

Oracle® Server X8-8 Installation Guide



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Using This Documentation

- **Overview** – Provides specifications and describes how to install and power on Oracle Server X8-8 for the first time
- **Audience** – Technicians, administrators, developers, and authorized service providers who need to perform the tasks or learn about the concepts in this document
- **Required knowledge** – Advanced experience troubleshooting hardware installations and configuring operating systems

Product Documentation Library

Documentation and resources for this product and related products are available at <https://www.oracle.com/goto/x8-8/docs>.

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Installation Procedure

This section provides an overview of the Oracle Server X8-8 installation procedure. Review the entire installation procedure and find links to more information about each step.

Installation Procedure Overview

The following table summarizes the tasks that you must perform to properly install Oracle Server X8-8.

Step	Description	Links
1	Review the product notes for any late-breaking information about the server.	Oracle Server X8-8 Product Notes
2	Prepare to install the server. <ul style="list-style-type: none">■ Review the server site requirements, specifications, and components.■ Confirm that you received all the items you ordered.■ Familiarize yourself with electrostatic discharge (ESD) and safety precautions.■ Assemble the required tools and equipment.	<ul style="list-style-type: none">■ “Preparing for Server Installation” on page 13■ “Site Planning Checklists” on page 123
3	Review the server features.	“Server Features and Components” on page 25
4	Install any separately shipped optional components.	Oracle Server X8-8 Service Manual
5	Review the server management features.	“Server Management” on page 37
6	Install the server into a rack.	“Installing the Server Into a Rack” on page 41
7	<ul style="list-style-type: none">■ Attach cables and power cords to the server.■ Power on the server.	“Connecting Cables and Applying Power” on page 57
8	Connect to Oracle Integrated Lights Out Manager (ILOM).	“Using Oracle Integrated Lights Out Manager (ILOM)” on page 73
9	Prepare the server drives and configure RAID.	“Configuring Storage Drives for Operating System Installation” on page 89

Step	Description	Links
10	<p>If applicable, install one of the following operating systems or virtual machine software:</p> <ul style="list-style-type: none"> ■ Oracle Linux ■ Oracle VM Server ■ Windows Server ■ VMware ESXi 	<ul style="list-style-type: none"> ■ “Installing an Operating System” on page 106 ■ Oracle Server X8-8 Operating Systems Installation Guide
11	Review procedures for controlling system power.	“Controlling System Power” on page 107
12	Review procedures for getting the latest server firmware and software.	“Getting Firmware and Software” on page 113
13	Troubleshoot installation issues.	“Troubleshooting Installation Issues” on page 119

Preparing for Server Installation

These sections provide the information you need to prepare for the server installation.

- [“Server Physical Specifications” on page 13](#)
- [“Receiving and Unpacking Requirements” on page 14](#)
- [“Rack Space Requirements” on page 14](#)
- [“Maintenance Space Requirements” on page 14](#)
- [“Environmental Requirements” on page 15](#)
- [“Ventilation and Cooling Requirements” on page 17](#)
- [“Electrical Requirements” on page 18](#)
- [“Agency Compliance” on page 20](#)
- [“Shipping Inventory” on page 21](#)
- [“Tools and Equipment” on page 21](#)
- [“Optional Component Installation” on page 22](#)
- [“PCIe Cards” on page 23](#)

Related Information

- [“Installation Procedure Overview” on page 11](#)
- [“Server Features and Components” on page 25](#)

Server Physical Specifications

The following table lists Oracle Server X8-8 physical specifications.

Dimension	Server Specification	Measurement
Height	5-rack unit (5U) nominal	219 mm (8.62 inches)
Width	Server chassis	446 mm (17.56 inches)

Dimension	Server Specification	Measurement
Depth	Maximum overall	850 mm (33.6 inches)
Weight	Fully populated server	114 kg (250 lbs)

Receiving and Unpacking Requirements

When the server is unloaded at your site:

- Leave the server in its shipping carton until it arrives at its installation location.
- Use a separate area to remove the packaging material to reduce particle contamination before the server is taken to the data center.
- Ensure that there is enough clearance and clear pathways to move the server from the unpacking area to the installation location.
- Ensure that the entire access route to the installation location is free of raised-pattern flooring that causes vibration.

Rack Space Requirements

Oracle Server X8-8 is a five rack unit (5U) server. For physical dimensions, see [“Server Physical Specifications” on page 13](#).

You can install the server into a four-post rack cabinet that conforms to ANSI/EIA 310-D-1992 or IEC 60279 standards, such as Oracle Rack Cabinet 1242. See [“Rack Compatibility” on page 44](#).

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) of ceiling height is required 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.

Maintenance Space Requirements

The maintenance area for the rackmounted Oracle Server X8-8 must have the required access space. The following table lists the maintenance access requirements for the server when it is installed in a rack.

Location	Maintenance Access Requirement
Back of the server	91.4 cm (36 inches)
Area above the rack	91.4 cm (36 inches)
Front of the server	123.2 cm (48.5 inches)

Environmental Requirements

The following table describes the environmental specifications for the server.



Caution - Set conditions to the optimal temperature and humidity ranges to minimize the chance of downtime due to component failure. Operating the servers for extended periods at or near the operating range limits, or installing them in an environment where they remain at or near nonoperating range limits could significantly increase hardware component failure.

Specification	Operating	Nonoperating
Ambient temperature (does not apply to removable media)	<ul style="list-style-type: none"> ■ 41°F to 95°F (5°C to 35°C) up to 2,953 feet (900 meters) ■ Optimal: 69.8°F to 73.4°F (21°C to 23°C) <p>Note - Maximum ambient operating temperature is derated by 1 degree C per every 300 meters elevation beyond 900 meters, up to a maximum altitude of 3,000 meters elevation.</p>	–40°F to 154°F (–40°C to 68°C)
Relative humidity	<ul style="list-style-type: none"> ■ 10% to 90% noncondensing, short term 25°F to 113°F (–5°C to 55°C) ■ 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) 	Up to 93% noncondensing 95°F (35°C) maximum wet bulb
Altitude	<p>Maximum 9,840 feet (3,000 meters) at 95°F (35°C)</p> <p>Note - In China markets, regulations might limit installations to a maximum altitude of 6,562 feet (2,000 meters).</p>	Maximum 39,370 feet (12,000 meters)
Acoustic Noise	<ul style="list-style-type: none"> ■ Maximum condition: 8.1 Bels ■ Idle condition: 5.8 Bels 	Not applicable
Vibration	<ul style="list-style-type: none"> ■ 0.15 G (z-axis) ■ 0.10 G (x-, y-axes), 5-500Hz swept sine <p>IEC 60068-2-6 Test FC</p>	<ul style="list-style-type: none"> ■ 0.5 G (z-axis) ■ 0.25 G (x-, y-axes), 5-500Hz swept sine <p>IEC 60068-2-6 Test FC</p>
Shock	3 Gs, 11 ms half-sine	Roll-off: 1.25-inch roll-off free fall, front to back rolling directions

Specification	Operating	Nonoperating
	IEC 60068-2-27 Test Ea	Threshold: 13 mm threshold height at 0.65 m/s impact velocity ETE-1010-02 Rev A

Related Information

- [“Temperature Guidelines” on page 16](#)
- [“Humidity Guidelines” on page 16](#)
- [“Ventilation and Cooling Requirements” on page 17](#)

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 approximately 22° Celsius (72° Fahrenheit) is recommended 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 is not running for a period of time.

