

# **Sun Server X4-2**

## **Installation Guide**



Part No.: E38019-04  
February 2014

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# Using This Documentation

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This installation guide contains hardware installation procedures and configuration procedures for the Sun Server X4-2 from Oracle.

This document is written for technicians, system administrators, authorized service providers, and users who have an understanding of server systems.

This section describes how to get the latest software and firmware, documentation and feedback, and support and accessibility information.

- “Getting the Latest Software and Firmware” on page xi
- “About This Documentation” on page xii
- “Related Documentation” on page xii
- “Feedback” on page xii
- “Access to Oracle Support” on page xiii

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## Getting the Latest Software and Firmware

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

You can obtain the latest software in one of three ways:

- Oracle System Assistant – This is a new factory-installed option for Oracle x86 servers. It has all the tools and drivers you need and is built into the server.
- My Oracle Support: <http://support.oracle.com>
- Physical media request

For more information, see “Getting Server Firmware and Software Updates” on page 31.

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## About This Documentation

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

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

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## Related Documentation

Documentation	Link
All Oracle documentation	<a href="http://www.oracle.com/documentation">http://www.oracle.com/documentation</a>
Sun Server X4-2	<a href="http://www.oracle.com/goto/X4-2/docs">http://www.oracle.com/goto/X4-2/docs</a>
<i>Oracle X4 Series Servers Administration Guide</i>	<a href="http://www.oracle.com/goto/x86AdminDiag/docs">http://www.oracle.com/goto/x86AdminDiag/docs</a>
Oracle Integrated Lights Out Manager (ILOM) 3.1	<a href="http://www.oracle.com/goto/ILOM/docs">http://www.oracle.com/goto/ILOM/docs</a>
Oracle Hardware Management Pack 2.2	<a href="http://www.oracle.com/goto/OHMP/docs">http://www.oracle.com/goto/OHMP/docs</a>

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## Feedback

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# About the Installation Procedure

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This section provides an overview of the installation procedure.

Description	Links
Review the entire installation procedure and find links to more information about each step.	<a href="#">“Installation Procedure Overview” on page 2</a>

## Related Information

- [“Preparing for Server Installation” on page 5](#)
- [“About Server Features and Components” on page 19](#)
- [“Getting Server Firmware and Software Updates” on page 31](#)
- [“Installing the Server Into a Rack” on page 39](#)
- [“Cabling the Server” on page 75](#)
- [“Connecting to Oracle ILOM” on page 81](#)
- [“Setting Up Software and Firmware Using Oracle System Assistant” on page 101](#)
- [“Configuring Server Drives for OS Installation” on page 109](#)
- [“Configuring the Preinstalled Oracle Solaris 11.1 Operating System” on page 149](#)
- [“Configuring the Preinstalled Oracle Linux 6.x Operating System” on page 159](#)
- [“Configuring the Preinstalled Oracle VM 3.2 Software” on page 165](#)
- [“Controlling System Power” on page 173](#)
- [“Troubleshooting Installation Issues” on page 179](#)
- [“Site Planning Checklists” on page 183](#)

# Installation Procedure Overview

The following table lists the tasks you need to complete to install the Sun Server X4-2.

Step	Description	Links
1	Review the product notes for any late-breaking information about the server.	<i>Sun Server X4-2 Product Notes</i> at <a href="http://www.oracle.com/goto/x4-2/docs">http://www.oracle.com/goto/x4-2/docs</a>
2	Review site planning checklists.	<a href="#">“Site Planning Checklists”</a> on page 183
3	Review the server site requirements, specifications, and components and confirm that you have received all the items you ordered; familiarize yourself with ESD and safety precautions; and assemble the required tools and equipment.	<a href="#">“Preparing for Server Installation”</a> on page 5
4	Review the server features.	<a href="#">“About Server Features and Components”</a> on page 19
5	Install any separately shipped optional components.	<i>Sun Server X4-2 Service Manual</i> , <a href="#">“About System Components”</a> on page 16
6	Review procedures for getting server firmware and software.	<a href="#">“Getting Server Firmware and Software Updates”</a> on page 31
7	Install the server into a rack.	<a href="#">“Installing the Server Into a Rack”</a> on page 39
8	Attach data cables and power cords to the server.	<a href="#">“Cabling the Server”</a> on page 75
9	Set up your system software and firmware using Oracle System Assistant.	<a href="#">“Setting Up Software and Firmware Using Oracle System Assistant”</a> on page 101
10	Connect to Oracle Integrated Lights Out Manager (ILOM).	<a href="#">“Connecting to Oracle ILOM”</a> on page 81

Step	Description	Links
11	If applicable, configure a preinstalled operating system.	<ul style="list-style-type: none"> <li>• <a href="#">“Configuring the Preinstalled Oracle Solaris 11.1 Operating System” on page 149</a></li> <li>• <a href="#">“Configuring the Preinstalled Oracle Linux 6.x Operating System” on page 159</a></li> <li>• <a href="#">“Configuring the Preinstalled Oracle VM 3.2 Software” on page 165</a></li> </ul>
12	If applicable, install one of the following operating systems or virtual machines: <ul style="list-style-type: none"> <li>• Oracle Solaris</li> <li>• Linux</li> <li>• Oracle VM</li> <li>• Windows Server</li> <li>• VMware ESXi</li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Sun Server X4-2 Installation Guide for Oracle Solaris Operating System, “Installing the Oracle Solaris Operating System” on page 23</a></li> <li>• <a href="#">Sun Server X4-2 Installation Guide for Linux Operating Systems, “Installing a Linux Operating System” on page 21</a></li> <li>• <a href="#">Sun Server X4-2 Installation Guide for Oracle VM, “Installing Oracle VM” on page 23</a></li> <li>• <a href="#">Sun Server X4-2 Installation Guide for Windows Operating Systems, “Installing a Windows Server Operating System” on page 23</a></li> <li>• <a href="#">Sun Server X4-2 Installation Guide for VMware ESXi, “Installing VMware ESXi” on page 19</a></li> </ul>
13	Review procedures for controlling system power.	<a href="#">“Controlling System Power” on page 173</a>
14	Troubleshoot installation issues.	<a href="#">“Troubleshooting Installation Issues” on page 179</a>



# Preparing for Server Installation

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This section provides the information you need to prepare for the server installation.

Description	Links
Review the server physical specifications.	<a href="#">“Server Physical Specifications” on page 6</a>
Prepare the space requirements for rackmounting the server, receiving the packaged server, and maintaining the server in its rack.	<a href="#">“Space Requirements” on page 6</a>
Review the site electrical requirements and power requirements of the server.	<a href="#">“Electrical Power Requirements” on page 8</a>
Review temperature, humidity, and other environmental requirements for the server.	<a href="#">“Environmental Requirements” on page 10</a>
Review ventilation and cooling requirements for the rackmounted server.	<a href="#">“Ventilation and Cooling” on page 13</a>
Review Agency Compliance specifications for the server.	<a href="#">“Agency Compliance” on page 14</a>
Unpack the server and verify the ship kit contents.	<a href="#">“Shipping Inventory” on page 16</a>
Assemble the tools required for installation.	<a href="#">“Tools and Equipment Needed for Installation” on page 16</a>
Review ESD requirements and take safety precautions.	<a href="#">“ESD and Safety Precautions” on page 17</a>
Install any optional components into the server.	<a href="#">“Optional Component Installation” on page 18</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)
- [“About Server Features and Components” on page 19](#)

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# Server Physical Specifications

The following table lists the physical specifications for the Sun Server X4-2.

**TABLE:** Sun Server X4-2 Physical Specifications

Dimension	Server Specification	Measurements
Width	With bezel	48.24 cm (18.9 inches)
	Server chassis	43.65 cm (17.19 inches)
Depth	Maximum overall	73.7 cm (29 inches)
Height	1-rack unit (1U) nominal	4.26 cm (1.68 inches)
Weight	Fully populated server	18.0 kg (40.0 lbs)

## Related Information

- [“Space Requirements” on page 6](#)
- [“Rack Requirements” on page 40](#)

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# Space Requirements

The Sun Server X4-2 is a 1 rack unit (1U) server. For physical dimensions, see [“Server Physical Specifications” on page 6](#).

The Sun Server X4-2 can be installed into a four-post rack cabinet that conforms to ANSI/EIA 310-D-1992 or IEC 60927 standards, such as Oracle’s Sun Rack II. All Oracle racks have the same space requirements. The specifications for Oracle’s Sun Rack II are listed in the following table.

**TABLE:** Sun Rack II Models 1242 and 1042 Specifications

Requirement	Specification
Usable rack units	42
Height	199.8 cm (78.66 inches)
Width (with side panels)	60 cm (23.62 inches)



**TABLE:** Sun Rack II Models 1242 and 1042 Specifications *(Continued)*

Requirement	Specification
Depth Model 1242	120 cm (47.24 inches)
Depth Model 1042 (front door handle to rear door handle)	105.8 cm (41.66 inches)
Weight Model 1242	150.6 kg (332 lbs)
Weight Model 1042	123.4 kg (272 lbs)
Maximum dynamic load	1005 kg (2215 lbs)

The minimum ceiling height for the cabinet is 230 cm (90 inches), measured from the true floor or raised floor, whichever is higher. An additional 91.4 cm (36 inches) is for top clearance. The space above the cabinet and its surroundings must not restrict the movement of cool air between the air conditioner and the cabinet, or the movement of hot air coming out of the top of the cabinet.

- [“Receiving and Unpacking Guidelines” on page 7](#)
- [“Maintenance Space Guidelines” on page 8](#)

# Receiving and Unpacking Guidelines

The following table lists the dimensions and weights for the Sun Server X4-2 shipping carton.

**TABLE:** Shipping Carton Specifications

Requirement	Specification
Shipping carton height	26.0 cm (10.24 inches)
Shipping carton width	60.65 cm (23.88 inches)
Shipping carton length	99.0 cm (38.98 inches)
Shipping carton weight	5.65 kg (12.46 lbs)

When the Sun Server X4-2 is unloaded at your site, leave the server in its shipping cartons until it arrives in its installation location. Use a separate area in which to remove the packaging material to reduce particle contamination before entering the data center. Ensure that there is enough clearance and clear pathways for moving the Sun Server X4-2 from the unpacking area to the installation location. The entire access route to the installation site should be free of raised-pattern flooring that can cause vibration.

# Maintenance Space Guidelines

The maintenance area for the rackmounted Sun Server X4-2 must have the required access space. The following table lists the maintenance access requirements for the Sun Server X4-2 when installed in a rack.

**TABLE:** Maintenance Access Requirements

Location	Maintenance Access Requirement
Rear maintenance	91.4 cm (36 inches)
Top maintenance	91.4 cm (36 inches)
Front maintenance	123.2 cm (48.5 inches)

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## Electrical Power Requirements

The server uses AC power. The following table lists the power supply specifications for the Sun Server X4-2.

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**Note** – The power dissipation numbers listed in the following table are the maximum rated power numbers for the power supply used in the system. The numbers are not a rating of the actual power consumption of the system. For up-to-date information about the power consumption, go to Oracle's Sun Power Calculators web site and click on the Sun Server X4-2 link:

<http://www.oracle.com/us/products/servers-storage/sun-power-calculators/index.html>

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**TABLE:** Power Supply Specifications

Parameter	Specification
Voltage (nominal)	100 to 127/200 to 240 VAC
Input current (maximum)	7.2 A @ 100-127 VAC; 3.4 A @ 200-240 VAC
Frequency (nominal)	50/60 Hz (47 to 63 Hz range)

The Sun Server X4-2 can operate effectively over a range of voltages and frequencies. However, it must have a reliable power source. Damage to the server might occur if the ranges are exceeded. Electrical disturbances such as the following might damage the system:

- Fluctuations caused by brownouts
- Wide and rapid variations in input voltage levels or in input power frequency
- Electrical storms
- Faults in the distribution system, such as defective wiring

To protect your server from such disturbances, you should have a dedicated power distribution system, power-conditioning equipment, as well as lightning arresters or power cables to protect from electrical storms.

See the following sections for additional power specifications.

- [“Facility Power Guidelines” on page 9](#)
- [“Circuit Breaker and UPS Guidelines” on page 9](#)
- [“Grounding Guidelines” on page 10](#)

## Facility Power Guidelines

Electrical work and installations must comply with applicable local, state, or national electrical codes. Contact your facilities manager or qualified electrician to determine what type of power is supplied to the building.

To prevent catastrophic failures, design the input power sources to ensure adequate power is provided to the power distribution units (PDUs). Use dedicated AC breaker panels for all power circuits that supply power to the PDU. When planning for power distribution requirements, balance the power load between available AC supply branch circuits. In the United States and Canada, ensure that the overall system AC input current load does not exceed 80 percent of the branch circuit AC current rating.

For example, PDU power cords for the Oracle’s Sun Rack II are 4 meters (13.12 feet) long, and 1 to 1.5 meters (3.3 to 4.9 feet) of the cord might be routed within the rack cabinet. The installation site AC power receptacle must be within 2 meters (6.6 feet) of the rack.

## Circuit Breaker and UPS Guidelines

To prevent catastrophic failures, the design of your power system must ensure that adequate power is provided to the Sun Server X4-2. Use dedicated AC breaker panels for all power circuits that supply power to the Sun Server X4-2. Electrical work and installations must comply with applicable local, state, or national electrical codes. The Sun Server X4-2 requires electrical circuits to be grounded to the Earth.

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**Note** – Circuit breakers are supplied by the customer. One circuit breaker is required for each server power cord.

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In addition to circuit breakers, provide a stable power source, such as an uninterruptible power supply (UPS) to reduce the possibility of component failures. If computer equipment is subjected to repeated power interruptions and fluctuations, then it is susceptible to a higher rate of component failure.

## Grounding Guidelines

The rack must use grounding-type power cords. For example, Oracle's Sun Rack II has three-wire, grounding-type power cords. Always connect the cords to grounded power outlets. Because different grounding methods are used, depending on location, check the grounding type, and refer to documentation, such as IEC documents, for the correct grounding method. Ensure that the facility administrator or qualified electrical engineer who verifies the grounding method for the building and performs the grounding work.

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## Environmental Requirements

The following table lists the temperature, humidity, and altitude specifications, as well as acoustic noise, vibration, and shock specifications.

**TABLE:** Environmental Specifications

Specification	Operating	Nonoperating
Ambient temperature (Does not apply to removable media)	<ul style="list-style-type: none"> <li>Maximum range: 41°F to 95°F (5°C to 35°C) up to 2,953 feet (900 meters)</li> <li>Optimal: 69.8°F to 73.4°F (21°C to 23°C)</li> </ul> <p><b>Note</b> - Maximum ambient operating temperature is derated by 1 degree C per 300 meters of elevation beyond 900 meters, up to a maximum altitude of 3,000 meters.</p>	-40°F to 158°F (-40°C to 70°C)
Relative humidity	<ul style="list-style-type: none"> <li>10% to 90% noncondensing, short term 25°F to 113°F (-5°C to 55°C)</li> <li>5% to 90% noncondensing, but not to exceed 0.024 kg of water per kg of dry air (0.053 lbs water/2.205 lbs dry air)</li> </ul>	Up to 93% noncondensing 100.4° (37.7°C) maximum wet bulb
Altitude	Up to 9,840 feet (3,000 meters) <b>Note</b> - In China markets, regulations may limit installations to a maximum altitude of 6,562 feet (2,000 meters).	Maximum 39,370 feet (12,000 meters)
Acoustic noise	<ul style="list-style-type: none"> <li>Maximum condition: 7.91 Bels A weighted</li> <li>Idle condition: 5.28 Bels A weighted</li> </ul>	Not applicable
Vibration	0.15 G (z-axis), 0.10 G (x-, y-axes), 5-500Hz swept sine  IEC 60068-2-6 Test FC	0.5 G (z-axis), 0.25 G (x-, y-axes), 5-500Hz swept sine IEC 60068-2-6 Test FC
Shock	3 Gs, 11 ms half-sine IEC 60068-2-27 Test Ea	Roll-off: 1-inch roll-off free fall, front to back rolling directions Threshold: 25 mm threshold height at 0.75 m/s impact velocity ETE-1010-02 Rev A

Set conditions to the optimal temperature and humidity ranges to minimize the chance of downtime due to component failure. Operating the Sun Server X4-2 for extended periods at or near the operating range limits, or installing it in an environment when it remains at or near nonoperating range limits could significantly increase hardware component failure. See also:

- [“Temperature Guidelines” on page 12](#)
- [“Humidity Guidelines” on page 12](#)

## Related Information

- [“Ventilation and Cooling” on page 13](#)

## Temperature Guidelines

An ambient temperature range of 21° to 23° Celsius (70° to 74° Fahrenheit) is optimal for server reliability and operator comfort. Most computer equipment can operate in a wide temperature range, but near 22° Celsius (72° Fahrenheit) is desirable because it is easier to maintain safe humidity levels. Operating in this temperature range provides a safety buffer in the event that the air conditioning system goes down for a period of time.

Studies have shown that temperature increases of 10° Celsius (15° Fahrenheit) above 20° Celsius (70° Fahrenheit) reduce long-term electronics reliability by 50 percent. Excessive internal temperatures might result in full or partial shutdown of the Sun Server X4-2.

## Humidity Guidelines

Relative humidity is the percentage of the total water vapor that can exist in the air without condensing, and is inversely proportional to air temperature. Humidity goes down when the temperature rises, and goes up when the temperature drops. For example, air with a relative humidity of 45 percent at a temperature of 24° Celsius (75° Fahrenheit) has a relative humidity of 65 percent at a temperature of 18° Celsius (64° Fahrenheit). As the temperature drops, the relative humidity rises to more than 65 percent, and water droplets are formed.

The ambient relative humidity range of 45 to 50 percent is suitable for safe data processing operations. Most computer equipment can operate in a wide range (20 to 80 percent), but the range of 45 to 50 percent is recommended for the following reasons:

- Optimal range helps protect computer systems from corrosion problems associated with high humidity levels.
- Optimal range provides the greatest operating time buffer in the event of air conditioner control failure.
- This range helps to avoid failures or temporary malfunctions caused by intermittent interference from static discharges that may occur when relative humidity is too low.

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# Ventilation and Cooling

Always provide adequate space in front of and behind the rack to allow for proper ventilation of the rackmounted servers. Do not obstruct the front or rear of the rack with equipment or objects that might prevent air from flowing through the rack. Rackmountable servers and equipment, including the Sun Server X4-2, typically draw cool air in through the front of the rack and let warm air out the rear of the rack. There is no airflow requirement for the left and right sides due to front-to-back cooling.

If the rack is not completely filled with components, then cover the empty sections with filler panels. Gaps between components can adversely affect airflow and cooling within the rack. See also:

- [“Ventilation Guidelines” on page 13](#)

## Related Information

- [“Environmental Requirements” on page 10](#)

## Ventilation Guidelines

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 X4-2 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 rear 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 rear of the system for ventilation.
- Ensure unobstructed airflow through the chassis. The server uses internal blowers 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 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 rear doors have 80 percent perforations that provide a high level of airflow through the rack.
- Ensure that front and rear clearance of the server allow a minimum of 1 inch (2.5 mm) at the front of the server and 3.15 inch (80 mm) at the rear 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.

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**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.

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

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## Agency Compliance

The following table lists the standards for agency compliance.



Category	Relevant Standards
Safety	UL/CSA-60950-1, 2nd Edition, 2007-03-27 EN60950-1:2006 +A11:2009 +A1:2010 +A12:2011 IEC60950-1:2005 +A1:2009 CB Scheme with all country deviations CNS14336-1 GB4943
Ergonomics	EK1-ITB-2000
EMI	EN55022:2006 +A1:2007/CISPR22:2008 Class A 47 CFR 15B Class A ICES-003 Class A VCCI Class A AS/NZ 3548 Class A CNS 13438 Class A GB9254 Class A EN61000-3-2 GB17625.1 EN61000-3-3
Immunity	EN55024:2010 IEC 61000-4-2 Electrostatic discharge IEC 61000-4-3 RF E-field immunity IEC 61000-4-4 Electrical Fast Transient/Burst IEC 61000-4-5 Surge IEC 61000-4-6 RF-Conducted immunity IEC 61000-4-8 Power frequency magnetic field immunity IEC 61000-4-11 Voltage dips, short interruptions
Regulatory markings	CE, FCC, ICES-003, C-tick, VCCI, GOST-R, BSMI, KCC, UL/cUL, UL/S-mark, CCC

## Related Information

- *Sun Server X4-2 Safety and Compliance Guide*
- *Important Safety Information for Oracle's Hardware Systems*

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# Shipping Inventory

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.

The ship kit for the Sun Server X4-2 includes the following items:

- Power cords, packaged separately with country kit
- Rackmount kit containing rack rails and installation instructions
- Miscellaneous hardware, cables, and connectors
- *Sun Server X4-2 Getting Started Guide*
- Legal and safety documents

## Related Information

- [“Optional Component Installation” on page 18](#)

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# Tools and Equipment Needed for Installation

To install the system, you must have the following tools:

- No. 2 Phillips screwdriver
- ESD mat and grounding strap

In addition, you must provide a system console device, such as one of the following:

- ASCII terminal
- Workstation
- Terminal server
- Patch panel connected to a terminal server

## Related Information

- [“Installing the Server Into a Rack” on page 39](#)

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# ESD and Safety Precautions

Electronic equipment is susceptible to damage by static electricity. Use a grounded antistatic wriststrap, footstrap, or equivalent safety equipment to prevent electrostatic discharge (ESD) when you install or service the server.



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**Caution** – To protect electronic components from electrostatic damage, which can permanently disable the system or require repair by service technicians, place components on an antistatic surface, such as an antistatic discharge mat, an antistatic bag, or a disposable antistatic mat. Wear an antistatic grounding strap connected to a metal surface on the chassis when you work on system components.

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Read the safety information in the *Sun Server X4-2 Safety and Compliance Guide* and in the *Important Safety Information for Oracle's Hardware Systems* before installing the server.



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**Caution** – Deploy the anti-tilt bar or legs on the equipment rack before beginning an installation.

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**Caution** – The server weighs approximately 18.0 kg (40.0 pounds). Two people are required to lift and mount this 1 rack unit (1U) server into a rack enclosure when using the procedures in this document.

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**Caution** – When completing a two-person procedure, always communicate your intentions clearly before, during, and after each step to minimize confusion.

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## Related Information

- [“Safety Precautions When Rackmounting the Server” on page 41](#)

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# 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 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

If you ordered any options that are not factory installed, refer to *Sun Server X4-2 Service Manual*, “About System Components” on page 16.

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/](https://support.oracle.com/handbook_private/)

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**Note** – This site requires an Oracle web account for access.

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Click the name and model of your server. On the product page that opens for the server, click Full Components List for a list of components.

If you ordered any options that are field-replaceable units (FRUs) or customer-replaceable units (CRUs), refer to the service label on the top cover of the server or the component removal and replacement procedures in the *Sun Server X4-2 Service Manual*, “About System Components” on page 16 for installation instructions.

## Related Information

- “Server Components” on page 20
- *Sun Server X4-2 Service Manual*, “About System Components” on page 16

# About Server Features and Components

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This section describes the components, LEDs, connectors, and disk management options for the server.

Description	Links
Review server features and components.	<a href="#">“Server Components” on page 20</a>
Locate status indicators, connectors, and storage drives on the server front and back panels.	<a href="#">“Front Panel Status Indicators, Connectors, and Drives” on page 22</a> <a href="#">“Back Panel Status Indicators, Connectors, and PCIe Slots” on page 25</a>
Review server management software.	<a href="#">“Server Management Software Overview” on page 26</a>

## Related Information

- [“Cabling the Server” on page 75](#)

# Server Components

**TABLE:** Sun Server X4-2 Components

Feature	Description
Processor	<p>One or two processors with four integrated DDR3 memory controllers per processor. Processors with the following capabilities are supported:</p> <ul style="list-style-type: none"><li>• 2.7 GHz, 12-core, 130W</li><li>• 3.0 GHz, 10-core, 130W</li><li>• 2.6 GHz, 8-core, 95W</li><li>• 2.6 GHz, 6-core, 80W</li><li>• 2.5 GHz, 4-core, 80W</li></ul>
Memory	<p>Up to 8 DIMMs per processor for a maximum of 16 DDR3 DIMMs and a maximum of 512 GB of memory are supported in dual-processor systems. RDIMMs (8 GB and 16 GB) and LRDIMMs (32 GB) are supported.</p> <p><b>Note</b> - A maximum of 8 DIMMs and a maximum of 256-GB of memory are supported in single-processor systems.</p>
Storage drives	<p>Storage drive configurations can comprise both spinning media hard disk drives (HDDs) or solid state drives (SSDs). Configurations include:</p> <ul style="list-style-type: none"><li>• Up to eight 2.5-inch hot-pluggable SAS HDDs/SATA SSDs</li><li>• Up to four 2.5-inch hot-pluggable SAS HDDs/SATA SSDs with a DVD</li></ul> <p><b>Caution</b> - In Oracle Engineered Systems, storage drive 7 might be populated with a remote battery module for the host bus adapter (HBA) card. The battery module is not a customer-replaceable unit and should not be removed or replaced by customers. For more information, refer to the <a href="#">Sun Server X4-2 Service Manual, "Battery Module"</a> on page 20.</p>
PCI Express (PCIe) I/O slots	<p>Three PCIe Gen3 slots that accommodate low-profile PCIe cards.</p> <ul style="list-style-type: none"><li>• Slot 1: x16 electrical interface</li><li>• Slots 2 and 3: x8 electrical interface</li></ul> <p><b>Note</b> - PCIe slot 1 is nonfunctional in single-processor systems.</p>
Internal HBA	<p>One dedicated PCIe Gen3 slot for use with an optional internal-only host bus adapter (HBA) card. This internal HBA is used to control and manage the storage drives.</p>

**TABLE:** Sun Server X4-2 Components (*Continued*)

Feature	Description
Ethernet ports	Up to four 10GBASE-T RJ-45 Gigabit Ethernet (10GbE) ports on the rear panel. <b>Note</b> - Ethernet ports NET 2 and NET 3 are nonfunctional in single-processor systems.
USB 2.0 ports	Two front, two rear, and two internal. <b>Note</b> - One of the internal USB ports might be preinstalled with a USB drive containing the Oracle System Assistant. For more information, see the <i>Oracle X4 Series Servers Administration Guide</i> at <a href="http://www.oracle.com/goto/x86AdminDiag/docs">http://www.oracle.com/goto/x86AdminDiag/docs</a> .
Video (VGA) ports	One rear high-density DB-15 video port.
Service processor (SP)	The server includes an AST2300 service processor (SP). The SP provides IPMI 2.0 compliant remote management capabilities. The SP features: <ul style="list-style-type: none"><li>• Oracle Integrated Lights Out Manager (ILOM) version 3.1.</li><li>• Local Oracle ILOM command-line access using a serial connection.</li><li>• Support for Ethernet access to SP through a dedicated, 10/100BASE-T management port (NET MGT) and optionally through one of the host Ethernet ports (sideband management).</li><li>• Support for remote KVMs (keyboard, video, mouse, and storage) over IP.</li></ul>
Management Software	<ul style="list-style-type: none"><li>• Oracle Integrated Lights Out Manager (ILOM) 3.1</li><li>• Oracle System Assistance 1.1</li><li>• Oracle Hardware Management Pack 2.2</li></ul>
Power supplies	Two hot-swappable and highly-redundant 600W power supplies.
Cooling fans	Four 40-mm, hot-swappable fan modules for chassis cooling. Each fan module contains two counter-rotating fan pairs (four rotors total). Each power supply has its own cooling fans.
Operating systems	<ul style="list-style-type: none"><li>• Oracle Solaris and Oracle Linux operating systems can be optionally preinstalled on the server.</li><li>• Oracle Solaris, Linux, and Windows are supported. For a complete list of supported OS versions for your server, refer to the <i>Sun Server X4-2 Product Notes</i> at: <a href="http://www.oracle.com/goto/X4-2/docs">http://www.oracle.com/goto/X4-2/docs</a></li></ul>
Virtualization software	<ul style="list-style-type: none"><li>• Oracle VM and VMware ESXi are supported.</li><li>• Oracle VM software can be optionally preinstalled on the server.</li></ul>

## Related Information

- “Front Panel Status Indicators, Connectors, and Drives” on page 22
- “Back Panel Status Indicators, Connectors, and PCIe Slots” on page 25

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# Front Panel Status Indicators, Connectors, and Drives

These sections describe the status indicators (LEDs), connectors, and drives on the front panel of each of the drive configurations available for the Sun Server X4-2.

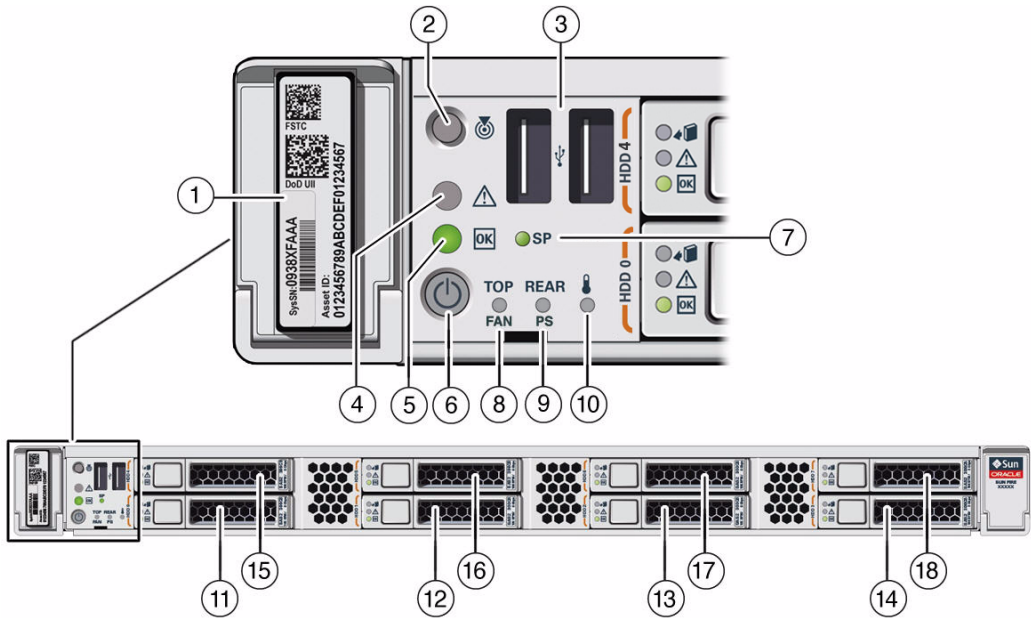
- [“Front Panel With Eight 2.5-inch Drives” on page 22](#)
- [“Front Panel With Four 2.5-inch Drives and SATA DVD Drive” on page 24](#)

## Front Panel With Eight 2.5-inch Drives

The following figure shows the status indicators (LEDs), connectors, and drives on the front panel of a Sun Server X4-2 configured with eight 2.5-inch storage drives.



**FIGURE:** Server Front Panel With Eight 2.5-inch Drives Configuration



**Figure Legend**

1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag	10	System Over Temperature Warning LED: amber
2	Locate LED/button: white	11	Storage drive 0
3	USB 2.0 connectors (2)	12	Storage drive 1
4	Service Required LED: amber	13	Storage drive 2
5	Power/OK LED: green	14	Storage drive 3
6	Power button	15	Storage drive 4
7	SP OK LED: green	16	Storage drive 5
8	Fan Fault LED: amber	17	Storage drive 6
9	Power Supply (PS) Fault LED: amber	18	Storage drive 7 (In Oracle Engineered Systems, storage drive 7 might be populated with a remote battery module for the HBA card.)

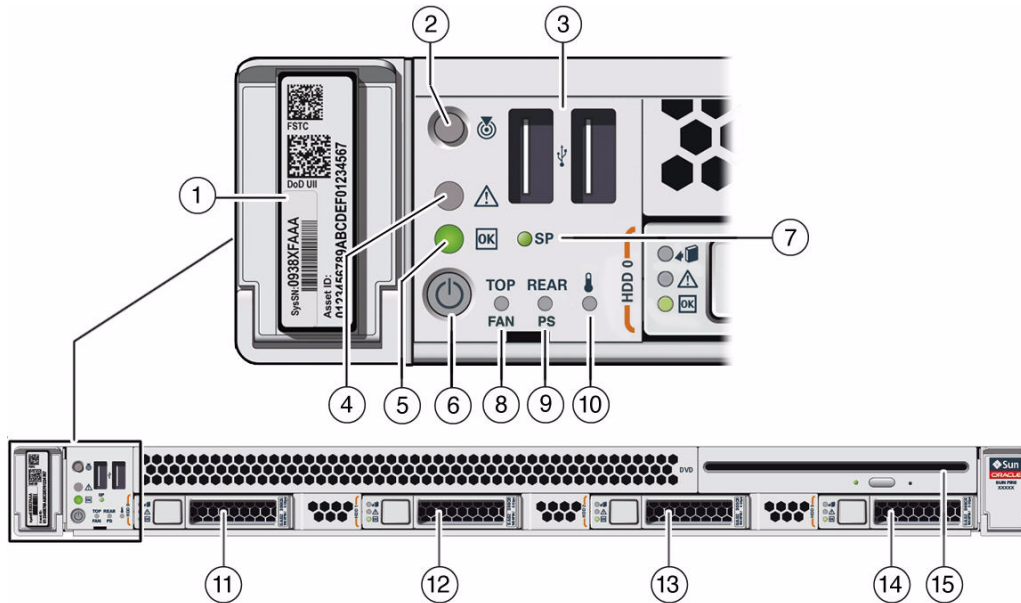
**Related Information**

- [“Front Panel With Four 2.5-inch Drives and SATA DVD Drive” on page 24](#)
- [“Back Panel Status Indicators, Connectors, and PCIe Slots” on page 25](#)

# Front Panel With Four 2.5-inch Drives and SATA DVD Drive

The following figure shows the status indicators (LEDs), connectors, and drives on the front panel of a Sun Server X4-2 configured with four 2.5-inch storage drives and a SATA DVD drive.

