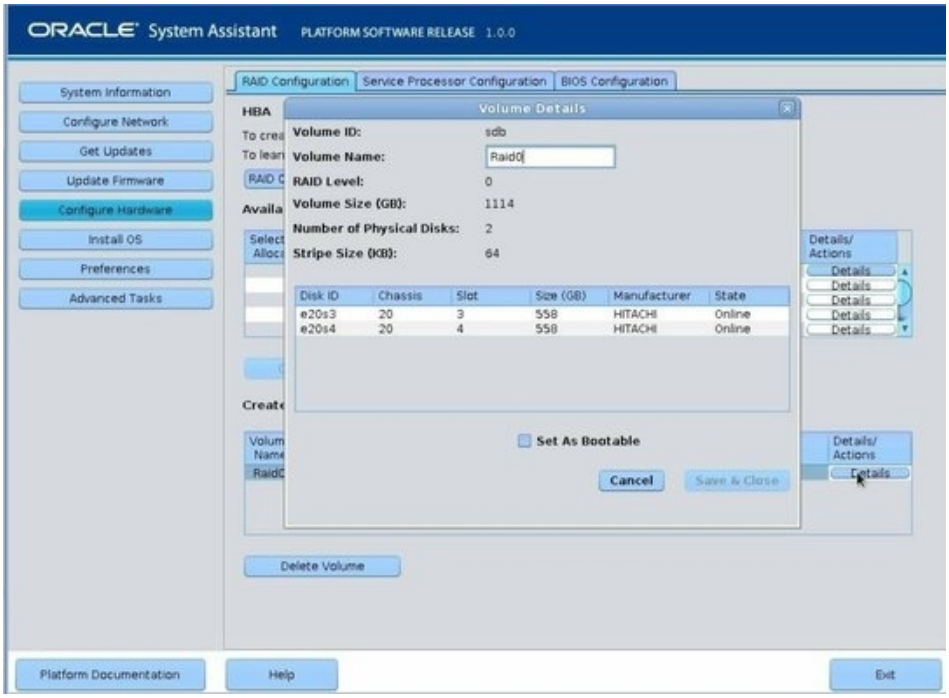


After the volume is created, it appears in the Created Volumes table.



8. **In the Details/Action column of the Created Volumes table, click the Details button.**

The Volume Details dialog box appears.



9. In the Volume Details dialog box:

a. Review the volume details.

b. (Optional) In the Volume Name field, enter a volume name or modify it.

If you did not enter a volume name earlier, the Volume Details dialog box gives you a second chance to do so. If you entered a volume name earlier, you can modify it here; however, you cannot delete the name entirely.

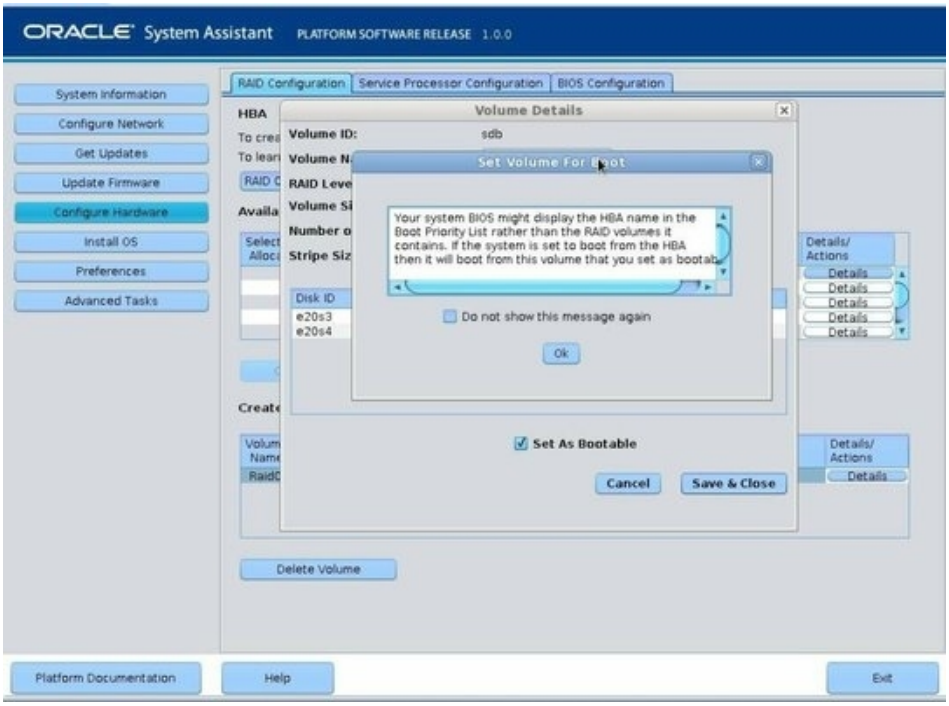
Note - Naming the volume is optional. If you do not name the volume, Oracle System Assistant creates a volume without a name. Additionally, if at any time you want to change the volume name, you can do so by clicking on the Details button in the Created Volumes table; however, once a volume name is assigned, you cannot delete it.

---

c. Check the Set As Bootable box.

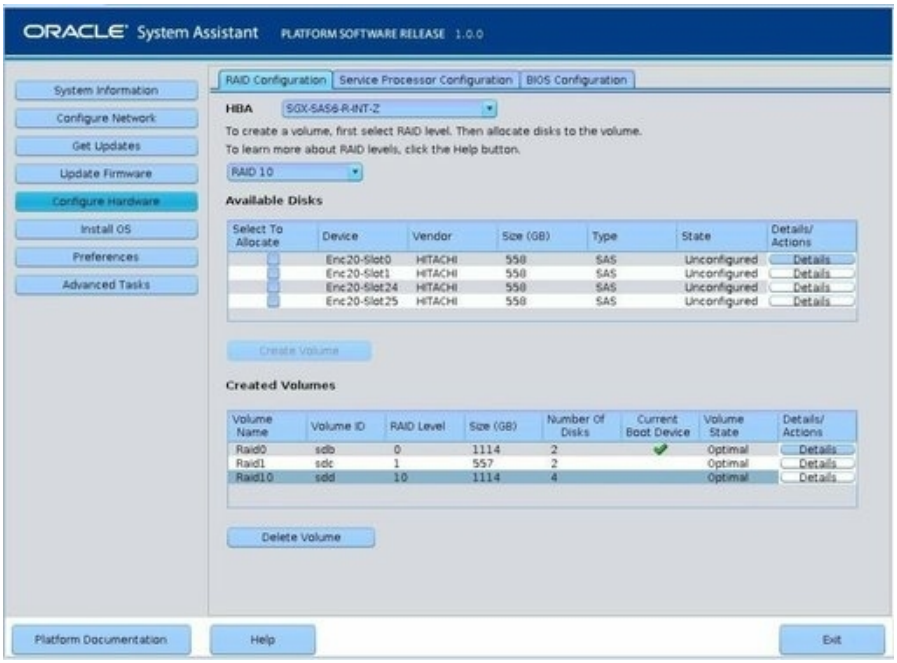
d. Click Save & Close.

The Set Volume For Boot confirmation dialog appears.



10. Click OK.

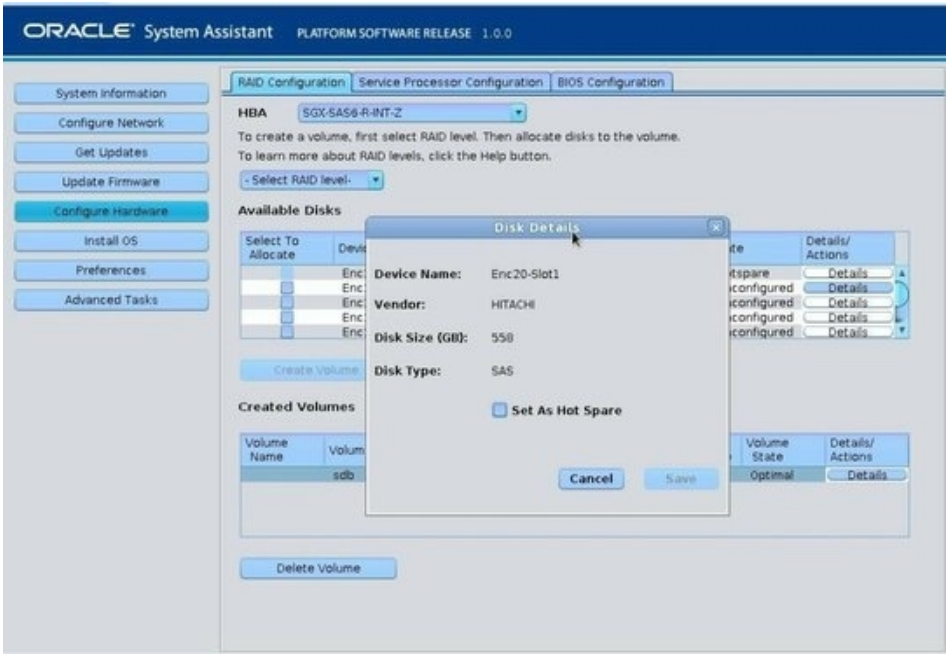
The RAID Configuration screen appears and lists the RAID volume as the current boot device.



11. If you want to designate the created volume as a global hot spare, perform the following steps; otherwise, proceed to Step 12.

a. Click the Details button in the Details/Actions column.

The Disk Details dialog box appears.



b. Check the Set as Hot Spare box.

Note - With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA, you can create a maximum of 256 hot spares.

---

c. Click Save.

The Disk Details dialog box closes.

12. If you want to delete a volume, select it and click the Delete Volume button.

This completes the RAID configuration task.

13. Do one of the following:

- To select any other Oracle System Assistant task, click the corresponding button in the left panel menu. For example, after configuring RAID, you might want to select the Install OS task and perform an operating system installation.

- To return to the Oracle System Assistant System Overview screen, click System Information in the left menu panel.
- To quit Oracle System Assistant, click Exit.