Humidity Guidelines

The server ambient relative humidity range of 45 to 50 percent is acceptable for safe data processing operations. An ambient relative humidity optimal range of 45 to 50 percent can:

- Help protect computer systems from corrosion problems associated with high humidity levels.
- Provide the greatest operating time buffer in the event of air conditioner control failure.
- Help to avoid failures or temporary malfunctions caused by intermittent interference from static discharges that might occur when relative humidity is too low. Electrostatic discharge (ESD) is easily generated and not easily dissipated in areas where the relative humidity level is below 35 percent. ESD risk becomes critical when levels drop below 30 percent.

Most computer equipment can operate in a wide range (20 to 80 percent), but 45 to 50 percent is the recommended optimal range for the reasons listed.

Ventilation and Cooling Requirements

Always provide adequate space in front of and behind the rack to allow for proper ventilation of rackmounted servers. Do not obstruct the front or back of the rack with equipment or objects that might prevent air from flowing through the rack. Rackmountable servers and equipment, including Oracle Server X8-8, draw cool air in through the front of the rack and release warm air out the back of the rack. There is no airflow requirement for the left and right sides due to front-to-back cooling.

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 in the rack.

The servers function while installed in a natural convection airflow. Follow these environmental specifications for optimal ventilation:

- Ensure that air intake is in the front of the system, and the air outlet is in the back. Take care to prevent recirculation of exhaust air in a rack or cabinet.
- Allow minimum clearance of 123.2 cm (48.5 inches) in the front of the system, and 91.4 cm (36 inches) in the back.
- Ensure that airflow is unobstructed through the chassis. Oracle Server X8-8 uses internal fans that can achieve 100 CFM, within the specified range of operating conditions.
- Ensure that ventilation openings, such as cabinet doors for both the inlet and exhaust of the server, are unobstructed. For example, Oracle Rack Cabinet 1242 is optimized for cooling. Both the front and back doors have 80 percent perforations that provide a high level of airflow through the rack.
- Ensure that front and back clearances between the cabinet doors is a minimum of 2.5 cm (1 inch) at the front of the server and 8 cm (3.15 inches) at the back of the server when mounted. To improve cooling performance, these clearance values are based on the inlet and exhaust impedance (available open area) and assume a uniform distribution of the open area across the inlet and exhaust areas.

Note - The combination of inlet and exhaust restrictions, such as cabinet doors and the distance 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.

- Manage cables to minimize interference with the server exhaust vent.

Electrical Requirements

The server uses AC power. The server can operate effectively over a range of voltages and frequencies.

The following table contains the power supply specifications for Oracle Server X8-8.

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 power consumption, go to the Oracle Power Calculators web site <https://www.oracle.com/it-infrastructure/power-calculators/>, and click the Oracle Server X8-8 link.

Parameter	Specification
Voltage (nominal)	200-240 VAC
Input current (maximum)	■ 23 A @ 200 to 240 VAC ■ 12 A max per cord
Frequency (nominal)	50/60 Hz
Maximum power consumption	■ Single 4-socket – 1980 W ■ Dual 4-socket – 3950 W ■ Single 8-socket – 3880 W
Maximum heat output	13,475 BTU/Hr



Caution - Servers must have a reliable power source. Damage to the server might occur if the input voltage levels or in input power frequency 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, use a dedicated power distribution system, power-conditioning equipment, and lightning arresters or power cables for protection from electrical storms.

See the following additional power specifications.

- [“Facility Power Guidelines” on page 19](#)
- [“Circuit Breaker and UPS Guidelines” on page 19](#)
- [“Grounding Guidelines” on page 20](#)

Facility Power Guidelines

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

To prevent 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 current load of the overall system AC input does not exceed 80 percent of the branch circuit AC current rating.

PDU power cords for Oracle racks 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 in 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 failures:

- Ensure that the design of your power system provides adequate power to the server.
- Use dedicated AC breaker panels for all power circuits that supply power to the server.
- Ensure that electrical work and installations comply with applicable local, state, or national electrical codes.
- Ensure that the electrical circuits are grounded to Earth.
- Provide a stable power source, such as an uninterruptable 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

Use the following guidelines for grounding the server:

- The rack must use grounding type power cords. For example, Oracle racks are wired for three-wire, grounding-type power cords.
- Always connect the grounding-type power cords to grounded power outlets.
- Because different grounding methods are used, depending on location, verify the grounding type. For the correct grounding method, refer to local electrical codes.
- Ensure that a facility administrator or qualified electrical engineer verifies the grounding method for the building and performs the grounding work.

Agency Compliance

The server complies with the following specifications.

Category	Relevant Standards
Regulations ^{†,‡}	<ul style="list-style-type: none">■ Product Safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences■ EMC<ul style="list-style-type: none">■ Emissions: FCC CFR 47 Part 15, ICES-003, EN55022, EN61000-3-2, EN61000-3-3■ Immunity: EN55024
Certifications [‡]	<ul style="list-style-type: none">■ North America (NRTL)■ European Union (EU)■ International CB Scheme■ HSE Exemption (India)■ BSMI (Taiwan)■ RCM (Australia)■ MSIP (Korea)■ VCCI (Japan)■ Morocco■ Republic of Srpska■ Vietnam
European Union Directives	<ul style="list-style-type: none">■ 2014/35/EU Low Voltage Directive■ 2014/30/EU EMC Directive■ 2011/65/EU RoHS Directive■ 2012/19/EU WEEE Directive

[†]All standards and certifications referenced are to the latest official version. For additional detail, contact your sales representative.

[‡]Other country regulations/certifications may apply.

Related Information

- *Oracle Server X8-8 Safety and Compliance Guide*
- *Important Safety Information for Oracle's Hardware Systems*

Shipping Inventory

Inspect the shipping cartons for evidence of physical damage. If a shipping carton appears damaged, request that the carrier agent be present when the carton is opened. Keep all contents and packing material for the agent inspection.

The carton contains these components:

- Power cords, packaged separately with the country kit.
- Rackmount kit, containing rack rails, mounting brackets, screws, and Rackmounting Template
- *Start Here* document
- Legal and safety documents

Tools and Equipment

To install the server, you must have the following items:

- Antistatic wrist strap
- Antistatic mat
- No. 2 Phillips screwdriver
- Flat screwdriver or cage nut insertion tool
- Mechanical lift

You must provide a system console device, such as one of the following:

- ASCII terminal
- Workstation
- Terminal server

- Laptop running terminal emulation software

Related Information

- [“Installing the Server Into a Rack” on page 41](#)

Optional Component Installation

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

You can order and purchase the following optional components separately:

- PCIe cards
- DDR4 DIMM memory kits
- Storage drives
- CMOD upgrade kit

If you ordered 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 installation replacement procedures in [“Servicing Components” in Oracle Server X8-8 Service Manual](#).