**FIGURE:** Server Front Panel With Four 2.5-inch Drives and SATA DVD Drive Configuration



## Figure Legend

1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag	9	Power Supply (PS) Fault LED: amber
2	Locate LED/ button: white	10	System Over Temperature Warning LED: amber
3	USB 2.0 connectors (2)	11	Storage drive 0
4	Service Required LED: amber	12	Storage drive 1
5	Power/OK LED: green	13	Storage drive 2
6	Power button	14	Storage drive 3
7	SP OK LED: green	15	SATA DVD drive
8	Fan Fault LED: amber	16	Not applicable

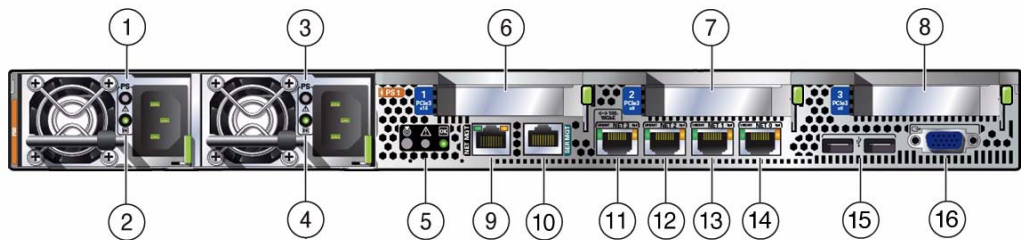
**Related Information**

- “Front Panel With Eight 2.5-inch Drives” on page 22
- “Back Panel Status Indicators, Connectors, and PCIe Slots” on page 25

# Back Panel Status Indicators, Connectors, and PCIe Slots

The following figure shows the Sun Server X4-2 back panel and the location of status indicators (LEDs), connectors, and PCIe slots.

**FIGURE:** Server Back Panel



**Figure Legend**

1	Power Supply (PS) 0	9	Oracle Integrated Lights Out Manager (ILOM) service processor (SP) network management 10/100BASE-T port (NET MGT)
2	Power Supply (PS) 0 status indicators: Service Required LED: amber AC OK LED: green	10	Serial management (SER MGT)/RJ-45 serial port
3	Power Supply (PS) 1	11	Network (NET) 100/1000/10000 port: NET 3 (Nonfunctional in single-processor systems.)
4	Power Supply (PS) 1 status indicators: Service Required LED: amber AC OK LED: green	12	Network (NET) 100/1000/10000 port: NET 2 (Nonfunctional in single-processor systems.)

**Figure Legend** *(Continued)*

5	System status indicators: Locator LED: white Service Required LED: amber Power/OK LED: green	13	Network (NET) 100/1000/10000 port: NET 1
6	PCIe card slot 1 (Nonfunctional in single-processor systems.)	14	Network (NET) 100/1000/10000 port: NET 0
7	PCIe card slot 2	15	USB 2.0 connectors (2)
8	PCIe card slots 3 and 4	16	DB-15 video connector

**Related Information**

- [“Front Panel Status Indicators, Connectors, and Drives” on page 22](#)
- [“Server Components” on page 20](#)



# Server Management Software Overview

The following sections describe the server management software:

- [“Oracle System Assistant” on page 26](#)
- [“Oracle ILOM Overview” on page 27](#)
- [“UEFI BIOS Overview” on page 28](#)

## Oracle System Assistant

Oracle System Assistant allows you to set up and manage the Sun Server X4-2. The Oracle System Assistant application 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.

The Sun Server X4-2 might contain an internal USB flash drive that contains Oracle System Assistant.

# Oracle ILOM Overview

Oracle ILOM allows you to manage the Sun Server X4-2. Use Oracle ILOM to connect to the server service processor (SP). The server supports Oracle Integrated Lights Out Manager (ILOM) version 3.1.

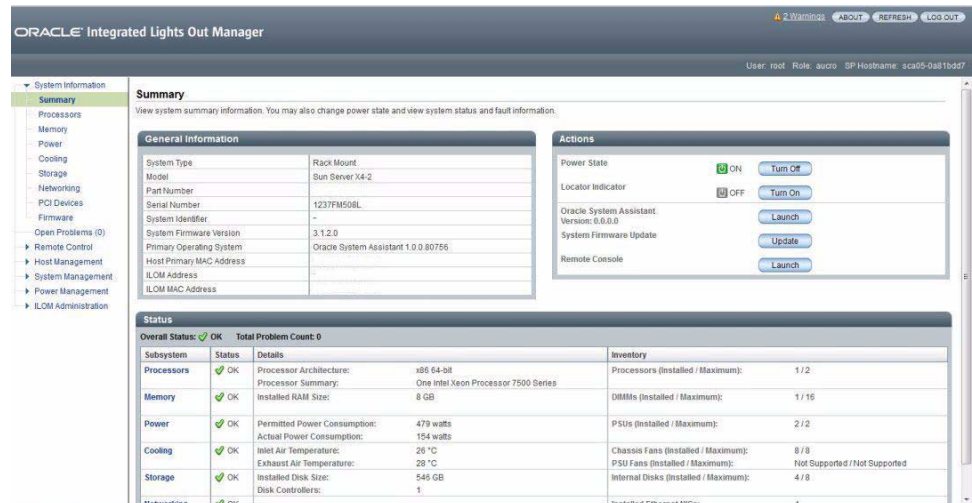
The Oracle ILOM software resides on the server service processor. Use Oracle ILOM software to monitor and manage server module components. Oracle ILOM software functions include:

- 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 Remotely Using the Web Interface” on page 85](#)
- [“Log In to Oracle ILOM Remotely Using the CLI” on page 87](#)

The following illustration shows an example of the web interface when you are logged in to Oracle ILOM.



# UEFI BIOS Overview

The Sun Server X4-2 contains a Unified Extensible Firmware Interface (UEFI)-compatible BIOS that provides more boot options and configuration capability for adapter cards than previous versions of the BIOS.

The server also supports a legacy version of the BIOS for use with software or adapters that do not have UEFI drivers. The legacy version is the default.

The following sections provide more information on the UEFI BIOS modes:

- “Boot Mode Selection” on page 28
- “Legacy BIOS Boot Mode” on page 28
- “UEFI BIOS Boot Mode” on page 29

Refer to the *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs> for more information on UEFI BIOS.

## Boot Mode Selection

Two boot modes are available for BIOS: Legacy BIOS Boot Mode and UEFI BIOS Boot Mode. UEFI BIOS can be configured to support either UEFI or Legacy BIOS Boot Mode. However, some devices and operating systems do not yet support UEFI BIOS and can boot only from Legacy BIOS 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 command Save Changes and Reset. 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 the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Collection at: <http://www.oracle.com/goto/ILOM/docs>.

## Legacy BIOS Boot Mode

Choose Legacy BIOS Boot Mode to allow host bus adapters (HBAs) to use option ROMs. Select Legacy BIOS Boot Mode when software or adapters do not have UEFI drivers, or the system is using option ROM. Legacy BIOS Boot Mode is the default boot mode.

In Legacy BIOS Boot Mode, only boot candidates that support Legacy BIOS Boot Mode appear in the BIOS Setup Utility screens in the Boot Options Priority list.

## UEFI BIOS Boot Mode

Choose UEFI BIOS Boot Mode to use UEFI drivers when software and adapters have UEFI drivers. UEFI BIOS Boot Mode is manually selected during setup. For instructions for making the selection, refer to the *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>.

In UEFI BIOS Boot Mode, only boot candidates that support UEFI BIOS Boot Mode appear on the BIOS Setup Utility screens in the Boot Options Priority list.

Currently, the following operating systems support UEFI BIOS Boot Mode. For updates to this list, refer to *Sun Server X4-2 Product Notes* at <http://www.oracle.com/goto/x4-2/docs>.

- Oracle Solaris 11.1
- Oracle Linux 6.x
- Red Hat Enterprise Linux 6.x
- SUSE Linux Enterprise Server 11 SP2
- Microsoft Windows Server 2008 and 2012
- VMware ESXi 5.x

These operating systems can use either UEFI BIOS Boot Mode or Legacy BIOS Boot Mode. All other operating systems must use Legacy BIOS Boot Mode. However, 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.





# Getting Server Firmware and Software Updates

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

Description	Links
Learn about server firmware and software updates.	<a href="#">“Firmware and Software Updates” on page 31</a>
Learn about options for accessing firmware and software.	<a href="#">“Firmware and Software Access Options” on page 32</a>
Review available firmware and software releases.	<a href="#">“Software Releases” on page 33</a>
Learn how to get firmware and software using Oracle System Assistant, My Oracle Support, or Physical Media Request.	<a href="#">“Getting Firmware and Software From MOS or PMR” on page 34</a>
Install firmware and software updates using other methods.	<a href="#">“Installing Updates Using Other Methods” on page 38</a>

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## Firmware and Software Updates

Firmware and software for your server are updated periodically. These updates are made available as software releases. The software releases are a set of downloadable files (patches) that include all available firmware, software, hardware drivers, tools, and utilities for the server. All these files have been tested together and verified to work with your server.

You should update your server firmware and software as soon as possible after a new software release becomes available. Software releases often include bug fixes, and updating your server ensures that your server has the latest firmware and software.

The ReadMe document that is included with each patch in a software release contains information about the patch, such as what has changed or not changed from the prior software release, as well as bugs that are fixed with the current release.

The product notes that are part of the server documentation identify which server software release is the latest release supported on your server.

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## Firmware and Software Access Options

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

- **Oracle System Assistant** – Oracle System Assistant is a factory-installed option for Oracle servers that enables you to easily download and install the latest software releases.

For information about using Oracle System Assistant, see the *Oracle X4 Series Servers Administration Guide* at

<http://www.oracle.com/goto/x86AdminDiag/docs>.

- **My Oracle Support** – All system software releases are available from My Oracle Support at <http://support.oracle.com>.

For information about what is available on the My Oracle Support web site, see “Software Releases” on page 33.

For instructions on how to download software releases from My Oracle Support, see “Download Firmware and Software Using My Oracle Support” on page 34.

- **Physical Media Request (PMR)** – You can request a DVD that contains one or more of the software releases that are available from My Oracle Support.

For information, see “Requesting Physical Media” on page 35.

- **Other Methods** – You can use Oracle Enterprise Manager Ops Center, Oracle Hardware Management Pack, or Oracle ILOM to update your server software and firmware.

For information, see “Installing Updates Using Other Methods” on page 38.

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# Software Releases

Software releases on My Oracle Support are grouped by product family (such as Sun Server), then the product (the specific server or blade), and finally the software release version. A software release contains all the updated software and firmware for your server or blade as a set of downloadable files (patches), including firmware, drivers, tools, or utilities, all tested together to be compatible with your server.

Each patch 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.

My Oracle Support provides the set of software releases for your server as described in the following table. You can obtain these software releases by downloading the files from My Oracle Support or by submitting to Oracle a physical media request (PMR). Alternatively, you can download the same firmware and software to your server using Oracle System Assistant.

Package Name	Description	When to Download This Package
X4-2 SW <i>release</i> – Firmware Pack	Contains all system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.
X4-2 SW <i>release</i> – OS Pack	Includes a package of all tools, drivers, and utilities for a specific OS. An OS Pack is available for each supported operating system version. Software includes Oracle Hardware Management Pack and LSI MegaRAID software. For the Windows OS, the OS Pack also includes Intel Network Teaming and Install Pack.	You need to update OS-specific tools, drivers, or utilities.
X4-2 SW <i>release</i> – 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.

Package Name	Description	When to Download This Package
X4-2 SW <i>release</i> – Diagnostics	Includes Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.
X4-2 SW <i>release</i> – Oracle System Assistant Updater	Includes Oracle System Assistant recovery and ISO update image.	You need to manually recover or update Oracle System Assistant.

## Getting Firmware and Software From MOS or PMR

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

However, you can also obtain updated firmware and software by using My Oracle Support (MOS) or by submitting to Oracle a physical media request (PMR). For information, see:

- “Download Firmware and Software Using My Oracle Support” on page 34
- “Requesting Physical Media” on page 35

### ▼ Download Firmware and Software Using My Oracle Support

1. **Go to the My Oracle Support web site:** <http://support.oracle.com>.
2. **Sign in to My Oracle Support.**
3. **At the top of the page, click the Patches & Updates tab.**  
The Patch Search pane appears at the right of the screen.
4. **Within the Search tab area, click Product or Family (Advanced).**  
The Search tab area appears with search fields.
5. **In the Product field, select the product from the drop-down list.**  
Alternatively, type a full or partial product name (for example, Sun Server X4-2) until a match appears.

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

Expand the list to see all available software releases.

**7. Click Search.**

The Patch Advanced Search Results screen appears, listing the patches for the software release.

See [“Software Releases” on page 33](#) for a description of the available software releases.

**8. To select a patch for a software release, click the patch number next to the software release version.**

You can use the Shift key to select more than one patch.

A pop-up action panel appears. The panel contains several action options, including the ReadMe, Download, and Add to Plan options. For information about the Add to Plan option, click the associated button and select “Why use a plan?”.

**9. To review the ReadMe file for this patch, click ReadMe.**

**10. To download the patch for the software release, click Download.**

**11. In the File Download dialog box, click the patch zip file name.**

The patch for the software release downloads.

## Requesting Physical Media

If your processes do not allow downloads from Oracle web sites, you can receive the latest software release packages by submitting to Oracle a physical media request (PMR). The preferred method for submitting a PMR is through the My Oracle Support (MOS) web site.

The high-level tasks for submitting a physical media request are described in these sections:

- [“Gathering Information for the Physical Media Request” on page 36](#)
- [“Request Physical Media \(Online\)” on page 36](#)
- [“Request Physical Media \(By Phone\)” on page 38](#)

# Gathering Information for the Physical Media Request

You must have a warranty or support contract for your server in order to make a physical media request (PMR).

Before you make the PMR, do the following:

- **Obtain the product name, software release version, and patches required.** It will be easier to make the request if you know the latest software release version and the name of the patches for the software release that you are requesting.
  - *If you have access to My Oracle Support* – Follow the instructions in “[Download Firmware and Software Using My Oracle Support](#)” on page 34 to determine the latest software release version and view available software release packages (patches). After viewing the list of patches, you can navigate away from the Patch Advanced Search Results screen, if you do not want to continue with the download steps.
  - *If you do not have access to My Oracle Support* – Use the information in “[Software Releases](#)” on page 33 to determine which patches for the software release you want, and then request those patches for the latest software release version.
- **Have the shipping information ready.** You will need to provide a contact name, phone number, email address, company name, and shipping address as part of the request.

## ▼ Request Physical Media (Online)

Gather the information described in “[Gathering Information for the Physical Media Request](#)” on page 36 before making the request.

1. **Go to the My Oracle Support web site:** <http://support.oracle.com>.
2. **Sign in to My Oracle Support.**
3. **Click on the Contact Us link in the upper right corner of the page.**  
The Create Service Request: Problem screen appears.
4. **Describe your request as follows:**
  - a. **In the Problem Summary field, type PMR for latest software release.**
  - b. **From the Problem Type drop-down list, select Software & OS Media Requests.**
  - c. **In the Support Identifier field, type the Customer Support Identifier associated with your support contract.**

5. **Skip the Create Service Request: Solutions screen by clicking the Next button in the upper right corner of the screen twice.**

The Create Service Request: More Details screen appears.

6. **Provide more information about your request as follows:**

- a. **In the Additional Information section, answer the questions listed in the following table:**

Question	Your Answer
Is this a physical software media shipment request?	Yes
Which product line does the media request involve?	Sun Products
Are you requesting a required password for a patch download?	No
Are you requesting a patch on CD/DVD?	Yes
If requesting a patch on CD/DVD, please provide the patch number and OS/platform?	Enter the patch number for each download that you want for the software release.
List the product name and version requested for the physical media shipment?	<i>Product Name:</i> Sun Server X4-2 <i>Version:</i> Latest software release number
What is the OS/platform for the requested media?	If you are requesting OS-specific downloads, specify the OS here. If you are requesting system firmware only, enter Generic.
Are any languages required for this shipment?	No

- b. **Fill in the ship-to contact information, which includes a contact name, phone number, email address, company name, and shipping address.**

7. **Click the Next button.**

The Create Service Request: Severity/Contact screen appears.

8. **Enter your contact phone number and preferred method of contact.**

9. **Click the Submit button.**

This completes the physical media request. It can take up to seven business days to receive the physical media.

## ▼ Request Physical Media (By Phone)

Gather the information described in “[Gathering Information for the Physical Media Request](#)” on page 36 before making the request.

1. **Call Oracle support, using the appropriate number from the Oracle Global Customer Support Contacts Directory at:**

<http://www.oracle.com/us/support/contact-068555.html>

2. **Tell Oracle support that you want to make a physical media request (PMR) for the Sun Server X4-2.**

- If you are able to find the specific software release package and patch number information from My Oracle Support, provide this information to the support representative.
- If you are unable to find the software release package information, request the latest software release package for the Sun Server X4-2.

---

## Installing Updates Using Other Methods

In addition to using Oracle System Assistant and My Oracle Support, you can install updated firmware and software using one of the following methods:

- **Oracle Enterprise Manager Ops Center** – You can use Ops Center Enterprise Controller to 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 information, go to:

<http://www.oracle.com/technetwork/oem/ops-center/index.html>

- **Oracle Hardware Management Pack** – You can use the fwupdate CLI Tool within the Oracle Hardware Management Pack to update firmware within the system.

For information, refer to the Oracle Hardware Management Pack Documentation Library at:

<http://www.oracle.com/goto/OHMP/docs>

- **Oracle ILOM** – You can use the Oracle ILOM web interface or command-line interface to update Oracle ILOM and BIOS firmware.

For information, refer to the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at:

<http://www.oracle.com/goto/ILOM/docs>



# Installing the Server Into a Rack

---

This section describes how to install the server into a rack using the rail assembly in the rackmount kit. Perform these procedures if you purchased the rail assembly.

Description	Links
Complete all installation prerequisite tasks.	<a href="#">“Installation Prerequisites” on page 40</a>
Check that your rack meets the requirements for installation of this server.	<a href="#">“Rack Requirements” on page 40</a>
Review safety precautions.	<a href="#">“Safety Precautions When Rackmounting the Server” on page 41</a>
Verify that you have received all components of the rackmount kit.	<a href="#">“Rackmount Kit Contents” on page 42</a>
Stabilize the rack.	<a href="#">“Stabilize the Rack for Installation” on page 43</a>
Install mounting brackets onto the server.	<a href="#">“Install Mounting Brackets” on page 44</a>
Mark the rackmount location.	<a href="#">“Mark the Rackmount Location” on page 46</a>
Attach the tool-less slide-rail assembly to the rack.	<a href="#">“Attach Tool-less Slide-Rail Assemblies” on page 47</a>
Install the server into the slide-rail assembly.	<a href="#">“Install the Server Into the Slide-Rail Assemblies” on page 50</a>
(Optional) Install the cable management arm for routing server cables.	<ul style="list-style-type: none"><li>• <a href="#">“Install the Second-Generation Cable Management Arm” on page 52</a></li><li>• <a href="#">“Remove the Second-Generation Cable Management Arm” on page 64</a></li><li>• <a href="#">“Install the First-Generation Cable Management Arm” on page 68</a></li></ul>
Verify that the slide-rails and cable management arm are working correctly.	<a href="#">“Verify Operation of Slide-Rails and CMA” on page 73</a>

## Related Information

- [“About the Installation Procedure” on page 1](#)
- [“Preparing for Server Installation” on page 5](#)

---

# Installation Prerequisites

Ensure that the following tasks are complete before you start the rackmount procedures:

- Install all optional components purchased for the server. See [“Optional Component Installation” on page 18](#).
- Ensure that your site meets the required electrical and environmental requirements. See [“Preparing for Server Installation” on page 5](#).

---

# Rack Requirements

The rack into which you install the Sun Server X4-2 must meet the requirements listed in the following table. Oracle’s Sun Rack II is compatible with the Sun Server X4-2. For information about Oracle’s Sun Rack II, see [“Preparing for Server Installation” on page 5](#).

**TABLE:** Rack Requirements

Item	Requirement
Structure	Four-post rack (mounting at both front and rear). Supported rack types: square hole (9.5 mm) and round hole (M6 or 1/4-20 threaded only). Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60927 standards.
Distance between front and rear mounting planes	Minimum 61 cm and maximum 91.5 cm (24 inches to 36 inches).
Clearance depth in front of front mounting plane	Distance to front cabinet door is at least 2.54 cm (1 inch).

**TABLE:** Rack Requirements (*Continued*)

Item	Requirement
Clearance depth behind front mounting plane	Distance to rear cabinet door is at least 90 cm (35.43 inches) with the cable management arm, or 80 cm (31.5 inches) without the cable management arm.
Clearance width between front and rear mounting planes	Distance between structural supports and cable troughs is at least 45.6 cm (18 inches).
Minimum clearance for service access	<ul style="list-style-type: none"><li>• Clearance, front of server: 123.2 cm (48.5 inches)</li><li>• Clearance, rear of server: 91.4 cm (36 inches)</li></ul>

**Related Information**

- [“Preparing for Server Installation” on page 5](#)

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# Safety Precautions When Rackmounting the Server

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



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**Caution** – Deploy the anti-tilt bar or legs on the equipment rack before beginning an installation.

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**Caution** – 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-tilt bar to prevent the rack from tipping during equipment installation.

---



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**Caution – Elevated operating ambient temperature:** 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. Therefore, consideration should be given to installing 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 10](#).

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**Caution – Reduced airflow:** Installation of the equipment in a rack should be such that the amount of airflow required for safe operation of the equipment is not compromised.

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**Caution – Mechanical loading:** Mounting of the equipment in the rack should be such that a hazardous condition is not created due to uneven mechanical loading.

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**Caution – Circuit overloading:** Consideration should be given 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.

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**Caution – Reliable earthing:** Reliable earthing of rackmounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (for example, use of power strips).

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**Caution – Slide-rail-mounted equipment is not to be used as a shelf or a work space.**

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### Related Information

- [“ESD and Safety Precautions” on page 17](#)

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## Rackmount Kit Contents

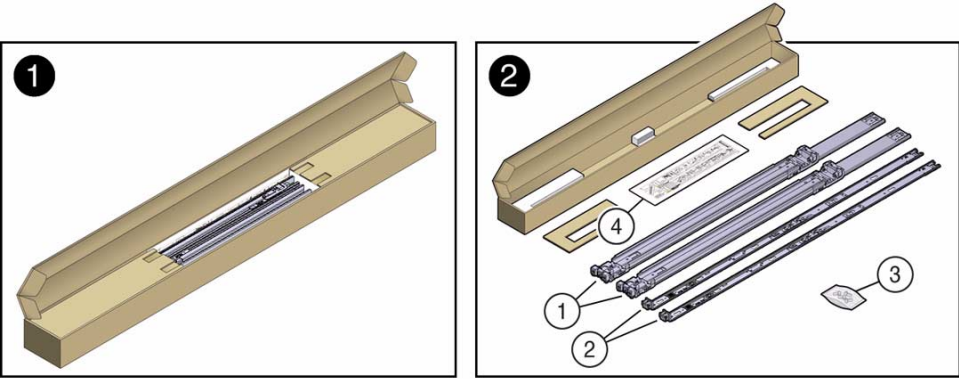
The rackmount kit contains two slide-rails, two mounting brackets, and optional securing screws.

---

**Note –** Refer to the rackmount kit installation card for instructions on how to install your server into a four-post rack, using the slide-rail and cable management arm options.

---

**FIGURE:** Tool-less Rackmount Kit Contents



**Figure Legend**

- 1 Slide-rails
- 2 Mounting brackets
- 3 Four M4 x 5 fine-pitch mounting bracket securing screws (optional)
- 4 Installation card

### Related Information

- [“Rack Requirements” on page 40](#)



## ▼ Stabilize the Rack for Installation



**Caution** – To reduce the risk of personal injury, stabilize the rack cabinet, and extend all anti-tilt devices before installing the server.

Refer to your rack documentation for detailed instructions for the following steps.

1. **Open and remove the front and rear doors from the rack cabinet.**

**Note** – The front and rear doors need to be removed only if they impinge on the mounting bay.

2. To prevent the rack cabinet from tipping during the installation, fully extend the rack cabinet's anti-tilt legs or anti-tilt bar, which are located at the bottom front of the rack cabinet.
3. If there are leveling feet beneath the rack cabinet to prevent it from rolling, extend these leveling feet fully downward to the floor.

#### **Related Information**

- [“Safety Precautions When Rackmounting the Server” on page 41](#)
- [“Preparing for Server Installation” on page 5](#)
- Your rack cabinet documentation
- *Sun Server X4-2 Safety and Compliance Guide*

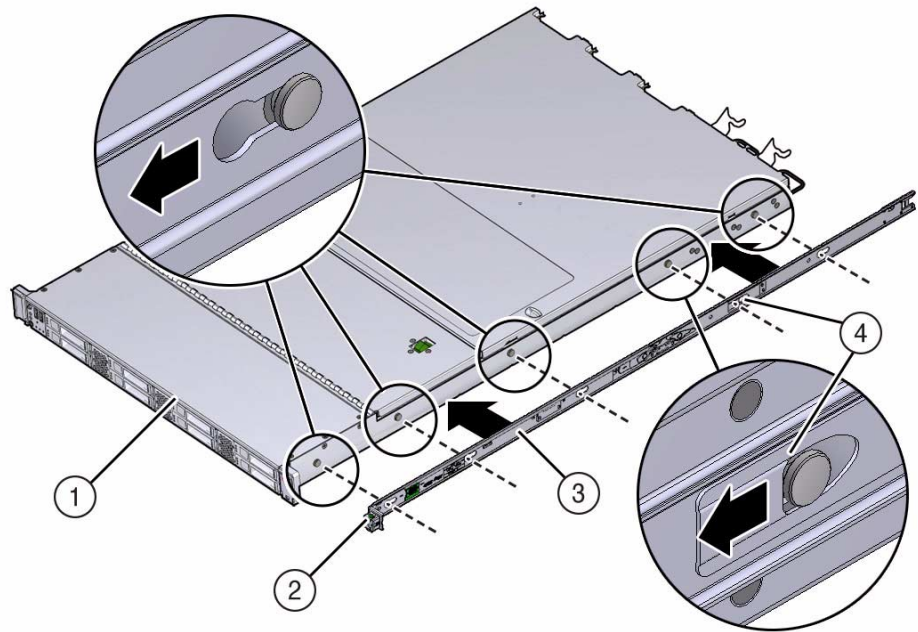
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## ▼ Install Mounting Brackets

To install the mounting brackets onto the sides of the server:

1. Position a mounting bracket against the chassis so that the slide-rail lock is at the server front, and the five keyhole openings on the mounting bracket are aligned with the five locating pins on the side of the chassis.

**FIGURE:** Aligning the Mounting Bracket With the Server Chassis



**Figure Legend**

- 
- |   |                       |
|---|-----------------------|
| 1 | Chassis front         |
| 2 | Slide-rail lock       |
| 3 | Mounting bracket      |
| 4 | Mounting bracket clip |
- 

2. With the heads of the five chassis locating pins protruding through the five keyhole openings in the mounting bracket, pull the mounting bracket toward the front of the chassis until the mounting bracket clip locks into place with an audible click.
3. Verify that the rear locating pin has engaged the mounting bracket clip.
4. Repeat [Step 1](#) through [Step 3](#) to install the remaining mounting bracket on the other side of the server.

### Related Information

- [“Mark the Rackmount Location” on page 46](#)
- [“Attach Tool-less Slide-Rail Assemblies” on page 47](#)

## ▼ Mark the Rackmount Location

Use the rackmount installation card to identify the correct mounting holes for the slide-rails.

---

**Note** – Load the rack from bottom to top.

---

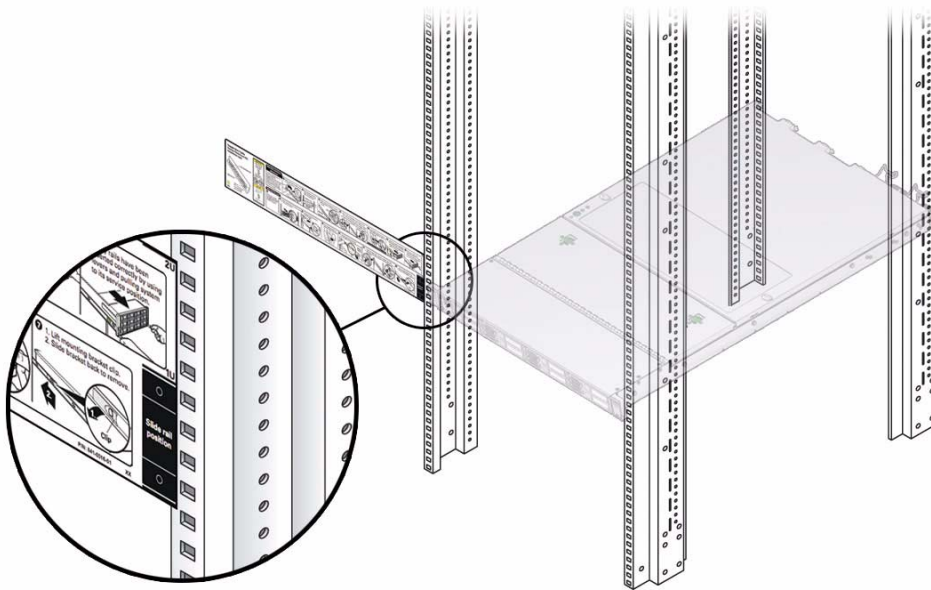
1. Ensure that there is at least 1 rack unit (1U) of vertical space in the rack cabinet to install the server.

See [“Rack Requirements” on page 40](#).

2. Place the rackmount installation card against the front rails.

The bottom edge of the card corresponds to the bottom edge of the server.  
Measure up from the bottom of the installation card.

**FIGURE:** Rackmount Installation Card Template



3. Mark the mounting holes for the front slide-rails.
4. Mark the mounting holes for the rear slide-rails.



### **Related Information**

- [“Rack Requirements” on page 40](#)
- [“Install Mounting Brackets” on page 44](#)
- [“Attach Tool-less Slide-Rail Assemblies” on page 47](#)

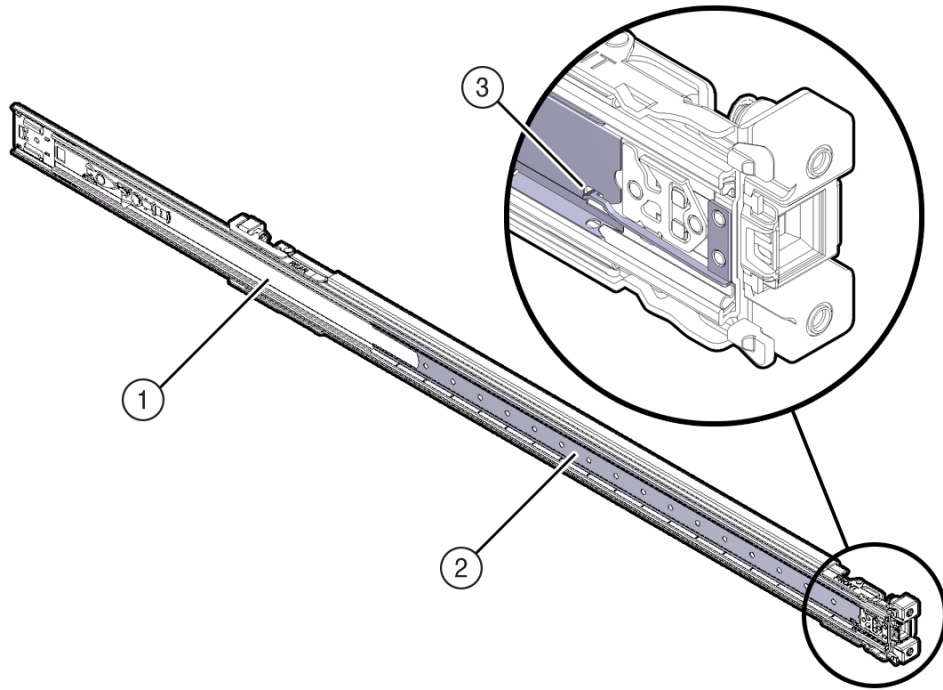
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## ▼ **Attach Tool-less Slide-Rail Assemblies**

Use this procedure to attach tool-less slide-rail assemblies to the rack.

- 1. Orient the slide-rail assembly so that the ball-bearing track is forward and locked in place.**

**FIGURE:** Orienting the Slide-Rail With the Ball-Bearing Track

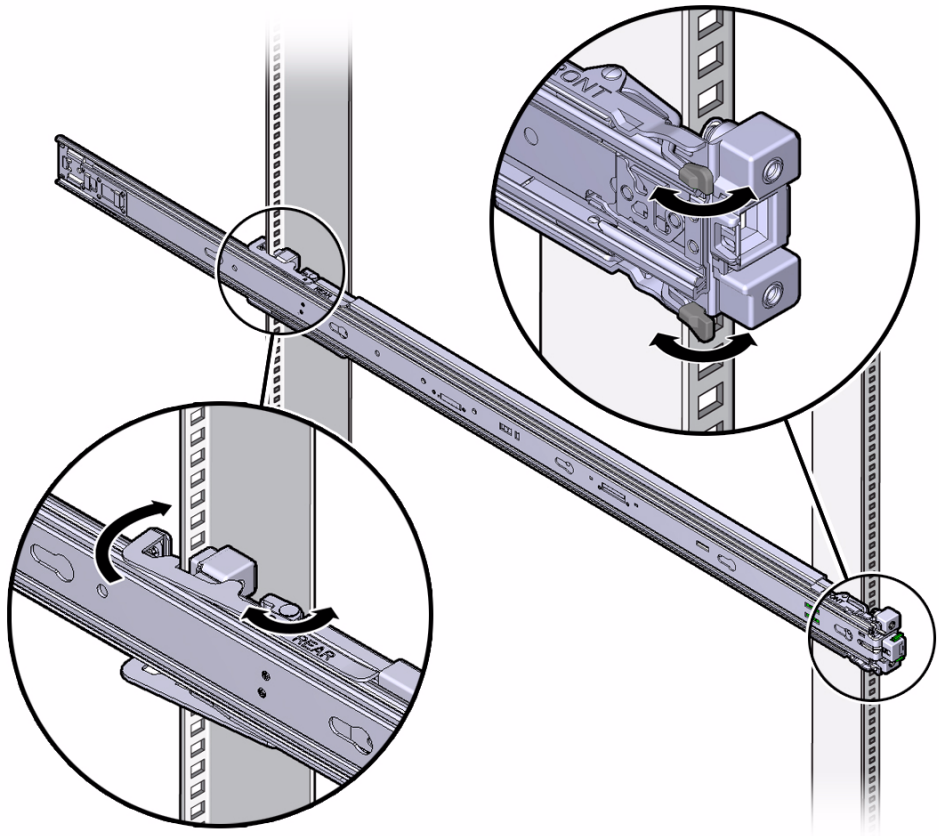


**Figure Legend**

- 
- |   |                    |
|---|--------------------|
| 1 | Slide-rail         |
| 2 | Ball-bearing track |
| 3 | Locking mechanism  |
- 

2. Starting with either the left or right side of the rack, align the rear of the slide-rail assembly against the inside of the rear rack rail, and push until the assembly locks into place with an audible click.