See Also
- "Set Up an Operating System and Drivers" on page 117

Configuring RAID Using the BIOS RAID Configuration Utilities

You can configure RAID using Oracle System Assistant or, if Oracle System Assistant is not available, you can use the BIOS RAID configuration utilities that reside in the HBA firmware. The procedures for configuring RAID differ depending on the type of HBA installed the server.

For instructions on how to use these utilities, see the following sections:

- "Configuring RAID Using the BIOS With the Sun Storage 6 Gb SAS PCIe Internal HBA" on page 101
- "Configuring RAID Using the BIOS With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA" on page 104

Configuring RAID Using the BIOS With the Sun Storage 6 Gb SAS PCIe Internal HBA

The BIOS RAID configuration utilities support configuring RAID with the server set to UEFI boot mode and legacy boot mode. A separate utility is provided for each boot mode.

Note - Some operating systems and virtual machine software only support the legacy boot mode. For a list of operating systems and virtual machine software that support UEFI boot mode, see "UEFI BIOS" on page 27.

- "Configure RAID in UEFI Boot Mode" on page 101
- "Configure RAID in Legacy Boot Mode" on page 103

▼ Configure RAID in UEFI Boot Mode

1. **Power on or reset the server (host).**

For example, do one of the following:

- From the local server, press the Power button (approximately 1 second) on the front panel of the server to power off the host, then press the Power button again to power it back on.
- From the Oracle ILOM web interface, select **Host Management > Power Control**, then select **Reset** from the **Select Action** list box.
- From the Oracle ILOM CLI, type: **`reset /System`**

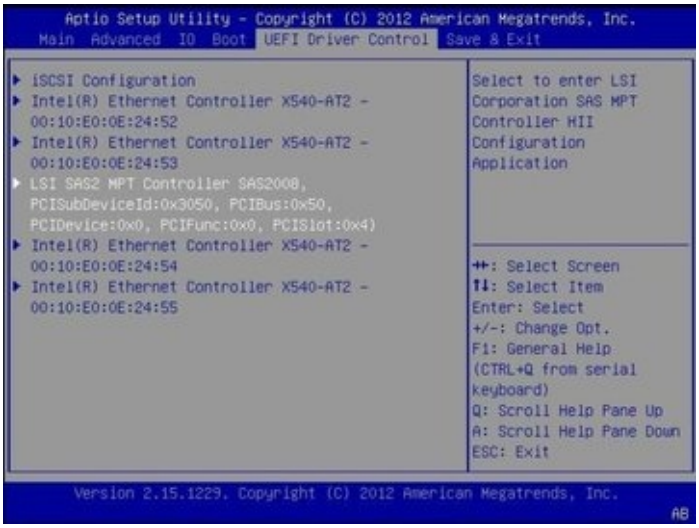
The BIOS screen appears.

2. **When prompted in the BIOS screen, press F2 access the BIOS Setup Utility.**

   After a few moments, the BIOS Setup Utility appears.

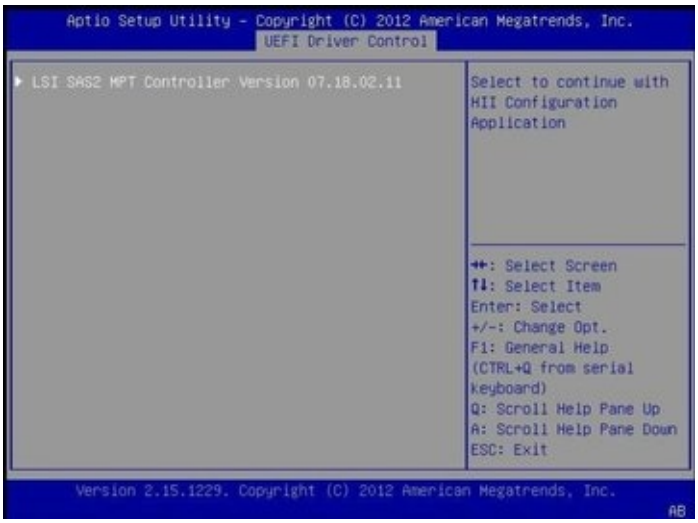
3. **Use the right arrow key to navigate to UEFI Driver Control menu.**

   The UEFI Driver Control menu appears.



4. **Use the up and down arrow keys to navigate to the LSI SAS2 MPT Controller menu option, and press Enter.**

The LSI SAS MPT Controller menu appears.



Note - The LSI SAS MPT Controller menu changes depending the configuration of the server.

5. **Use the BIOS configuration utility to configure RAID on the server.**

   For instructions on how to use the BIOS configuration utilities to configure RAID in UEFI boot mode, refer to instructions for creating a bootable drive on x86/64 systems in the *Sun Storage 6 Gb SAS PCIe HBA, Internal Installation Guide For HBA Models SGX-SAS6-INT-Z and SG-SAS6-INT-Z* at: `http://docs.oracle.com/cd/E19337-01/index.html`.

See Also

- "Set Up an Operating System and Drivers" on page 117

▼ Configure RAID in Legacy Boot Mode

1. **Power on or reset the server (host).**

   For example, do one of the following:

   - From the local server, press the Power button (approximately 1 second) on the front panel of the server to power off the host, then press the Power button again to power it back on.
   - From the Oracle ILOM web interface, select **Host Management > Power Control**, then select **Reset** from the **Select Action** list box.

- From the Oracle ILOM CLI, type: **`reset /System`**

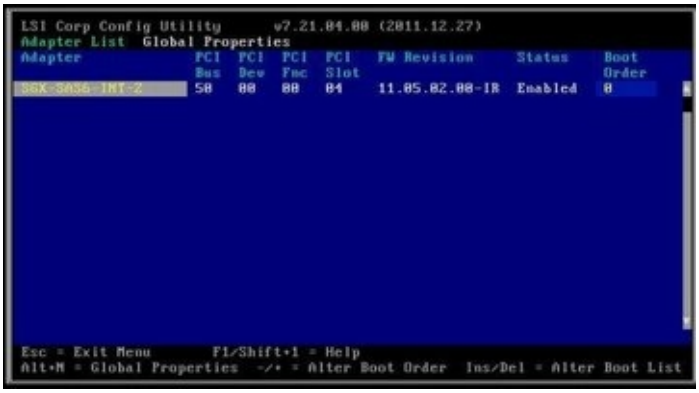
The BIOS screen appears.

During the boot process, the BIOS initialization banner lists information about the discovered SAS adapters and devices that are attached to the discovered HBAs in the system.

2. **Press Ctrl+C when you see the following prompt:**

```
Press Ctrl-C to start LSI Corp Configuration Utility...
```

The LSI Corp Config Utility menu appears.



3. **Use the LSI Corp Config Utility to configure RAID on the server.**

For instructions on how to use the BIOS configuration utilities to configure RAID in legacy boot mode, refer to instructions for creating a bootable drive on x86/64 systems in the *Sun Storage 6 Gb SAS PCIe HBA, Internal Installation Guide For HBA Models SGX-SAS6-INT-Z and SG-SAS6-INT-Z* at: `http://docs.oracle.com/cd/E19337-01/index.html`.

See Also

- "Set Up an Operating System and Drivers" on page 117

Configuring RAID Using the BIOS With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA

The BIOS RAID configuration utilities support configuring RAID with the server set to UEFI boot mode and legacy boot mode. A separate utility is provided for each boot mode.

Note - Some operating systems and virtual machine software only support the legacy boot mode. For a list of operating systems and virtual machine software that do not support UEFI boot mode, see “UEFI BIOS” on page 27.

Use one of the following procedures to configure RAID:

- “Configure RAID in UEFI Boot Mode” on page 105
- “Configure RAID in Legacy Boot Mode” on page 113

▼ Configure RAID in UEFI Boot Mode

1. **Power on or reset the host.**

   For example, to reset the host, do one of the following:

   - From the local server, press the Power button (approximately 1 second) on the front panel of the server to power off the host, then press the Power button again to power it back on.
   - From the Oracle ILOM web interface, select **Host Management** > **Power Control**, then select **Reset** from the **Select Action** list box.
   - From the Oracle ILOM CLI, type: `reset /System`

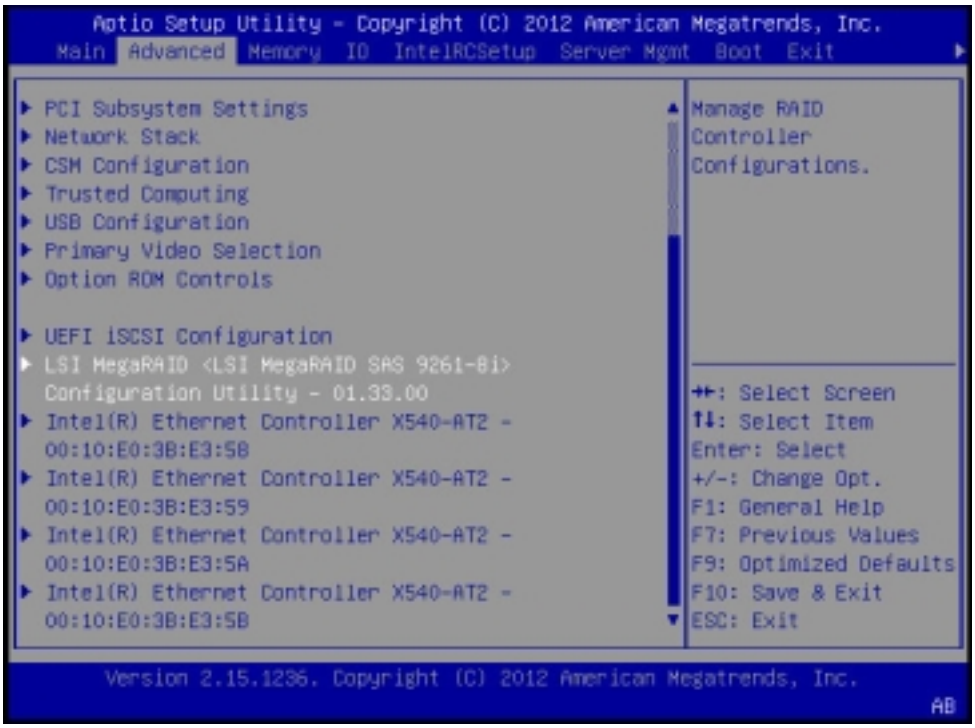
   The BIOS screen appears.