Supported components and their part numbers are subject to change over time and without notice. For the most up-to-date list, review the Oracle System Handbook, which is available from the My Oracle Support website.

Note - You must have an Oracle Service contract to access the Oracle System Handbook from My Oracle Support. Customers with service contracts can also access the Oracle System Handbook at https://support.oracle.com/handbook_private/.

To access the handbook, log in to My Oracle Support at <https://support.oracle.com>. Click the Knowledge tab, and in the knowledge links, click Oracle System Handbook. In the handbook, click Current Systems, and 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.

Related Information

- [“Server Components” on page 25](#)

- [“Replaceable Components” in *Oracle Server X8-8 Service Manual*](#)
- [“Supported PCIe Cards” in *Oracle Server X8-8 Product Notes*](#)

PCIe Cards

Oracle Server X8-8 has 16 Gen 3 PCIe slots. These slots can contain cards installed at the factory, or cards can be ordered from Oracle and installed on site. All PCIe cards must be of a type supported for your server. The Dual PCIe Card Carrier (DPCC) slots are hot-pluggable.

Some PCIe cards require configuration, either when you install the server, or when you add or change them. Review the server product notes for a complete list of supported PCIe cards: [“Supported PCIe Cards” in *Oracle Server X8-8 Product Notes*](#)

Server Features and Components

This section describes the components, status indicators (LEDs), connectors, ports, and storage drives on Oracle Server X8-8 front and back panels.

- [“Server Components” on page 25](#)
- [“Front Panel Features” on page 28](#)
- [“Back Panel Features” on page 29](#)

Related Information

- [“Installation Procedure Overview” on page 11](#)
- [“About the Oracle Server X8-8” in *Oracle Server X8-8 Service Manual*](#)

Server Components

Oracle Server X8-8 is configured at the factory into either a single 4-socket, a dual 4-socket, or a single 8-socket system. The dual 4-socket system is divided into System A and System B.

The server includes two system module assemblies (SMODs), accessible from the back panel. SMOD0 is associated with System A, and SMOD1 is associated with System B.

System B and SMOD1 are only available in dual 4-socket systems. They are inactive in single 4-socket systems and in single 8-socket systems.

- [“Front Panel Features” on page 28](#) shows the locations and assignments of components on the front of the server.
- [“Back Panel Features” on page 29](#) shows the locations and assignments of components on the back of the server.

The following table shows the available system configurations:

Server Type	System Configuration	SMOD Assignments
Single 4-socket	System A is active	SMOD0 supports System A
	System B is not present	SMOD1 is inactive
Dual 4-socket	System A is active	SMOD0 supports System A
	System B is active	SMOD1 supports System B
Single 8-socket	System A and System B are combined into a single 8-socket server	SMOD0 supports the single server
		SMOD1 provides some additional functionality

The following table describes the components and how they are assigned.

Feature	Configuration	System Components
System chassis	5U chassis	Oracle Server X8-8
CPU Module (CMOD) Processor	Single 4-socket – CMODs in slots 0 through 3 Dual 4-socket – CMODs in slots 0 through 7 Single 8-socket – CMODs in slots 0 through 7	<p>The system contains up to eight CMODs, located behind the fan modules and fan frames. CMODs include processors and memory.</p> <p>One processor with twelve integrated DDR4 memory controllers per processor. Processors with the following capabilities are supported (factory installed):</p> <ul style="list-style-type: none"> ■ Intel Xeon 8268, 24 core, 2.9 GHz, 205 W ■ Intel Xeon 8260, 24 core, 2.4 GHz, 165 W ■ Intel Xeon 5218, 16 core, 2.3 GHz, 125 W <p>For the latest information on processor specifications, go to the Oracle x86 servers web site and navigate to the Oracle Server X8-8 page: http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html</p>
System Module (SMOD)	Single 4-socket – SMOD0 is active, SMOD1 is inactive. Dual 4-socket – SMOD0 supports System A. SMOD1 supports System B. Single 8-socket – All functions on SMOD0 are available. Some functions on SMOD1 are available as well.	The system contains two SMODs, located on the rear panel. These SMODs provide I/O, management I/O, USB, external drives, and the service processor.
Memory	Up to 12 DIMMs per CMOD ■ 4-socket servers – Up to 48 DIMMs (3 TB) per server ■ 8-socket servers – Up to 96 DIMMs (6 TB)	Supported DIMMs include: <ul style="list-style-type: none"> ■ Up to 16 GB DDR4 ECC Registered DIMMs ■ Up to 32 GB DDR4 Registered ECC RDIMMs ■ Up to 64 GB DDR4 Registered ECC LRDIMMs

Feature	Configuration	System Components
Storage Drives	4-socket servers – 4 drives per server for up to 4.8 TB per server	The storage drive configuration can comprise both hard disk drives (HDDs) or solid state drives (SSDs). The configuration includes:
	8-socket servers – 8 drives for up to 9.6 TB per server	2.5-inch back panel accessible, hot-swappable drives. Supported drives include up to four 2.5-inch hot-pluggable SAS3 HDDs or SATA3 SSDs per SMOD
PCI Express (PCIe) slots	4-socket servers – 8 PCIe slots on 4 DPCCs per server	Sixteen hot-swappable PCIe 3.0 slots supported on eight dual PCIe card carriers (DPCCs).
	8-socket server – Sixteen PCIe slots on 8 DPCCs	Eight slots are PCIe x8, and eight slots are PCIe x16. <ul style="list-style-type: none"> Slots 1,3,5,7,9,11,13,15: x16 electrical interface Slots 2,4,6,8,10,12,14,18: x8 electrical interface One additional x8 PCIe slot in each SMOD for use with an optional internal host bus adapter (HBA) card. This internal HBA card is used to control and manage the storage drives.
I/O ports	Single 4-socket and single 8-socket servers – SMOD0 only Dual 4-socket servers – ports available on SMOD0 and on SMOD1	Each SMOD provides: <ul style="list-style-type: none"> One RJ-45 serial management (SER MGT) Ethernet port One 10/100/1000BASE-T RJ-45 Oracle Integrated Lights Out Manager (ILOM) service processor (SP) network management (NET MGT) Ethernet port Four 10GBASE-T RJ-45 Gigabit Ethernet (GbE) ports, labeled NET0 through NET3
USB ports	Single 4-socket and single 8-socket servers – SMOD0 only Dual 4-socket servers – ports available on SMOD0 and on SMOD1	Each SMOD provides one internal USB 3.0 port and one external back panel USB 3.0 port
Service Processor	Single 4-socket and single 8-socket servers – SMOD0 only Dual 4-socket servers: <ul style="list-style-type: none"> SMOD0 supports System A SMOD1 supports System B 	The server has an integrated service processor (SP), features include: <ul style="list-style-type: none"> Oracle Integrated Lights Out Manager (ILOM) Refer to the server product notes for Oracle ILOM release information. Local Oracle ILOM command-line access using a serial connection Support for Ethernet access to the SP through a dedicated management port (NET MGT) and optionally through one of the host Ethernet ports (sideband management) IPMI 2.0-compliant remote management capabilities Support for remote KVM (keyboard, video, mouse, and storage) over IP