**FIGURE:** Aligning the Slide-Rail Assembly With the Rack



3. Align the front of the slide-rail assembly against the outside of the front rack rail, and push until the assembly locks into place with an audible click.
4. Repeat [Step 1](#) through [Step 3](#) to attach the slide-rail assembly to the other side of the rack.

#### Related Information

- [“Install Mounting Brackets”](#) on page 44
- [“Mark the Rackmount Location”](#) on page 46
- [“Install the Server Into the Slide-Rail Assemblies”](#) on page 50

---

## ▼ Install the Server Into the Slide-Rail Assemblies

Use this procedure to install the server chassis, with mounting brackets, into the slide-rail assemblies that are mounted to the rack.



---

**Caution** – This procedure requires a minimum of two people because of the weight of the server. Attempting this procedure alone could result in equipment damage or personal injury.

---



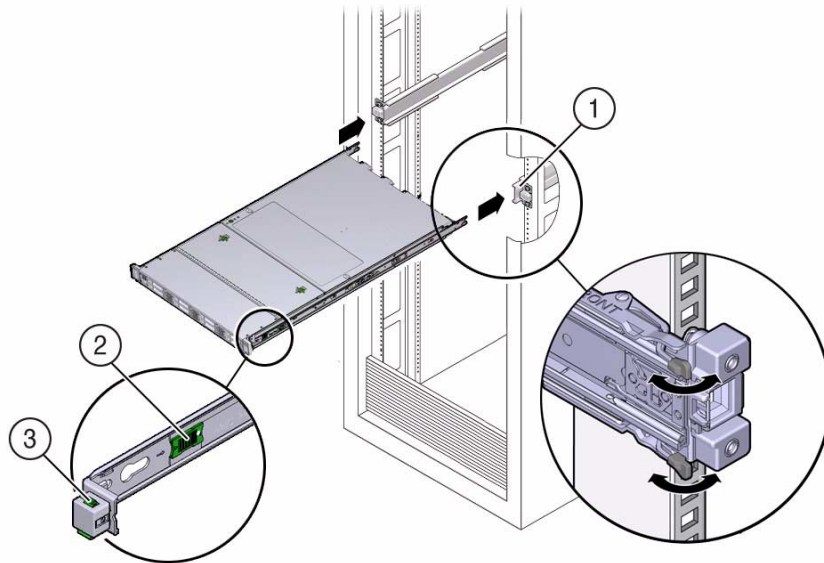
---

**Caution** – Always load equipment into a rack from the bottom up so that the rack will not become top-heavy and tip over. Extend your rack's anti-tilt bar to prevent the rack from tipping during equipment installation.

---

1. Push the slide-rails as far as possible into the slide-rail assemblies in the rack.
2. Position the server so that the rear ends of the mounting brackets are aligned with the slide-rail assemblies that are mounted in the rack.
3. Insert the mounting brackets into the slide-rails, and then push the server into the rack until the mounting brackets encounter the slide-rail stops (approximately 30 cm, or 12 inches).

**FIGURE:** Inserting the Server With Mounting Brackets Into the Slide-Rails



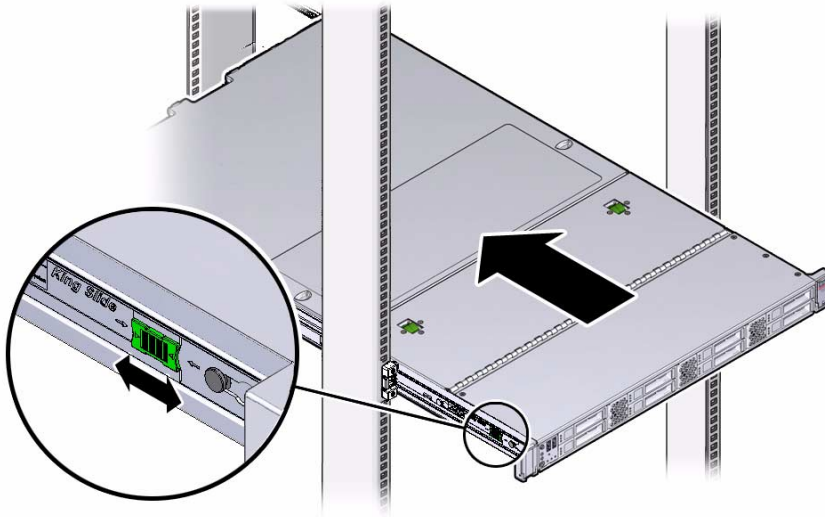
**Figure Legend**

- 
- |   |  |
|---|--|
| 1 | Inserting mounting bracket into slide-rail |
| 2 | Slide-rail release button                  |
| 3 | Slide-rail lock                            |
- 

4. **Simultaneously push and hold the green slide-rail release buttons on each mounting bracket while you push the server into the rack. Continue pushing the server into the rack until the slide-rail locks (on the front of the mounting brackets) engage the slide-rail assemblies.**

You will hear an audible click.

**FIGURE:** Sliding the Server Into the Rack



---

**Caution** – Verify that the server is securely mounted in the rack and that the slide-rail locks are engaged with the mounting brackets before you install the optional cable management arm.

---

#### **Related Information**

- [“Install the First-Generation Cable Management Arm” on page 68](#)
- [“Install the Second-Generation Cable Management Arm” on page 52](#)
- [“Verify Operation of Slide-Rails and CMA” on page 73](#)

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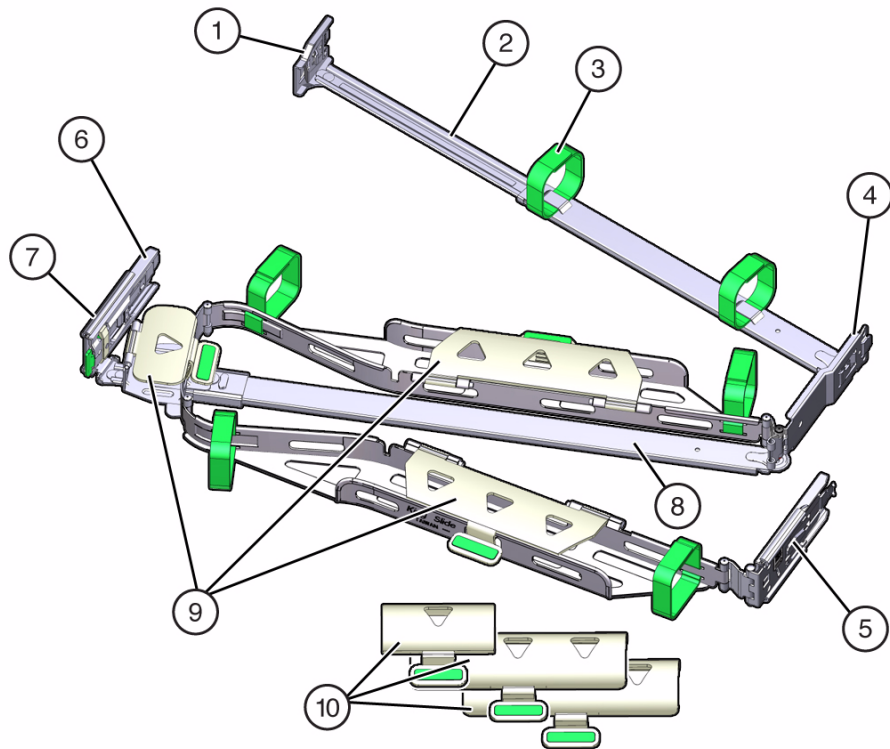
## ▼ Install the Second-Generation Cable Management Arm

Follow this procedure to install the second-generation cable management arm (CMA), which you can use to manage cables connected to the rear of the server.

### **1. Unpack the CMA.**

The following figure shows the second-generation CMA components.

**FIGURE:** Second-Generation CMA Components



**Figure Legend**

- 
- |    |   |
|----|---|
| 1  | Connector A   |
| 2  | Front slide bar                                     |
| 3  | Velcro straps (6)                                   |
| 4  | Connector B   |
| 5  | Connector C   |
| 6  | Connector D   |
| 7  | Slide-rail latching bracket (used with connector D) |
| 8  | Rear slide bar                                      |
| 9  | Sun Server X4-2 cable covers                        |
| 10 | Sun Server X4-2L cable covers                       |
- 

**2. Ensure that the correct cable covers for your server are installed on the CMA.**

- The Sun Server X4-2 (1U system) uses the flat cable covers.
- The Sun Server X4-2L (2U system) uses the round cable covers.

---

**Note** – The CMA ships with three, flat cable covers installed. If you are going to install the CMA on a Sun Server X4-2L, you need to remove the flat cable covers and install the round cable covers.

---

**3. If you are installing the CMA on a Sun Server X4-2L, remove the flat cable covers and install the round cable covers; otherwise proceed to the next step.**

To remove the flat cable covers and install the round cable covers, perform these steps:

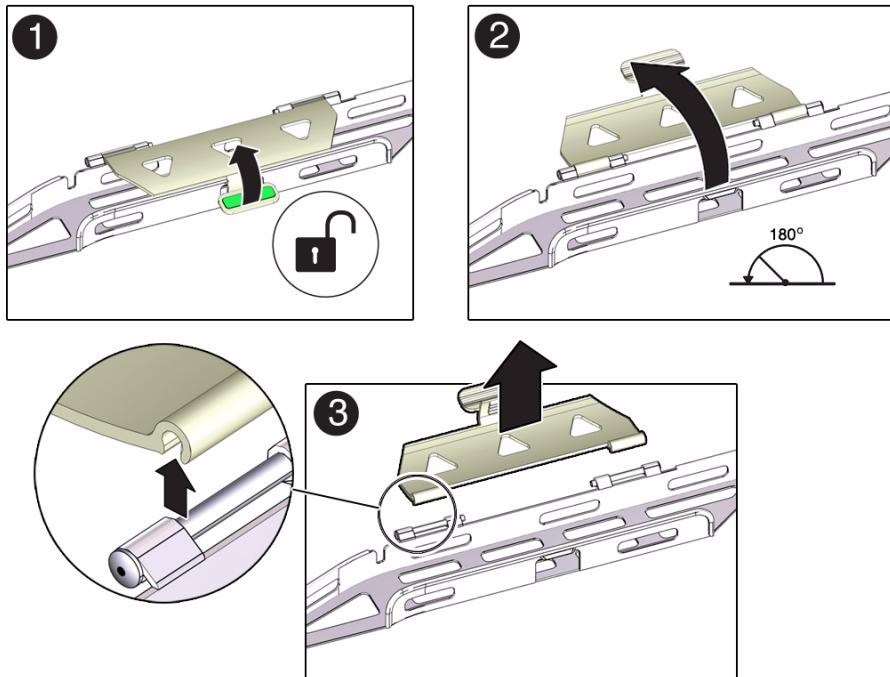
- a. **Lift up on the cable cover handle (the handle is colored green) and open it 180 degrees to the horizontal position as shown in the following figure [frames 1 and 2].**

---

**Note** – The CMA has three cable covers, two with two hinges (one of which is shown the following figure), and one with a single hinge. All three cable covers are shown in [FIGURE: Second-Generation CMA Components on page 53](#).

---

**FIGURE:** Removing the CMA Flat Cable Covers





- b. Apply upward pressure to the outside edge of each hinge connector until the hinge connector comes off the hinge [frame 3].
  - c. Repeat [Step a](#) and [Step b](#) to remove all three cable covers.
  - d. One at a time, position each round cable cover horizontally over the hinges, and align the hinge connectors with the hinges.
  - e. Using your thumb, apply downward pressure on each hinge connector to snap the hinge connector into place.
  - f. Swing the cable covers down and press down on the cable cover handle to lock them into the closed position.
4. Ensure that the six Velcro straps are threaded into the CMA as shown in [FIGURE: Second-Generation CMA Components on page 53](#).

---

**Note** – Ensure that the two Velcro straps located on the front slide bar are threaded through the opening in the top of the slide bar as shown in [FIGURE: Second-Generation CMA Components on page 53](#). This prevents the Velcro straps from interfering with the expansion and contraction of the slide bar when the server is extended out of the rack and returned into the rack.

---

5. To make it easier to install the CMA, extend the server approximately 13 cm (5 inches) out of the front of the rack.
6. Take the CMA to the back of the equipment rack, and ensure that you have adequate room to work at the back of the server.

---

**Note** – References to “left” or “right” in this procedure assume that you are facing the back of the equipment rack.

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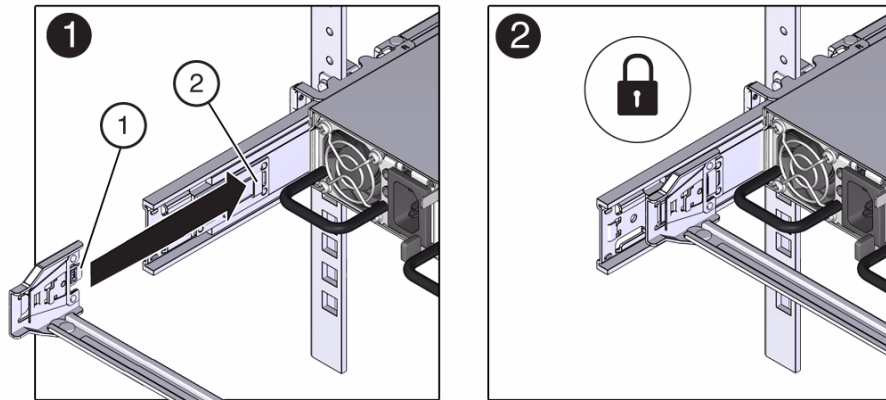
**Note** – Throughout this installation procedure, support the CMA and do not allow it to hang under its own weight until it is secured at all four attachment points.

---

7. To install the CMA's connector A into the left slide rail:
  - a. Insert the CMA's connector A into the front slot on the left slide-rail until it locks into place with an audible click [frames 1 and 2].

The connector A tab (see callout 1) goes into the slide-rail's front slot (callout 2).
  - b. Gently tug on the left side of the front slide bar to verify that connector A is properly seated.

**FIGURE:** Installing Connector A Into the Left Slide-Rail



**Figure Legend**

- 
- |   |                            |
|---|----------------------------|
| 1 | Connector A tab            |
| 2 | Left slide-rail front slot |
- 

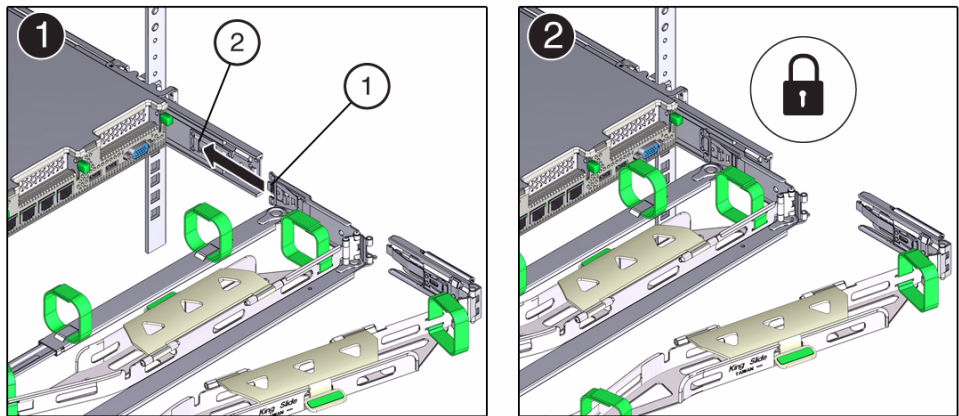
**8. To install the CMA's connector B into the right slide-rail:**

- a. Insert the CMA's connector B into the front slot on the right slide-rail until it locks into place with an audible click [frames 1 and 2].**

The connector B tab (callout 1) goes into the slide-rail front slot (callout 2).

- b. Gently tug on the right side of the front slide bar to verify that connector B is properly seated.**

**FIGURE:** Installing Connector B Into the Right Slide-Rail



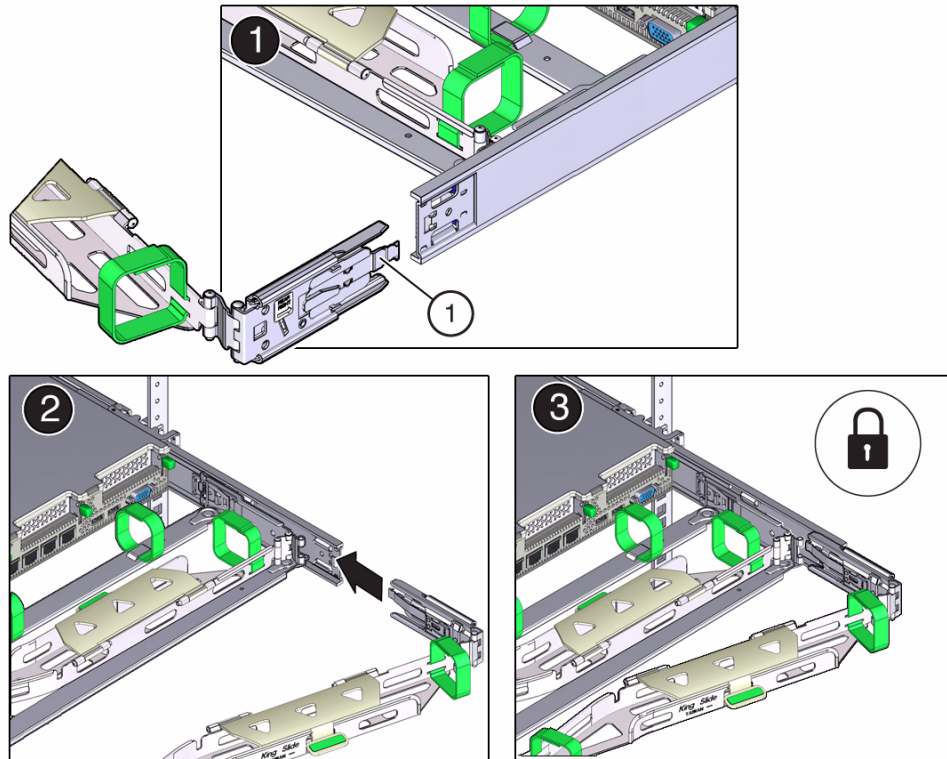
**Figure Legend**

- 
- |   |                             |
|---|-----------------------------|
| 1 | Connector B tab             |
| 2 | Right slide-rail front slot |
- 

**9. To install the CMA's connector C into the right slide-rail:**

- a. Align connector C with the slide-rail so that the locking spring (callout 1) is positioned inside (server side) of the right slide-rail [frame 1].

**FIGURE:** Installing Connector C Into the Right Slide-Rail



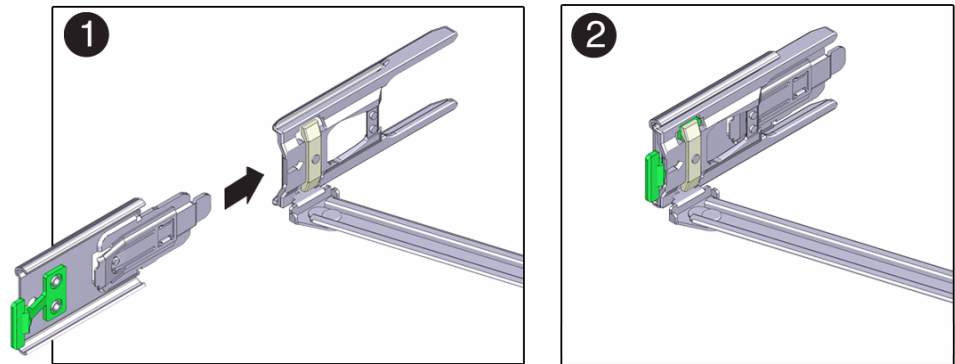
**Figure Legend**

1 Connector C locking spring

- b. Insert connector C into the right slide-rail until it locks into place with an audible click [frames 2 and 3].
  - c. Gently tug on the right side of the CMA's rear slide bar to verify that connector C is properly seated.
10. To prepare the CMA's connector D for installation, remove the tape that secures the slide-rail latching bracket to connector D and ensure that the latching bracket is properly aligned with connector D [frames 1 and 2].

**Note –** The CMA is shipped with the slide-rail latching bracket taped to connector D. You must remove the tape before you install this connector.

**FIGURE:** Aligning the CMA Slide-Rail Latching Bracket With Connector D



11. To install the CMA's connector D into the left slide-rail:

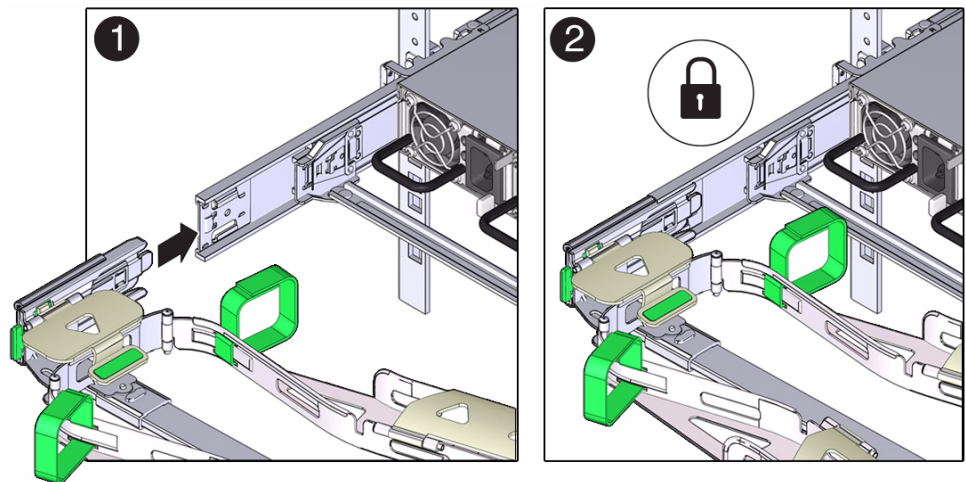
- a. While holding the slide-rail latching bracket in place, insert connector D and its associated slide-rail latching bracket into the left slide-rail until connector D locks into place with an audible click [frames 1 and 2].

---

**Note** – When inserting connector D into the slide-rail, the preferred and easier method is to install connector D and the latching bracket as one assembly into the slide-rail.

---

**FIGURE:** Installing Connector D Into the Left Slide-Rail



- b. Gently tug on the left side of the CMA's rear slide bar to verify that connector D is properly seated.

---

**Note** – The slide-rail latching bracket has a green release tab. This tab is used to release and remove the latching bracket so that you can remove connector D.

---

12. Gently tug on the four CMA connection points to ensure that the CMA connectors are fully seated before you allow the CMA to hang by its own weight.
13. To verify that the slide-rails and the CMA are operating properly before routing cables through the CMA:
  - a. Extend all rack anti-tilt devices to prevent the rack from tipping forward when the server is extended.



---

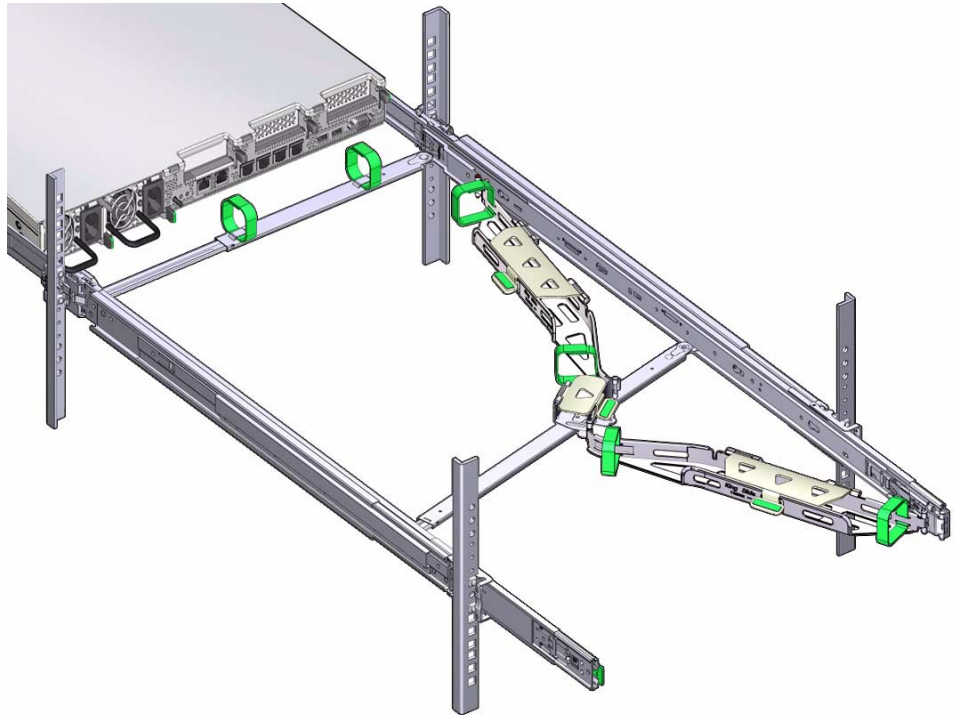
**Caution** – To reduce the risk of personal injury, stabilize the expansion rack cabinet and extend all anti-tilt devices before extending the server from the rack.

---

For instructions for stabilizing the rack, see [“Stabilize the Rack for Installation” on page 43](#).

- b. Extend the server from the front of the rack until the CMA is fully extended.

**FIGURE:** CMA Fully Extended



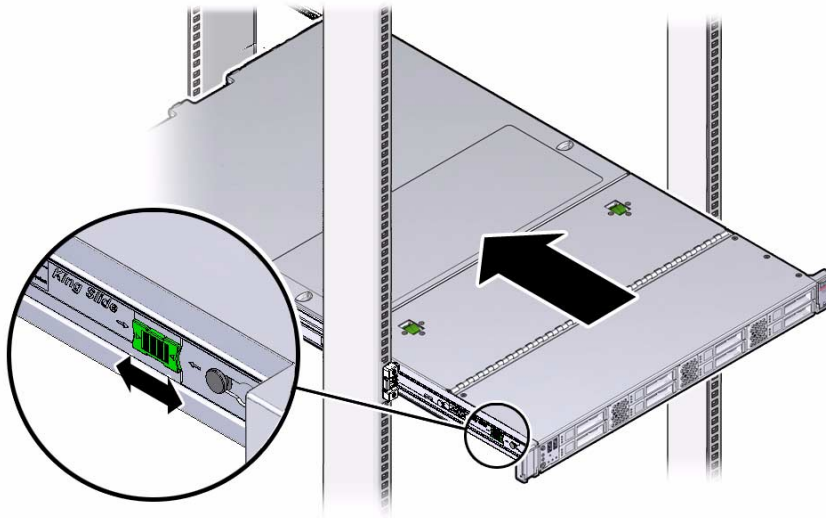
14. To return the server to the rack:
  - a. Simultaneously pull and hold the two green release tabs (one on each side of the server) toward the front of the server while you push the server into the rack. As you push the server into the rack, verify that the CMA retracts without binding.

---

**Note** – To pull the green release tabs, place your finger in the center of each tab, not on the end, and apply pressure as you pull the tab toward the front of the server.

---

**FIGURE:** Location of Slide-Rail Release Tabs



- b. Continue pushing the server into the rack until the slide-rail locks (on the front of the server) engage the slide-rail assemblies.

You will hear an audible click when the server is in the normal rack position.

**15. Connect cables to the server, as required.**

Instructions for connecting the server cables are provided in [“Cabling the Server” on page 75](#).

**16. Open the CMA cable covers, route server cables through the CMA’s cable troughs, close the cable covers, and secure the cables with the six Velcro straps.**

Route the cables through the cable troughs in this order:

- a. First through the front-most cable trough.
- b. Then through the small cable trough.
- c. Then through the rear-most cable trough

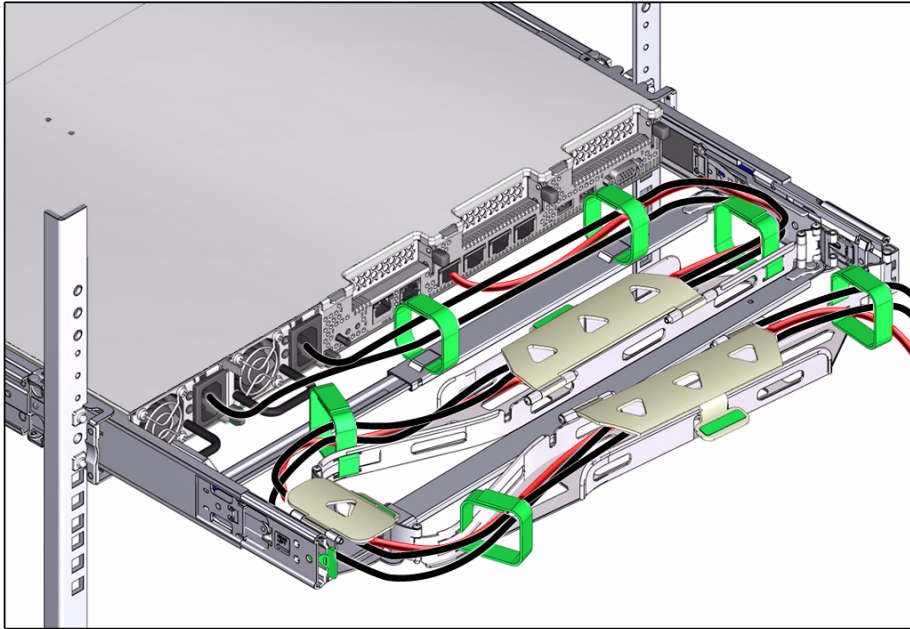
---

**Note** – When securing the cables with the Velcro straps located on the front slide bar, ensure that the Velcro straps do not wrap around the bottom of the slide bar; otherwise, expansion and contraction of the slide bar might be hindered when the server is extended from the rack and returned to the rack.

---



**FIGURE:** CMA With Cables Installed, Cable Covers Closed, and Cables Secured With Velcro straps



17. Ensure that the secured cables do not extend above the top or below the bottom of the server to which they are attached; otherwise, the cables might snag on other equipment installed in the rack when the server is extended from the rack or returned to the rack.

---

**Note** – If necessary, bundle the cables with additional Velcro straps to ensure that they stay clear of other equipment. If you need to install additional Velcro straps, wrap the straps around the cables only, not around any of the CMA components; otherwise, expansion and contraction of the CMA slide bars might be hindered when the server is extended from the rack and returned to the rack.

---

18. Proceed to [“Verify Operation of Slide-Rails and CMA” on page 73](#) and verify the operation of the slide-rails and the CMA.

#### **Related Information**

- [“Verify Operation of Slide-Rails and CMA” on page 73](#)
- [“Remove the Second-Generation Cable Management Arm” on page 64](#)

---

## ▼ Remove the Second-Generation Cable Management Arm

Follow this procedure to remove the second-generation cable management arm (CMA).

Before you begin this procedure, refer to [FIGURE: Second-Generation CMA Components on page 53](#) and identify CMA connectors A, B, C, and D. You should disconnect the CMA connectors in the reverse order in which you installed them, that is, disconnect connector D first, then C, then B, and finally A.

---

**Note** – References to “left” or “right” in this procedure assume that you are facing the back of the equipment rack.

---

---

**Note** – Throughout this procedure, once you disconnect any of the CMA’s four connectors, do not allow the CMA to hang under its own weight.

---

1. To prevent the rack from tipping forward when the server is extended, extend all rack anti-tilt devices.



---

**Caution** – To reduce the risk of personal injury, stabilize the rack cabinet and extend all anti-tilt devices before extending the server from the rack.

---

For instructions for stabilizing the rack, see [“Stabilize the Rack for Installation” on page 43](#).

2. To make it easier to remove the CMA, extend the server approximately 13 cm (5 inches) out of the front of the rack.
3. To remove the cables from the CMA:
  - a. Disconnect all cables from the rear of the server.
  - b. If applicable, remove any additional Velcro straps that were installed to bundle the cables.
  - c. Unwrap the six Velcro straps that are securing the cables.
  - d. Open the three cable covers to the fully opened position.
  - e. Remove the cables from the CMA and set them aside.

4. To disconnect connector D:

- a. Press the green release tab (callout 1) on the slide-rail latching bracket toward the left and slide the connector D out of the left slide-rail [frames 1 and 2].

---

**Note –** When you slide connector D out of the left slide-rail, the slide-rail latching bracket portion of the connector remains in place. You will disconnect it in the next step.