2. **When prompted in the BIOS screen, press F2 access the BIOS Setup Utility.**

   The BIOS Setup Utility appears.

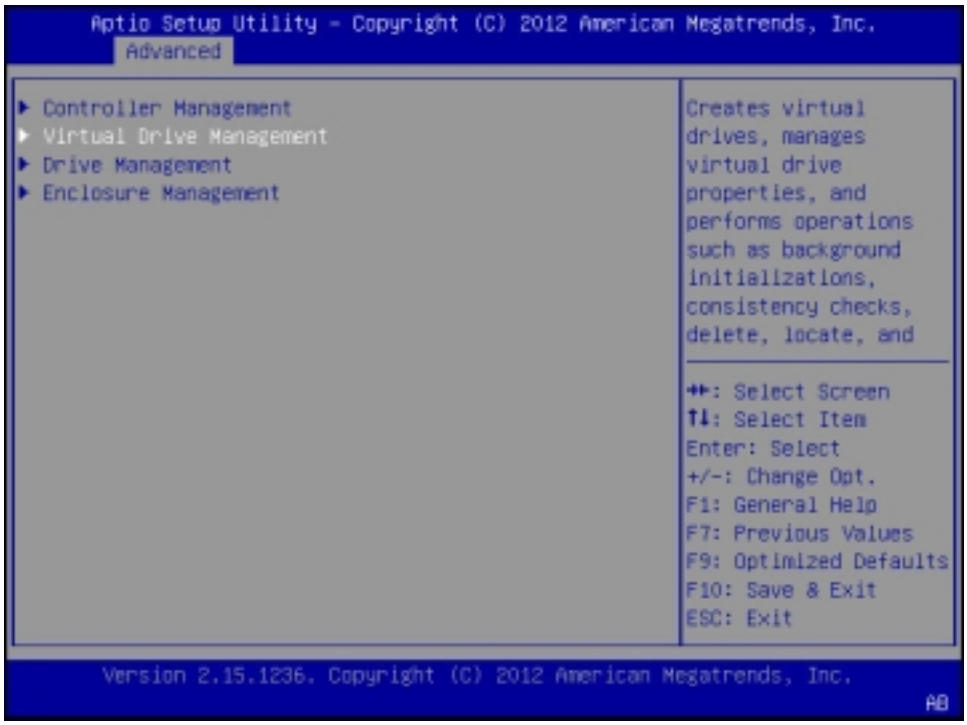
3. **Use the right arrow key to navigate to UEFI Driver Control menu.**

The UEFI Driver Control menu appears.



4. **Use the up and down arrow keys to navigate to the LSI MegaRAID Configuration Utility menu option, and press Enter.**

The LSI MegaRAID Configuration Utility menu appears.

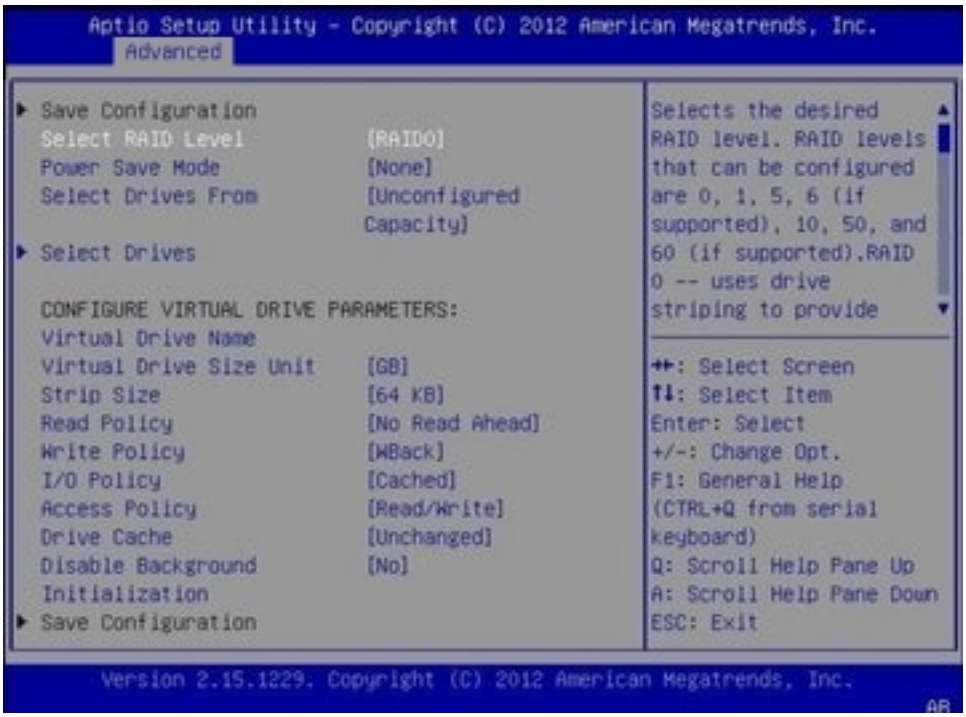


5. **Use the Up and Down keys to select the Virtual Drive Management option and press Enter.**

The Virtual Drive Management menu screen appears.

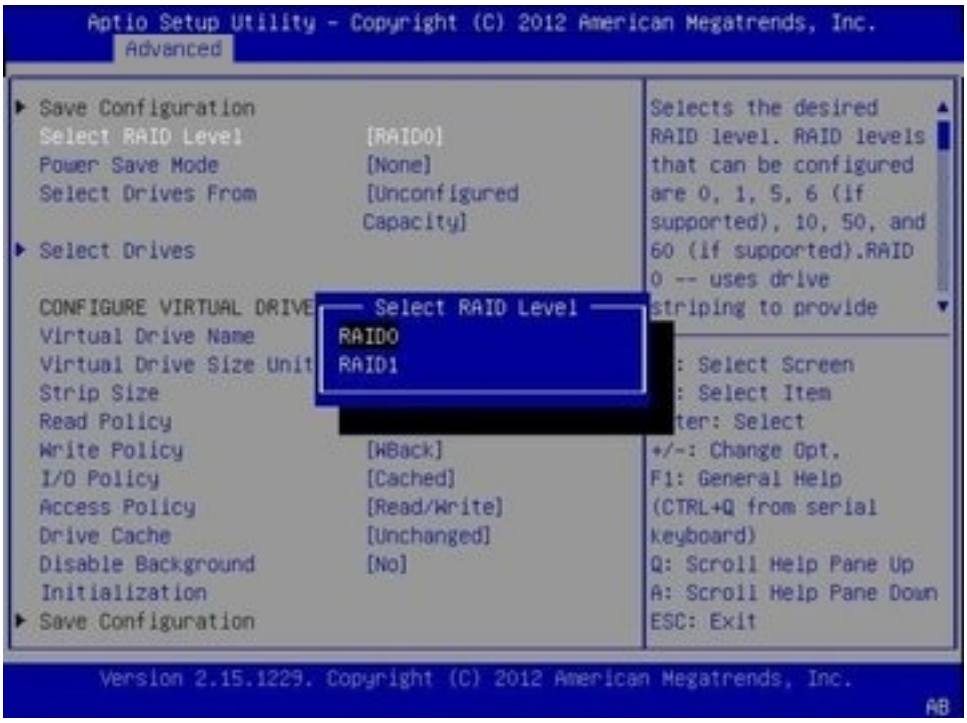
6. **Use the Up and Down Arrow keys to select the Create Configuration option and press Enter.**

The Create Configuration menu screen appears.



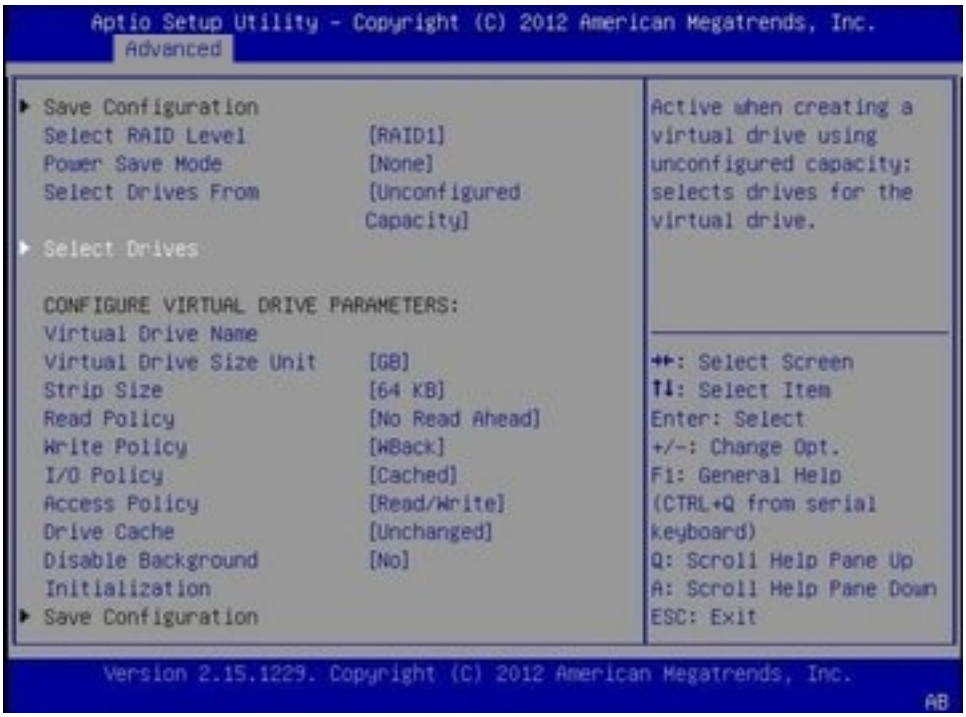
7. **Use the Up and Down arrow keys to select the Select RAID Level option and press Enter.**

The Select RAID Level dialog box appears.