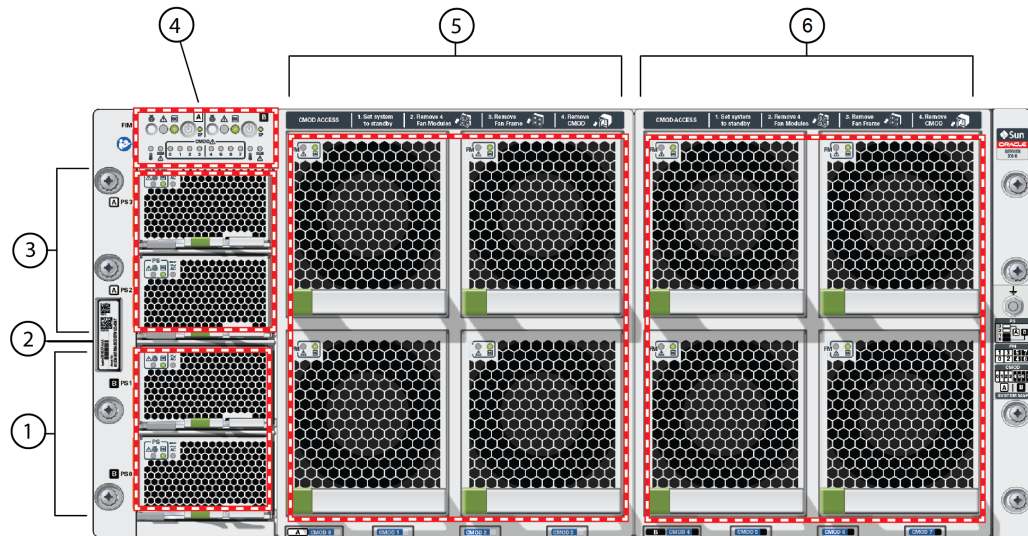
Feature	Configuration	System Components
Management Software	Each server supports management software	<p>The following options are available:</p> <ul style="list-style-type: none"> ■ Oracle Integrated Lights Out Manager (ILOM) on the service processor. See “Using Oracle Integrated Lights Out Manager (ILOM)” on page 73. ■ Oracle Hardware Management Pack available as a standalone product for supported operating systems. Refer to the support matrix for specific information https://www.oracle.com/goto/ohmp.
Power supplies	<p>Single 4-socket and single 8-socket servers – All power supplies support the server</p> <p>Dual 4-socket servers – PS 0 and PS1 support System A. PS2 and PS3 support System B.</p>	Four redundant, hot-swappable back panel accessible 3060W power supplies
Cooling fans	All fans operate in all configurations	<p>Eight 80mm hot-swappable, redundant fan modules at chassis front.</p> <p>Each power supply has its own redundant fans that operate when the power supply is active.</p>
Operating systems and virtualization software	Each server system supports its own OS	<p>Refer to the server Product Notes for supported OS release information.</p> <ul style="list-style-type: none"> ■ “Oracle Server X8-8 Product Information” in Oracle Server X8-8 Product Notes ■ For more information on software, refer to Oracle Server X8-8 Operating Systems Installation Guide.

Related Information

- [“Front Panel Features” on page 28](#)
- [“Back Panel Features” on page 29](#)
- [“About the Oracle Server X8-8” in Oracle Server X8-8 Service Manual](#)

Front Panel Features

The following figure shows the status indicators (LEDs), connectors, and drives located on the server front panel.



Callout	Assignment	Description
1	System B	Power supplies 0 and 1: See “Power Supply Controls and Indicators” on page 33.
2	System A and System B	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag: See Oracle Server X8-8 Service Manual .
3	System A	Power supplies 2 and 3: See “Power Supply Controls and Indicators” on page 33.
4	System A and System B	Front indicator module (FIM): See “Front Indicator Module” on page 31.
5	System A	Fan modules 0, 1, 2, and 3: See “Fan Module Controls and Indicators” on page 33.
6	System B	Fan modules 3, 4, 5, and 6: See “Fan Module Controls and Indicators” on page 33.

Note - All System B components are inactive in single 4-socket systems except for the fans.

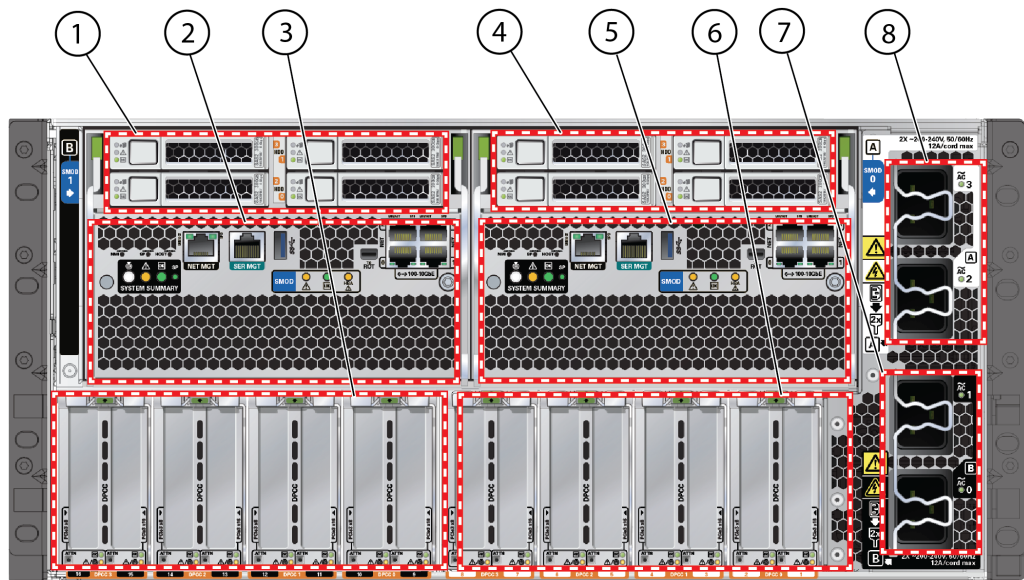
Back Panel Features

The components on the back panel are divided between System A and System B. System A is associated with SMOD0. System B is associated with SMOD1.

- In single 4-socket systems, System A is active and System B is inactive.
- In dual 4-socket systems, System A and System B are active and act as independent servers.
- In single 8-sockets, System A and System B are active and merged into a single server, although some redundant features in SMOD1 are nonfunctional.

The following figure shows the Oracle Server X8-8 back panel and the location of status indicators (LEDs), connectors, and PCIe slots.

For information on how to interpret the status indicators (LEDs), refer to the [“Troubleshooting and Diagnostics”](#) in *Oracle Server X8-8 Service Manual*.