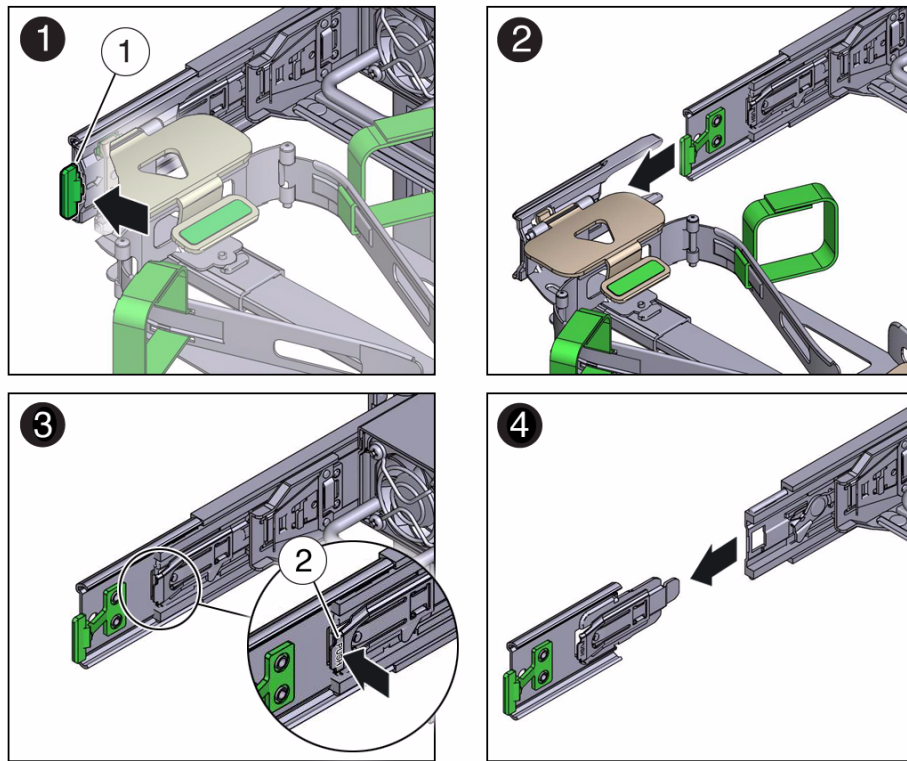
---

---

**Note –** Once you have disconnected connector D, you must not allow the CMA to hang under its own weight. Throughout the remainder of this procedure, the CMA must be supported until all the remaining connectors are disconnected and the CMA can be placed on a flat surface.

---

**FIGURE:** Disconnecting Connector D



**Figure Legend**

- 
- |   |  |
|---|--|
| 1 | Connector D release tab (green)                        |
| 2 | Slide-rail latching bracket release tab (labeled PUSH) |
- 

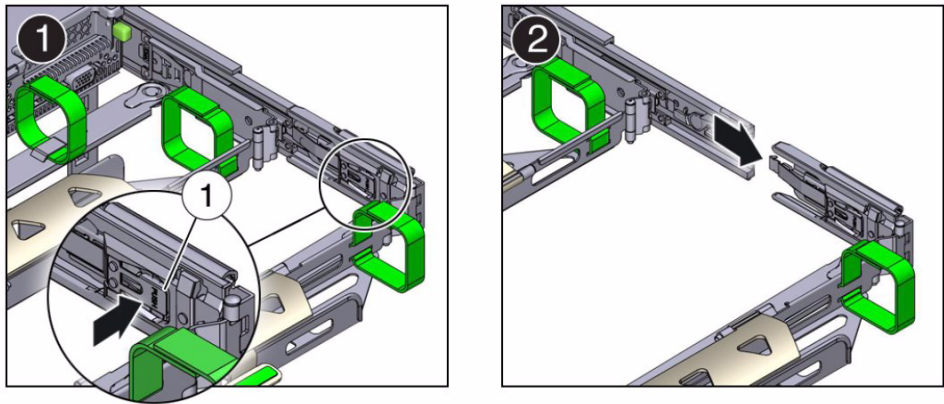
b. Use your right hand to support the CMA and use your left thumb to push in (toward the left) on the connector D latching bracket release tab labeled PUSH (callout 2), and pull the latching bracket out of the left slide-rail and put it aside [frames 3 and 4].

**5. To disconnect connector C:**

a. Place your left arm under the CMA to support it.

b. Use your right thumb to push in (toward the right) on the connector C release tab labeled PUSH (callout 1), and pull connector C out of the right slide-rail [frame 1 and 2].

**FIGURE:** Disconnecting Connector C



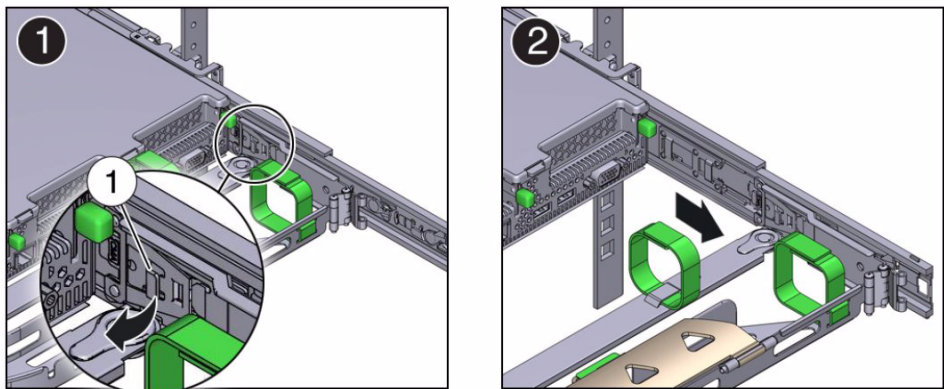
**Figure Legend**

- 
- 1 Connector C release tab (labeled PUSH)
- 

**6. To disconnect connector B:**

- a. Place your right arm under the CMA to support it and grasp the rear end of connector B with your right hand.
- b. Use your left thumb to pull the connector B release lever to the left away from the right slide-rail (callout 1) and use your right hand to pull the connector out of the slide-rail [frames 1 and 2].

**FIGURE:** Disconnecting Connector B



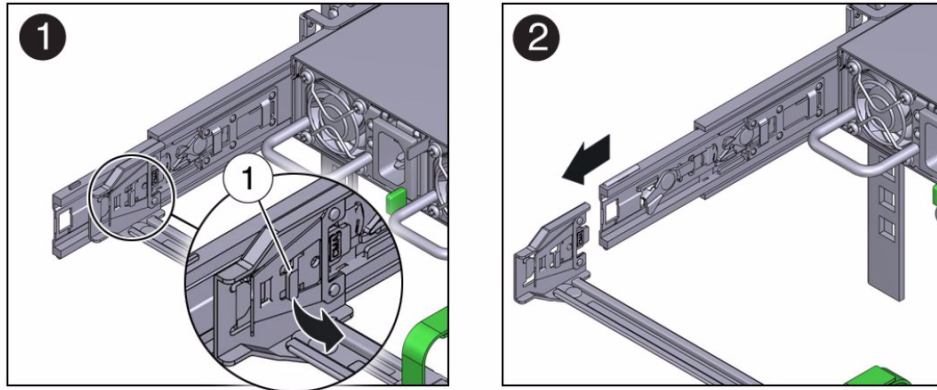
**Figure Legend**

- 
- 1 Connector B release lever
-

**7. To disconnect connector A:**

- a. Place your left arm under the CMA to support it and grasp the rear end of connector A with your left hand.
- b. Use your right thumb to pull the connector A release lever to the right away from the left slide-rail (callout 1), and use your left hand to pull the connector out of the slide-rail [frames 1 and 2].

**FIGURE:** Disconnecting Connector A



**Figure Legend**

- 
- |   |                           |
|---|---------------------------|
| 1 | Connector A release lever |
|---|---------------------------|
- 

8. Remove the CMA from the rack and place it on a flat surface.
9. Go to the front of the server and push it back into the rack.

**Related Information**

- [“Install the Second-Generation Cable Management Arm” on page 52](#)

---

## ▼ Install the First-Generation Cable Management Arm

Use this procedure to install the cable management arm (CMA), which you can use to route the server cables in the rack.

---

**Note** – If you installed the second-generation CMA as described in [“Install the Second-Generation Cable Management Arm” on page 52](#), you can ignore this procedure. The server only ships with one CMA; the second-generation CMA is the newer version.

---

1. Unpack the CMA parts.
2. Take the CMA to the back of the equipment rack, and ensure that you have adequate room to work around the back of the server.

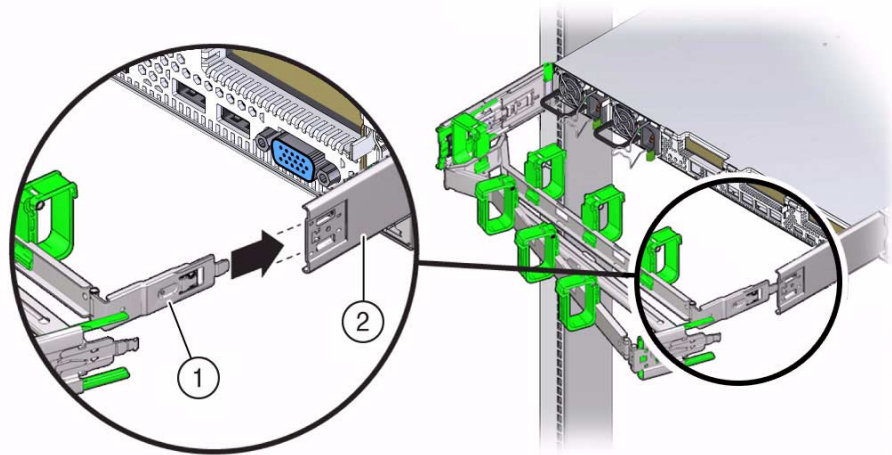
---

**Note** – References to “left” or “right” in this procedure assume that you are facing the back of the equipment rack.

---

3. Remove the tape to separate the parts of the CMA.
4. Insert the CMA’s mounting bracket connector into the back of the right slide-rail until the connector locks into place with an audible click.

**FIGURE:** Inserting the CMA Mounting Bracket Into the Right Slide-Rail



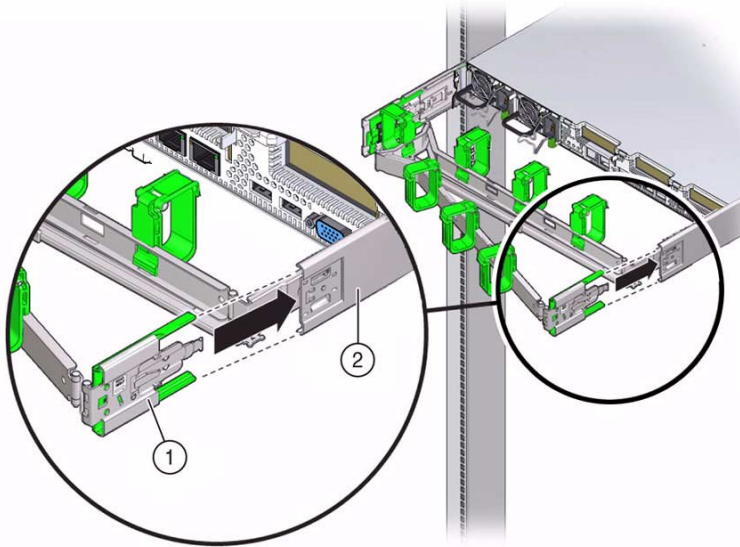
**Figure Legend**

- 
- |   |                      |
|---|----------------------|
| 1 | CMA mounting bracket |
| 2 | Right slide-rail     |
- 

5. Insert the right CMA slide-rail connector into the back of the right slide-rail assembly until the connector locks into place with an audible click.



**FIGURE:** Inserting the CMA Slide-Rail Connector Into the Right Slide-Rail



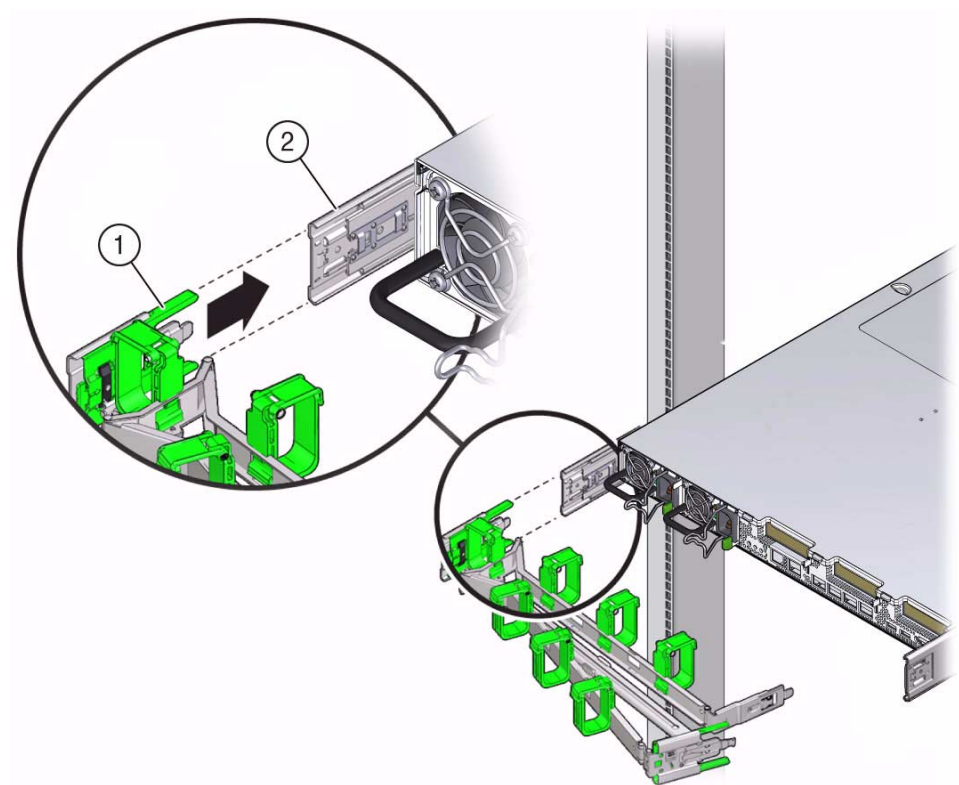
**Figure Legend**

- 
- |   |                          |
|---|--------------------------|
| 1 | CMA slide-rail connector |
| 2 | Right slide-rail         |
- 

6. Insert the left CMA slide-rail connector into the back of the left slide-rail assembly until the connector locks into place with an audible click.



**FIGURE:** Inserting the CMA Slide-Rail Connector Into the Left Slide-Rail



**Figure Legend**

- 
- |   |                          |
|---|--------------------------|
| 1 | CMA slide-rail connector |
| 2 | Left slide-rail          |
- 

**7. Install and route cables to your server, as required.**

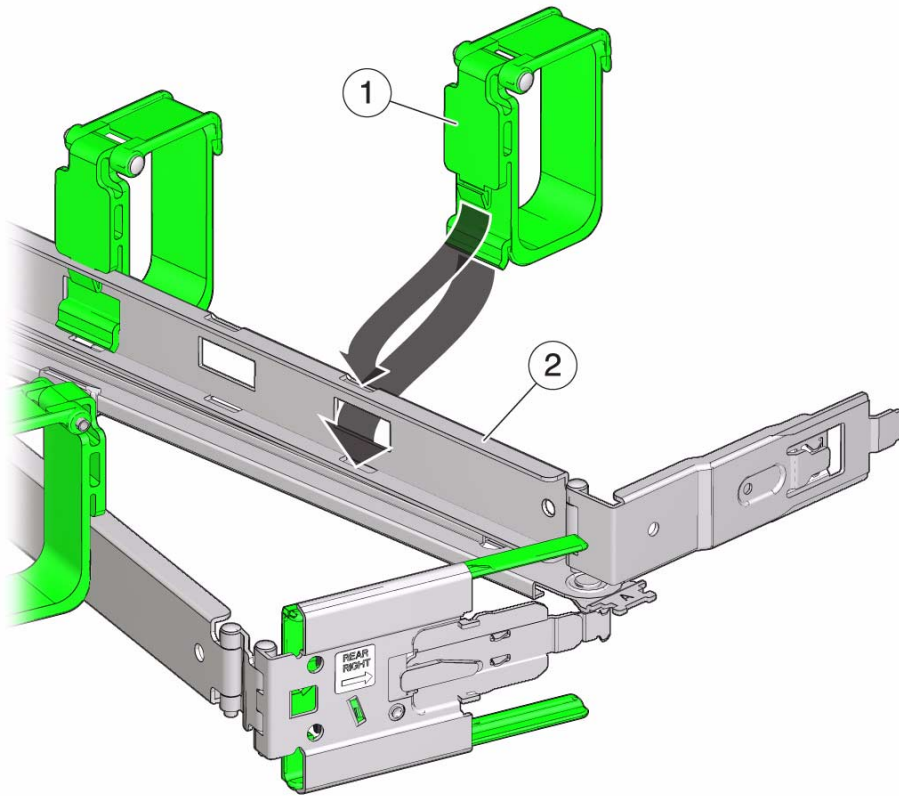
Instructions for installing the server cables are provided in [“Cabling the Server” on page 75](#).

**8. If required, attach the cable hooks and loop straps to the CMA, and press them into place to secure the cables.**

Cable hooks and loops are preinstalled on the CMA. Perform this step if you need to reinstall cable hooks and straps on the CMA.

For best results, place three cable straps, evenly spaced, on the rear-facing side of the CMA and three cable straps on the side of the CMA nearest the server.

**FIGURE:** Installing the CMA Cable Straps



**Figure Legend**

- 
- |   |                 |
|---|-----------------|
| 1 | CMA cable strap |
| 2 | CMA arm         |
- 

9. Proceed to [“Verify Operation of Slide-Rails and CMA” on page 73](#) and verify the operation of the slide-rails and the CMA.

**Related Information**

- [“Verify Operation of Slide-Rails and CMA” on page 73](#)

---

## ▼ Verify Operation of Slide-Rails and CMA

Use the following procedure to ensure that the slide-rails and CMA are operating correctly.

---

**Note** – Two people should perform this procedure: one to move the server in and out of the rack, and one to observe the cables and CMA.

---

1. To prevent the rack from tipping forward when the server is extended, extend all rack anti-tilt devices.



---

**Caution** – To reduce the risk of personal injury, stabilize the rack cabinet and extend all anti-tilt devices before extending the server from the rack.

---

For instructions for stabilizing the rack, see [“Stabilize the Rack for Installation” on page 43](#).

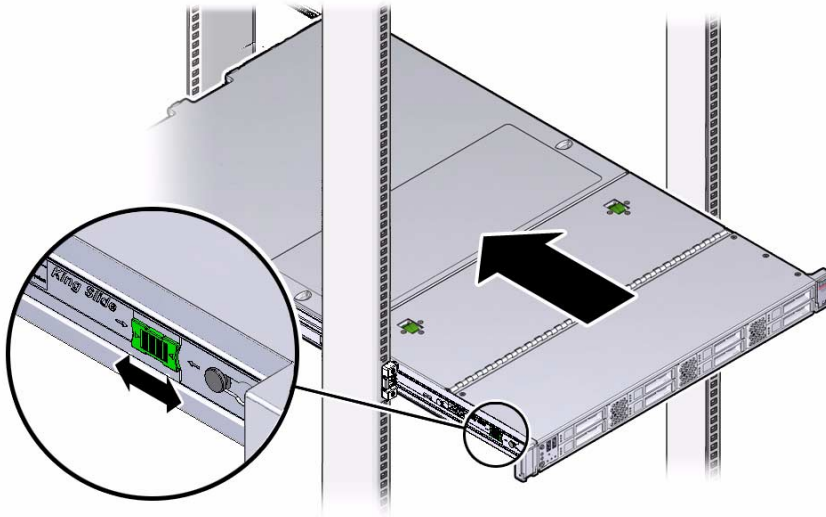
2. Slowly pull the server out of the rack until the slide-rails reach their stops.
3. Inspect the attached cables for any binding or kinks.
4. Verify that the CMA extends fully with the slide-rails.
5. To return the server to the rack:
  - a. Simultaneously pull and hold the two green release tabs (one on each side of the server) toward the front of the server while you push the server into the rack. As you push the server into the rack, verify that the CMA retracts without binding.

---

**Note** – To pull the green release tab, place your finger in the center of the tab, not on the end, and apply pressure as you pull the tab toward the front of the server.

---

**FIGURE:** Location of Slide-Rail Release Tabs



- b. Continue pushing the server into the rack until the slide-rail locks (on the front of the server) engage the slide-rail assemblies.

You will hear an audible click when the server is in the normal rack position.

6. Adjust the cable straps and the CMA, as required.

#### **Related Information**

- [“Install the Server Into the Slide-Rail Assemblies” on page 50](#)
- [“Install the Second-Generation Cable Management Arm” on page 52](#)
- [“Install the First-Generation Cable Management Arm” on page 68](#)

# Cabling the Server

---

This section contains procedures for connecting data and server management cables and power cords to the server.

Description	Links
Review connector port locations.	<a href="#">“Rear Cable Connections and Ports” on page 75</a>
Learn about server Ethernet ports.	<a href="#">“Ethernet Ports” on page 77</a>
Connect data cables to the server.	<a href="#">“Attaching Data Cables to the Server” on page 78</a>
Connect power cords to the server.	<a href="#">“Connecting Power Cords to the Server” on page 79</a>

## Related Information

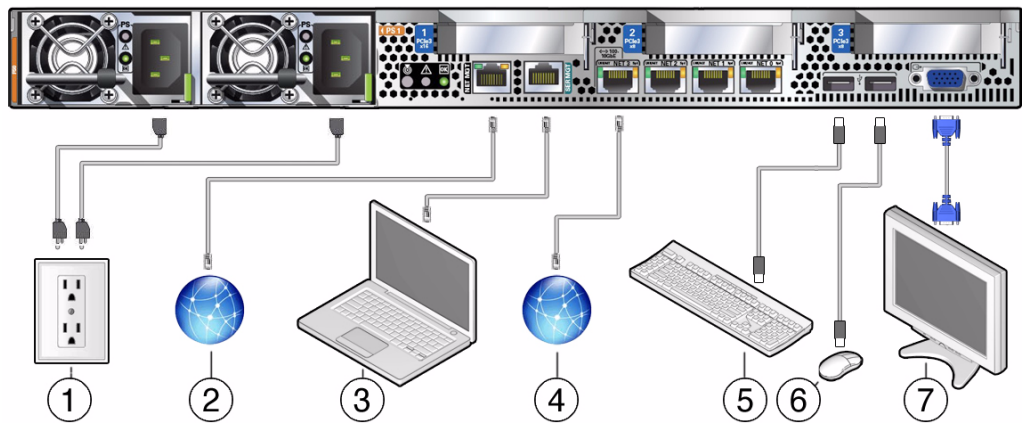
- [“Installation Procedure Overview” on page 2](#)
- [“Install the Second-Generation Cable Management Arm” on page 52](#)
- [“Install the First-Generation Cable Management Arm” on page 68](#)
- [“Setting Up Software and Firmware Using Oracle System Assistant” on page 101](#)
- [“Connecting to Oracle ILOM” on page 81](#)

---

## Rear Cable Connections and Ports

The following figure shows the locations of cable connectors and ports on the back of the Sun Server X4-2 and the cables and devices that you would typically connect to them.

**FIGURE:** Rear Panel Cabling Reference



No.	Cable Port or Expansion Slot	Description
1	Power supply 0 input power Power supply 1 input power	<p>The server has two power supply connectors, one for each power supply.</p> <p>Do not attach power cables to any installed power supplies until you have finished connecting the data cables and have connected the server to a serial terminal or a terminal emulator (PC or workstation). The server goes into standby power mode and the Oracle ILOM service processor initializes when the AC power cables are connected to the power source. System messages might be lost after 60 seconds if the server is not connected to a terminal, PC, or workstation.</p> <p><b>Note</b> - Oracle ILOM will signal a fault on any installed power supply that is not connected to an AC power source, since it might indicate a loss of redundancy.</p>
2	Network management port (NET MGT)	<p>The service processor NET MGT port is the optional connection to the Oracle ILOM service processor. The NET MGT port is configured by default to use Dynamic Host Configuration Protocol (DHCP). The service processor NET MGT port uses an RJ-45 cable for a 10/100BASE-T connection.</p>
3	Serial management port (SER MGT)	<p>The service processor SER MGT port uses an RJ-45 cable and is the default connection to the Oracle ILOM service processor. This port supports local connections to the server and only recognizes Oracle ILOM command-line interface (CLI) commands. Typically you connect a terminal or a terminal emulator to this port.</p> <p><b>Note</b> - This port does not support network connections.</p>

No.	Cable Port or Expansion Slot	Description
4	Ethernet ports (NET 3, NET 2, NET 1, NET 0)	The four 10-Gigabit Ethernet ports enable you to connect the system to the network. See <a href="#">“Ethernet Ports” on page 77</a> for more information. <b>Note</b> - Ethernet ports NET 2 and NET 3 are nonfunctional in single-processor systems.
5, 6	USB ports (USB 0, USB 1)	The two USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running, without affecting system operations.
7	Video port (VGA, DB-15)	Use a 15-pin video cable to connect a VGA video device to the server. Optionally, you can connect to the VGA port when installing the operating system.

### Related Information

- [“Ethernet Ports” on page 77](#)
- [“Attaching Data Cables to the Server” on page 78](#)
- [“Connecting Power Cords to the Server” on page 79](#)

---

# Ethernet Ports

The server has four RJ-45, 10-Gigabit Ethernet (10GbE) network connectors, labeled NET 3, NET 2, NET 1, and NET 0 from left to right on the server rear panel. Use these ports to connect the server to the network.

---

**Note** – Ethernet ports NET 2 and NET 3 are nonfunctional in single-processor systems.

---

The LEDs located above each NET port are Link/Activity (left) and Speed (right) indicators for each port. The following table lists the Ethernet transfer rates and the Speed LED color.

Connection Type	IEEE Terminology	Speed LED Color	Transfer Rate
Fast Ethernet	100BASE-T	Off	100 Mbits/sec
Gigabit Ethernet	1000BASE-T	Amber	1,000 Mbits/sec
10 Gigabit Ethernet	10GBASE-T	Green	10,000 Mbits/sec

### Related Information

- [“Rear Cable Connections and Ports” on page 75](#)
- [“Attaching Data Cables to the Server” on page 78](#)
- [“Connecting Power Cords to the Server” on page 79](#)

---

## Attaching Data Cables to the Server

This section describes how to connect data cables to the server for the first time.

- [“Connect the Data Cables” on page 78](#)

### Related Information

- [“Rear Cable Connections and Ports” on page 75](#)
- [“Ethernet Ports” on page 77](#)

## ▼ Connect the Data Cables

To locate the server cable connections, see [FIGURE: Rear Panel Cabling Reference on page 76](#).

### 1. (Recommended method) To cable the server for local connection to Oracle System Assistant:

- a. Connect a VGA monitor to the VGA port on the server.
- b. Connect a USB keyboard and mouse to the USB connectors on the server.

### 2. (Alternative Method) To cable the server for connection to Oracle ILOM:

- **For a local serial connection** – Connect a serial cable between the server serial management port (SER MGT) and a terminal device.

This connection provides initial communication with the SP. Set the server to communicate using 9600 baud, 8 bit, no parity, 1 stop bit. For DTE-to-DTE communication, use the supplied RJ-45 crossover adapter with a standard RJ-45 cable to set up a null modem connection (transmit and receive signals crossed over).

- **For a remote Ethernet connection** – Connect an Ethernet cable between the server network management port (NET MGT) and the network to which future connections to the SP and host will be made.



If using Oracle ILOM, configure the system for the first time through the SER MGT port. After initial configuration, you can set up communication between the SP and host through the remote Ethernet interface.

3. For network access, connect an Ethernet cable between the server NET ports (NET3-0) and the network to which the server will communicate.

---

## Connecting Power Cords to the Server

This section describes how to connect power cords to the server and how to apply power to the server for the first time.

- [“Connect the Power Cords” on page 79](#)

### Related Information

- [“Rear Cable Connections and Ports” on page 75](#)
- [“Ethernet Ports” on page 77](#)

## ▼ Connect the Power Cords



---

**Caution** – Do not connect the power cords to the server until the you have made the SP and host networking connections as described in [“Attaching Data Cables to the Server” on page 78](#). The server includes a service processor (SP) that is used to configure and boot the host system. Connecting the SP and host networking cables first enables you to properly configure the host system and view SP messages.

---

1. For each installed power supply, connect one grounded server power cord to a grounded electrical outlet.

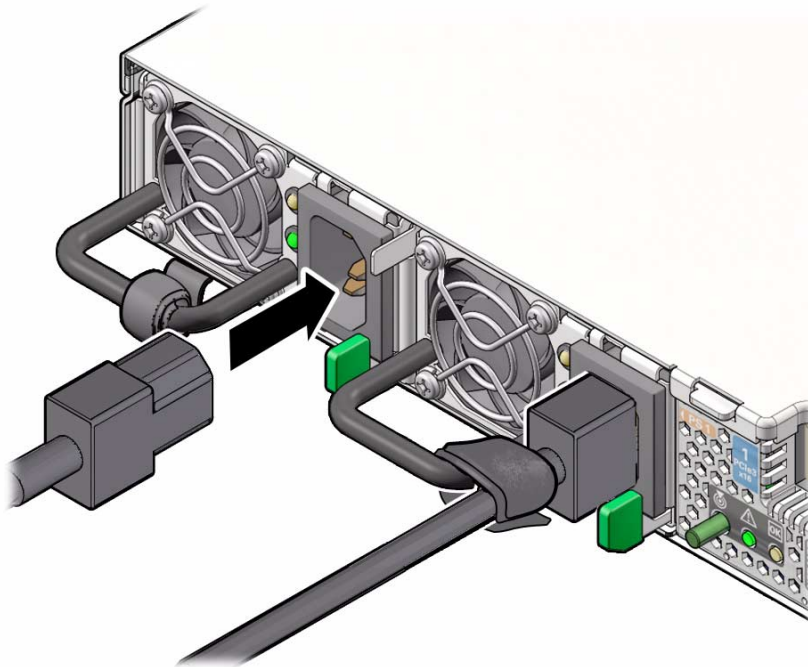
---

**Note** – The server is equipped with two power supplies. Connect them to separate power sources to provide power redundancy. The server can operate with one power source; however, having only one power source reduces the redundancy.

---

2. Connect the server power cords to the power supply AC connectors on the back panel of the server and use a Velcro strap to secure them to the power supply handle as shown in the figure below.

When the power cords are connected, the power supply LEDs light and the SP OK LED will blink rapidly as the service processor (SP) boots. After the SP has booted, the Power/OK LED on the front panel will blink slowly, indicating the host is in standby power mode. In standby power mode, the server is not yet initialized or powered on.



---

**Caution** – Do not operate the server unless all fans, component heatsinks, air baffles, and the top cover are installed. Damage to server components can occur if the server is operated without adequate cooling mechanisms.

---

---

**Note** – Do not apply main power to the rest of the server until you are ready to configure a preinstalled operating system or perform a fresh install of an operating system. At this point, power is supplied only to the SP and the power supply fans.

---

# Connecting to Oracle ILOM

---

Oracle Integrated Lights Out Manager (ILOM) is embedded on firmware in the Sun Server X4-2. The server supports Oracle ILOM version 3.1. Oracle ILOM provides the following functionality:

- A Remote Console function that enables you to connect to the Oracle System Assistant and set up your server remotely.
- Extensive management and monitoring capabilities for the server.

For complete information about Oracle ILOM, refer to the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at

<http://www.oracle.com/goto/ILOM/docs>.

This section describes how to access and get started using Oracle ILOM for your server.

Description	Links
Learn about Oracle ILOM hardware and interfaces.	<a href="#">“Oracle ILOM Hardware and Interfaces” on page 82</a>
Learn about network ports.	<a href="#">“Network Defaults” on page 82</a>
Log in directly to Oracle ILOM using a terminal connected to the serial port.	<a href="#">“Logging In to Oracle ILOM Using a Local Serial Connection” on page 83</a>
Log in to Oracle ILOM over the network using an Ethernet connection.	<a href="#">“Logging In to Oracle ILOM Using a Remote Ethernet Connection” on page 84</a>
Access the host console through Oracle ILOM.	<a href="#">“Accessing the Host Console Through Oracle ILOM” on page 93</a>
Troubleshoot the service processor connection.	<a href="#">“Troubleshooting the Service Processor Connection” on page 97</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)
- [“Attaching Data Cables to the Server” on page 78](#)
- Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at: <http://www.oracle.com/goto/ILOM/docs>

---

# Oracle ILOM Hardware and Interfaces

The following table lists the components and functions of Oracle ILOM. For complete information about Oracle ILOM, refer to the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at <http://www.oracle.com/goto/ILOM/docs>.

Component	Function
Hardware	<ul style="list-style-type: none"><li>• Embedded service processor (SP) chipset that monitors the status and configuration of components such as fans, storage drives, and power supplies.</li><li>• Two rear panel external connections: NET MGT port Ethernet connection and SER MGT RJ-45 serial management port.</li></ul>
Interfaces	<ul style="list-style-type: none"><li>• Web browser interface</li><li>• SSH command-line interface (CLI)</li><li>• IPMI v2.0 CLI</li><li>• SNMP v3 interface</li></ul>

With Oracle ILOM, you can monitor and manage the server components. Oracle ILOM lets you perform the following tasks:

- Configure network information
- View and edit hardware configurations for the SP
- Monitor vital system information and view logged events
- Manage Oracle ILOM user accounts

## Related Information

- Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at: <http://www.oracle.com/goto/ILOM/docs>

---

# Network Defaults

The Sun Server X4-2 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, you will accept these 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 following procedures enable you to test that the assigned settings are working correctly and to establish a connection to Oracle ILOM locally and remotely.

- To log in locally, see [“Log In to Oracle ILOM Using a Local Serial Connection” on page 84](#).
- To log in remotely, use the IP address, host name, or IPv6 local link name assigned to the server SP and follow the instructions in [“Log In to Oracle ILOM Remotely Using the CLI” on page 87](#).

---

## Logging In to Oracle ILOM Using a Local Serial Connection

To log in to Oracle ILOM locally using a serial connection, you need to connect a serial null modem cable to the RJ-45 serial port labeled SER MGT and to a terminal or terminal emulator. 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)
- Disable software flow control (XON/XOFF)

This section includes the following procedure:

- [“Log In to Oracle ILOM Using a Local Serial Connection” on page 84](#)

### Related Information

- [“Logging In to Oracle ILOM Using a Remote Ethernet Connection” on page 84](#)

## ▼ 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 have an Oracle ILOM Administrator account. You must be present at the server to perform this procedure.

---

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

---

1. **To ensure that your server has the necessary connections for local access to Oracle ILOM, follow the instructions in [“Attaching Data Cables to the Server”](#) on page 78.**
2. **To establish a connection between your serial console and Oracle ILOM, press Enter on the terminal.**  
A login prompt to Oracle ILOM appears.
3. **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.