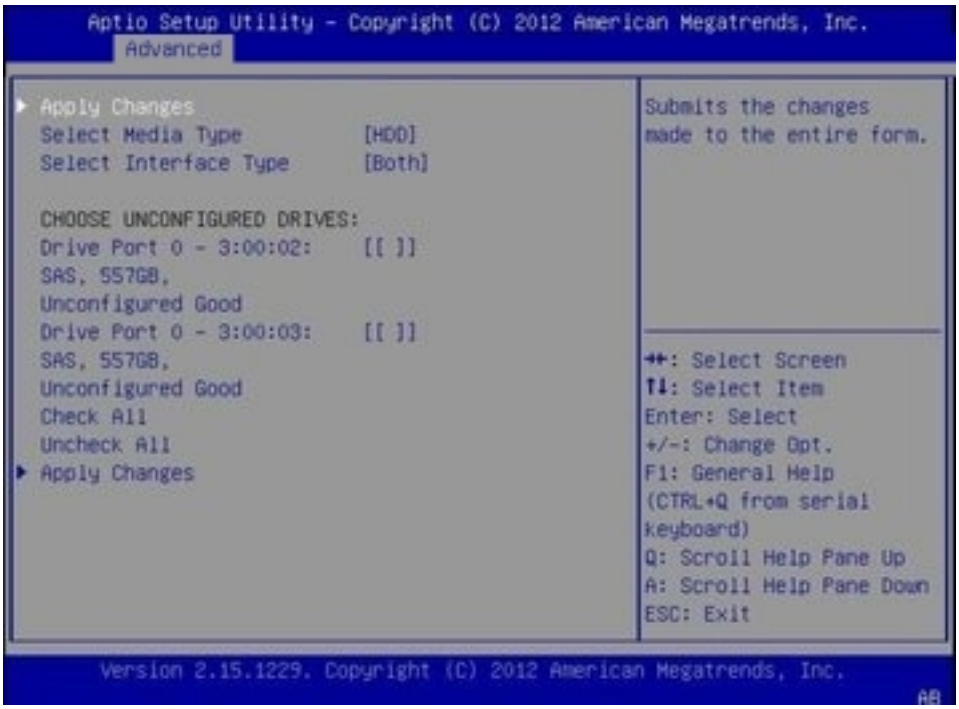
8. **Use the Up and Down arrow keys to select the desired RAID level and press Enter.**

The Create Configuration menu screen appears.



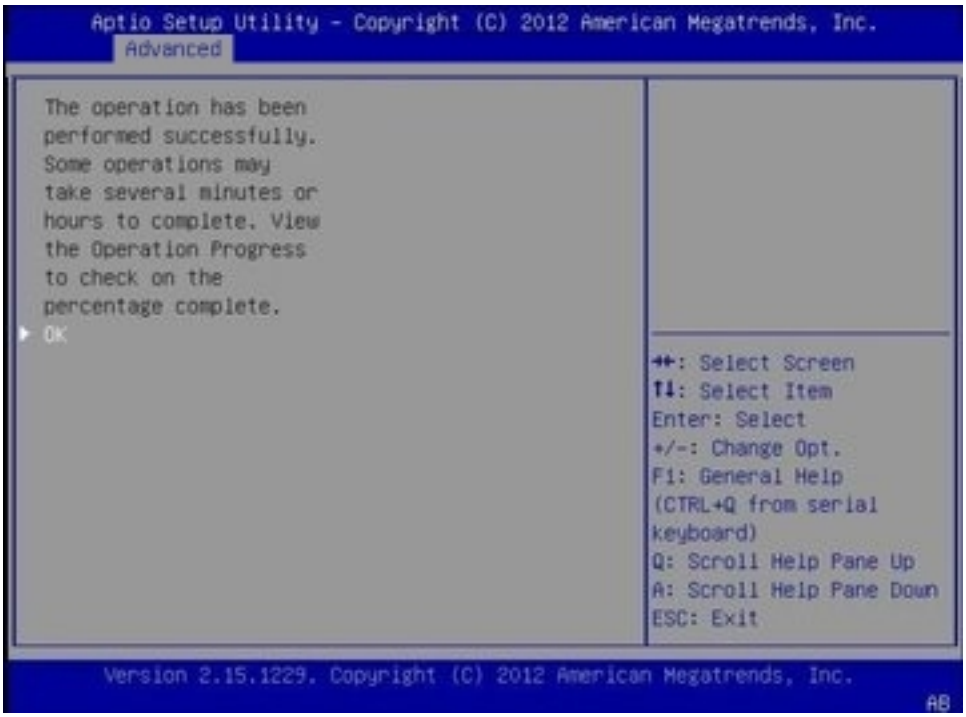
9. **Use the Up and Down arrow keys to select the Select Drives option and press Enter.**

The Drive Selection screen appears.



10. **In the Drive Selection screen, select the media type, the interface type, and the drives to be included in the RAID configuration, then select the Apply Changes option and press Enter.**

The RAID Configuration Confirmation screen appears.



11. **Select OK and press Enter to accept the RAID confirmation.**

    This completes the RAID configuration.

See Also

- "Set Up an Operating System and Drivers" on page 117

▼ Configure RAID in Legacy Boot Mode

Before You Begin

The BIOS RAID Configuration Utilities reside in the HBA firmware. Use this procedure under any of the following conditions:

- You want to configure RAID on the intended OS installation hard drive and the server does not have Oracle System Assistant or you do not want to use it.
- You do not want to create a RAID volume, but the intended OS installation hard drive has not been initialized.

- If you want to create a RAID volume level 5, 6, 50, or 60 using the storage drive on which you plan to install the operating system.

Note - Oracle System Assistant only supports RAID 0, 1, and 10 for the SGX-SAS6-R-INT-Z HBA.

---

1. **Create one or more RAID volumes (virtual drives).**

   Refer to the instructions for creating a storage configuration using the WebBIOS Configuration Utility in the MegaRAID SAS Software User's Guide located at:

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

   Note - The *MegaRAID SAS Software User's Guide* does not include instructions for making a virtual drive bootable. To make a drive bootable, proceed to the next step in this section after you've created your virtual drive.

   ---

2. **Make a virtual drive bootable, first power on or reset the host.**

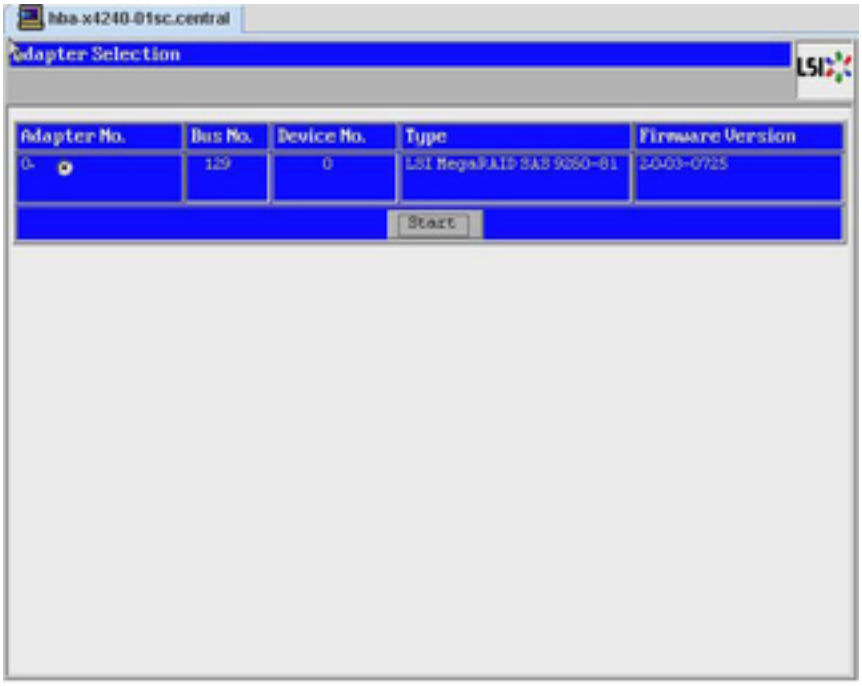
   For example, to reset the server, do one of the following:

   - From the local server, press the Power button (approximately 1 second) on the front panel of the server to power off the host, then press the Power button again to power it back on.
   - From the Oracle ILOM web interface, select **Host Management** > **Power Control**, then select **Reset** from the **Select Action** list box.
   - From the Oracle ILOM CLI, type: **`reset /System`**

   The BIOS screen appears.