Callout	Assignment	Description
1	System B	HDD/SSD bays: See “Storage Drive Controls and Indicators” on page 35. <ul style="list-style-type: none"> ■ Top row: 3, 1 ■ Bottom row: 2, 0
2	System B	SMOD1: See “SMOD Status Indicators and Buttons” on page 34.
3	System B	PCIe card slots 9 through 16: See “PCIe Cards” on page 23. <ul style="list-style-type: none"> ■ PCIe 16 is on the left ■ PCIe 9 is on the right, middle

Callout	Assignment	Description
4	System A	HDD/SSD bays 0 through 3: See “Storage Drive Controls and Indicators” on page 35 . <ul style="list-style-type: none"> ■ Top row: 3, 1 ■ Bottom row: 2, 0
5	System A	SMOD0: See “SMOD Status Indicators and Buttons” on page 34 .
6	System A	PCIe card slots 1 through 8: See “PCIe Cards” on page 23 . <ul style="list-style-type: none"> ■ PCIe 8 is on the middle left ■ PCIe 1 is on the right
7	System A	AC power inlets 2 and 3: See “Power Supply Controls and Indicators” on page 33 .
8	System B	AC power inlets 0 and 1: See “Power Supply Controls and Indicators” on page 33 .

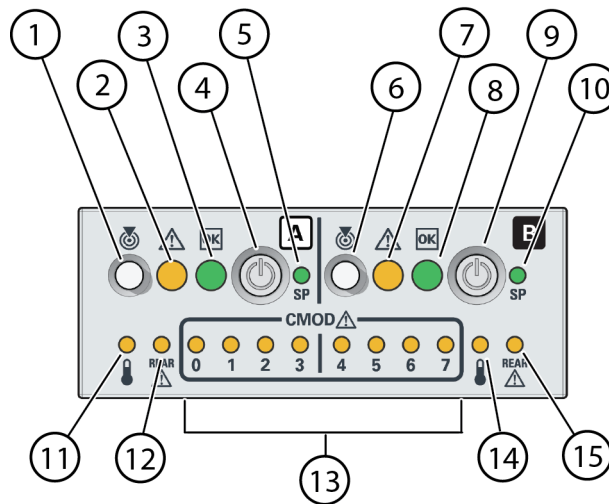
Front and Back Panel Components

The following topics describe the indicators, buttons, and ports on Oracle Server X8-8 front and back panel accessible components.

- [“Front Indicator Module” on page 31](#)
- [“Power Supply Controls and Indicators” on page 33](#)
- [“Fan Module Controls and Indicators” on page 33](#)
- [“SMOD Status Indicators and Buttons” on page 34](#)
- [“Storage Drive Controls and Indicators” on page 35](#)

Front Indicator Module

The following figure shows the controls and indicators on the front indicator module (FIM).



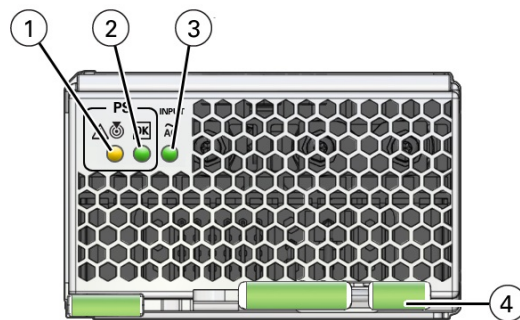
Callout	Assignment	Description
1	System A	Locate Button and indicator
2	System A	Fault-Service Required indicator
3	System A	System OK indicator
4	System A	On/Standby button
5	System A	SP OK indicator
6	System B	System Locate Button and Indicator
7	System B	Fault-Service Required indicator
8	System B	System OK indicator
9	System B	On/Standby button
10	System B	SP OK indicator
11	System A	System Overtemperature Warning indicator
12	System A	Chassis rear Fault-Service Required indicator
13	0 through 3 - System A 4 through 7 - System B	CMOD Fault-Service Required indicators 0 - 8 (from left to right)
14	System B	System Overtemperature Warning indicator
15	System B	Chassis rear Fault-Service Required indicator

Note - SMOD 1 is inactive on single 4-socket systems and has reduced functionality on single 8-socket systems.

Power Supply Controls and Indicators

The following figure shows the power supply controls and indicators.

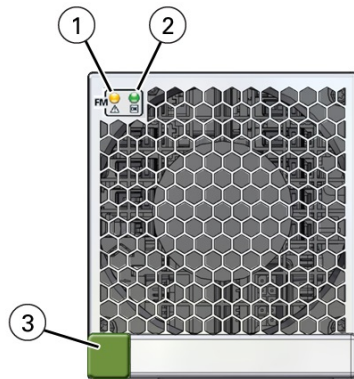
Note - For details on system power and the related controls and indicators, see [“Controlling System Power” on page 107](#).



Callout	Description
1	Service Required/Locator indicator
2	System OK indicator (power to host is OK)
3	AC OK indicator (AC input power is OK)
4	Release latch

Fan Module Controls and Indicators

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

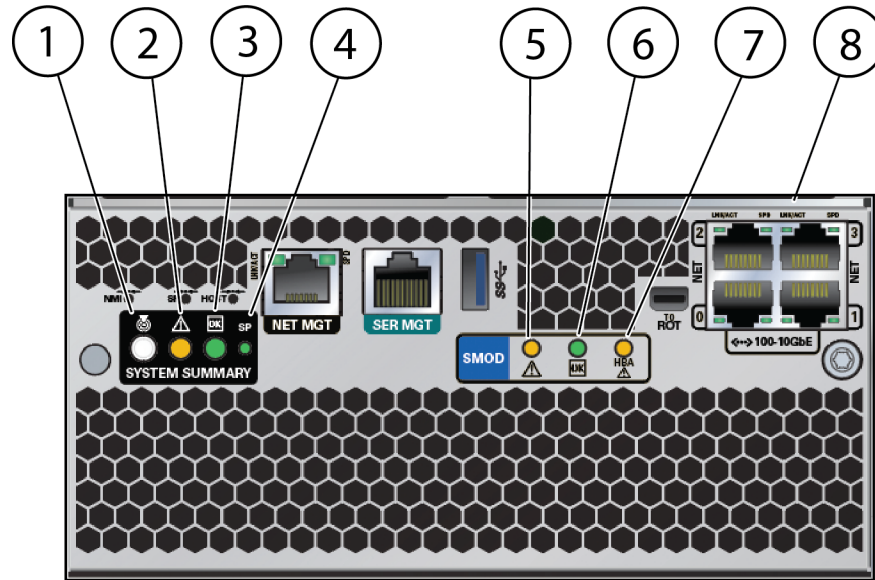


Callout	Description
1	Service Required indicator
2	OK indicator
3	Release latch

SMOD Status Indicators and Buttons

The following figure shows the indicators, buttons, and ports on an SMOD.

- For single 4-socket systems, the indicators on SMOD1 are inactive.
- For single 8-socket systems, the SMOD1 indicators are still active but the system-level indicators remain inactive.