### Related Information

- [“Log In to Oracle ILOM Remotely Using the Web Interface”](#) on page 85
- [“Log In to Oracle ILOM Remotely Using the CLI”](#) on page 87

---

## Logging In to Oracle ILOM Using a Remote Ethernet Connection

To log in to Oracle ILOM remotely using either the command-line interface (CLI) or the web interface, you must know the IP address of the server SP. The following sections describe how you can determine the IP address (if you do not know it), how to log in to Oracle ILOM, and how to view and modify the SP IP address:

- [“Determining the IP Address of the Server SP” on page 85](#)
- [“Log In to Oracle ILOM Remotely Using the Web Interface” on page 85](#)
- [“Log In to Oracle ILOM Remotely Using the CLI” on page 87](#)
- [“View or Modify an SP IPv4 Address” on page 88](#)
- [“View or Modify an SP IPv6 Address” on page 90](#)

## Determining the IP Address of the Server SP

If a DHCP server or IPv6 router cannot be reached after ten seconds, the SP requests will timeout. After the timeout, the SP then only periodically checks for a DHCP server or IPv6 router.

If you do not have a DHCP server or IPv6 router on your network, or you need to view or assign an IP address to the SP, follow the procedures in these sections:

- [“View or Modify an SP IPv4 Address” on page 88](#)
- [“View or Modify an SP IPv6 Address” on page 90](#)

## ▼ Log In to Oracle ILOM Remotely Using the Web Interface

This procedure requires that you have an Oracle ILOM Administrator account and that you know the IP address or host name of the server SP.

To improve response times, disable the web browser proxy server (if used).

1. **To ensure that your server has the necessary connections for remote access to Oracle ILOM, follow the instructions in [“Attaching Data Cables to the Server” on page 78](#).**

2. **Type the IP address of the server SP into your web browser address field.**

For example: **https://172.16.82.26**

The Oracle ILOM web interface login page appears.



### 3. Type your user name and password.

---

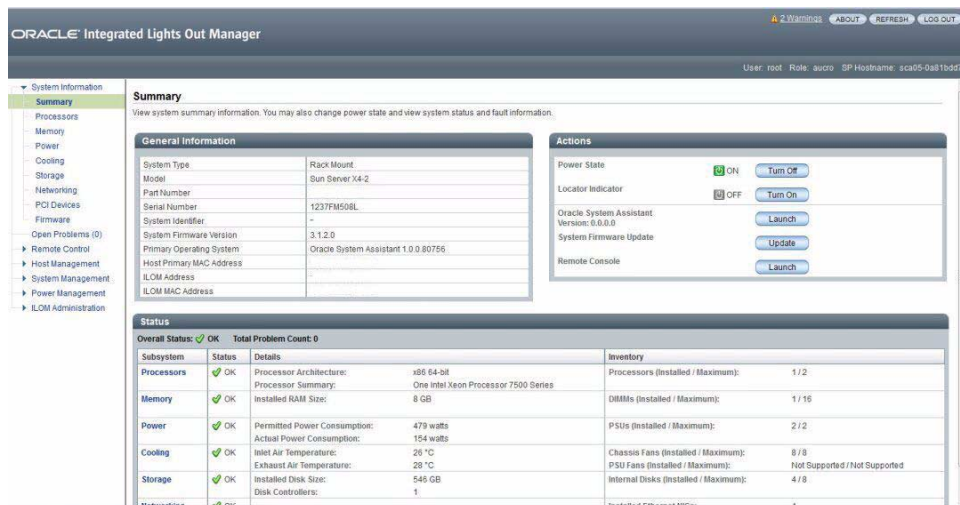
**Note** – To enable first-time login and access to Oracle ILOM, a default Administrator account and its password are provided with the system. To build a secure environment, you must change the default password (`changeme`) for the default Administrator account (`root`) after your initial login to Oracle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

---

### 4. Click Log In.

The System Information > Summary page appears.





You are now logged in to the server Oracle ILOM. For information about using Oracle ILOM, refer to the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at <http://www.oracle.com/goto/ILOM/docs>.

## Related Information

- “Logging In to Oracle ILOM Using a Local Serial Connection” on page 83
- “View or Modify an SP IPv4 Address” on page 88
- “View or Modify an SP IPv6 Address” on page 90

## ▼ Log In to Oracle ILOM Remotely Using the CLI

This procedure requires that you have an ILOM Administrator account and that you know the IP address or host name of the server SP.

1. To ensure that your server has the necessary connections for remote access to Oracle ILOM, follow the instructions in “Attaching Data Cables to the Server” on page 78.

2. Using a Secure Shell (SSH) session, log in to Oracle ILOM by specifying your Administrator account user name and the IP address or host name of the server SP.

The login command syntax can be either of the following:

```
ssh -l username host
```

or

```
ssh username@host
```

Where *host* is either the IP address or the host name of the server SP (when using DNS).

For example:

```
ssh root@172.16.82.26
```

The Oracle ILOM password prompt appears.

3. Type a password for the Administrator account.

```
root@172.16.82.26's password: changeme
```

---

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

---

Oracle ILOM displays a default command prompt (*->*), indicating that you have successfully logged in to Oracle ILOM. For information about using Oracle ILOM, refer to the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at <http://www.oracle.com/goto/ILOM/docs>.

### Related Information

- “Logging In to Oracle ILOM Using a Local Serial Connection” on page 83
- “View or Modify an SP IPv4 Address” on page 88
- “View or Modify an SP IPv6 Address” on page 90

## ▼ View or Modify an SP IPv4 Address

To view or modify the IPv4 address currently assigned to the Oracle ILOM SP:

---

**Note** – You can also change network settings using the BIOS Setup Utility. For information about the BIOS Setup Utility, refer to the *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>.

---

**1. Log in to Oracle ILOM using one of the following procedures:**

- “Log In to Oracle ILOM Using a Local Serial Connection” on page 84
- “Log In to Oracle ILOM Remotely Using the CLI” on page 87

---

**Note** – If you log in to Oracle ILOM using an Ethernet connection, after you modify the network settings, your connection will be terminated, and you will have to log in again using the new settings.

---

**2. To navigate to the `/SP/network` directory, use the `cd` command:**

-> **cd /SP/network**

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

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

-> **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 table in [Step 4](#). For example:

-> **set /SP/network/pendingipdiscovery=static**

-> **set /SP/network/pendingipaddress=10.8.183.106**

-> **set /SP/network/pendingipnetmask=255.255.255.0**

-> **set /SP/network/pendingipgateway=10.8.183.254**

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

---

**Note** – If you are logged in to Oracle ILOM using an Ethernet connection, when you set `commitpending` to `true` to commit the changes to the network settings, your Oracle ILOM connection will be terminated and you will have to log in again using the new settings.

---

**4. If you want to enable sideband management, type the following commands:**

-> **set /SP/network/pendingmanagementport=/System/MB/NET $n$**

Where  $n$  equals 0, 1, 2, or 3.

**Note** – Ethernet ports NET2 and NET3 are nonfunctional in single-processor systems and, therefore, cannot be used for sideband management.

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

The following table describes the network settings.

Property and Set Property Value	Description
<b>Property:</b> state <b>Set Property Value:</b> set state=enabled	The network state is enabled by default.
<b>Property:</b> pendingipdiscovery <b>Set Property Value:</b> set pendingipdiscovery=static	To enable a static network configuration, set pendingipdiscovery to static. By default, pendingipdiscovery is set to dhcp.
<b>Property:</b> pendingmanagement port <b>Set Property Value:</b> set pendingmanagementport= /System/SP/NET0	By default, pendingmanagementport is set to the NET MGT port (/System/SP/NET0). To enable sideband management, set pendingmanagementport to an available 10-Gigabit Ethernet port. Set pendingmanagementport to /System/MB/NET <i>n</i> , where <i>n</i> represents 3, 2, 1, or 0. <b>Note</b> - Ethernet ports NET2 and NET3 are nonfunctional in single-processor systems and, therefore, cannot be used for sideband management.
<b>Property:</b> pendingipaddress <b>Set Property Value:</b> set pendingipaddress=< <i>ip_address</i> > <b>Property:</b> pendingipnetmask <b>Set Property Value:</b> set pendingipnetmask=< <i>netmask</i> > <b>Property:</b> pendingipgateway <b>Set Property Value:</b> set pendingipgateway=< <i>gateway</i> >	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.

**Related Information**

- [“Determining the IP Address of the Server SP” on page 85](#)
- [“View or Modify an SP IPv6 Address” on page 90](#)

▼ **View or Modify an SP IPv6 Address**

To view or modify the IPv6 address currently assigned to the Oracle ILOM SP:

---

**Note** – You can also change network settings using the BIOS Setup Utility. For information about the BIOS Setup Utility, refer to *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>.

---

**1. Log in to Oracle ILOM using one of the following procedures:**

- “Log In to Oracle ILOM Using a Local Serial Connection” on page 84
- “Log In to Oracle ILOM Remotely Using the CLI” on page 87

---

**Note** – If you log in to Oracle ILOM using an Ethernet connection, after you modify the network settings, your connection will be terminated, and you will have to log in again using the new settings.

---

**2. To navigate to the `/SP/network/ipv6` directory, use the `cd` command:**

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

**3. To view the IPv6 network settings configured on the device, type the `show` command.**

For example, see the following sample output values for the IPv6 properties on a server SP device.

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

Properties:
  state = enabled
  autoconfig = stateless
  dhcpv6_server_duid = (none)
  link_local_ipaddress = 2001:DB8:n:n
  static_ipaddress = ::/128
  ipgateway = 2001:DB8:n:n
  pending_static_ipaddress = ::/128
  dynamic_ipaddress_1 2001:DB8:n:n