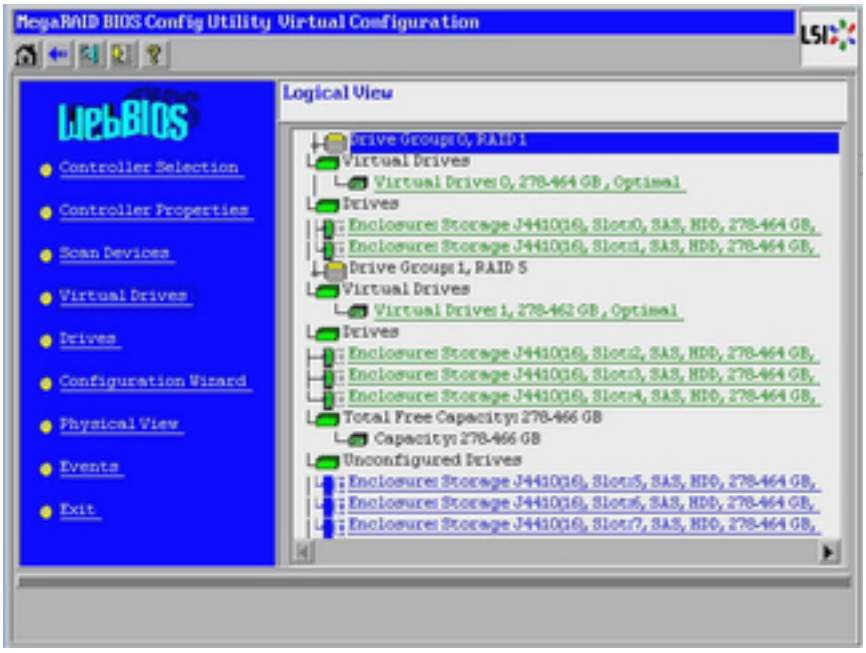
3. **Upon seeing the prompt `Press Ctrl><H> for WebBIOS...`, immediately press the Ctrl+H key combination to access the LSI MegaRAID utility.**

The Adapter Selection screen appears.



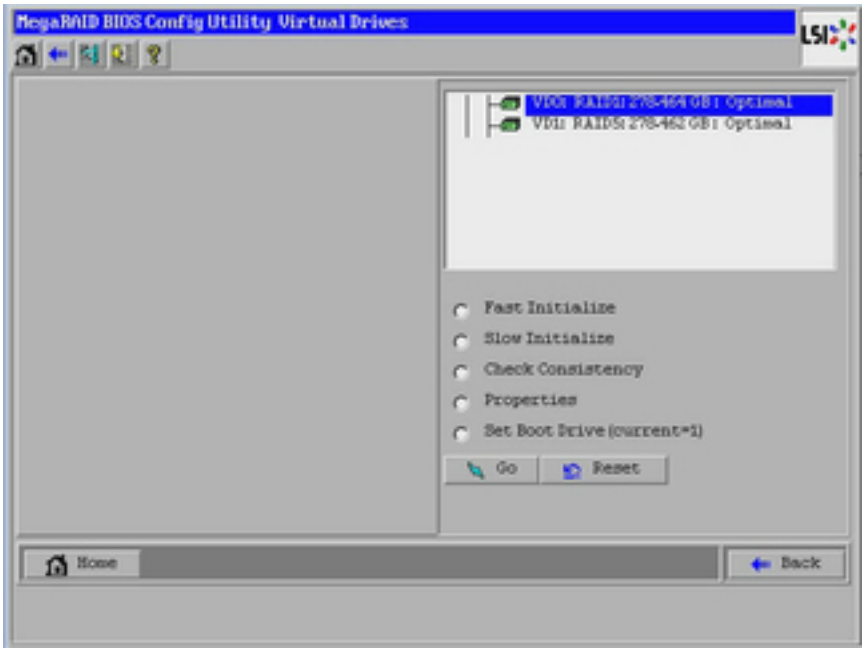
4. **In the Adapter Selection screen, click Start.**

The LSI MegaRAID BIOS Config Utility Virtual Configuration screen appears.



5. **Click Virtual Drives.**

The Virtual Drives screen appears.



6. **Select the virtual drive that you want to make bootable.**

7. **Click Set Boot Drive, then click Go.**

   For more information on performing this task, refer to the *LSI MegaRAID SAS Software User's Guide* located at: `http://www.lsi.com/sep/Pages/oracle/sg_x_sas6-r-rem-z.aspx`.

Set Up an Operating System and Drivers

You can configure a preinstalled operating system (OS), or install a supported OS for your server. The following table describes how to access information about installing or configuring an OS.

What do you want to do?	Use this tool or documentation
Configure a preinstalled OS	■ "Configuring the Preinstalled Oracle Solaris OS" on page 119 ■ "Configuring the Preinstalled Oracle Linux OS" on page 133

What do you want to do?	Use this tool or documentation
Install an OS and update drivers	■ "Configuring the Preinstalled Oracle VM 3.X Software" on page 127 ■ *Sun Server X4-8 Installation Guide for Oracle Solaris Operating System* ■ *Sun Server X4-8 Installation Guide for Oracle VM Server* ■ *Sun Server X4-8 Installation Guide for Linux Operating Systems* ■ *Sun Server X4-8 Installation Guide for Microsoft Windows* ■ *Sun Server X4-8 Installation Guide for VMware ESXi*

Configuring the Preinstalled Oracle Solaris OS

This section provides the steps for configuring the Oracle Solaris Operating System (OS) that is preinstalled on the server, if ordered.

Note - For up-to-date information about supported versions of the preinstalled Oracle Solaris Operating System, see the *Sun Server X4-8 Product Notes* at `http://www.oracle.com/goto/X4-8/docs`.

Perform the procedures in the following sections:

Step	Task	Links
1	Prepare for the Oracle Solaris OS installation and fill out the configuration worksheet for your server environment.	"Preparing for the Oracle Solaris Configuration" on page 119
2	Configure the preinstalled Oracle Solaris OS.	"Configure the Preinstalled Oracle Solaris 11 Operating System" on page 122
3	Reinstall Oracle Solaris, or install a different version of Oracle Solaris.	"Reinstalling the Oracle Solaris Operating System" on page 124
4	Find the Oracle Solaris OS documentation	"Oracle Solaris 11 Operating System Documentation" on page 125

Preparing for the Oracle Solaris Configuration

Before you start to configure the preinstalled Oracle Solaris operating system, review the applicable limitations on RAID configurations. Then complete the worksheet for the Oracle Solaris configuration.

Preinstalled Oracle Solaris Operating System RAID Limitations

The Oracle Solaris preinstalled image can only be configured in a non-RAID configuration. If a RAID configuration is required, you must configure RAID on the server and then perform a fresh install of the Oracle Solaris OS (or other OS) in the desired RAID configuration.

Oracle Solaris OS Configuration Worksheet

Before you begin configuring the operating system, use the configuration worksheet in the following table to gather the information that you will need. You need to collect only the information that applies to your application of the system.

Information for Installation	Description or Example	Your Answers: Defaults (*)
Language	Select from the list of available languages for the OS.	English*
Locale	Select your geographic region from the list of available locales.	
Terminal	Select the type of terminal that you are using from the list of available terminal types.	
Network connection	Is the system connected to a network?	■ Networked ■ Non-networked*
DHCP	Can the system use Dynamic Host Configuration Protocol (DHCP) to configure its network interfaces?	■ Yes ■ No*
If you are not using DHCP, note the network address:	IP address If you are not using DHCP, supply the IP address for the system. Example: 192.168.100.1	
Subnet	If you are not using DHCP, is the system part of a subnet? If yes, what is the netmask of the subnet? Example: 255.255.255.0	255.255.0.0*
IPv6	Do you want to enable IPv6 on this machine?	■ Yes ■ No*
Host name	Choose a host name for the system.	
Kerberos	Do you want to configure Kerberos security on this machine? If yes, gather this information: Default realm:	■ Yes ■ No*

Information for Installation	Description or Example	Your Answers: Defaults (*)
	Administration server: First KDC: (Optional) Additional KDCs:	
Name service	Name service If applicable, which name service should this system use?	■ NIS+ ■ NIS ■ DNS ■ LDAP ■ None*
Domain name	Provide the name of the domain in which the system resides. DNS or NIS	
NIS+ and NIS	*If you chose NIS+ or NIS*, do you want to specify a name server, or let the installation program find one? If you choose NIS: ■ Specify a NIS domain, or ■ Indicate whether to specify a NIS server or search for one.	■ Specify One ■ Find One*
DNS	*If you chose DNS*, provide IP addresses for the DNS server. You must enter at least one IP address, but you can enter up to three addresses. You can also enter a list of DNS domains to search when a DNS query is made.	Search domain: Search domain: Search domain:
LDAP	*If you chose LDAP*, provide information about your LDAP profile:	Profile name: Profile server: If you specify a proxy credential level in your LDAP profile, gather the following information: Proxy-bind distinguished name: Proxy-bind password:
Default route	Do you want to specify a default route IP address, or let the OS installation program find one? The default route provides a bridge that forwards traffic between two physical networks. An IP address is a unique number that identifies each host on a network. You have the following choices: ■ You can specify the IP address. An `/etc/defaultrouter` file is created with the specified IP address. When the system is rebooted, the specified IP address becomes the default route.	■ Specify one ■ Detect One ■ None*

Information for Installation	Description or Example	Your Answers: Defaults (*)
	■ You can let the OS installation program detect an IP address. However, the system must be on a subnet that has a router that advertises itself by using the Internet Control Message Protocol (ICMP) for router discovery. If you are using the command-line interface, the software detects an IP address when the system is booted. ■ You can select None if you do not have a router or do not want the software to detect an IP address at this time. The software automatically tries to detect an IP address on reboot.	
Time zone	How do you want to specify your default time zone?	■ Geographic region* ■ Offset from GM ■ Time zone file
Root password	Choose a root password for the system.	

Configure the Preinstalled Oracle Solaris 11 Operating System

After you have completed the Worksheet for Oracle Solaris operating system Configuration in "Preparing for the Oracle Solaris Configuration" on page 119, use the following procedure to configure the preinstalled Oracle Solaris 11 operating system.

1. **If you are not already logged in to Oracle ILOM, log in either locally from a serial connection, or remotely from an Ethernet connection.**

   See "Connecting to Oracle ILOM" on page 53.

2. **Power on or reset the host, as follows:**

   - **To power on the host,** use one of the following methods:
     - **From the Oracle ILOM web interface**, select System Information > Summary from the navigation tree. Then, click the Turn On button next to Power State in the Actions panel.
     - **From the Oracle ILOM CLI**, type the following command from the prompt:

       ```
       -> start /System
       ```

       When prompted, type **y** to confirm:

       ```
       Are you sure you want to start /System (y/n)? y

       Starting /System
       ```
   - **To reset the server,** use one of the following methods:

- **From the Oracle ILOM web interface**, select Host Management > Power Control in the navigation tree. Then, select Reset from the Select Action list box and click Save.
- **From the Oracle ILOM CLI**, type the following command from the prompt:

  ```
  -> reset /System
  ```

  When prompted, type **y** to confirm:

  ```
  Are you sure you want to reset /System (y/n)? y
  Performing hard reset on /System
  ```

The server begins the boot process.