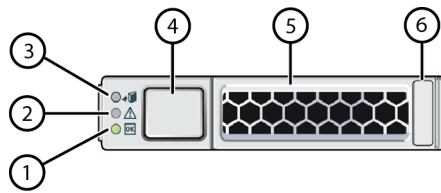


Callout	Description
1	Locate indicator/button – Used to identify the server.
2	Chassis Service Required indicator (SMOD0 only) – For details, refer to Oracle Server X8-8 Service Manual .
3	System OK – For details, see “Controlling System Power” on page 107 .
4	SP OK – Steady on if SP is operating, blinks while SP is booting, off if SP has no power.
5	SMOD Service Required indicator – Indicates a system module (SMOD) fault
6	SMOD OK indicator – Steady on if SMOD is operating, blinks while SMOD is booting, off if SMOD has no power.
7	HBA Service Required indicator – Indicates a host bus adapter (HBA) fault
8	NET0, NET1, NET2, and NET3 ports

Note - For details on system power and the related controls and indicators, see [“Controlling System Power” on page 107](#).

Storage Drive Controls and Indicators

The following figure shows the storage drive controls and indicators.



Callout	Description
1	OK indicator
2	Service Required (fault) indicator
3	Ready to Remove indicator
4	Storage drive release button
5	Storage drive lever
6	Drive type and capacity labels

Server Management

This section describes the tools you can use to manage Oracle Server X8-8.

- [“Multiple Server Management Tools” on page 37](#)
- [“Single Server Management Tools” on page 37](#)
- [“Oracle Integrated Lights Out Manager \(ILOM\)” on page 38](#)
- [“Oracle Hardware Management Pack” on page 38](#)
- [“Unified Extensible Firmware Interface \(UEFI\)” on page 39](#)

Multiple Server Management Tools

If you are managing multiple servers, you can use Oracle Enterprise Manager Ops Center. For information about Ops Center, refer to https://docs.oracle.com/cd/E59957_01/index.htm.

Single Server Management Tools

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

Tool/Link	Type and Environment	Function
“Oracle Integrated Lights Out Manager (ILOM)” on page 38	<ul style="list-style-type: none">■ Preinstalled service processor (SP) with integrated firmware. No installation required. Some initial configuration is required.■ Operates independently of the host.■ Provides a web interface and a command-line interface (CLI).	<ul style="list-style-type: none">■ Configure and manage server components locally or remotely.■ Connect to a dedicated network port, a sideband port, or a local serial port.■ For more information about Oracle ILOM, see “Oracle Integrated Lights Out Manager (ILOM)” on page 38.
“Oracle Hardware Management Pack” on page 38	<ul style="list-style-type: none">■ Provides commands and agents that operate at the operating system level, and can be used across multiple systems.	Monitor hardware through the host operating system, either remotely using

Tool/Link	Type and Environment	Function
	<ul style="list-style-type: none"> Is available as a standalone product for supported operating systems. Refer to the support matrix for specific information: https://www.oracle.com/goto/ohmp 	SNMP or locally using command-line interface tools.
“Unified Extensible Firmware Interface (UEFI)” on page 39	Accessed by booting the system and interrupting the boot process. Provides a simple graphical user interface.	Provides hardware-level management of system functionality.

Oracle Integrated Lights Out Manager (ILOM)

Oracle Integrated Lights Out Manager (ILOM) enables you to connect to the server service processor (SP) and then manage Oracle Server X8-8. The server is shipped initially with the latest version of Oracle ILOM.

Oracle ILOM software resides on the server SP and allows you to monitor and manage server components. The software functions include:

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

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

- [“Log In to Oracle ILOM Using a Local Serial Connection” on page 75](#)
- [“Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 76](#)

For more information on Oracle ILOM, refer to the Oracle Integrated Lights Out Manager (ILOM) Documentation Library at <https://www.oracle.com/goto/ilom/docs>.

See [“Using Oracle Integrated Lights Out Manager \(ILOM\)” on page 73](#).

Oracle Hardware Management Pack

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

- **Oracle Hardware Management Pack CLI**
 - Allows you to configure Oracle servers

- Works with supported operating systems
- You can script the tools to support multiple servers, if the servers are the same type
- **Hardware Management Agent SNMP Plugins**
 - Allows you to use SNMP to monitor Oracle servers from the operating system using a single host IP address
 - Connect to two management points (Oracle ILOM and the host) with only one connection
- **Oracle Linux Fault Management Architecture (FMA)**
 - Allows you to manage faults at the operating system level using commands similar to those in the Oracle ILOM Fault Management shell

For more details about Oracle Hardware Management Pack, refer to the Oracle Hardware Management Pack Documentation Library at <https://www.oracle.com/goto/ohmp/docs>.

Unified Extensible Firmware Interface (UEFI)

Oracle Server X8-8 supports the Unified Extensible Firmware Interface (UEFI). UEFI provides an interface between system firmware and all supported operating systems. With UEFI BIOS, you can configure platform-specific information, and some of the run-time and boot-time characteristics of your system using a simple graphical interface.

All supported operating systems use UEFI. For instructions on accessing and using the UEFI BIOS Setup Utility, refer to “[BIOS Setup Utility Menu Options](#)” in *Oracle Server X8-8 Service Manual*.

Installing the Server Into a Rack

This section describes how to install Oracle Server X8-8 into a rack using the shelf rail assembly in the Rackmount Kit.

The server does not have slide rails. After you install the server in the rack, you cannot slide it out without uninstalling it. However, almost all components can be accessed from the front or back, so uninstalling the server is seldom necessary.

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

- [“Installation Prerequisites” on page 41](#)
- [“Safety Precautions” on page 42](#)
- [“ESD Precautions” on page 43](#)
- [“Rack Compatibility” on page 44](#)
- [“Unpack the Server” on page 45](#)
- [“Rackmounting the Server” on page 49](#)

Related Information

- [“Installation Procedure” on page 11](#)
- [“Preparing for Server Installation” on page 13](#)

Installation Prerequisites

Before you start the rackmount procedures, ensure that the following tasks are complete:

- Install all optional components purchased for the server. See [“Optional Component Installation” on page 22](#).

- Ensure that your site meets the electrical and environmental requirements. See [“Preparing for Server Installation” on page 13.](#)

Safety Precautions

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



Caution - Leveling feet position: When unpacking the rack at the installation site, or when repackaging and moving the rack to a new location, verify that the leveling feet are up before moving the rack.



Caution - Shipping brackets: The rack shipping brackets are not for use for bracing or anchoring the rack during seismic events.



Caution - Stabilize rack: Deploy the anti-tilt bar on the equipment rack before starting an installation.



Caution - Equipment loading: Always load equipment into a rack from the bottom up so that the rack does not become top-heavy and tip over. Deploy your rack anti-tilt bar to prevent the rack from tipping during equipment installation.



Caution - Lifting equipment: Oracle Server X8-8 weighs 114 kg (250 lbs). Only use a



mechanical lift to lift and mount the server into the rack enclosure.



Caution - Communicate instructions: When performing a two-person procedure, communicate your intentions clearly to the other person before, during, and after each step to minimize confusion.



Caution - Elevated operating ambient temperature: If you install the server in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be higher than the room ambient temperature. Install the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified for the server. For server environmental requirements, see [“Environmental Requirements” on page 15.](#)



Caution - Reduced airflow: Install the equipment in a rack so that it does not compromise the amount of airflow required for safe operation of the equipment.