Commands:
  cd
  show
  set
```

**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	The IPv6 network state is enabled by default. To enable an IPv6 auto-configuration option, set this state to enabled.
autoconfig	set autoconfig=<value>	Specify this command followed by the autoconfig value you want to set. Options include: <ul style="list-style-type: none"> <li>• stateless (default setting) Automatically assigns IP address learned from IPv6 network router.</li> <li>• dhcpv6_stateless Automatically assigns DNS information learned from the DHCPv6 server.</li> <li>• dhcpv6_stateful Automatically assigns the IPv6 address learned from the DHCPv6 server.</li> <li>• disabled Disables all auto-configuration property values and sets the read-only property value for Link Local address.</li> </ul>

---

**Note** – The IPv6 configuration options listed in the above table take effect after they are set, that is, you do not need to commit these changes under the `/network` target.

---



---

**Note** – You can enable the `stateless` auto-configuration option to run at the same time the option for `dhcpv6_stateless` is enabled or the option for `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, specify the following property types:**

Property and Set Property Value	Description
<b>Property:</b> state <b>Set Property Value:</b> set state=enabled	The IPv6 network state is enabled by default. To enable a static IP address set this state to enabled.
<b>Property:</b> pending_static_ipaddress <b>Set Property Value:</b> set pending_static_ipaddress/<subnet mask length_in_bits>	Type this command followed by the property value for the static IPv6 address and subnet netmask that you want to assign to the device. IPv6 address example: 2001:DB8:n:n
<b>Property:</b> commitpending <b>Set Property Value:</b> set commitpending=true	Type set commitpending=true to commit changes.

---

**Note** – Assigning a new static IP address to the device will end all active Oracle ILOM sessions to the device. To log in again to Oracle ILOM, you will need to create a new session using the newly assigned IP address.

---

### Related Information

- [“Determining the IP Address of the Server SP” on page 85](#)
- [“View or Modify an SP IPv4 Address” on page 88](#)

---

## Accessing the Host Console Through Oracle ILOM

Connecting to the host console through Oracle ILOM enables you to perform actions as if you were at the host. Connect to the host to perform the following tasks:

- Access the server BIOS Setup Utility remotely.
- Install an operating system on the server.
- Configure an operating system on the server.
- Configure or install other software on the server.
- Access the Oracle System Assistant through Oracle ILOM.

For instructions, see the following sections:

- [“Set Mouse Mode” on page 94](#)
- [“Access Remote Host Console Using the Oracle ILOM Web Interface” on page 94](#)

- [“Access Serial Host Console Using the Oracle ILOM CLI” on page 97](#)

## ▼ Set Mouse Mode

The mouse mode setting in Oracle ILOM must be set according to the requirements of the operating system that you are using to connect to the host console, either Absolute or Relative; otherwise, the on-screen mouse pointer will not track the mouse movements.

- For Windows and Oracle Solaris operating systems, set the mouse mode to Absolute.
- For newer versions of Linux operating systems, Oracle Linux 6.x, Red Hat Enterprise Linux (RHEL) 6.x, and SUSE Linux Enterprise Server (SLES) 11 or later, set the mouse mode to Absolute.
- For older versions of Linux operating systems, Oracle Linux 5.x, RHEL 5.x, and SLES 10, set the mouse mode to Relative and switch to Absolute if the mouse does not work properly.
- For Oracle VM and VMware ESXi, mouse mode settings do not apply.

To set the mouse mode, perform the following steps:

1. **Log in to the Oracle ILOM web interface.**
2. **Select Remote Control > Mouse Mode and select the appropriate mode according to the operating system that you are using to connect to the host console.**

---

**Note –** Some versions of Oracle ILOM require the service processor (SP) to be reset before the change will take effect. You will be prompted by an Oracle ILOM message if your SP needs to be reset.

---

## ▼ Access Remote Host Console Using the Oracle ILOM Web Interface

To connect to the host console from a remote system, your remote system must meet the following requirements:

- An operating system such as Oracle Solaris, Linux, Oracle VM, or Windows is installed and the mouse mode is set correctly (see [“Set Mouse Mode” on page 94](#)).
- The system must be connected to a network that has access to one of the Ethernet management ports.



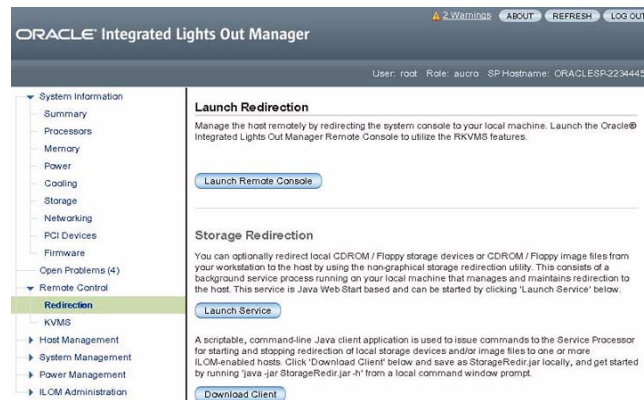
- Java Runtime Environment (JRE) 1.5 or later is installed. For CD-ROM redirection, 32-bit Java must be used.
- If the Remote Console system is running the Oracle Solaris 10 operating system, volume management must be disabled for the Remote Console to access the physical floppy and CD/DVD-ROM drives.
- If the Remote Console system is running Windows, Internet Explorer Enhanced Security must be disabled.
- The Remote Console system and Oracle ILOM service processor are set up according to the instructions in the Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at <http://www.oracle.com/goto/ILOM/docs>.

**1. Log in to the server Oracle ILOM using an account with Administrator privileges.**

See “Log In to Oracle ILOM Remotely Using the Web Interface” on page 85.

**2. In the System Information menu, expand the Remote Control tab in the left menu tree and click Redirection.**

The Launch Redirection page appears.



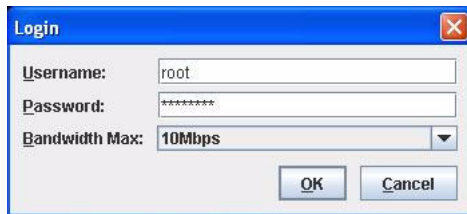
**3. In the Launch Redirection page, click Launch Remote Console.**

Note the following:

- When you are using a Windows system for Remote Console redirection, a Hostname Mismatch warning dialog box might appear after you click Launch Remote Console. If it does, click the Yes button to clear it.



- A Remote Control login dialog box might appear. If it does, reenter your user name and password, and click OK.



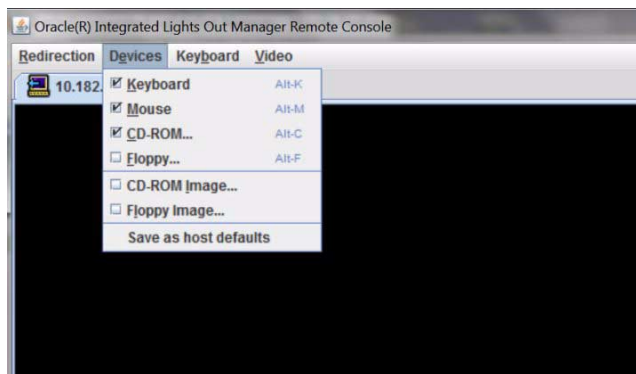

---

**Note** – The Login dialog box should not appear unless Single Sign-On is either disabled or not supported.

---

The Oracle ILOM Remote Console screen appears.

4. To redirect one or more devices on your remote system to the host console, select the appropriate items from the Devices menu.



- **Remote Physical Floppy Disk** – Select Floppy to redirect the server to the physical floppy drive attached to the remote system.
- **Remote Physical CD/DVD** – Select CD-ROM to redirect the server to the CD/DVD drive attached to the remote system.

- **Remote CD/DVD Image** – Select CD-ROM Image to redirect the server to the ISO image file located on the remote system.

---

**Note** – Using either of the CD/DVD options to install software on your server might significantly increase the time necessary to perform the installation because the content is accessed over the network. The installation duration depends on the network connectivity and traffic.

---

## ▼ Access Serial Host Console Using the Oracle ILOM CLI

1. **Log in to the server Oracle ILOM using an account with Administrator privileges.**

Use one of the following methods:

- Use the serial management port as described in [“Log In to Oracle ILOM Using a Local Serial Connection” on page 84.](#)
- Use a client system to establish an SSH session over the network as described in [“Log In to Oracle ILOM Remotely Using the CLI” on page 87.](#)

2. **To access the host serial console, type the command:**

-> **start /HOST/console**

The serial console output appears on the screen.

---

**Note** – If the serial console is in use, stop and restart it using the `stop /HOST/console` command followed by the `start /HOST/console` command.

---

3. **To return to the Oracle ILOM console, press Esc followed by the “(” character (Shift-9).**

---

## Troubleshooting the Service Processor Connection

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

- The Oracle ILOM SP is hung 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 98
- “Reset the Service Processor From the Server Back Panel” on page 98
- “Recover Root Account Password” on page 99

## ▼ 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), type: `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.

---

For more information about resetting the SP from the Oracle ILOM CLI or web interface, refer to the *Oracle Integrated Lights Out Manager (ILOM) 3.1 Configuration and Maintenance Guide* at <http://www.oracle.com/goto/ILOM/docs>.

## ▼ Reset the Service Processor From the Server Back Panel

If the Oracle ILOM SP is hung and you cannot reset it using the Oracle ILOM web interface or the Oracle ILOM CLI command, use the following procedure to reset the SP from the server back panel.

- Using a stylus, press the Reset SP pinhole button that is located on the server back panel.

**FIGURE:** SP Reset Pinhole Button Location



**Figure Legend**

---

1	SP Reset pinhole button
---	-------------------------

---

The SP reboots. You must log in again to continue working in Oracle ILOM.

## ▼ 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 [FIGURE: Server Front Panel With Eight 2.5-inch Drives Configuration on page 23](#).

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

You will be prompted for a password.

4. Type the password for the default user account: **defaultpassword**.
5. Reset the account password or re-create the `root` account.

For more information, refer to "Configuring Local User Accounts" in the *Oracle Integrated Lights Out Manager (ILOM) 3.1 Configuration and Maintenance Guide* at <http://www.oracle.com/goto/ILOM/docs>.

# Setting Up Software and Firmware Using 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 some 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.

---

**Note** – For Oracle Solaris installs, 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.

---

This section describes how to set up the software and firmware for the server using Oracle System Assistant. It includes information about the following tasks.

Description	Links
Access Oracle System Assistant.	<a href="#">“Accessing Oracle System Assistant” on page 102</a>
Set up software and firmware Using Oracle System Assistant.	<a href="#">“Set Up Software and Firmware Using Oracle System Assistant” on page 105</a>
Set up an operating system and drivers using Oracle System Assistant.	<a href="#">“Setting Up an Operating System and Drivers” on page 106</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)
- [“Attaching Data Cables to the Server” on page 78](#)

- *Oracle X4 Series Servers Administration Guide* at:  
<http://www.oracle.com/goto/x86AdminDiag/docs>

---

## Accessing Oracle System Assistant

Use one of the following methods to access Oracle System Assistant:

- “Launch Oracle System Assistant Locally” on page 102
- “Launch Oracle System Assistant Using the Oracle ILOM Web Interface” on page 104

### Related Information

- “Set Up Software and Firmware Using Oracle System Assistant” on page 105
- “Setting Up an Operating System and Drivers” on page 106

## ▼ Launch Oracle System Assistant Locally

To launch Oracle System Assistant locally you must be present at the server and have access to the following:

- VGA monitor
- USB keyboard
- USB mouse

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

When the server is in standby power mode, the Power/OK LED on the front panel blinks slowly.

### 2. Connect locally to the server.

Follow the cabling instructions in “Cabling the Server” on page 75.

### 3. Press the Power button on the front panel of the server to power on the server to full power.

The server boots, and power-on self-test (POST) and boot messages appear on the monitor.

Stay with the server. You need to interrupt the boot process.



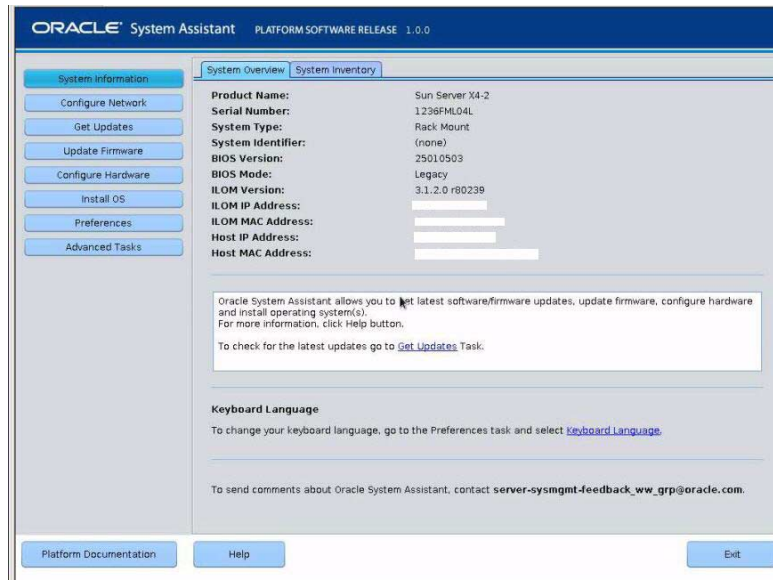
**Note** – The next events occur very quickly; therefore, focused attention is needed for the following steps. Watch carefully for these messages as they appear on the screen for a brief time.

The BIOS screen appears.



**4. Watch for the prompt to press the F9 key, and when it appears, press F9.**

The Oracle System Assistant application is started, and the System Overview screen appears.



## ▼ Launch Oracle System Assistant Using the Oracle ILOM Web Interface

You can use Oracle ILOM to launch Oracle System Assistant locally or remotely.

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

In the standby power mode, the Power/OK LED blinks slowly.

### 2. Open a browser, enter the server SP IP address, and log in as `root` with the password `changeme` (default).

The System Information > Summary screen appears.

The screenshot displays the Oracle Integrated Lights Out Manager (ILOM) Summary screen. The top navigation bar includes '2 Warnings', 'ASIST', 'REFRESH', and 'LOG OUT'. The user is logged in as 'root' with role 'auto' and SP Hostname 'sca05-0a81bde7'.

**Summary**  
View system summary information. You may also change power state and view system status and fault information.

**General Information**

Property	Value
System Type	Rack Mount
Model	Sun Server X4-2
Part Number	
Serial Number	1237FM50BL
System Identifier	-
System Firmware Version	3.1.2.0
Primary Operating System	Oracle System Assistant 1.0.0.80756
Host Primary MAC Address	
ILOM Address	
ILOM MAC Address	

**Actions**

Power State: ☒ ON

Locator Indicator: ☒ OFF

Oracle System Assistant: Version: 0.0.0.0

System Firmware Update:

Remote Console:

**Status**  
Overall Status: ☒ OK Total Problem Count: 0

Subsystem	Status	Details	Inventory
Processors	<input checked="" type="checkbox"/> OK	Processor Architecture: x86 64-bit Processor Summary: One Intel Xeon Processor 7500 Series	Processors (Installed / Maximum): 1 / 2
Memory	<input checked="" type="checkbox"/> OK	Installed RAM Size: 8 GB	DIMMs (Installed / Maximum): 1 / 16
Power	<input checked="" type="checkbox"/> OK	Permitted Power Consumption: 479 watts Actual Power Consumption: 154 watts	PSUs (Installed / Maximum): 2 / 2
Cooling	<input checked="" type="checkbox"/> OK	Inlet Air Temperature: 26 °C Exhaust Air Temperature: 28 °C	Chassis Fans (Installed / Maximum): 8 / 8 PSU Fans (Installed / Maximum): Not Supported / Not Supported
Storage	<input checked="" type="checkbox"/> OK	Installed Disk Size: 546 GB Disk Controllers: 1	Internal Disks (Installed / Maximum): 4 / 8
Network	<input checked="" type="checkbox"/> OK		Installed Ethernet NICs: 4

### 3. Click the Oracle System Assistant Launch button in the Actions panel located in the upper right area of the screen.

### 4. To run the Oracle ILOM Remote Console, click `Yes`

The server powers on, the Oracle System Assistant application is started, and the System Overview screen appears.

---

# Setting Up Software and Firmware Using Oracle System Assistant

Use Oracle System Assistant to simplify the setup and configuration of the server. For detailed information about using Oracle System Assistant, refer to the *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>.

- “Set Up Software and Firmware Using Oracle System Assistant” on page 105.

## ▼ Set Up Software and Firmware Using Oracle System Assistant

- Use Oracle System Assistant to perform the tasks listed in the following table.

Task	Oracle System Assistant Screen
1 Review system information and inventory.	System Information
2 Set up a network connection.	Network Configuration
3 Update to the latest software release and product documentation.	Get Updates
4 Update Oracle ILOM, BIOS, disk expander, or HBA firmware, if needed.	Update Firmware
5 Configure RAID.	Configure Hardware > RAID Configuration
6 Configure Oracle ILOM.	Configure Hardware > Service Processor Configuration
7 Configure BIOS.	Configure Hardware > BIOS Configuration
8 Install an Oracle Solaris, Linux, Oracle VM, or Windows operating system or drivers.	Install OS For more information see “Setting Up an Operating System and Drivers” on page 106 or the installation guide for the OS you plan to install.

---

# Setting 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?	Which OS do you want to configure or install?	Use this tool or documentation
Configure a preinstalled OS	Preinstalled Oracle Solaris OS	<a href="#">“Configuring the Preinstalled Oracle Solaris 11.1 Operating System” on page 149</a>
	Preinstalled Oracle Linux	<a href="#">“Configuring the Preinstalled Oracle Linux 6.x Operating System” on page 159</a>
	Preinstalled Oracle VM	<a href="#">“Configuring the Preinstalled Oracle VM 3.2 Software” on page 165</a>
Install an OS	Oracle Solaris OS, Linux OS, Oracle VM, or Windows OS	Oracle System Assistant or the installation guide for the OS <ul style="list-style-type: none"><li>• <a href="#">Sun Server X4-2 Installation Guide for Oracle Solaris Operating System</a>, “Installing the Oracle Solaris Operating System” on page 23</li><li>• <a href="#">Sun Server X4-2 Installation Guide for Linux Operating Systems</a>, “Installing a Linux Operating System” on page 21</li><li>• <a href="#">Sun Server X4-2 Installation Guide for Oracle VM</a>, “Installing Oracle VM” on page 23</li><li>• <a href="#">Sun Server X4-2 Installation Guide for Windows Operating Systems</a>, “Installing a Windows Server Operating System” on page 23</li></ul>
	VMware ESXi	Installation guide for the OS <ul style="list-style-type: none"><li>• <a href="#">Sun Server X4-2 Installation Guide for VMware ESXi</a>, “Installing VMware ESXi” on page 19</li></ul>

What do you want to do?	Which OS do you want to configure or install?	Use this tool or documentation
Install OS drivers	Any supported OS	<p>Oracle System Assistant or the installation guide for the OS</p> <ul style="list-style-type: none"> <li>• <i>Sun Server X4-2 Installation Guide for Linux Operating Systems</i>, “Installing a Linux Operating System” on page 21</li> <li>• <i>Sun Server X4-2 Installation Guide for Oracle VM</i>, “Installing Oracle VM” on page 23</li> <li>• <i>Sun Server X4-2 Installation Guide for Windows Operating Systems</i>, “Installing a Windows Server Operating System” on page 23</li> <li>• <i>Sun Server X4-2 Installation Guide for Oracle Solaris Operating System</i>, “Installing the Oracle Solaris Operating System” on page 23</li> <li>• <i>Sun Server X4-2 Installation Guide for VMware ESXi</i>, “Installing VMware ESXi” on page 19</li> </ul>

## Related Information

- “Set Up Software and Firmware Using Oracle System Assistant” on page 105
- “Configuring the Preinstalled Oracle Solaris 11.1 Operating System” on page 149
- “Configuring the Preinstalled Oracle Linux 6.x Operating System” on page 159
- “Configuring the Preinstalled Oracle VM 3.2 Software” on page 165



# Configuring Server Drives for OS Installation

This section contains procedures for configuring the server storage drives into RAID (redundant array of independent disks) volumes.

Description	Links
Learn about RAID configuration tools.	<a href="#">“RAID Configuration Tools” on page 109</a>
Learn about RAID configuration options.	<a href="#">“RAID Configuration Requirements” on page 110</a>
Configure server storage drives into RAID volumes using Oracle System Assistant.	<a href="#">“Configuring Storage Drives Into RAID Volumes Using Oracle System Assistant” on page 112</a>
Configure server storage drives into RAID volumes using the BIOS RAID configuration utilities.	<a href="#">“Configuring RAID Using the BIOS RAID Configuration Utilities” on page 130</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)
- Host Bus Adapter (HBA) Documentation Collection at:  
<http://www.oracle.com/technetwork/documentation/oracle-storage-networking-190061.html>

## RAID Configuration Tools

The server supports these two host bus adapters (HBAs):

- Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z)
- Sun Storage 6 Gb SAS PCIe RAID Internal HBA (SGX-SAS6-R-INT-Z)

The procedures that you will use to configure RAID depend on which HBA is installed in the server and which server BIOS mode is selected, UEFI or Legacy BIOS. You can use either Oracle System Assistant (recommended) or BIOS RAID configuration utilities to configure RAID on either HBA. The following table provides the links to the RAID configuration procedures for each configuration tool and each BIOS mode.

RAID Configuration Tool	Supported HBAs	BIOS Mode Supported	RAID Configuration Procedures
Oracle System Assistant	• Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z)	UEFI and Legacy BIOS	• <a href="#">“Configure RAID on Storage Drives Using a Sun Storage 6 Gb SAS PCIe Internal HBA” on page 113</a>
	• Sun Storage 6 Gb SAS PCIe RAID Internal HBA (SGX-SAS6-R-INT-Z)		• <a href="#">“Configure RAID on Storage Drives Using a Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 121</a>
BIOS Configuration Utilities	Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z)	• UEFI	• <a href="#">“Configure RAID in UEFI BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe Internal HBA” on page 131</a>
		• Legacy BIOS	• <a href="#">“Configure RAID in Legacy BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe Internal HBA” on page 132</a>
	Sun Storage 6 Gb SAS PCIe RAID Internal HBA (SGX-SAS6-R-INT-Z)	• UEFI	• <a href="#">“Configure RAID in UEFI BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 134</a>
		• Legacy BIOS	• <a href="#">“Configuring RAID in Legacy BIOS Boot Mode With the Sun Storage 6 Gb PCIe RAID Internal HBA” on page 142</a>

# RAID Configuration Requirements

Configuring storage drives into RAID volumes is an optional task. It is recommended that you use Oracle System Assistant to configure RAID on the server. If your server does not have Oracle System Assistant, you can use the BIOS configuration utilities to configure RAID on the server.

You have the following options with respect to RAID:



- **Option 1** – If you intend to use the preinstalled version of an 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.

For this option, skip this section and proceed to one of the following sections:

- [“Configuring the Preinstalled Oracle Solaris 11.1 Operating System” on page 149](#)
- [“Configuring the Preinstalled Oracle Linux 6.x Operating System” on page 159](#)
- [“Configuring the Preinstalled Oracle VM 3.2 Software” on page 165](#)
- **Option 2** – If you are going to do a fresh OS install and you want to configure multiple server storage drives into one or more RAID volumes, you must configure the server storage drives into RAID volumes before you install the operating system.
  - If your server is equipped with Oracle System Assistant, proceed to [“Configuring Storage Drives Into RAID Volumes Using Oracle System Assistant” on page 112](#) and select the task that matches the internal HBA that is installed on your server.
  - If your server is not equipped with Oracle System Assistant, proceed to [“Configuring RAID Using the BIOS RAID Configuration Utilities” on page 130](#).
- **Option 3** – Your server has the Sun Storage 6 Gb SAS PCIe RAID Internal HBA (SGX-SAS6-R-INT-Z) installed and you are going to do a fresh OS install, but you do not want to configure multiple storage drives into RAID volumes.

For this option, you must configure a single storage drive on a RAID volume and make that volume bootable.

- If your server is equipped with Oracle System Assistant, proceed to [“Configure RAID on Storage Drives Using a Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 121](#) and configure RAID on a single storage drive.
- If your server is not equipped with Oracle System Assistant, proceed to [“Configuring RAID Using the BIOS RAID Configuration Utilities” on page 130](#) and configure RAID on a single storage drive.

---

**Note** – If you choose option 3, you must configure a single storage drive on a RAID volume and make that volume bootable; otherwise, the internal HBA will not be able to identify the storage drive to use for the installations.

---

- **Option 4** – Your server has the Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z) installed and you are going to do a fresh OS install, but you do not want to configure the server storage drives into RAID volumes.

Proceed to the installation guide for the operating system you want to install:

- [Sun Server X4-2 Installation Guide for Oracle Solaris Operating System, “Installing the Oracle Solaris Operating System” on page 23](#)

- *Sun Server X4-2 Installation Guide for Linux Operating Systems, “Installing a Linux Operating System” on page 21*
- *Sun Server X4-2 Installation Guide for Oracle VM, “Installing Oracle VM” on page 23*
- *Sun Server X4-2 Installation Guide for Windows Operating Systems, “Installing a Windows Server Operating System” on page 23*
- *Sun Server X4-2 Installation Guide for VMware ESXi, “Installing VMware ESXi” on page 19*

For information on creating RAID volumes after installing an operating system, refer to the *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>.

### **Related Information**

- *“Configuring Storage Drives Into RAID Volumes Using Oracle System Assistant” on page 112*
- *“Configuring RAID Using the BIOS RAID Configuration Utilities” on page 130*

---

## **Configuring Storage Drives Into RAID Volumes Using Oracle System Assistant**

It is recommended that you use Oracle System Assistant to configure RAID on the server. If your server does not have Oracle System Assistant, you can use the BIOS Utilities to configure RAID.

See the following procedures:

- *“Accessing Oracle System Assistant” on page 102*
- *“Configure RAID on Storage Drives Using a Sun Storage 6 Gb SAS PCIe Internal HBA” on page 113*
- *“Configure RAID on Storage Drives Using a Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 121*

### **Related Information**

- *“RAID Configuration Requirements” on page 110*
- *“Configuring RAID Using the BIOS RAID Configuration Utilities” on page 130*

## ▼ Configure RAID on Storage Drives Using a Sun Storage 6 Gb SAS PCIe Internal HBA

### 1. Launch Oracle System Assistant.

See “[Accessing Oracle System Assistant](#)” on page 102.

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.

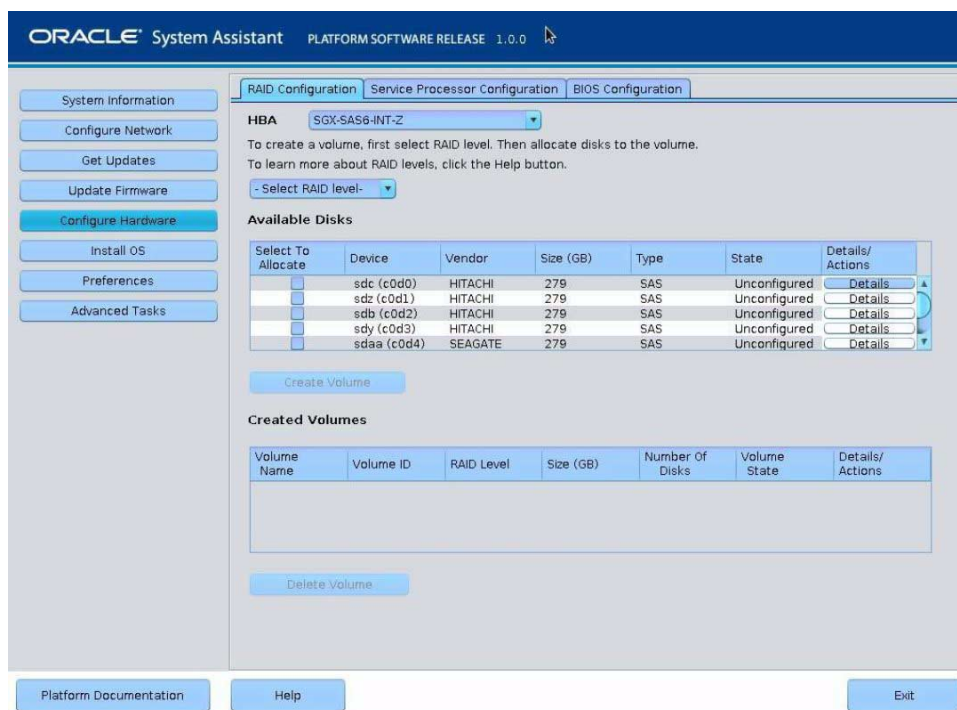
---

**Note** – The BIOS mode used for the RAID configuration must match the BIOS boot mode of the operating system with which you intend to use the RAID configuration. For instructions for switching the BIOS mode from UEFI to Legacy BIOS, or vice versa, see the *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>. Additionally, not all supported operating systems support UEFI mode. For a list of operating systems that support UEFI mode, see “[UEFI BIOS Boot Mode](#)” on page 29.

---

### 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-INT-Z HBA.

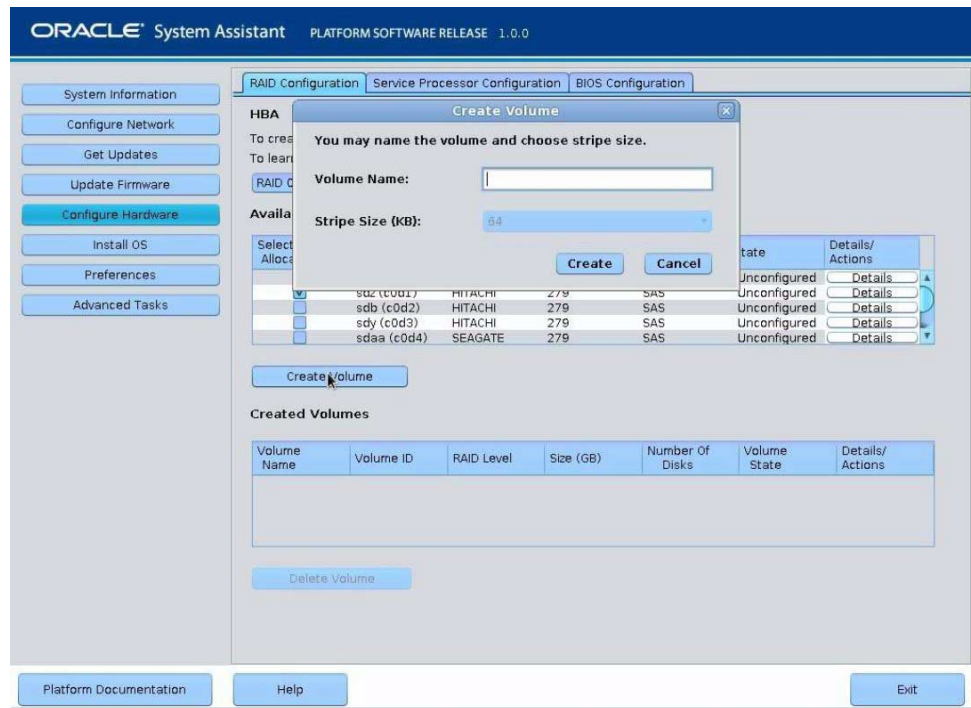
This is the Sun Storage 6 Gb SAS PCIe Internal HBA.

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

Oracle System Assistant only 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, then click the Create Volume button.

The Create Volume dialog box appears.



## 7. In the Create Volume dialog box:

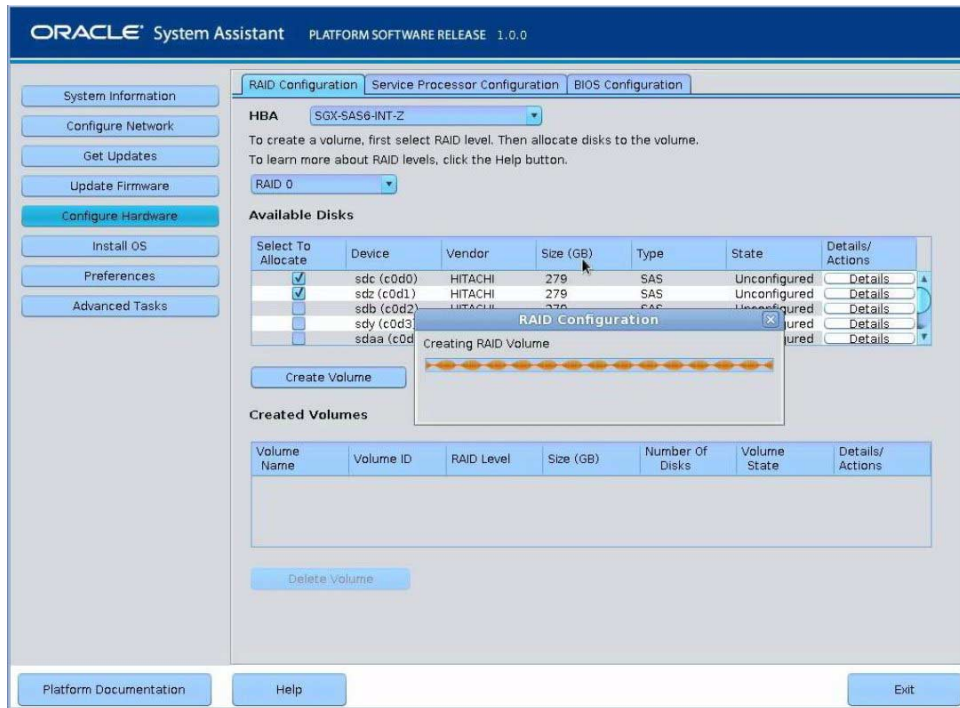
### a. (Optional) Enter the volume name.

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

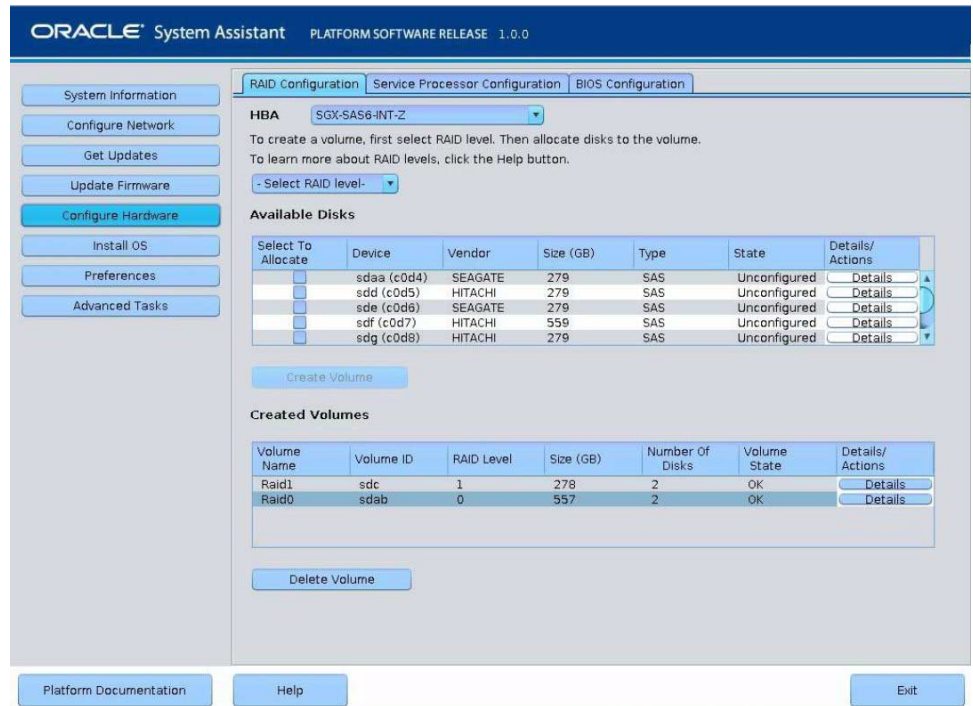
### b. Select the volume stripe size.

### c. Click Create.

The Creating RAID Volume information box appears.

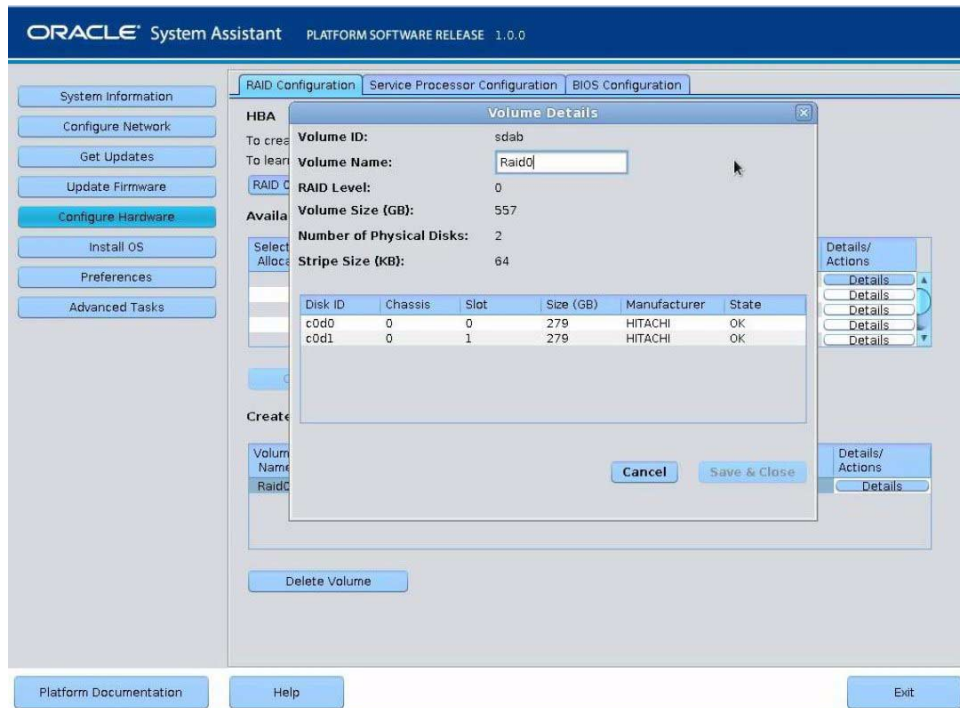


After the volume is created, it is displayed in the Created Volumes table.



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, delete it, 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 or delete it here.

---

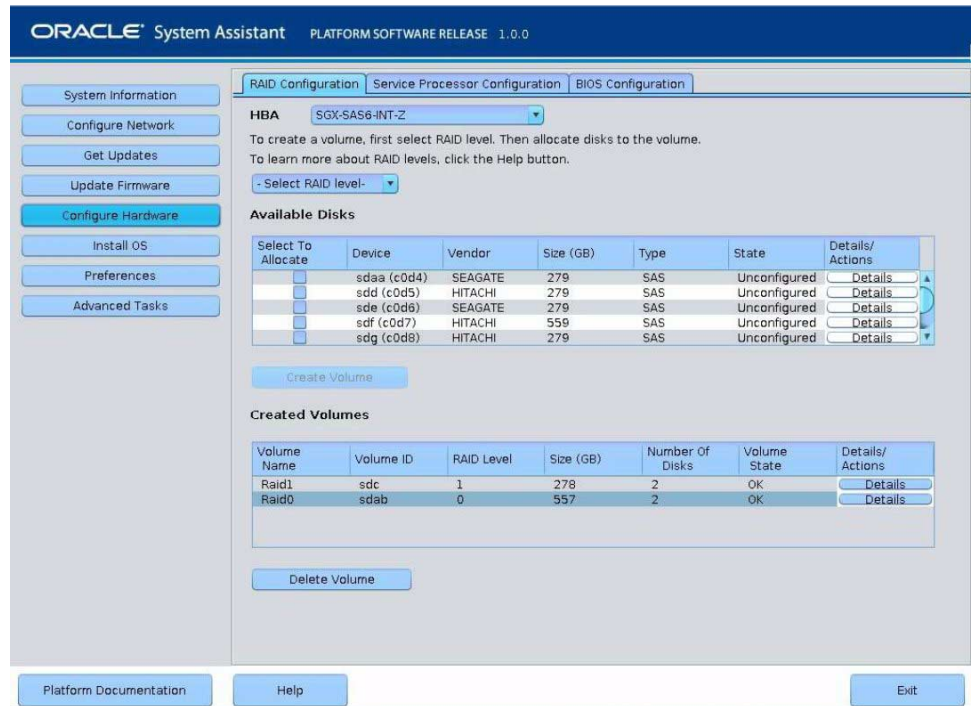
**Note** – Naming the volume is optional. If you do not name the volume, Oracle System Assistant creates a volume without a name. Additionally, if at any time you want to change or delete the volume name, you can do so by clicking on the Details button in the Created Volumes table.

---

**c. To confirm the volume creation, Click Save & Close.**

The RAID Configuration screen appears and shows the results of the RAID configuration.

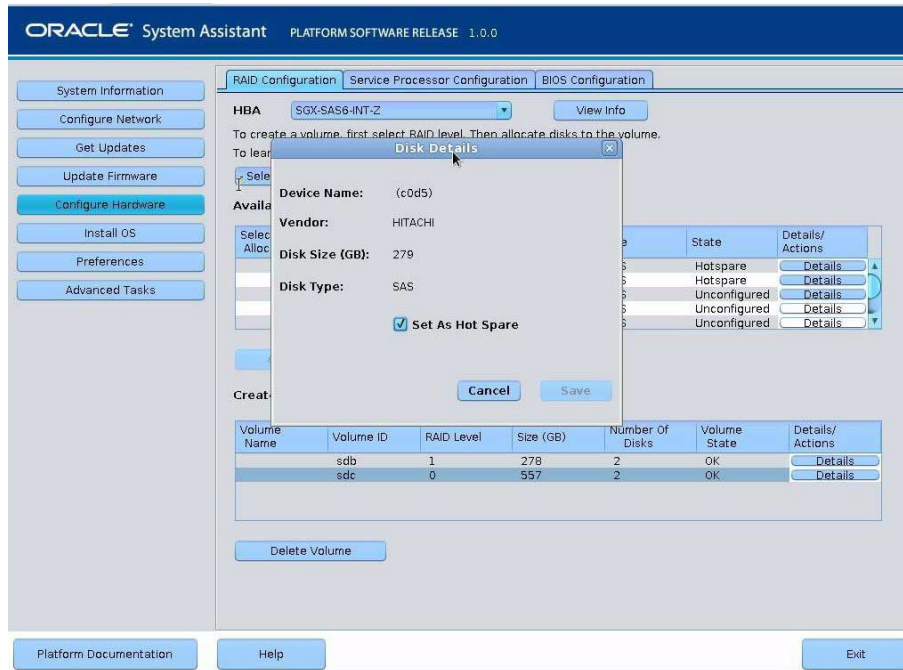




10. If you want to designate the created volume as a global hot spare, perform the following steps; otherwise, proceed to [Step 11](#).

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 Internal HBA, you can create a maximum of two hot spares.

---

**c. Click Save.**

The Disk Details dialog box closes.

**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.

## ▼ Configure RAID on Storage Drives Using a Sun Storage 6 Gb SAS PCIe RAID Internal HBA

### 1. Launch Oracle System Assistant.

See “[Accessing Oracle System Assistant](#)” on page 102.

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.

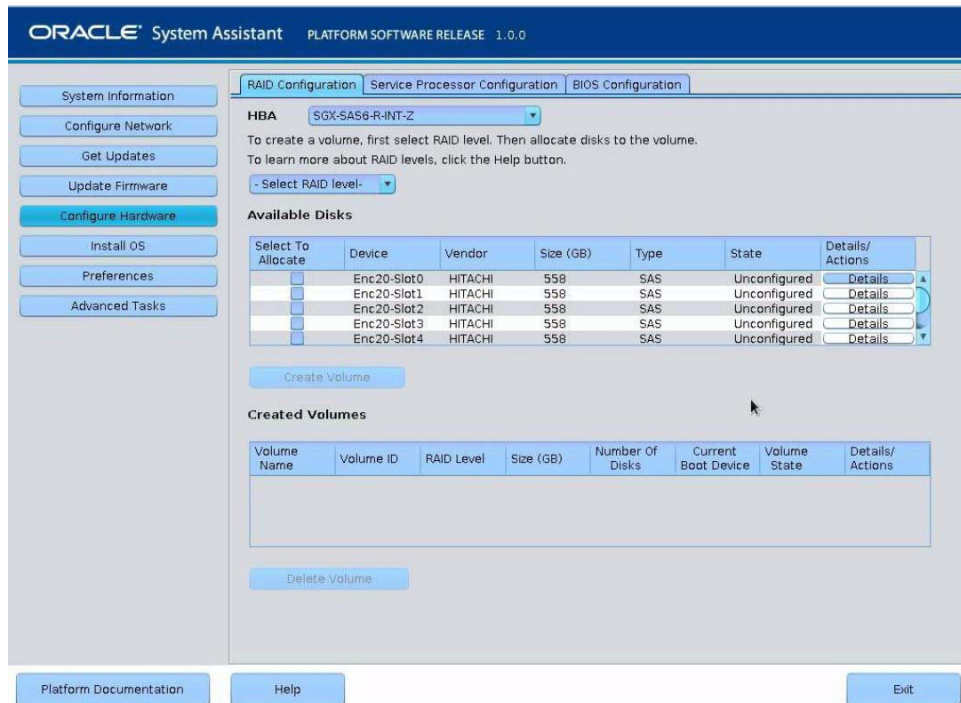
---

**Note** – The BIOS mode used for the RAID configuration must match the BIOS boot mode of the operating system with which you intend to use the RAID configuration. For instructions for switching the BIOS mode from UEFI to Legacy BIOS, or vice versa, see the *Oracle X4 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>. Additionally, not all supported operating systems support UEFI mode. For a list of operating systems that support UEFI mode, see “[UEFI BIOS Boot Mode](#)” on page 29.

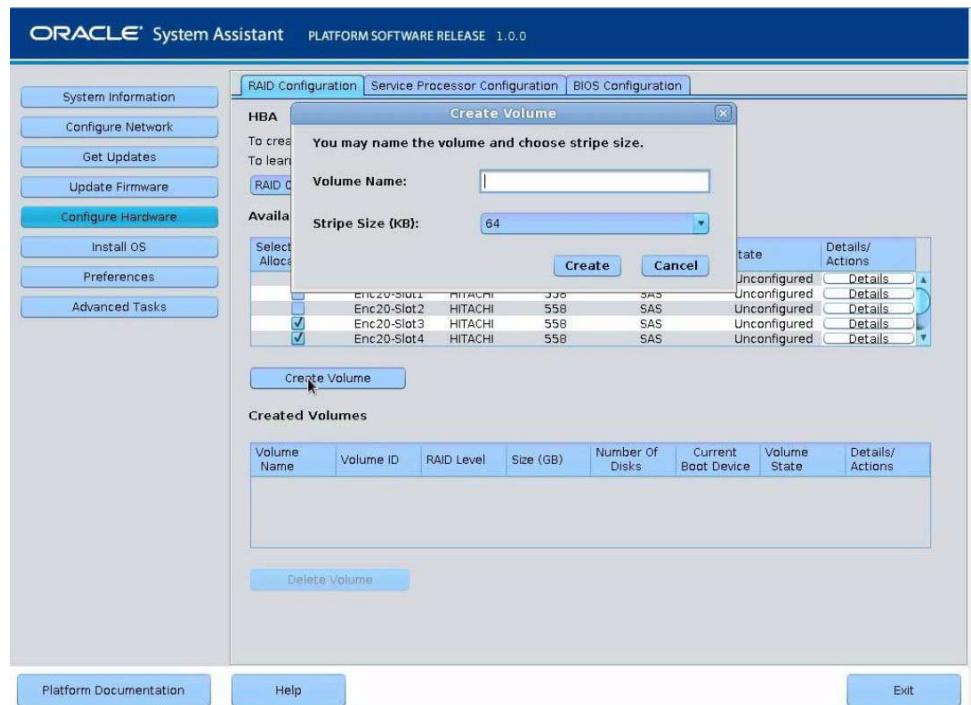
---

### 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, then click the Create Volume button.  
The Create Volume dialog box appears.



## 7. In the Create Volume dialog box:

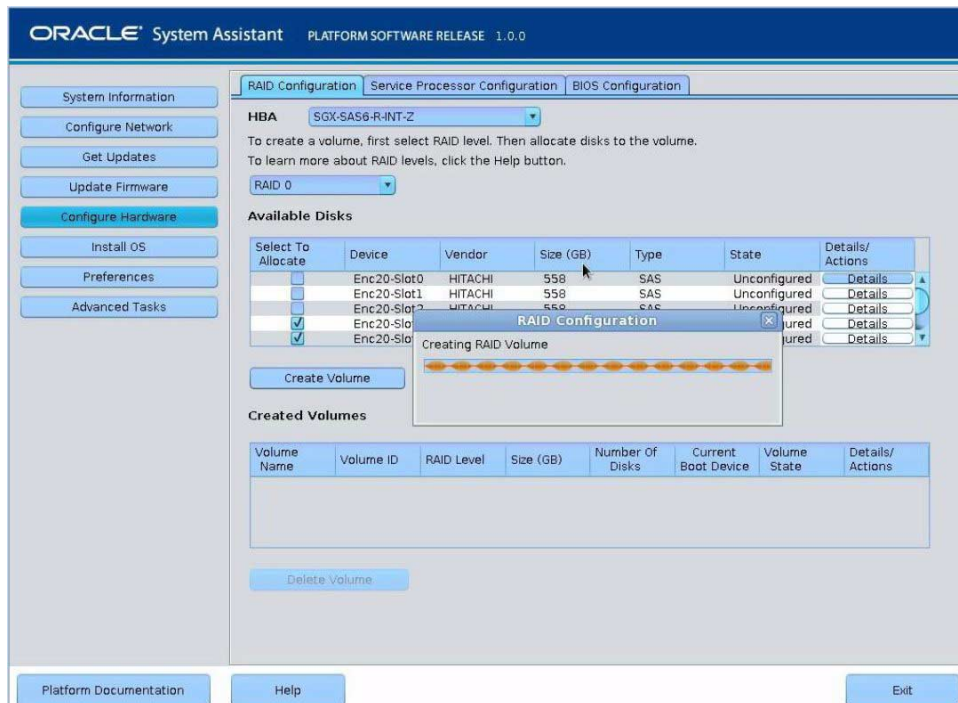
### a. (Optional) Enter the volume name.

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

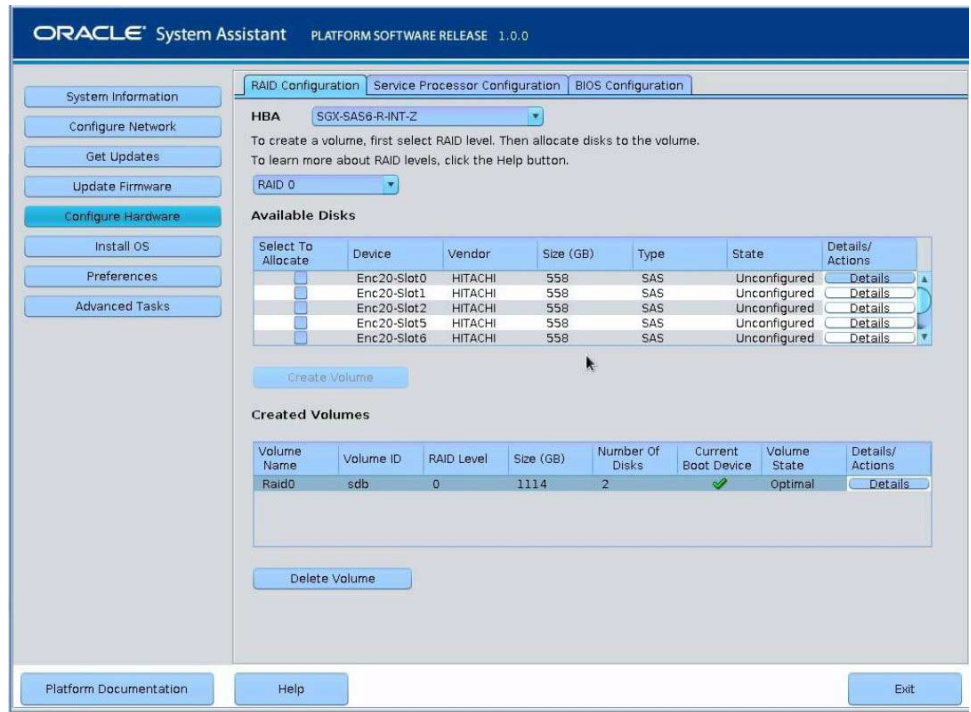
### b. Select the volume stripe size.

### c. Click Create.

The Creating RAID Volume information box appears.

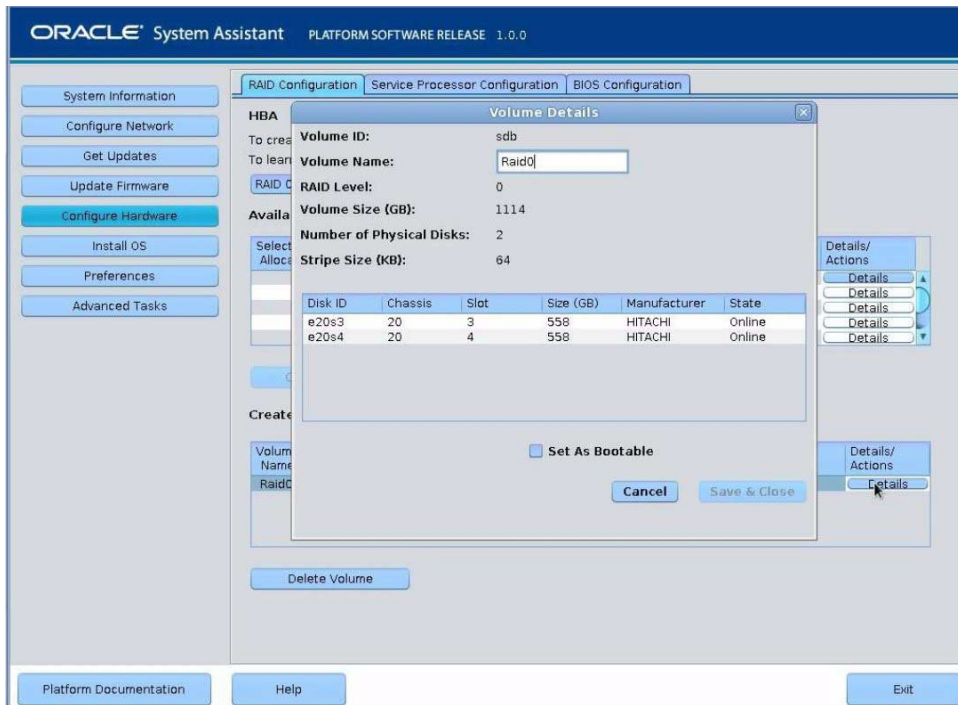


After the volume is created, it is displayed in the Created Volumes table.



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.

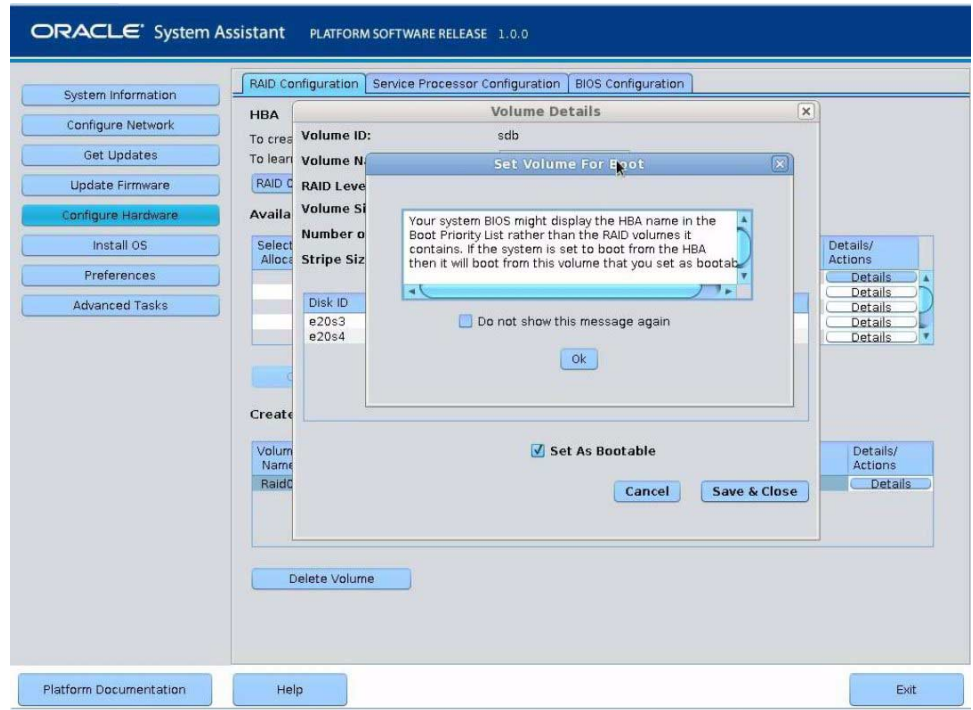
---

**c. Check the Set As Bootable box.**

**d. Click Save & Close.**

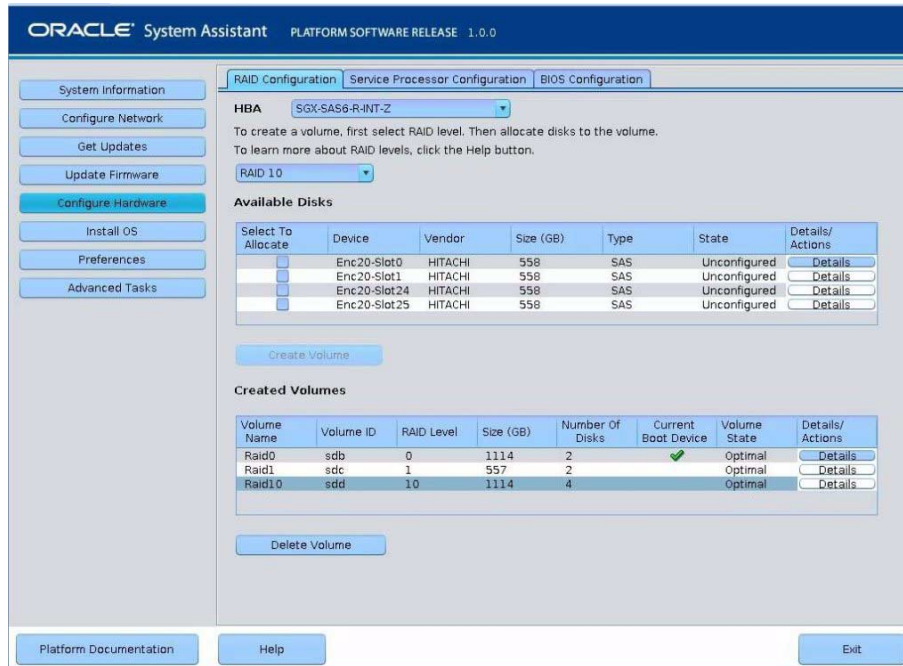
The Set Volume For Boot confirmation dialog appears.





**10. Click OK.**

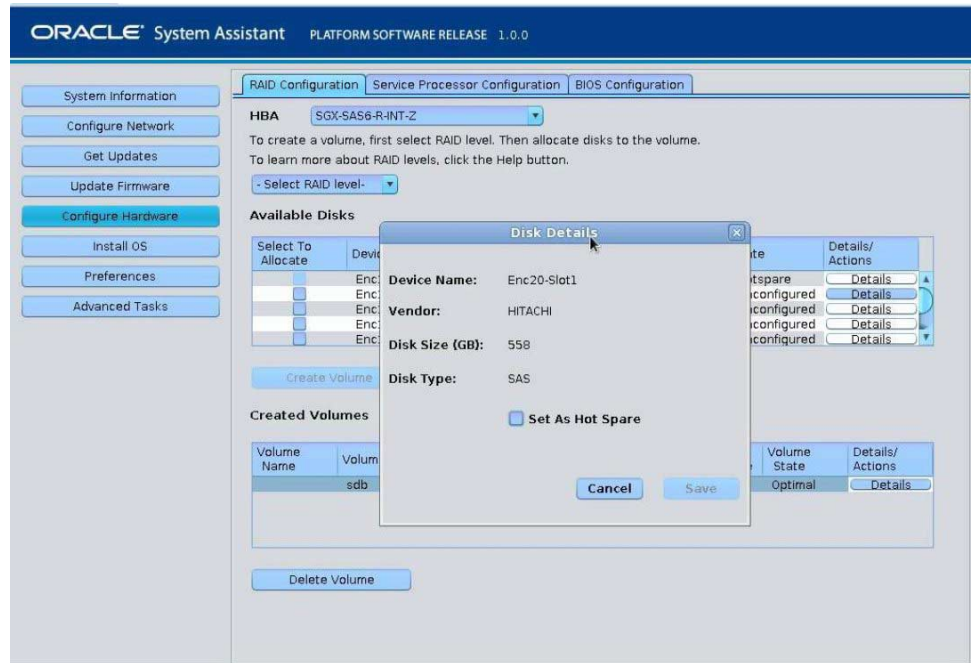
The RAID Configuration screen appears and lists the RAID volume as the current boot device.



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.

---

# 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 With the Sun Storage 6 Gb SAS PCIe Internal HBA” on page 130](#)
- [“Configuring RAID in UEFI BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 134](#)
- [“Configuring RAID in Legacy BIOS Boot Mode With the Sun Storage 6 Gb PCIe RAID Internal HBA” on page 142](#)

## Related Information

- [“RAID Configuration Requirements” on page 110](#)
- [“Configuring Storage Drives Into RAID Volumes Using Oracle System Assistant” on page 112](#)

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

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

---

**Note** – Some operating systems and virtual machine software only support the Legacy BIOS Boot Mode. For a list of operating systems and virtual machine software that support UEFI BIOS Boot Mode, see [“UEFI BIOS Boot Mode” on page 29](#).

---

- [“Configure RAID in UEFI BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe Internal HBA” on page 131](#)
- [“Configure RAID in Legacy BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe Internal HBA” on page 132](#)

## ▼ Configure RAID in UEFI BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe Internal HBA

### 1. Power on or reset the server.

For example, to reset the server:

- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **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**

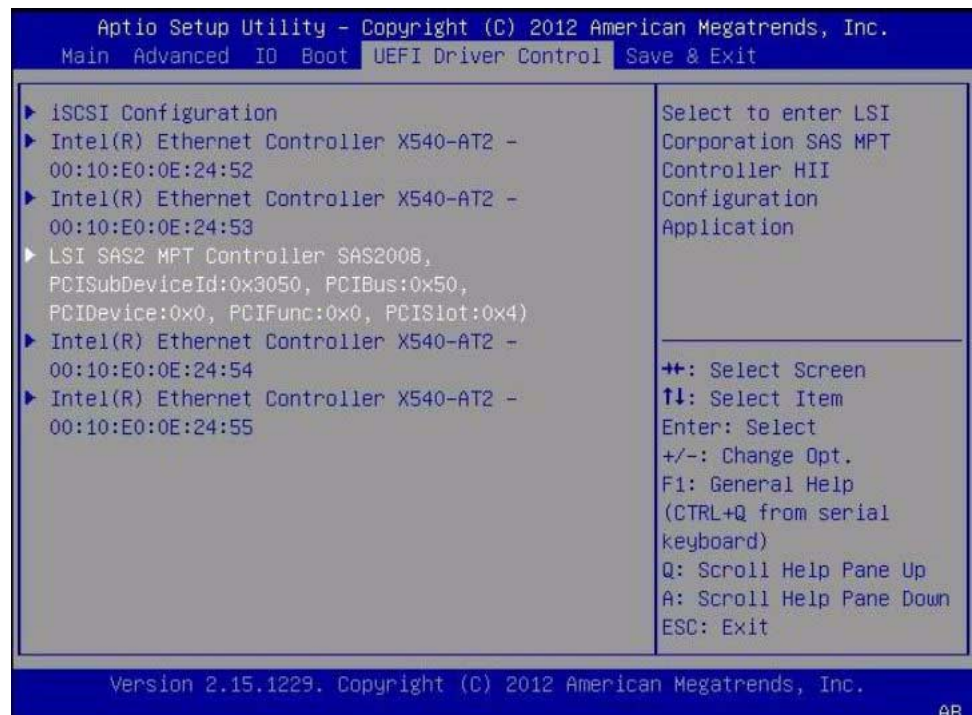
The power-on self-test (POST) sequence begins.

### 2. To enter the BIOS Setup Utility, press the F2 key (Ctrl+E from a serial connection) when prompted and while the BIOS is running the power-on self-tests (POST).

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, then press Enter.

The LSI SAS MPT Controller menu appears.



---

**Note** – The LSI SAS MPT Controller menu will vary 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 BIOS 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>.

## ▼ Configure RAID in Legacy BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe Internal HBA

1. Power on or reset the server.

For example, to reset the server:

- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
  - **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**
2. 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.
  3. **Upon seeing the prompt** Press Ctrl-C to start LSI Corp Configuration Utility..., **immediately press Ctrl+C to access the LSI Corp Config Utility.**  
The LSI Corp Config Utility menu appears.