3. **Start the Remote Console.**

   - **From the Oracle ILOM CLI, type the following command at the CLI prompt:**

     ```
     -> start /HOST/console
     Are you sure you want to start /HOST/console (y/n)? y
     Serial console started.
     ```

   - **From the Oracle ILOM web interface, select Remote Control > Redirection in the navigation tree. Then, click the Launch Remote Console button to launch video console redirection.**

     After the host boots, the GRUB menu appears. For example (your version might be different):

     ```
     GNU GRUB Version 0.97 (607K lower / 2087168K)

     s11_2011.11_a - Serial Port (ttya)
     s11_2011.11_a - Graphics Adapter
     ```

4. **From the GRUB menu, you have 10 seconds to make a selection:**

   - **If you are using the Oracle ILOM CLI, use the up/down arrow keys to select the Serial Port (ttya) option and press Enter.**

   - **If you are using the Oracle ILOM Remote Console (or a direct video port connection), use the up/down arrow keys to select the Graphics Adapter option and press Enter.**

Note - If needed, at the GRUB menu you can type `e` to edit commands before booting, or type `c` for a command line.

Note - If you do not make a selection, Serial Port (ttya) is used by default. This means that for the remainder of the OS configuration process, the system will direct output to the serial port and not to the video port.

5. **Follow the Oracle Solaris 11 installer on-screen prompts to configure the operating system.**

   Use the information gathered in Worksheet for Oracle Solaris operating system Configuration in "Preparing for the Oracle Solaris Configuration" on page 119 to help you enter the system and network information as you are prompted.

   The screens might vary, depending on the method that you chose for assigning network information to the server (DHCP or static IP address).

   After you have entered the system configuration information, the server completes the boot process and displays the Oracle Solaris login prompt.

See Also

- "Reinstalling the Oracle Solaris Operating System" on page 124.
- For information on using the Oracle Solaris OS, including registration, see "Oracle Solaris 11 Operating System Documentation" on page 125.

Reinstalling the Oracle Solaris Operating System

If you want to reinstall the Oracle Solaris 11 OS or install a different version of the Oracle Solaris OS, refer to the relevant Oracle Solaris installation guide.

You can download software for the Oracle Solaris OS from the following sites:

- To download the Oracle Solaris 11 operating system, go to:

  `http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html`
- To download Oracle Solaris patches, go to:

  `https://support.oracle.com`

Related Information

- "Configure the Preinstalled Oracle Solaris 11 Operating System" on page 122
- "Oracle Solaris 11 Operating System Documentation" on page 125

Oracle Solaris 11 Operating System Documentation

This section provides pointers to information about the Oracle Solaris 11 operating system. Follow instructions specific to x86 systems, where they are specified.

The Oracle Solaris 11 Information Library is available at:

`http://www.oracle.com/technetwork/documentation/solaris-11-192991.html`

For detailed instructions about installing the Oracle Solaris 11 operating system see *Installing Oracle Solaris 11 Systems: Preparing for the Installation* and *Installing Oracle Solaris 11 Systems: Automated Installations That Boot From Media*.

Refer to the *Sun Server X4-8 Product Notes* for patch and other late-breaking information.

For patches and patch installation instructions, go to the My Oracle Support web site at: `https://support.oracle.com`

Configuring the Preinstalled Oracle VM 3.X Software

This section describes how to configure the Oracle VM software that is preinstalled on the server, if ordered. The preinstalled image contains all of the necessary drivers for the server.

Note - For more up-to-date information about supported versions of the preinstalled Oracle VM, see the *Sun Server X4-8 Product Notes*.

To configure the preinstalled Oracle VM software, perform the procedures in the following table, in the order that they are listed.

Step	Tasks	Links
1	Review requirements for Oracle VM software.	"Preinstalled Oracle VM Server Compatiblitiy Requirements" on page 127
2	Gather the information you will need during the configuration process.	"Oracle VM Configuration Worksheet" on page 128
3	Configure the preinstalled Oracle VM software.	"Configure the Preinstalled Oracle VM Server" on page 128
4	Get started using Oracle VM.	"Oracle VM Documentation" on page 132

Preinstalled Oracle VM Server Compatiblitiy Requirements

If you use the Oracle VM server software that is preinstalled on your system, you must ensure that it is compatible with the version of Oracle VM Manager that you use to manage your Oracle VM infrastructure. If necessary to achieve compatibility, upgrade your Oracle VM Manager so that it is the same version.

For information about upgrading the Oracle VM software, see the *Oracle VM Installation and Upgrade Guide*. The Oracle VM documentation is available at: `http://www.oracle.com/technetwork/documentation/vm-096300.html`

Oracle VM Configuration Worksheet

Before configuring the Oracle VM server, use the worksheet in this section to gather the information you need.

Information for Configuration	Description or Example	Your Answers
Oracle VM server root account password	Choose a root password; there are no restrictions on the characters or length.	
Oracle VM agent password	Choose an Oracle VM agent password; password must be at least six characters.	
Network interface	Supply the interface (eth#) to be used to manage the server.	
Static IP address	Supply the IP address for the server. A static IP address is required. Example: 192.0.2.0	
Netmask	If the server is part of a subnet, supply the netmask of the subnet. Example: 255.255.0.0	
Gateway	If the server is accessed via a gateway, supply the IP address of the gateway.	
DNS server	Supply the IP address for the domain name server (DNS). One (and only one) DNS is required.	
Host name	Supply the fully qualified domain name for the server. Example: xxx.oracle.com	

▼ Configure the Preinstalled Oracle VM Server

These instructions describe only how to configure preinstalled Oracle VM server on your server. Oracle VM also has other components, such as Oracle VM Manager, that must be installed or already operational to support the virtual machine environment.

1. **Log in to Oracle ILOM, either locally from a serial connection or remotely using an Ethernet connection.**

   See "Connecting to Oracle ILOM" on page 53.

2. **Power on or reset the host, as follows:**

   - **To power on the host,** use one of the following methods:
     - **From the Oracle ILOM web interface**, select System Information > Summary from the navigation panel. Then, click the Turn On button next to Power State in the Actions panel.
     - **From the Oracle ILOM CLI**, type the following command from the prompt:

       ```
       -> start /System
       ```

       When prompted, type **y** to confirm:

       ```
       Are you sure you want to start /System (y/n)? y

       Starting /System
       ```
   - **To reset the server,** use one of the following methods:
     - **From the Oracle ILOM web interface**, select Host Management > Power Control in the navigation panel. Then, select Reset from the Select Action list box and click Save.
     - **From the Oracle ILOM CLI**, type the following command from the prompt:

       ```
       -> reset /System
       ```

       When prompted, type **y** to confirm:

       ```
       Are you sure you want to reset /System (y/n)? y

       Performing hard reset on /System
       ```

   The host boots.

3. **Start the Remote Console.**

   - **From the Oracle ILOM web interface, select Remote Control > Redirection in the navigation panel. Then, click the Launch Remote Console button.**

   - **From the Oracle ILOM CLI, type the following command at the CLI prompt:**

     ```
     -> start /HOST/console

     Are you sure you want to start /HOST/console (y/n)? y

     Serial console started.
     ```

   As the host boots, the GRUB menu appears. From the GRUB menu, you can choose whether you want to continue to direct the display to the serial port, or whether you want to direct the display to a device connected to the video port. For example:

   ```
   GNU GRUB version 0.97 (613K lower / 2087424K upper memory)

   Oracle VM server-ovs (xen-4.0.0 2.6.32.21-41ovs)
   ```

```
Oracle VM server-ovs serial console (xen-4.0.0 2.6.32.21-41ovs)
```

4. **Use the up and down arrow keys to select a display option and press Enter.**

   To pause at the GRUB menu, press any key other than Enter. Then select the option you want to use and press Enter to continue.

   Note - If you do not select an option on the GRUB menu, after a delay, the GRUB menu is no longer available and the system continues with the output directed to the serial port.

   The menu offers two choices: one for normal booting, and one for serial-console enabled booting.

5. **Use the up and down arrow keys to select which entry is highlighted. Press Enter to boot the selected OS, 'e' to edit the commands before booting, or 'c' for a command-line.**

   - **To display the default option, select the first option on the list:**

     ```
     Oracle VM server-ovs (xen-4.0.0 2.6.32.32-41ovs)
     ```

   - **To display output to the serial port, select the second option on the list:**

     ```
     Oracle VM server-ovs serial console (xen-4.0.0 2.6.32.21-41ovs)
     ```

6. **As the configuration process continues, the following screen appears. Scroll down the screen and set and confirm the `root` password and the `Oracle VM Agent` password.**

Note - The prompts for the `root` and the `Oracle VM Agent` passwords are only displayed the first time you boot the Oracle VM server.