Caution - Mechanical loading: Mount the equipment in the rack so that it does not cause a hazardous condition due to uneven mechanical loading.


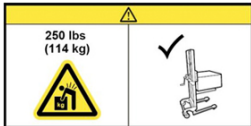


Caution - Circuit overloading: Consider the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on over-current protection and supply wiring. Also consider the equipment nameplate power ratings used when you address this concern.



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

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

Warning Image	Description
	Do not place your hand in a place where you might receive an electric shock.
	Do not lift the server manually. Use a mechanical lift instead.

ESD Precautions

Electronic equipment is susceptible to damage by static electricity. To prevent electrostatic discharge (ESD) when you install or service the server:

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

- Wear an antistatic grounding wrist strap connected to a metal surface on the chassis when you work on system components.



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

Before installing the server, read the safety information in [Oracle Server X8-8 Safety and Compliance Guide, Compliance Model No.: X78SVR](#) and in *Important Safety Information for Oracle's Hardware Systems*.

Rack Compatibility

The rack into which you install Oracle Server X8-8 must meet the requirements listed in the following table. The Oracle Rack Cabinet 1242 and Oracle's Sun Rack II Cabinet are compatible with the server. For information about the racks, see [“Preparing for Server Installation” on page 13](#).

Item	Requirement
Structure	<ul style="list-style-type: none"> ■ Four-post rack (mounting at both front and back) with 9.5mm square holes. ■ Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60297 standards.
Distance between front and back 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).
Clearance depth behind front mounting plane	Distance to back cabinet door is at least 80 cm (31.49 inches).
Clearance width between front and back 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"> ■ Clearance, front of server: 123.2 cm (48.5 inches) ■ Clearance, back of server: 91.4 cm (36 inches)

The following table contains Oracle Rack Cabinet 1242 rack specifications:

Requirement	Specification
Usable rack units	42

Requirement	Specification
Height	199. cm (78.74 inches)
Width (with side panels)	60 cm (23.62 inches)
Maximum dynamic load	1005 kg (2215 lbs)

The following table contains Sun Rack II Model 1242 and Sun Rack II Model 1042 rack specifications:

Requirement	Specification
Usable rack units	42
Height	199.8 cm (78.66 inches)
Width (with side panels)	60 cm (23.62 inches)
Depth Model 1242	120 cm (47.24 inches)
Depth Model 1042	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)

Note - Depth is measured from front door handle to back door handle.

Related Information

- [“Preparing for Server Installation” on page 13](#)

▼ Unpack the Server

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

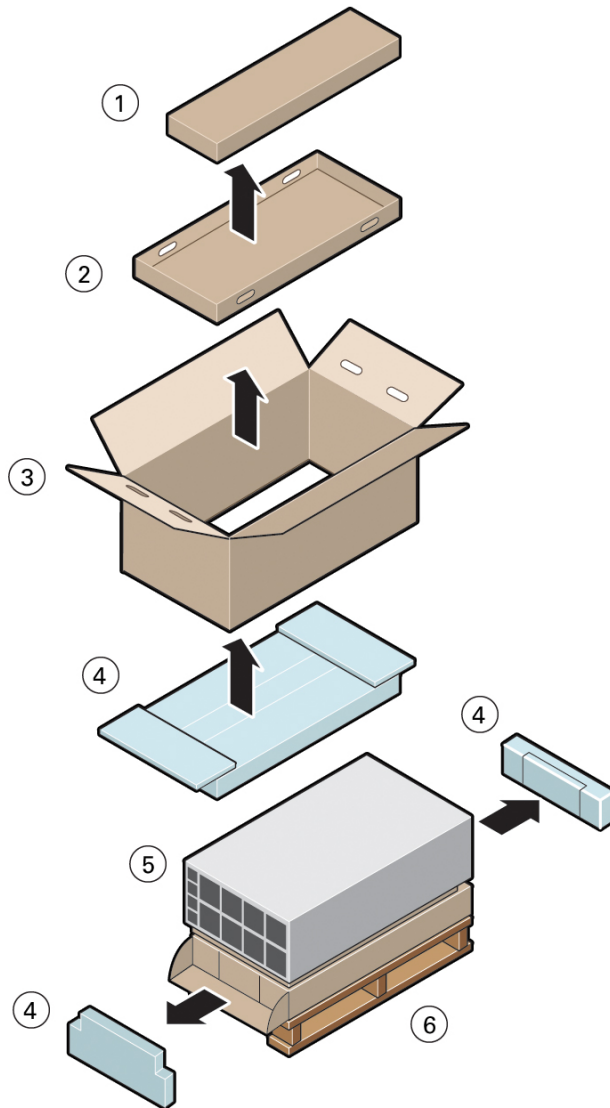
Before You Begin This procedure requires a mechanical lift.



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

1. **Inspect the shipping cartons for evidence of physical damage.**
If a shipping carton appears damaged, request that the carrier agent be present when the carton is opened. Keep all contents and packing material for the agent inspection.

The following figure shows the contents of the shipping container.



Callout	Description
1	Rackmounting kit. See “Rackmount Kit Contents” on page 47.
2	Tray
3	Box
4	Foam inserts
5	Server
6	Pallet

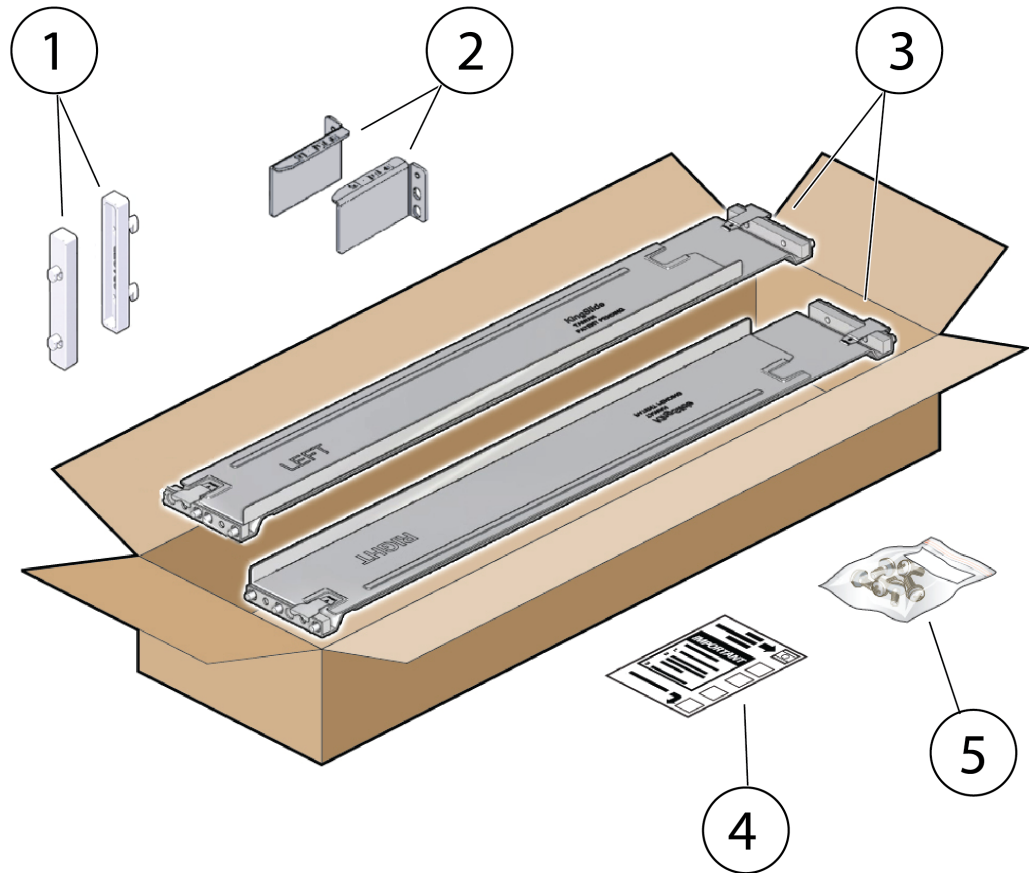
2. **Open the top of the box.**
 - a. **Cut the straps.**
 - b. **Cut or remove the tape.**
 - c. **Open the flaps.**
3. **Remove the tray and set it aside.**
4. **Lift the box up and away from the server.**
5. **Remove the foam inserts.**
 - a. **Fold the corrugated flap down to release the front foam insert.**
 - b. **Remove the front and back inserts.**
6. **Unwrap the antistatic wrapper from the server.**
7. **To remove the server from the pallet, insert the blades of the lift in the gap between the server and the pallet.**