```

LSI Corp Config Utility      v7.21.04.00 (2011.12.27)
Adapter List Global Properties
Adapter      PCI  PCI  PCI  PCI  FW Revision  Status  Boot
              Bus  Dev  Fnc  Slot
SGX-SAS6-INT-2  50  00  00  04  11.05.02.00-IR  Enabled  0

```

Esc = Exit Menu      F1/Shift+1 = Help  
Alt+N = Global Properties    -/+ = Alter Boot Order    Ins/Del = Alter Boot List

4. 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 BIOS 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>

# Configuring RAID in UEFI BIOS Boot Mode 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 BIOS Boot Mode.

---

**Note** – Some operating systems and virtual machine software only support the Legacy BIOS Boot Mode. For a list of operating systems and virtual machine software that support UEFI BIOS Boot Mode, see [“UEFI BIOS Boot Mode” on page 29](#).

---

- [“Configure RAID in UEFI BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA” on page 134](#)

## ▼ Configure RAID in UEFI BIOS Boot Mode With the Sun Storage 6 Gb SAS PCIe RAID Internal HBA

### 1. Power on or reset the server.

For example, to reset the server:

- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **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 power-on self-test (POST) sequence begins.

### 2. To enter the BIOS Setup Utility, press the F2 key (Ctrl+E from a serial connection) when prompted and while the BIOS is running the power-on self-tests (POST).

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.





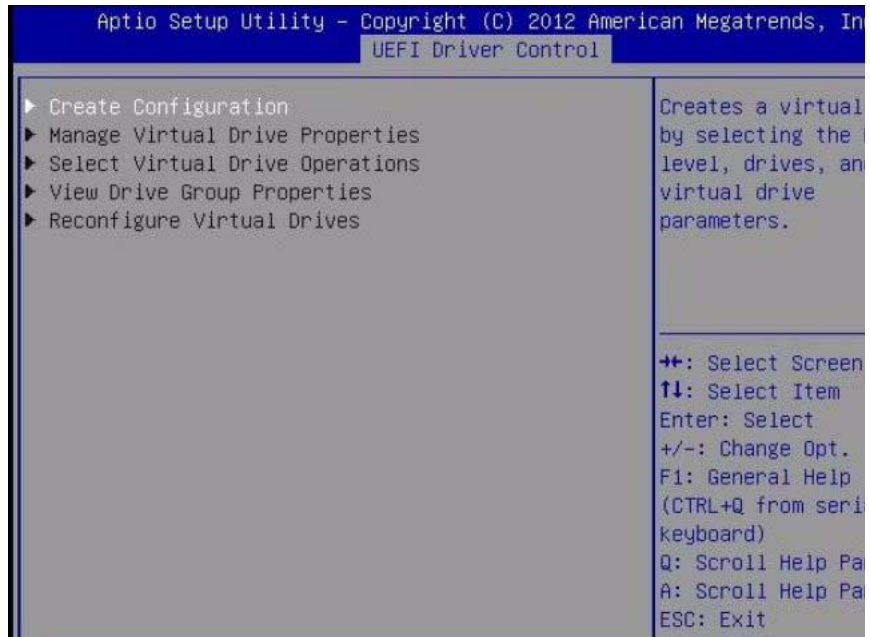
4. Use the up and down arrow keys to navigate to the **LSI MegaRAID Configuration Utility** menu option, then press **Enter**.

The LSI MegaRAID Configuration Utility menu appears.



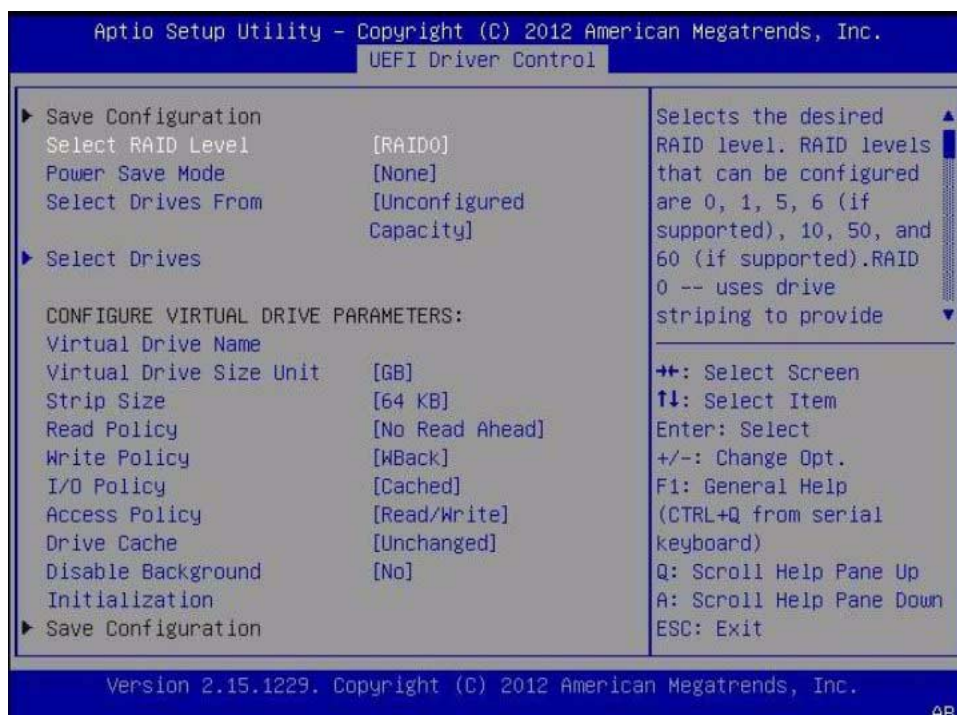
5. Use the Up and Down keys to select the Virtual Drive Management option, then press Enter.

The Virtual Drive Management menu screen appears.



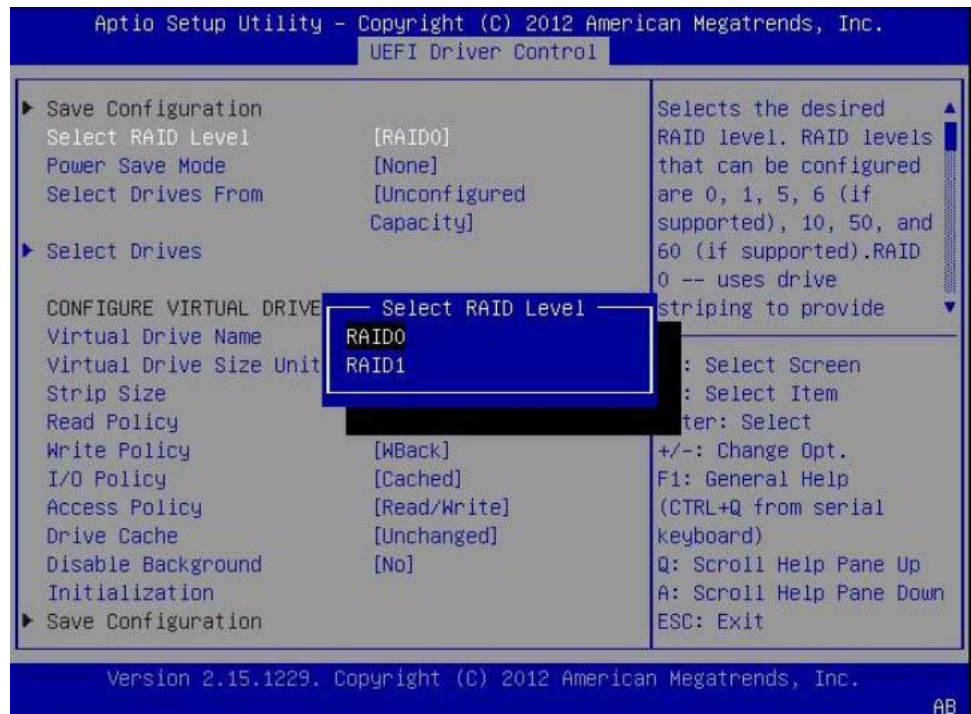
6. Use the Up and Down Arrow keys to select the Create Configuration option, then press Enter.

The Create Configuration menu screen appears.



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

The Select RAID Level dialog box appears.



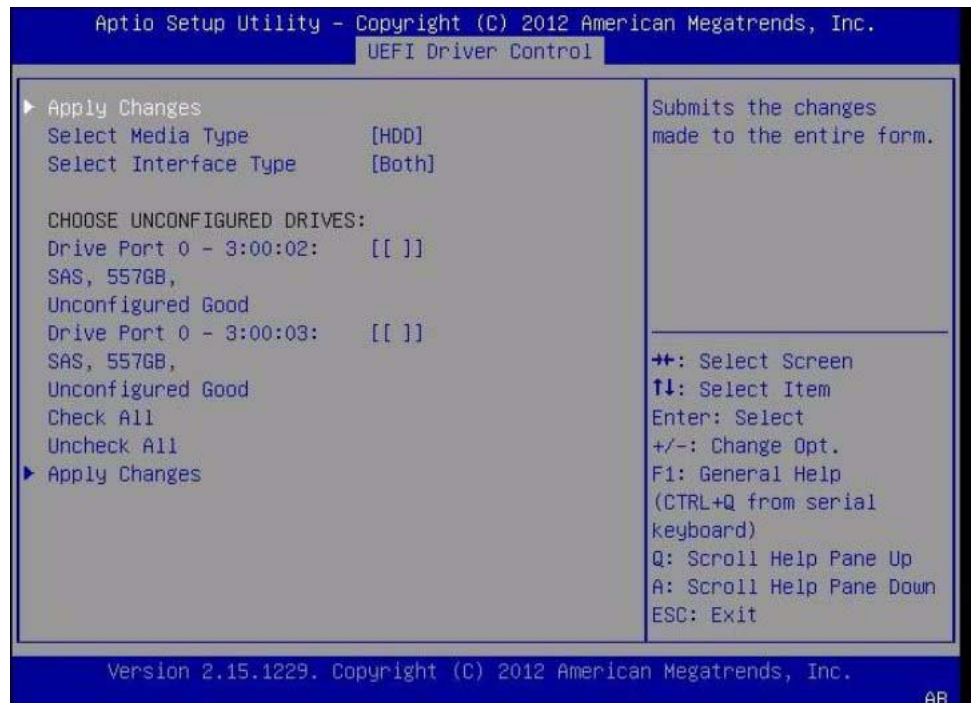
8. Use the Up and Down arrow keys to select the desired RAID level, then press Enter.

The Create Configuration menu screen appears.



9. Use the Up and Down arrow keys to select the Select Drives option, then 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, select the Apply Changes option, the press Enter.

The RAID Configuration Confirmation screen appears.





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

This completes the RAID configuration.

## Configuring RAID in Legacy BIOS Boot Mode With the Sun Storage 6 Gb PCIe RAID Internal HBA

You can create a RAID volume and set a RAID level using the Oracle System Assistant application's RAID Configuration task, or, if Oracle System Assistant is not available, you can use the BIOS RAID configuration utilities that reside in the HBA firmware.

For instructions on how to use these utilities, see:

- [“Create a RAID Volume in Legacy BIOS Boot Mode Using the BIOS RAID Configuration Utilities” on page 143](#)
- [“Make a RAID Volume Bootable Using the LSI WebBIOS Configuration Utility” on page 143](#)



---

**Note** – If the server has the Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z) installed, setting the RAID volume to bootable is not required.

---

## ▼ Create a RAID Volume in Legacy BIOS Boot Mode Using the BIOS RAID Configuration Utilities

The BIOS RAID Configuration Utilities reside in the HBA firmware. Use this procedure under either 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.
- 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.

---

- You do not want to create a RAID volume, but the intended OS installation hard drive has not been initialized.

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

Refer to the instructions in the *MegaRAID SAS Software User's Guide* located at [http://www.lsi.com/sep/Pages/oracle/sg\\_x\\_sas6-r-rem-z.aspx](http://www.lsi.com/sep/Pages/oracle/sg_x_sas6-r-rem-z.aspx).

### 2. If you created more than one virtual drive, make one virtual drive bootable.

For instructions, refer to “Make a RAID Volume Bootable Using the LSI WebBIOS Configuration Utility” on page 143.

---

**Note** – The *MegaRAID SAS Software User's Guide* does not include instructions for making a virtual drive bootable.

---

## ▼ Make a RAID Volume Bootable Using the LSI WebBIOS Configuration Utility

Perform this procedure to make a RAID volume (virtual drive) bootable if you created more than one RAID volume using the BIOS Configuration Utility on a server that has the Sun Storage 6 Gb SAS PCIe RAID Internal HBA (SGX-SAS6-R-INT-Z) installed.

You do *not* need to perform this procedure if any of the following is true:

- You used Oracle System Assistant to create a volume and to make the volume bootable.
- Your server has the Sun Storage 6 Gb SAS PCIe Internal HBA (SGX-SAS6-INT-Z) installed.
- You only created one virtual drive using the LSI SAS2 BIOS Configuration Utility.

Before you begin this procedure, create at least one virtual drive, or RAID volume, on the Sun Storage 6 Gb SAS PCIe RAID, Internal HBA (SGX-SAS6-R-INT-Z) using the BIOS Configuration Utility (see [“Create a RAID Volume in Legacy BIOS Boot Mode Using the BIOS RAID Configuration Utilities”](#) on page 143).

#### 1. Reset or power on the server.

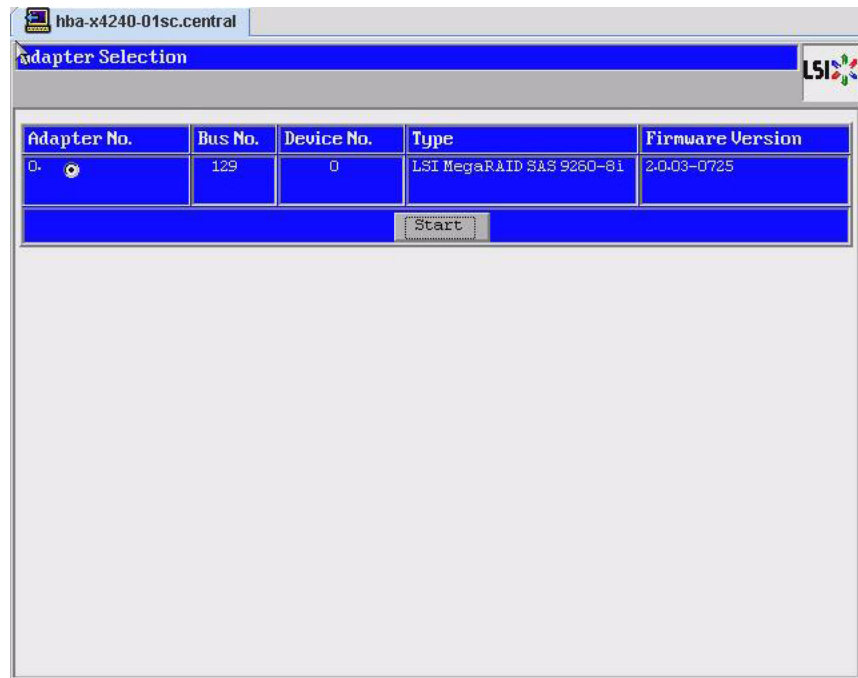
For example, to reset the server:

- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **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 power-on self-test (POST) sequence begins.

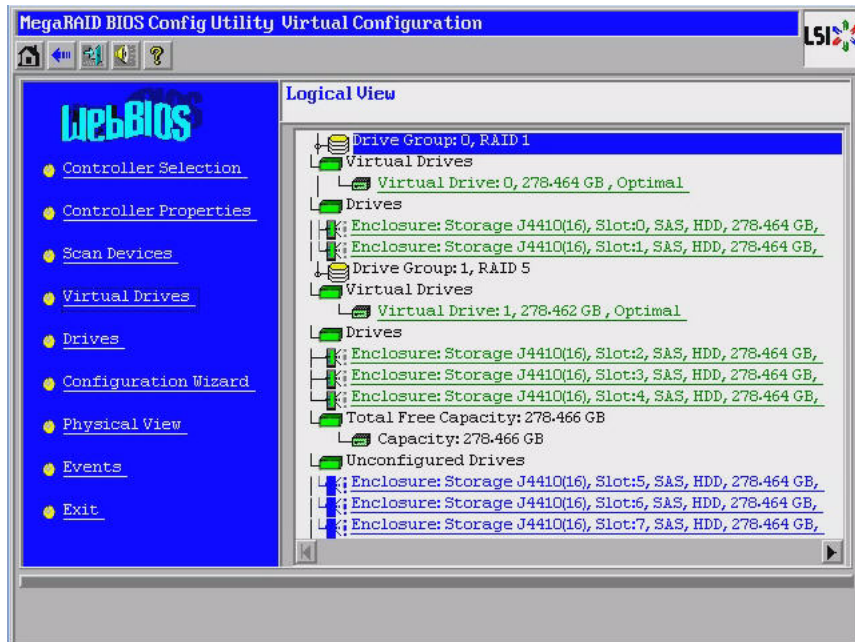
#### 2. While the BIOS is running the power-on self-tests (POST), and upon seeing the prompt Press <Ctrl><H> for WebBIOS... , immediately press the Ctrl+H key combination to access the LSI MegaRAID utility.

The Adapter Selection screen appears.



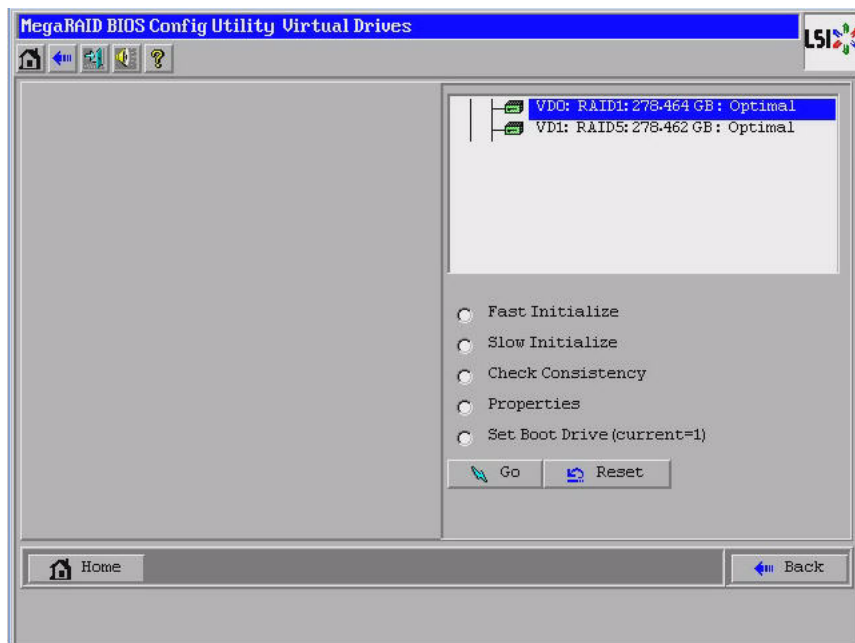
**3. In the Adapter Selection screen, click Start.**

The LSI MegaRAID BIOS Config Utility Virtual Configuration screen appears.



#### 4. Click Virtual Drives.

The Virtual Drives screen appears.



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

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

For more information on performing this procedure, 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](http://www.lsi.com/sep/Pages/oracle/sg_x_sas6-r-rem-z.aspx).



# Configuring the Preinstalled Oracle Solaris 11.1 Operating System

---

These sections describe how to configure the optional Oracle Solaris 11.1 operating system (OS) that is preinstalled on your server, if ordered. The preinstalled OS image contains all of the necessary drivers for your server.

---

**Note** – For more up-to-date information about supported versions of the preinstalled Oracle Solaris operating system, refer to the *Sun Server X4-2 Product Notes* at: <http://www.oracle.com/goto/X4-2/docs>.

---

Description	Links
Review the BIOS boot mode restriction on the Oracle Solaris preinstalled image.	<a href="#">“Preinstalled Oracle Solaris 11.1 Image BIOS Boot Mode Restriction” on page 150</a>
Review RAID limitations on the preinstalled operating system.	<a href="#">“Preinstalled Operating System RAID Limitations” on page 150</a>
Review operating system options.	<a href="#">“Operating System Options” on page 150</a>
Gather the information you will need during the configuration process.	<a href="#">“Oracle Solaris 11.1 Configuration Worksheet” on page 151</a>
Configure the preinstalled Oracle Solaris operating system.	<a href="#">“Configure the Preinstalled Oracle Solaris 11.1 Operating System” on page 155</a>
Review the Oracle Solaris operating system documentation.	<a href="#">“Oracle Solaris 11.1 Operating System Documentation” on page 157</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)

---

## Preinstalled Oracle Solaris 11.1 Image BIOS Boot Mode Restriction

The Oracle Solaris 11.1 operating system (OS) image is preinstalled on the server in the Legacy BIOS Boot Mode. Therefore, to use the preinstalled image, you must boot the server in the Legacy BIOS Boot Mode (the default). If you boot the server in the UEFI BIOS Boot Mode, the server will not boot the Oracle Solaris preinstalled image and it cannot be used. If you want to switch to UEFI BIOS Boot Mode and use Oracle Solaris 11.1, you have to do a fresh install of the Oracle Solaris 11.1 OS.

### Related Information

- [“UEFI BIOS Overview” on page 28](#)

---

## Preinstalled Operating System RAID Limitations

Configuring RAID for the server is optional. However, 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.

### Related Information

- [“About Server Features and Components” on page 19](#)

---

## Operating System Options

The server supports several different operating systems. Therefore, you do not have to use the preinstalled version of the Oracle Solaris operating system on your server. If for any reason you want to install a fresh or newer version of the Oracle Solaris operating system or a different operating system such as Linux, Oracle VM,



Windows, or VMware ESXi, you can do so, provided it is a supported version. For a list of supported operating systems, refer to the *Sun Server X4-2 Product Notes* at: <http://www.oracle.com/goto/X4-2/docs>.

For installation instructions for supported operating systems, refer to the following:

- For Oracle Solaris, refer to the *Sun Server X4-2 Installation Guide for Oracle Solaris Operating System*, “Installing the Oracle Solaris Operating System” on page 23.
- For Oracle VM, refer to the *Sun Server X4-2 Installation Guide for Oracle VM*, “Installing Oracle VM” on page 23.
- For Oracle Linux, Red Hat Enterprise Linux, and SUSE Linux Enterprise Server, refer to the *Sun Server X4-2 Installation Guide for Linux Operating Systems*, “Installing a Linux Operating System” on page 21.
- For Windows Server, refer to the *Sun Server X4-2 Installation Guide for Windows Operating Systems*, “Installing a Windows Server Operating System” on page 23.
- For VMware ESXi, refer to the *Sun Server X4-2 Installation Guide for VMware ESXi*, “Installing VMware ESXi” on page 19.

---

## Oracle Solaris 11.1 Configuration Worksheet

Before you begin configuring the operating system, use the configuration worksheet in 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.

**TABLE:** Worksheet for Oracle Solaris Operating System Configuration

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.	English (C - 7-bit ASCII)*
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?	<ul style="list-style-type: none"><li>• Networked</li><li>• Non-networked*</li></ul>

**TABLE:** Worksheet for Oracle Solaris Operating System Configuration (*Continued*)

Information for Installation		Description or Example	Your Answers: Defaults (*)
DHCP		Can the system use Dynamic Host Configuration Protocol (DHCP) to configure its network interfaces?	<ul style="list-style-type: none"><li>• Yes</li><li>• No*</li></ul>
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	
	IPv6	Do you want to enable IPv6 on this machine?	<ul style="list-style-type: none"><li>• Yes</li><li>• No*</li></ul>
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: Administration server: First KDC: (Optional) Additional KDCs:	<ul style="list-style-type: none"><li>• Yes</li><li>• No*</li></ul>

**TABLE:** Worksheet for Oracle Solaris Operating System Configuration (*Continued*)

Information for Installation		Description or Example	Your Answers: Defaults (*)
Name service	Name service	If applicable, which name service should this system use?	<ul style="list-style-type: none"><li>• NIS+</li><li>• NIS</li><li>• DNS</li><li>• LDAP</li><li>• None*</li></ul>
	Domain name	Provide the name of the domain in which the system resides.	
	NIS+ and NIS	<i>If you chose NIS+ or NIS</i> , do you want to specify a name server, or let the installation program find one?	<ul style="list-style-type: none"><li>• Specify One</li><li>• Find One*</li></ul>
	DNS	<i>If you chose DNS</i> , 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	<i>If you chose LDAP</i> , provide the following 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:	

**TABLE:** Worksheet for Oracle Solaris Operating System Configuration (*Continued*)

Information for Installation	Description or Example	Your Answers: Defaults (*)
Default route	<p>Do you want to specify a default route IP address, or let the OS installation program find one?</p> <p>The default route provides a bridge that forwards traffic between two physical networks.</p> <p>You have the following choices:</p> <ul style="list-style-type: none"><li>• You can specify the IP address. An <code>/etc/defaultrouter</code> file is created with the specified IP address. When the system is rebooted, the specified IP address becomes the default route.</li><li>• 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.</li><li>• 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.</li></ul>	<ul style="list-style-type: none"><li>• Specify one</li><li>• Detect One</li><li>• None*</li></ul>
Time zone	How do you want to specify your default time zone?	<ul style="list-style-type: none"><li>• Geographic region*</li><li>• Offset from GM</li><li>• Time zone file</li></ul>
Root password	Choose a root password for the system.	

### Related Information

- [“Configure the Preinstalled Oracle Solaris 11.1 Operating System” on page 155](#)
- [“Oracle Solaris 11.1 Operating System Documentation” on page 157](#)

---

## ▼ Configure the Preinstalled Oracle Solaris 11.1 Operating System

After you have completed the configuration worksheet, use the following procedure to configure the preinstalled Oracle Solaris 11.1 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 81](#).

2. Power on or restart the server, as follows:

- To power on the server, use one of the following methods:
  - **From the Oracle ILOM web interface System Information page**, click Host Management > Power Control, and in the Select Action list box, click Power On.
  - **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 restart the server, use one of the following methods:
  - **From the Oracle ILOM web interface System Information page**, click Host Management > Power Control, and in the Select Action list box, click Reset.
  - **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
```

```
Serial console started.
```

The server begins the boot process.

3. 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.
```

After the server boots, the GRUB menu appears.