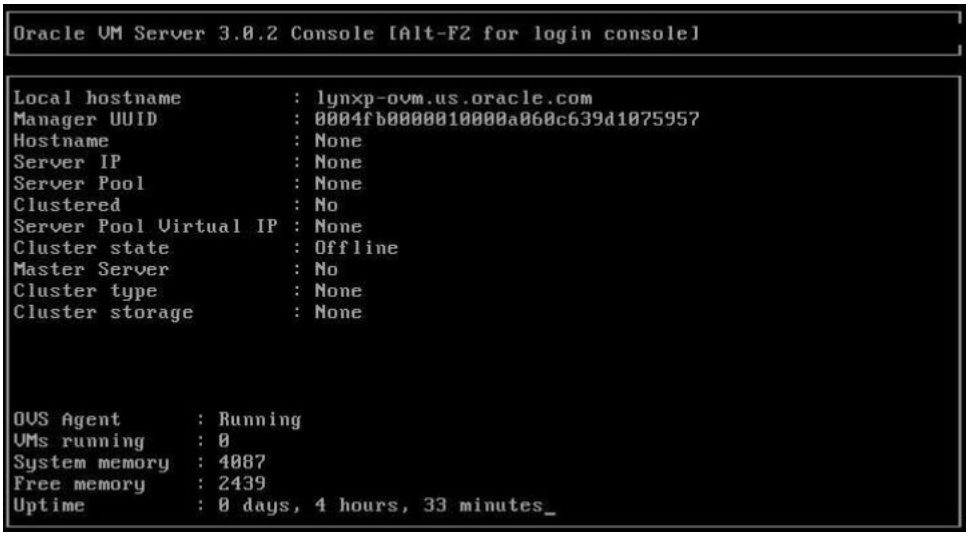
7. **Follow the prompts to select the onboard network interface controller (NIC) to configure and enter other required configuration information related to the network.**

```
This tool is used to select the NIC used by the OVM Manager.
You can exit at any time by pressing CTRL-C.

Here's the list of current available network interfaces.
  eth0   eth1   eth2   eth3

Please select interface(s) to be used for OVM management.
These interfaces will be configured for redundancy.
eth1
```

8. **If all of the configuration settings are correct, type `Y` and press Enter to save the settings.**

```
Are these settings correct?(Y/n)
```

When all settings have been entered and saved, the system loads an Oracle VM Server console session as shown below.



This completes the configuration of preinstalled Oracle VM Server to create a virtual operating system.

Oracle VM Documentation

For complete information about using Oracle VM, refer to the Oracle VM documentation at:

http://www.oracle.com/technetwork/documentation/vm-096300.html

Configuring the Preinstalled Oracle Linux OS

If you purchased an optional preinstalled Oracle Linux OS image, finish the installation by configuring the preinstalled software. The preinstalled OS image contains all of the necessary drivers for your server.

The following table describes the tasks necessary for configuring the preinstalled Oracle Linux OS.

Step	Task	Links
1	Fill out the Oracle Linux configuration worksheet for your server environment.	"Oracle Linux Configuration Worksheet" on page 133
2	Configure the preinstalled Oracle Linux OS.	"Configure the Preinstalled Oracle Linux OS" on page 134
3	Update and register the Oracle Linux OS.	"Register and Update Your Oracle Linux OS" on page 137

Oracle Linux Configuration Worksheet

Gather the following information and have it ready for when you begin the configuration process. You need to collect only the information that applies to your organization and network environment.

Required Installation Information	Description	Your Answers
Oracle Linux root password	Choose a root password to replace the factory default password; there are no restrictions on the characters or length.	
Network interface	Choose a interface on the server (`eth#`) that will be connected to your network. (Once Linux is operational, the `ifconfig -a` command can be used to help identify server network ports.)	

Required Installation Information	Description	Your Answers
Network configuration (if you are not using DHCP)	Supply the IP address for the server. Example: 172.16.9.1	
	If the server is part of a subnet, supply the netmask of the subnet. Example: 255.255.0.0	
	If the server is accessed through a gateway, supply the IP address of the gateway.	
	Supply the IP address for the domain name server (DNS). *One (and only one) DNS is required.*	

See Also

- "Configure the Preinstalled Oracle Linux OS" on page 134

Configure the Preinstalled Oracle Linux OS

These instructions describe how to configure the preinstalled Oracle Linux on your server.

1. **If you are not already logged in to the server's Oracle ILOM, log in either locally from a direct serial connection, or remotely from an Ethernet connection.**

   See "Connecting to Oracle ILOM" on page 53.

2. **Power on or restart the host, as follows:**

   - **To power on the host, use** *one* **of the following methods:**

     - **From the Oracle ILOM web interface, click Host Management > Power Control, and then click Power On from the menu.**

     - **From the Oracle ILOM CLI, type:**

       ```
       -> start /System
       ```

       When prompted, type **y** to confirm:

       ```
       Are you sure you want to start /System (y/n)? y

       Starting /System
       ```

- **To restart the server, use *one* of the following methods:**

  - **From the Oracle ILOM web interface, click Host Management > Power Control, and then select Reset from the menu.**

  - **From the ILOM CLI, type:**

    ```
    -> reset /System
    ```

    When prompted, type **y** to confirm:

    ```
    Are you sure you want to reset /System (y/n)? y

    Performing hard reset on /System
    ```

3. **From Oracle ILOM, start the host console using *one* of the following methods:**

   - **From the Oracle ILOM web interface, click Remote Control > Launch Remote Console.**

   - **From the Oracle ILOM CLI, type:**

     ```
     -> start /HOST/console
     ```

     When prompted, type **y** to confirm:

     ```
     Are you sure you want to start /HOST/console (y/n)? y
     Serial console started.
     ```

     As the host boots, the GRUB menu appears (see example below). Press a key other than Enter to pause, or in 5 seconds the highlighted selection is used.

     ```
         GNU GRUB  version 0.97  (612K lower / 2082932K upper memory)

     +-------------------------------------------------------------------------+
           Oracle Linux Server-uek (2.6.39-200.24.1.el6uek.x86_64)
           Oracle Linux Server (2.6.32-279.el6.x86_64)




     +-------------------------------------------------------------------------+
           Use the ^ and v keys to select which entry is highlighted.
           Press enter to boot the selected OS, 'e' to edit the
           commands before booting, 'a' to modify the kernel arguments
           before booting, or 'c' for a command-line.
     ```

```
The highlighted entry will be booted automatically in 5 seconds.
```

4. **From the GRUB menu, use the up and down arrow keys to select an installation option, and press Enter.**

   Options include:

   - The Unbreakable Enterprise Kernel. For example:

     ```
     Oracle Linux Server-uek (2.6.39-200.24.1.el6uek.x86_64)
     ```

   - The Red Hat Compatible Kernel. For example:

     ```
     Oracle Linux Server (2.6.32-279.el6.x86_64)
     ```

   Note - Oracle recommends the use of Oracle Linux with the Unbreakable Enterprise Kernel for all enterprise applications.

   Once an installation option has been selected, Linux starts. When done, you will see the Linux system login. For example:

   ```
   Oracle Linux Server release 6.3
   Kernel 2.6.39-200.24.1.el6uek.x86_64 on an x86_64

   systemname login:
   ```

   For the first time login, use the **root** account and factory default password (**root**).

5. **Once logged in, complete the configuration of your server using standard Linux tools.**

   Tasks include:

   - For security, change the factory default password for **root**.
   - Configure your server for the network (if DHCP is not used). See "Oracle Linux Configuration Worksheet" on page 133.
   - Configure a proxy, as needed, for Internet access.
   - Register and update your server. See "Register and Update Your Oracle Linux OS" on page 137.
   - Install desired packages.

6. **When configuration is complete, end your console session using *one* of the following methods:**

   - **From the Oracle ILOM web interface, close the Remote Console window, and then log out of Oracle ILOM.**

- **From the Oracle ILOM CLI, press Esc followed by the (character (Shift+9) to terminate the serial redirect session, and then log out of Oracle ILOM.**

See Also

- "Register and Update Your Oracle Linux OS" on page 137

▼ Register and Update Your Oracle Linux OS

Before You Begin

The Unbreakable Linux Network (ULN) is a comprehensive resource for Oracle Linux support subscribers, offering access to Linux software patches, updates and fixes, along with information on updates and support policies.

If you are a licensed Oracle customer with an active Oracle Linux support subscription, you should receive an Oracle Linux CSI (customer support identifier) number. Use this number to register your server on ULN. Registration requires a CSI number and a valid email address.

1. **If you don't already have one, create your ULN account. Use your email address and CSI and create a password.**

   https://linux.oracle.com/register

   Once your account is configured, you can use your email address and password to login to ULN.

2. **Once you have an account, run the command below on the server as the root user in a terminal window or on the command line:**

   ```
   uln_register
   ```

   The `uln_register` wizard collects machine information and uploads it to Oracle.

   Executing the above command chooses the default channel of *ol6_<arch>_latest*.

   The *_latest* channels provide RPMs for all the packages in the distribution, including those errata also provided in the *_patch* channels. The version of any RPM downloadable on the *_latest* channels is always the most recent available. You can subscribe to other channels using the web interface, after you have registered.

See Also

- For more information about the registration process, see:

  http://www.oracle.com/technetwork/topics/linux/yum-repository-setup-085606.html

- For more information about the Oracle Unbreakable Linux Network, see:

  https://linux.oracle.com/

Getting Server Firmware and Software

This section explains the options for accessing server firmware and software.

Description	Links
Learn about server firmware and software updates.	“Firmware and Software Updates” on page 139
Learn about the options for accessing firmware and software.	“Firmware and Software Access Options” on page 140
View the available firmware and software packages.	“Available Software Release Packages” on page 140
Access the firmware and software packages through Oracle System Assistant or My Oracle Support.	“Accessing Firmware and Software” on page 141
Install firmware and software updates.	“Installing Updates” on page 142

Firmware and Software Updates

Firmware and software, such as hardware drivers and tools for the server, are updated periodically. These are made available as a software release. The software release is a set of downloads (patches) that includes all available firmware, hardware drivers, and utilities for the server. All these have been tested together. The ReadMe document that is included with the download explains what has changed and what has not changed from the prior software release.

You should update your server firmware and software as soon as possible after the software release becomes available. Software releases often include bug fixes, and updating ensures that your server software is compatible with the latest server firmware and other component firmware and software.

The ReadMe file in the download package contains information about the updated files in the download package, as well as bugs that are fixed with the current release. The product notes also provide information about which server software versions are supported.

Firmware and Software Access Options

Use one of the following options to obtain the latest set of firmware and software for your server:

- **Oracle System Assistant** – Oracle System Assistant is a new factory-installed option for Oracle servers that allows you to easily download and install server firmware and software.

  For more information about using Oracle System Assistant, see the *Oracle x86 Administration Guide for X4 Series Servers* at `http://www.oracle.com/goto/x86AdminDiag/docs`.
- **My Oracle Support** – All system firmware and software are available from the My Oracle Support web site.

  For more information about what is available on the My Oracle Support web site, see `https://support.oracle.com`.

  For instructions on how to download software releases from My Oracle Support, see "Download Firmware and Software Using My Oracle Support" on page 141.

Available Software Release Packages

Downloads on My Oracle Support are grouped by product family, then product, then version. The version contains one or more downloads (patches).

For servers and blades, the pattern is similar. The product is the server. Each server contains a set of releases. These releases are not true software product releases, but rather are releases of updates for the server. These updates are called software releases and comprise several downloads, all tested together. Each download contains firmware, drivers, or utilities.

My Oracle Support has the same set of download types for this server family as shown in the following table. The same firmware and software can also be downloaded using Oracle System Assistant.

Package Name	Description	When to Download This Package
Sun Server X4-8 SW *version* – Firmware Pack	All the system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.
Sun Server X4-8 SW *version* – OS Pack	An OS Pack is available for each supported operating system version. Each OS Pack includes a package of all tools, drivers, and utilities for that version of the OS.	You need to update OS-specific drivers, tools, or utilities.

Package Name	Description	When to Download This Package
	Software includes Oracle Hardware Management Pack and LSI MegaRAID software. For the Windows OS, this OS Pack also includes Intel Network Teaming and Install Pack.	
Sun Server X4-8 SW *version* – 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.	You need to update a combination of system firmware and OS-specific software.
Sun Server X4-8 SW *version* – Diagnostics	Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.
Sun Server X4-8 SW *version* – Oracle System Assistant	Oracle System Assistant recovery and ISO update image.	You need to manually recover or update Oracle System Assistant.

Each of the downloads is a zip file that contains a ReadMe file and a set of subdirectories containing firmware or software files. The ReadMe file contains details on the components that have changed since the prior software release and the bugs that have been fixed.

Accessing Firmware and Software

This section covers instructions for downloading or requesting software release files.

You can use Oracle System Assistant to easily download and use the latest software release. For further information, see the *Oracle x86 Administration Guide for X4 Series Servers* at `http://www.oracle.com/goto/x86AdminDiag/docs`.

You can obtain updated firmware and software by using My Oracle Support See: "Download Firmware and Software Using My Oracle Support" on page 141

▼ Download Firmware and Software Using My Oracle Support

1. **Go to the following web site: `https://support.oracle.com`**
2. **Sign in to My Oracle Support.**

3. **At the top of the page, click the Patches and Updates tab.**
   The Patches and Updates screen appears.

4. **In the Search screen, click Product or Family (Advanced).**
   The screen 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 X4-8) until a match appears.

6. **In the Release field, select a software release from the drop-down list.**

7. **Click Search.**
   The patches available for downloading are listed.
   See "Available Software Release Packages" on page 140 for a description of the available downloads.

8. **To select a patch for downloading, click on it (you can use the shift key to select more than one patch).**
   A pop-up action panel appears. The pop-up panel contains several action options, including the Add to Plan and Download options. For information about the Add to Plan option, click on the associated drop-down button and select "Why use a plan?"

9. **To download the patch(es), click Download in the pop-up action panel.**
   The File Download dialog box appears.

10. **In the File Download dialog box, click on the patch zip file.**
    The patch file downloads.

Installing Updates

The following sections provide information about installing firmware and software updates:

- "Installing Firmware" on page 142
- "Installing Hardware Drivers and OS Tools" on page 143

Installing Firmware

Updated firmware can be installed using one of the following:

- **Oracle Enterprise Manager Ops Center** – Ops Center Enterprise Controller can automatically download the latest firmware from Oracle, or firmware can be loaded manually into the Enterprise Controller. In either case, Ops Center can install the firmware onto one or more servers, blades, or blade chassis.

  For more information, go to: http://www.oracle.com/technetwork/oem/ops-center/index.html.
- **Oracle System Assistant** – Oracle System Assistant can download and install the latest firmware from Oracle.

  For more information, see the *Oracle x86 Administration Guide for X4 Series Servers* at http://www.oracle.com/goto/x86AdminDiag/docs.
- **Oracle Hardware Management Pack** – The `fwupdate` CLI Tool within the Oracle Hardware Management Pack can be used to update firmware within the system.

  For more information, refer to the Oracle Hardware Management Pack Documentation Library at: http://www.oracle.com/goto/ohmp/docs
- **Oracle ILOM** – Oracle ILOM and BIOS firmware are the only firmware that can be updated using either the Oracle ILOM web interface or the command-line interface.

  For more information, refer to the documentation for your supported version of Oracle Lights Out Manager (ILOM) Documentation Library at: http://www.oracle.com/goto/ILOM/docs

Installing Hardware Drivers and OS Tools

Updated hardware drivers and operating system (OS)-related tools, such as Oracle Hardware Management Pack, can be installed using one of the following:

- **Oracle Enterprise Manager Ops Center**

  For more information, go to: http://www.oracle.com/technetwork/oem/ops-center/index.html
- **Oracle System Assistant**

  For more information, see the *Oracle x86 Administration Guide for X4 Series Servers* at http://www.oracle.com/goto/x86AdminDiag/docs.
- **Other deployment mechanisms,** such as JumpStart, KickStart, or third-party tools.

  For more information, refer to your operating system documentation.

Controlling System Power

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

- "Powering the Server On and Off" on page 145
- "Power Off Host Using the Power Button" on page 146
- "Power On Host Using the Power Button" on page 146
- "Power Host On and Off Using Oracle ILOM" on page 147

Powering the Server On and Off

Your server has three power states: power off, standby power, and full power.

Power State	Description	Indicators	Action
Power off	The server is completely powered off when the AC power cords are disconnected.	The server is disconnected from all power sources.	Disconnect power cords to completely remove power. **Caution -** Equipment damage. Do not disconnect power cords when system is in full power mode.
Standby power	When the server is in standby power mode, Oracle ILOM is powered on but the host is powered off.	The power OK indicator blinks. The service processor OK indicator is steady on.	If the server is completely powered off, plug in the power cords to apply standby power. If the server is in full power mode, use Oracle ILOM or the recessed power button to remove host power. You can power the host off gracefully, or immediately. **Caution -** Data loss: To prevent data loss, prepare the operating system for shutdown before performing an immediate power off.
Full power	When you power on the host, the server enters full power mode.	In full power mode, the power OK indicator is steady on.	Use Oracle ILOM or the recessed power button to apply host power.

See Also:

- “Power Off Host Using the Power Button” on page 146
- “Power On Host Using the Power Button” on page 146
- “Power Host On and Off Using Oracle ILOM” on page 147

▼ Power Off Host Using the Power Button

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

   - **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 power OK indicator blinks. The service processor indicator is steady on.

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

     The power OK indicator blinks. The service processor indicator is steady on.

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

   - **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. **Verify that the server is in standby power mode.**

   The host is powered off but the SP is powered on. The power supplies are connected to a power source and the OK status indicator blinks.

2. **Locate the recessed Power button on the front panel.**
3. **Press the recessed Power button.**

The host boots and the server enters full power mode. The power OK indicator goes steady ON when the host is fully booted.

▼ Power Host On and Off Using Oracle ILOM

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

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

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

- **Control power using the Oracle ILOM web interface or the Oracle ILOM CLI.**

  You must be logged on with administrator privileges. For details, see "Connecting to Oracle ILOM" on page 53.

  - **From the Oracle ILOM web interface, perform one of the following:**

Note - These commands affect power to the host but not to the SP. To completely power off the server, you must disconnect the power cords from the back panel of the server.

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

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

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

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

    - `reset /SYSTEM`: Reset the host without removing power.
    - `stop /SYSTEM`: Shut down the host gracefully and then remove power.

- `stop -f /SYSTEM`: Turn off power to the host immediately.
- `start /SYSTEM`: Turn on full power

See Also

- Controlling Host Power, *Oracle ILOM Configuration and Maintenance Guide*.

Troubleshooting Installation Issues

This section provides information for troubleshooting installation issues.

Description	Links
Learn about troubleshooting and obtain diagnostic reference information.	"Troubleshooting and Diagnostic References" on page 149
Record server information before contacting Service.	"Technical Support Information Worksheet" on page 149
Locate the system serial number before contacting Service.	"Locating the Server Serial Number" on page 150

Troubleshooting and Diagnostic References

The *Sun Server X4-8 Service Manual* provides product-specific troubleshooting information.

The *Oracle x86 Server Diagnostics Guide* (`http://www.oracle.com/goto/x86AdminDiag/docs`) provides information about a wide variety of tools available for Oracle's x86 servers.

Knowledge articles, white papers, and product updates are available through the Oracle Support portal:

`https://support.oracle.com`

Technical Support Information Worksheet

If the troubleshooting information fails to solve your problem, collect the following information before calling for support.

System Configuration Information Needed	Your Information
Service contract number	

System Configuration Information Needed	Your Information
System model	
Operating system	
System serial number	
Peripherals attached to the system	
Email address and phone number for you and a secondary contact	
Street address where the system is located	
Superuser password	
Summary of the problem and the work being done when the problem occurred	
IP address	
server name (system host name)	
Network or Internet domain name	
Proxy server configuration	

Locating the Server Serial Number

Use one of the following methods to locate the serial number of your server. Record this number for future use.

- Look on the front panel at the bottom left of the bezel.
- Locate the yellow Customer Information Sheet (CIS) attached to your server Oracle Sun Server X4-8 packaging. This sheet includes the serial number.
- From Oracle ILOM:
  - Using the web interface, log in and view the Summary page.
  - Using the CLI, log in and enter the command:

    ```
    show /System
    ```

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