```
GNU GRUB Version 1.99 ,5.11.0.175.1.0.0.24.2
```

```
Oracle Solaris 11.1 - Serial Port ttya
```

```
Oracle Solaris 11.1 - Graphics Adapter
```

---

**Note** – By default, the system displays the output to the serial port. If you do not select an option on the GRUB menu, after five seconds, the GRUB menu is no longer available, and the system continues with the output directed to the serial port.

---

**4. From the GRUB menu, use the up and down arrow keys to select the display option, then press Enter. Options include:**

You can choose whether you want to continue to direct the display to the serial output or direct the display to a device connected to the video port.

- For the serial port:

```
Oracle Solaris 11.1 - Serial Port ttya
```

- For the video port:

```
Oracle Solaris 11.1 - Graphics Adapter
```

---

**Note** – If you choose to display output to the video port, you must connect a device to the VGA connector on the server and an input device (USB keyboard or mouse) and then complete the configuration from that device. See [“Cabling the Server” on page 75](#) for information about attaching devices to the server. You can also use the Oracle ILOM Remote Console feature, which acts as a remote KVM.

---

**5. When the Oracle Solaris 11 installer begins, follow the on-screen prompts to configure the software using the information you collected earlier about your organization and network environment.**

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

**6. When installation is complete, end your console sessions 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 the Esc key followed by the parenthesis character (**Shift+9**), then log out of Oracle ILOM.

### Related Information

- “Connecting to Oracle ILOM” on page 81
- “Cabling the Server” on page 75
- “Oracle Solaris 11.1 Configuration Worksheet” on page 151

---

# Oracle Solaris 11.1 Operating System Documentation

Oracle Solaris 11.1 operating system documentation is available from the Oracle documentation web site at:

[http://docs.oracle.com/cd/E26502\\_01/index.html](http://docs.oracle.com/cd/E26502_01/index.html)

Find the following documents in the Oracle Solaris 11 Information Library. Within the documents, follow instructions specific to x86 systems, where they are specified.

- For installation information, refer to these documents:
  - *Installing Oracle Solaris 11.1 Systems*
  - *Creating a Custom Oracle Solaris 11.1 Installation Image*
- For information about upgrading your system, refer to *Adding and Updating Oracle Solaris 11.1 Software Packages*.

For patch and other late-breaking information about Oracle Solaris 11.1 that apply specifically to the server, refer to the *Sun Server X4-2 Product Notes* at:

<http://www.oracle.com/goto/X4-2/docs>

For patches and instructions for Oracle Solaris 11.1, go to the My Oracle Support web site at the following location and navigate to the appropriate page:

<http://support.oracle.com>

### Related Information

- “Oracle Solaris 11.1 Configuration Worksheet” on page 151
- “Configure the Preinstalled Oracle Solaris 11.1 Operating System” on page 155





# Configuring the Preinstalled Oracle Linux 6.x Operating System

---

These sections describe how to configure the Oracle Linux 6.x operating system (OS) that is preinstalled on your server, if ordered. The preinstalled OS image contains all of the necessary drivers for your server.

---

**Note** – For more up-to-date information about available versions of the preinstalled Oracle Linux operating system, see the *Sun Server X4-2 Product Notes* at <http://www.oracle.com/goto/X4-2/docs>.

---

Description	Links
Review the BIOS boot mode restriction on the Oracle Linux preinstalled image.	<a href="#">“Preinstalled Oracle Linux Image BIOS Boot Mode Restriction” on page 160</a>
Complete the Oracle Linux configuration worksheet for your server environment.	<a href="#">“Oracle Linux 6.x Configuration Worksheet” on page 160</a>
Configure the preinstalled Oracle Linux OS.	<a href="#">“Configure the Preinstalled Oracle Linux 6.x Operating System” on page 161</a>
Update and register the Oracle Linux operating system.	<a href="#">“Registering Oracle Linux and Activating Automatic Update” on page 164</a>
Review the Oracle Linux 6 documentation.	<a href="#">“Oracle Linux 6.x Operating System Documentation” on page 164</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)

---

# Preinstalled Oracle Linux Image BIOS Boot Mode Restriction

The Oracle Linux 6.x operating system (OS) image is preinstalled on the server in the Legacy BIOS Boot Mode. Therefore, to used the preinstalled image, you must boot the server in the Legacy BIOS Boot Mode (the default). If you boot the server in the UEFI BIOS Boot Mode, the server will not boot the Oracle Linux preinstalled image and it cannot be used. If you want to switch to UEFI BIOS Boot Mode and use Oracle Linux 6.x, you have to do a fresh install of the Oracle Linux 6.x OS.

---

# Oracle Linux 6.x 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.

**TABLE:** Worksheet for Oracle Linux Operating System Configuration

Required Installation Information	Description	Your Answers
Oracle Linux root password	Choose a root password that you will use to replace the factory default password; there are no restrictions on the characters or lengths.	
Network interface	Choose an interface on the server (eth#) that will be connected to your network. (Once Linux is up and running, the <code>ifconfig -a</code> command can be used to help identify server network ports.)	

**TABLE:** Worksheet for Oracle Linux Operating System Configuration (*Continued*)

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: 255.255.255.0	
	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). Only one DNS is required.	

**Related Information**

- [“Configure the Preinstalled Oracle Linux 6.x Operating System” on page 161](#)



# ▼ Configure the Preinstalled Oracle Linux 6.x Operating System

After you have completed the configuration worksheet, use the following procedure to configure the preinstalled Oracle Linux 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 81](#).
2. Power on or restart the server, as follows:
  - To power on the server, use one of the following methods:
    - **From the Oracle ILOM web interface System Information page**, click Host Management > Power Control, and in the Select Action list box, click Power On.
    - **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 restart the server, use one of the following methods:
  - **From the Oracle ILOM web interface**, click Host Management > Power Control, and in the Select Action list box, click Reset.
  - **From the Oracle 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

The server begins the boot process.

### 3. 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 the following command at the CLI prompt:

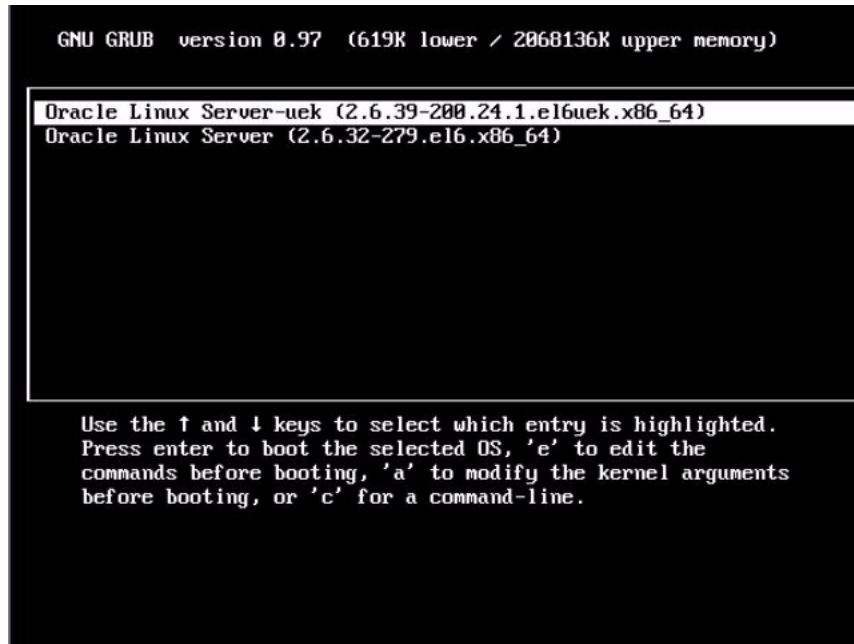
-> **start /HOST/console**

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

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

Serial console started.

The server begins the host boot process. After the server boots, the GRUB menu appears.



4. To pause at the GRUB menu, press a key other than Enter; otherwise, in five seconds the highlighted installation option will be used.
5. From the GRUB menu, use the up and down arrow keys to select an installation option, then 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.

---

6. Log in to the Oracle Linux OS.

After you have selected an installation option, Oracle Linux starts and the Linux system login appears. For example:

*systemname* login:

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

7. After you have 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 6.x Configuration Worksheet](#)” on page 160.
  - Configure a proxy, as needed, for Internet access.
  - Register and update your server. See “[Registering Oracle Linux and Activating Automatic Update](#)” on page 164.
  - Install desired packages.
8. 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 log out of Oracle ILOM.
  - **From the Oracle ILOM CLI**, press the Esc key followed by the “(” character (**Shift+9**), then log out of Oracle ILOM.

---

## Registering Oracle Linux and Activating Automatic Update

After configuring Oracle Linux, you should register your system and activate your subscription with Oracle to receive automatic updates to the software. This will ensure that the server is running the latest version of the operating system. For instructions, go to:

<http://www.oracle.com/technetwork/articles/servers-storage-admin/yum-repo-setup-1659167.html>

---

## Oracle Linux 6.x Operating System Documentation

Oracle Linux 6 operating system documentation is available from the Oracle documentation web site at:

[http://docs.oracle.com/cd/E37670\\_01/index.html](http://docs.oracle.com/cd/E37670_01/index.html)

# Configuring the Preinstalled Oracle VM 3.2 Software

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This section describes how to configure the Oracle VM Server 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 X4-2 Product Notes* at: <http://www.oracle.com/goto/X4-2/docs>.

---

Description	Links
Review the BIOS boot mode restriction on the Oracle VM preinstalled image.	<a href="#">“Preinstalled Oracle VM Image BIOS Boot Mode Restriction” on page 166</a>
Learn about preinstalled Oracle VM Server and Oracle VM Manager compatibility requirements.	<a href="#">“Preinstalled Oracle VM Server and Oracle VM Manager Compatibility Requirements” on page 166</a>
Gather necessary configuration information.	<a href="#">“Oracle VM Server Configuration Worksheet” on page 166</a>
Configure the preinstalled Oracle VM Server.	<a href="#">“Configure the Preinstalled Oracle VM Server” on page 167</a>
If necessary, update the Oracle VM software.	<a href="#">“Updating Oracle VM Software” on page 171</a>
Review the Oracle VM documentation.	<a href="#">“Oracle VM Documentation” on page 172</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)

---

## Preinstalled Oracle VM Image BIOS Boot Mode Restriction

The Oracle VM Server software image is preinstalled on the server in the Legacy BIOS Boot Mode. Therefore, to use the preinstalled image, you must boot the server in the Legacy BIOS Boot Mode (the default). If you boot the server in the UEFI BIOS Boot Mode, the server will not boot the Oracle VM preinstalled image and it cannot be used. Oracle VM does not support UEFI BIOS. If you want to switch to UEFI BIOS Boot Mode then you must install an operating system that supports UEFI BIOS.

---

## Preinstalled Oracle VM Server and Oracle VM Manager Compatibility 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 Server or Oracle VM Manager so that they are the same version.

For information about upgrading the Oracle VM Manager 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 Server Configuration Worksheet

Before you begin configuring the preinstalled Oracle VM Server, use the worksheet in this section to gather the information you will need.



**TABLE:** Worksheet for Oracle VM Server Configuration

Information for Configuration		Description or Example	Your Answers
Oracle VM Server passwords	Root	Choose a root password; there are no restrictions on the characters or length.	
	Oracle VM agent	Choose an Oracle VM agent password; password must be at least six characters.	
Network interface		Supply the interface to be used to manage the server.	
Network configuration	Static IP address	Supply the IP address for the server. A static IP address is required. Example: 172.16.9.1	
	Netmask	If the server is part of a subnet, supply the netmask of the subnet. Example: 255.255.255.0	
	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: myhost.us.example.com	

## ▼ Configure the Preinstalled Oracle VM Server

These instructions only describe how to configure the preinstalled Oracle VM Server on your server.

**Note** – Oracle VM also has other components, such as Oracle VM Manager, that must be installed or already running to support the virtual machine environment.

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

See [“Connecting to Oracle ILOM” on page 81](#).

2. Power on or restart the server, as follows:

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

- From the Oracle ILOM web interface **System Information** page, click Host Management > Power Control, and in the Select Action list box, click Power On.

- From the Oracle ILOM CLI, type:

```
-> start /System
```

When prompted, enter **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 in the Select Action list box, click Reset.

- From the Oracle ILOM CLI, type:

```
-> reset /System
```

When prompted, enter **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 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:

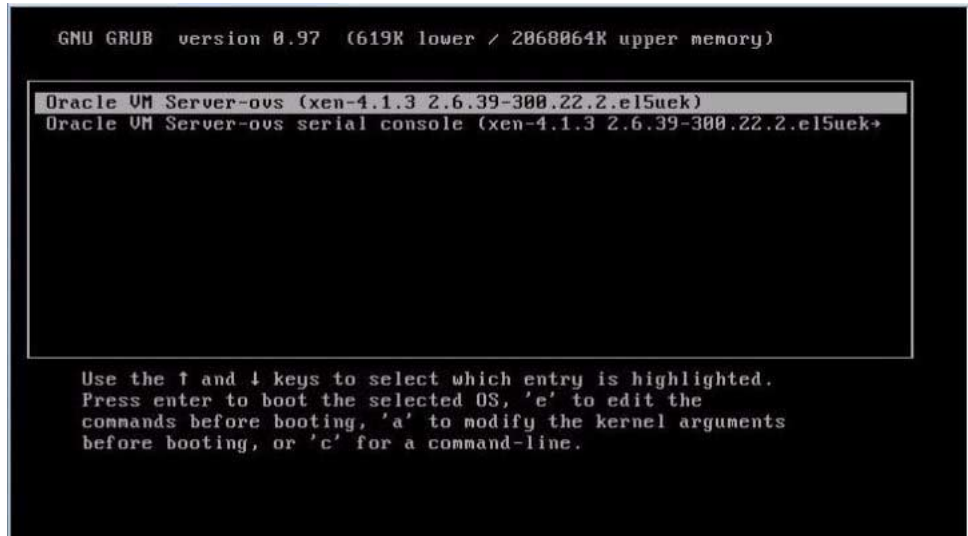
```
-> start /HOST/console
```

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

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

```
Serial console started.
```

After the server boots, the GRUB menu appears.



4. To pause at the GRUB menu, press a key other than Enter; otherwise, in five seconds the highlighted installation option will be used.
5. From the GRUB menu, use the up and down arrow keys to select the display option, then press Enter. Options include:

---

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

---

- **To display the output to the video port**, select the first option in the list and press Enter:  
Oracle VM Server-ovs (xen-4.1.3 2.6.39-300.22.2.el5uek)
- **To display output to the serial port (default option)**, select the second option in the list and press Enter:  
Oracle VM Server-ovs serial console (xen-4.1.3  
2.6.39-300.22.2.el5uek)

As the configuration process continues, the following screen appears:

```

Starting OVM console server: [ OK ]
Starting OVM ovmwatch services: [ OK ]
Starting ovs-agent: Starting ovs-agent services:
OK ]
Configuring Oracle VM...
Enter new root password:
Confirm password:
Enter new Oracle VM Agent password:
Confirm password:
Configuring network.

```

6. 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 on-board 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

```

---

**Note** – Network interfaces eth2 and eth3 correspond to Ethernet ports NET2 and NET3, which are nonfunctional in single-processor systems.

---

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

```

Are these settings correct?(Y/n)

```

9. When all settings have been entered and saved, the system loads an Oracle VM Server Console session.

You use the Oracle VM Server Console to create a virtual operating system.

```
Oracle VM Server 3.2.1 Console [Alt-F2 for login console]

Local hostname      : me.oracle.com
Manager UUID       : Unowned
Hostname           : None
Server IP          : None
Server Pool        : None
Clustered          : No
Server Pool Virtual IP : None
Cluster state      : Offline
Master Server      : No
Cluster type       : None
Cluster storage    : None

OVS Agent          : Running
VMs running        : 0
System memory      : 24552
Free memory        : 22174
Uptime             : 0 days, 0 hours, 1 minutes_
```

This completes the configuration of the preinstalled Oracle VM Server.

### Related Information

- [“Connecting to Oracle ILOM” on page 81](#)
- [“Oracle VM Documentation” on page 172](#)

---

## Updating Oracle VM Software

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, upgrade your Oracle VM Server or Oracle VM Manager so that they are the same version.

For information about upgrading the Oracle VM Manager 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 Documentation

For complete information about using Oracle VM, see the Oracle VM documentation available at:

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

# Controlling System Power

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

Description	Links
Power off the server if an error occurs.	<a href="#">“Powering Off the Server for Orderly Shutdown” on page 173</a> <a href="#">“Powering Off the Server for Immediate Shutdown” on page 175</a>
Reset the server.	<a href="#">“Reset the Server” on page 177</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)
- Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at: <http://www.oracle.com/goto/ILOM/docs>

---

## Powering Off the Server for Orderly Shutdown

Use the procedures in one of the following sections to perform an orderly shutdown. These procedures cause ACPI-enabled operating systems to perform an orderly shutdown of the operating system. Servers not running ACPI-enabled operating systems shut down to standby power mode immediately.



---

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

---

- [“Use the Power Button for Orderly Shutdown” on page 174](#)
- [“Use the Oracle ILOM CLI for Orderly Shutdown” on page 174](#)

- [“Use the Oracle ILOM Web Interface for Orderly Shutdown” on page 175](#)

## ▼ Use the Power Button for Orderly Shutdown

1. **Press and release the Power button on the server front panel.**

The server performs an orderly shutdown to standby power mode.

2. **To completely power off the server from standby power mode, disconnect the power cables from the server.**

The server powers down completely.

### **Related Information**

- [“Front Panel Status Indicators, Connectors, and Drives” on page 22](#)
- [“Use the Oracle ILOM CLI for Orderly Shutdown” on page 174](#)
- [“Use the Oracle ILOM Web Interface for Orderly Shutdown” on page 175](#)
- [“Use the Power Button for Immediate Shutdown” on page 176](#)

## ▼ Use the Oracle ILOM CLI for Orderly Shutdown

1. **Log in to the Oracle ILOM command-line interface (CLI) using an Administrator account.**

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

2. **From the CLI prompt, type the following command:**

-> **stop /System**

The server performs an orderly shutdown to standby power mode.

3. **To completely power off the server from standby power mode, disconnect the power cables from the server.**

The server powers down completely.

### **Related Information**

- [“Use the Power Button for Orderly Shutdown” on page 174](#)
- [“Use the Oracle ILOM Web Interface for Orderly Shutdown” on page 175](#)
- [“Use the Power Button for Immediate Shutdown” on page 176](#)



## ▼ Use the Oracle ILOM Web Interface for Orderly Shutdown

1. **Log in to the Oracle ILOM web interface using an Administrator account.**  
The Oracle ILOM web interface System Information > Summary page appears.
2. **In the left pane, click Host Management > Power Control, and select Graceful Shutdown and Power Off from the Select Action list box.**
3. **Click Save, and then click OK.**  
The host server performs an orderly shutdown to standby power mode.
4. **To completely power off the server from standby power mode, disconnect the power cables from the server.**  
The server powers down completely.

### Related Information

- [“Use the Power Button for Orderly Shutdown” on page 174](#)
- [“Use the Oracle ILOM CLI for Orderly Shutdown” on page 174](#)
- [“Use the Power Button for Immediate Shutdown” on page 176](#)

---

## Powering Off the Server for Immediate Shutdown

Use the procedures in one of the following sections to perform an immediate shutdown. This method will cause any unsaved data on the server to be lost.



---

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

---

- [“Use the Power Button for Immediate Shutdown” on page 176](#)
- [“Use the Oracle ILOM CLI for Immediate Shutdown” on page 176](#)
- [“Use the Oracle ILOM Web Interface for Immediate Shutdown” on page 177](#)

## ▼ Use the Power Button for Immediate Shutdown

1. **Press and hold the Power button for at least four seconds to force the main power off and cause the server to enter standby power mode.**

When main power is off, the Power/OK LED on the front panel begins to flash, indicating that the server is in standby power mode.

2. **To completely power off the server from standby power mode, disconnect the power cables from the server.**

The server powers down completely.

### Related Information

- [“Front Panel Status Indicators, Connectors, and Drives” on page 22](#)
- [“Use the Oracle ILOM CLI for Immediate Shutdown” on page 176](#)
- [“Use the Oracle ILOM Web Interface for Immediate Shutdown” on page 177](#)

## ▼ Use the Oracle ILOM CLI for Immediate Shutdown

1. **Log in to the Oracle ILOM command-line interface (CLI) using an Administrator account.**

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

2. **From the CLI prompt, type the following command:**

```
-> stop -f /System
```

The server powers down immediately to standby power mode.

3. **To completely power off the server from standby power mode, disconnect the power cables from the server.**

The server powers down completely.

### Related Information

- [“Use the Power Button for Immediate Shutdown” on page 176](#)
- [“Use the Oracle ILOM Web Interface for Immediate Shutdown” on page 177](#)

## ▼ Use the Oracle ILOM Web Interface for Immediate Shutdown

1. **Log in to the Oracle ILOM web interface using an Administrator account.**  
The Oracle ILOM web interface System Information > Summary page appears.
2. **In the left pane, click Host Management > Power Control, and in the Select Action list box, click Immediate Power Off.**
3. **Click Save, and then click OK.**  
The server powers down immediately to standby power mode.
4. **To completely power off the server from standby power mode, disconnect the power cables from the server.**  
The server powers down completely.

### Related Information

- [“Use the Power Button for Immediate Shutdown” on page 176](#)
- [“Use the Oracle ILOM CLI for Immediate Shutdown” on page 176](#)

---

## Reset the Server

It is not necessary to power the server off and on to simply reset (power cycle) the server. Use the procedures in one of the following sections to reset the server.



---

**Caution** – This method will cause any unsaved data on the server to be lost; for example, this procedure might corrupt the server file systems.

---

- [“Use the Oracle ILOM CLI to Reset the Server” on page 177](#)
- [“Use the Oracle ILOM Web Interface to Reset the Server” on page 178](#)

## ▼ Use the Oracle ILOM CLI to Reset the Server

1. **Log in to the Oracle ILOM SP command-line interface (CLI) using an Administrator account.**  
Oracle ILOM displays the default command prompt (->), indicating that you have successfully logged in to Oracle ILOM.

2. From the CLI prompt, type:

-> **reset /System**

The server resets.

#### **Related Information**

- [“Use the Oracle ILOM Web Interface to Reset the Server” on page 178](#)

## ▼ Use the Oracle ILOM Web Interface to Reset the Server

1. Log in to the Oracle ILOM web interface using an Administrator account.

The Oracle ILOM web interface System Information > Summary page appears.

2. In the left pane, click Host Management > Power Control, and in the Select Action list box, click Reset.

3. Click Save, and then click OK.

The server resets.

#### **Related Information**

- [“Use the Oracle ILOM CLI to Reset the Server” on page 177](#)

# Troubleshooting Installation Issues

---

This section provides troubleshooting information, a technical support worksheet, and information about the location of the system serial number.

Description	Links
Review solutions to common problems.	<a href="#">“Installation Troubleshooting” on page 179</a>
Gather information and contact technical support.	<a href="#">“Technical Support Information Worksheet” on page 181</a>
Locate the system serial number.	<a href="#">“Locating the System Serial Number” on page 182</a>

## Related Information

- [“Installation Procedure Overview” on page 2](#)
- Oracle Integrated Lights Out Manager (ILOM) 3.1 Documentation Library at: <http://www.oracle.com/goto/ILOM/docs>

---

## Installation Troubleshooting

If you experience problems while setting up your server, see the troubleshooting information in the following table.

---

**Note** – For additional troubleshooting information, refer to *Sun Server X4-2 Service Manual*, [“Troubleshooting the Server” on page 21](#).

---

<b>Problem</b>	<b>Possible Solution</b>
Server powers on, but the monitor does not.	<ul style="list-style-type: none"> <li>• Is the Power button for the monitor turned on?</li> <li>• Is the monitor power cord connected to a wall outlet?</li> <li>• Is the monitor power cord connected to the monitor?</li> <li>• Does the wall outlet have power? Test by plugging in another device.</li> </ul>
DVD does not eject from the media tray when you press the Eject button.	<ul style="list-style-type: none"> <li>• Move the mouse, or press any key on the keyboard. The drive might be in low power mode.</li> <li>• Use the utility software installed on your server to eject the DVD.</li> <li>• Ensure that the media in the device is not in use and is not mounted by the operating system.</li> </ul>
No video is displayed on the monitor screen.	<ul style="list-style-type: none"> <li>• Is the monitor cable attached to the video connector?</li> <li>• Does the monitor work when connected to another system?</li> <li>• If you have another monitor, does it work when connected to the original system?</li> <li>• If, after POST and BIOS are complete, you no longer see video output on your monitor and see only a flashing cursor, check the configuration of the operating system to determine if it is configured to redirect its output exclusively over the serial line.</li> </ul>
Server does not power on when the front panel Power button is pressed.	<p>Keep notes on the following situations in case you need to call Oracle Service Personnel:</p> <ul style="list-style-type: none"> <li>• Is the Power/OK LED illuminated on the front of the system? (Ensure that the power cord is connected to the system and to a grounded power receptacle.)</li> <li>• Does the wall outlet have power? Test by plugging in another device.</li> <li>• Does the monitor sync within five minutes after power-on? (The green LED on the monitor stops flashing and remains illuminated.)</li> <li>• Check Oracle ILOM fault management settings to ensure that there are no faulty components or incorrect power management settings that might be preventing the system from powering on.</li> </ul>
Keyboard or mouse does not respond to actions.	<ul style="list-style-type: none"> <li>• Verify that the mouse and keyboard cables are connected to the on-board USB 2.0 connectors on the server.</li> <li>• Verify that the server is powered on and the front Power/OK LED is illuminated.</li> </ul>

Problem	Possible Solution
Hung or frozen server: No response from mouse or keyboard or any application.	<p>Try to access your system from a different server on the network:</p> <ol style="list-style-type: none"> <li>1. On another system, type <b>ping</b> <i>IP-address-of-server</i>.</li> <li>2. If a response is returned, then try logging in to the server using <code>telnet</code>, <code>ssh</code>, or <code>rlogin</code>.</li> <li>3. If you successfully log in, list the running processes using the <code>ps</code> command.</li> <li>4. Kill any processes that appear unresponsive or should not be running, by using the <code>kill process-ID</code> command.</li> <li>5. Check the responsiveness of the server after each process is killed.</li> </ol> <p>If this procedure does not work, power cycle the server:</p> <ol style="list-style-type: none"> <li>1. Press the Power button to power off the server, and wait 20 to 30 seconds.</li> <li>2. Press the Power button again to power the system back on.</li> </ol>

### Related Information

- [“Installation Procedure Overview” on page 2](#)
- [“About Server Features and Components” on page 19](#)
- [Sun Server X4-2 Service Manual, “Troubleshooting the Server” on page 21](#)

## Technical Support Information Worksheet

If the troubleshooting information fails to solve your problem, use the following table to collect information that you might need to communicate to the Oracle Service personnel.

System Configuration Information Needed	Your Information
Service contract number	
System model	
Operating system	
System serial number (For instructions for locating this number, see <a href="#">“Locating the System Serial Number” on page 182.</a> )	
Peripherals attached to the system	

---

**System Configuration Information Needed****Your Information**

---

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

---

**Related Information**

- *Sun Server X4-2 Service Manual, “About System Components”* on page 16
- *Oracle x86 Servers Diagnostics, Applications, and Utilities Guide For Servers with Oracle ILOM 3.1* at: <http://www.oracle.com/goto/x86AdminDiag/docs>

---

## Locating the System Serial Number

You might need to have your server serial number when you ask for service on your system. Record this number for future use. Use one of the following methods to locate your server serial number:

- On the front panel of the server, look to the left of the status indicators.  
For the exact location of the serial number, see *“Front Panel Status Indicators, Connectors, and Drives”* on page 22.
- Locate the yellow Customer Information Sheet (CIS) attached to your server packaging. This sheet includes the serial number.
- From the Oracle ILOM web interface, go to the System Information > Summary page in the Oracle ILOM browser interface.
- From the Oracle ILOM CLI, type the `show /System` command.

**Related Information**

- *“Front Panel Status Indicators, Connectors, and Drives”* on page 22



# Site Planning Checklists

---

This section provides reference checklists for site preparation. The following topics are covered.

- [“Preparation Checklists” on page 183](#)

---

## Preparation Checklists

Complete the checklists in this section to ensure the site is prepared for the server.

- [“Access Route and Data Center Checklist” on page 183](#)
- [“Data Center Environment Checklist” on page 185](#)
- [“Facility Power Checklist” on page 185](#)
- [“Rackmount Checklist” on page 186](#)
- [“Safety Checklist” on page 188](#)
- [“Auto Service Request Checklist” on page 189](#)
- [“Logistics Checklist” on page 189](#)

## Access Route and Data Center Checklist

Review the following facility checklist before installing the server.

**TABLE:** Access Route and Data Center Room Checklist

Data Center Room Considerations	Yes	No	N/A	Comment
Has the access route been checked for clearances of the packaged equipment?				
Do all the doors and entry ways conform to the width and height requirements for transportation, including the width of the unpacked unit?				
Are there any ramps, stairs, or thresholds that are in the moving path for the new hardware?				
Have you confirmed that the access route is free of any obstacles that would expose the device to shock?				
If there are stairs, then is a loading elevator accessible for moving the equipment?				
Has the rack location been allocated?				
Is there a vacant space in the rack for the new server?				
Does the floor layout meet the equipment maintenance access requirements?				
Is there adequate space available for server maintenance?				
Have cabinet stabilization measures been considered?				
Will the hardware location require any non-standard cable lengths?				
Is the floor to ceiling height a minimum of 2914 mm or 2.9 m (9.6 feet)?				
Is the depth of the raised floor a minimum of 460 mm (18 inches)?				

### Related Information

- [“Rack Requirements” on page 40](#)

# Data Center Environment Checklist

Complete the following checklist to ensure that the data center environment requirements are met for the server.

**TABLE:** Data Center Environment Checklist

Data Center Environment Considerations	Yes	No	N/A	Comment
Does the computer room air handling meet temperature and humidity requirements?				
Does the installation floor layout satisfy the ventilation requirements?				
Will the equipment be positioned so that the exhaust air of one rack does not enter the air intake of another rack?				
Are the perforated floor tiles each rated at 400 CFM or greater?				
Do the data center air conditioners provide sufficient front to back airflow?				
Is airflow adequate to prevent hot spots?				
Can the data center continuously satisfy environmental requirements?				
Can more vented floor tiles be obtained if required?				

## Related Information

- [“Environmental Requirements” on page 10](#)
- [“Ventilation and Cooling” on page 13](#)

# Facility Power Checklist

Complete the following checklist to ensure that the facility power requirements are met for the data center in which the server is installed.

**TABLE:** Facility Power Checklist

Facility Power Considerations	Yes	No	N/A	Comment
Do you know the required operating voltage and electric current level of the server?				
Are enough power outlets provided within 2 meters (6.5 feet) for each rack?				
Do the power outlets have appropriate socket receptacles?				
Will optional ground cables be attached to the rack?				
Are the circuit breakers for the equipment suitable in terms of voltage and current-carrying capacities?				
Does the power frequency meet the equipment specifications?				
Will system power be delivered from two separate power grids?				
Is there a UPS to power the equipment?				
Do you have the minimum required power sources to support the power load for the new hardware? Use kilowatt (kW)/kilovolt (kVA) to express power load.				

### Related Information

- [“Electrical Power Requirements” on page 8](#)

## Rackmount Checklist

Complete the following checklist prior to installing the server into a rack or cabinet.

**TABLE:** Rackmount Checklist

<b>Rackmount Considerations</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comment</b>
Is the distance between the front and rear mounting planes between the minimum or 610 mm and the maximum 915 mm (24 inches to 36 inches)?				
Is the clearance depth in the front of the front mounting plane (distance to the front cabinet door) at least 25.4 mm (1 inch)?				
Does the target rack meet the following minimum load capacity: <ul style="list-style-type: none"> <li>• 19 kg/rack unit</li> <li>• 785 kg total</li> </ul>				
Is the rack a four-post rack (mounting at both front and rear)? Two-post racks are not compatible.				
Does the rack's horizontal opening and unit vertical pitch conform to ANSI/EIA 310-D-1992 or IEC 60927 standards?				
Does the rack have RETMA rail support?				
Does the rack support Oracle cable management arms (CMAs)?				
Does the rack support installation of Oracle vented and solid filler panels?				
Is there sufficient space for a cable harnesses and the power distribution units (PDUs) in the rack, if required?				
Can a label with the server serial number be printed and attached to the target rack?				
Did you run the required network cables from your network equipment to the location where the server will be installed?				
Did you label the network cables that will connect to the server?				
Does the rack support installation of standard Oracle PDUs? If not, then complete this checklist.				
Can the customer provide equivalent PDUs?				

**TABLE:** Rackmount Checklist

Rackmount Considerations	Yes	No	N/A	Comment
Can the customer provide a single PDU and its circuits to support the power requirements in case on PDU fails?				
Can the customer ensure power loads are evenly distributed across all circuits of a single PDU?				
Can the customer provide appropriate power drops for the PDUs?				

### Related Information

- [“Space Requirements” on page 6](#)

## Safety Checklist

Complete the following checklist to ensure that the safety requirements are met for the data center in which the server will be installed.

**TABLE:** Safety Checklist

Safety Checklist Considerations	Yes	No	N/A	Comment
Is there an emergency power shut off?				
Is there a fire protection system in the data center room?				
Is the computer room adequately equipped to extinguish a fire?				
Is antistatic flooring installed?				
Is the floor below the raised floor free of obstacles and blockage?				

### Related Information

- [“Electrical Power Requirements” on page 8](#)
- *Sun Server X4-2 Safety and Compliance Guide*

# Auto Service Request Checklist

Complete the following checklist if you are planning to use Auto Service Request with the server.

**TABLE:** Auto Service Request Checklist

Auto Service Request Considerations	Yes	No	N/A	Comment
Do you have a My Oracle Support Online Account to register Auto Service Request?				
Do you have your Oracle Support Customer Support Identifier (CSI) number?				
Do you have the host name and IP address for the server that will have Auto Service Request Manager?				
Will the system need a proxy server? If so, what is the host name and IP address for the proxy server?				
Do you have the Technical Contact information for Auto Service Request? This information should include the first name, last name, and e-mail address of the contact.				

# Logistics Checklist

Complete the following checklist to ensure that the logistics requirements are met for the data center in which the server will be installed.

**TABLE:** Logistics Checklist

Logistics Checklist Considerations	Yes	No	N/A	Comment
Do you have contact information for the data center personnel?				
Is there security or access control for the data center?				
Are there any security background checks or security clearances required for vendor personnel to access the data center? If yes, then do you have a recommended agency?				
How many days in advance must background checks be completed?				

**TABLE:** Logistics Checklist (*Continued*)

<b>Logistics Checklist Considerations</b>	<b>Yes</b>	<b>No</b>	<b>N/A</b>	<b>Comment</b>
Are there any additional security access issues?				
Is computer room access available for installation personnel?				
Are laptops, cell phones, and cameras allowed in the data center?				
Does the building have a delivery dock?				
Is there a delivery/unpacking/staging area?				
Is the delivery inside?				
If the delivery is not inside, then is the site prepared for uncrating?				
Is the unpacking/staging area protected from the elements?				
Does the building have adequate receiving space?				
Is the unpacking area air-conditioned to avoid thermal shock for various hardware components?				
Will sufficient moving personnel be available to install the hardware?				
Are you prepared for uncrating and trash removal?				
Are there any restrictions on delivery and trash removal?				
Are there any restrictions on delivery truck length, width or height?				
Does the customer allow cardboard boxes and other packing material in the computer room?				
Is there a time constraint on dock access? If yes, then provide time constraints.				



**TABLE:** Logistics Checklist (*Continued*)

Logistics Checklist Considerations	Yes	No	N/A	Comment
Is tail lift required on delivery carrier to unload the equipment at the delivery dock?				
Will any of the following be required to place equipment in computer room? Stair walkers Lifters Ramps Steel plates Floor covers				
Does the delivery carrier require any special equipment, such as non-floor damaging rollers, transport dollies, pallet jacks, or fork lifts?				

### Related Information

- [“Receiving and Unpacking Guidelines” on page 7](#)



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