For rack mounting instructions, see [“Rackmounting the Server” on page 49.](#)

Next Steps ■ [“Install Shelf Rails and Back Mounting Brackets” on page 50](#)

Rackmount Kit Contents

The following figure shows the contents of the Rackmount Kit.



Callout	Description
1	Rackmounting spacers
2	Left and right back mounting brackets
3	Left and right shelf rails
4	Rackmounting Template
5	Bag containing 10 M6 cage nuts and 12 M6 x 15 screws

Related Information

- [“Rack Compatibility” on page 44](#)

Rackmounting the Server

To rackmount the server, secure the rack to the floor, stabilize the rack, and install the shelf rails and back mounting brackets. Then, install the server into the rack.

▼ Stabilize the Rack



Caution - To reduce the risk of personal injury, stabilize the rack cabinet, and extend the anti-tilt bar before you install the server.

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

1. **Open the front and rear doors from the rack cabinet. Remove the doors only if they interfere with access to the equipment.**
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.**



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

3. **If the rack includes leveling feet beneath the rack cabinet to ensure that the rack stands upright on an uneven floor, extend these leveling feet fully downward to the floor.**



Caution - When moving the rack cabinet to a new location, verify that the leveling feet are up before moving the rack.

Related Information

- “Safety Precautions” on page 42
- “Preparing for Server Installation” on page 13
- Oracle Rack Cabinet 1242 Documentation Library at https://docs.oracle.com/cd/E85660_01/index.html.
- Oracle Sun Rack II 1242 Documentation Library at <https://docs.oracle.com/cd/E19657-01/index.html>.

- Oracle Sun Rack II 1042 Documentation Library at <https://docs.oracle.com/cd/E19844-01/index.html>.

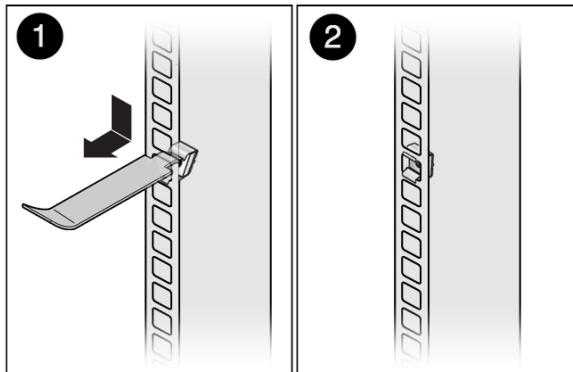
▼ Use the Cage Nut Insertion Tool

Some racks come with a cage nut insertion tool. If you have this tool, use the following steps to insert cage nuts into the rack holes.

If you do not have a cage nut insertion tool, you can use a flat screwdriver instead.

For cage nut locations, see “[Install Shelf Rails and Back Mounting Brackets](#)” on page 50.

1. Hook the side lip of a cage nut in one of the rail holes.
2. Insert the tip of the cage nut insertion tool through the rail hole and hook the other lip of the cage nut.
3. Using the insertion tool, pull the cage nut through the hole until the top lip snaps into place.



▼ Install Shelf Rails and Back Mounting Brackets

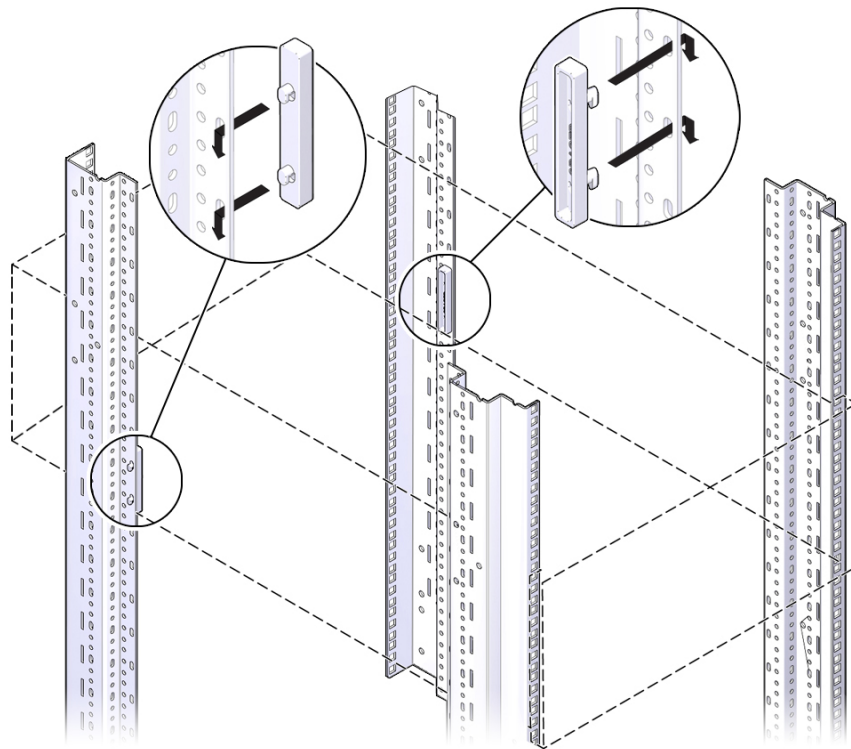
1. Ensure that your rack meets the requirements in “[Rack Compatibility](#)” on page 44.

2. Determine the server location in the rack.

The server requires five rack units, and should go directly above the unit below it with no gaps.

3. Install the two spacers in back rack rails.

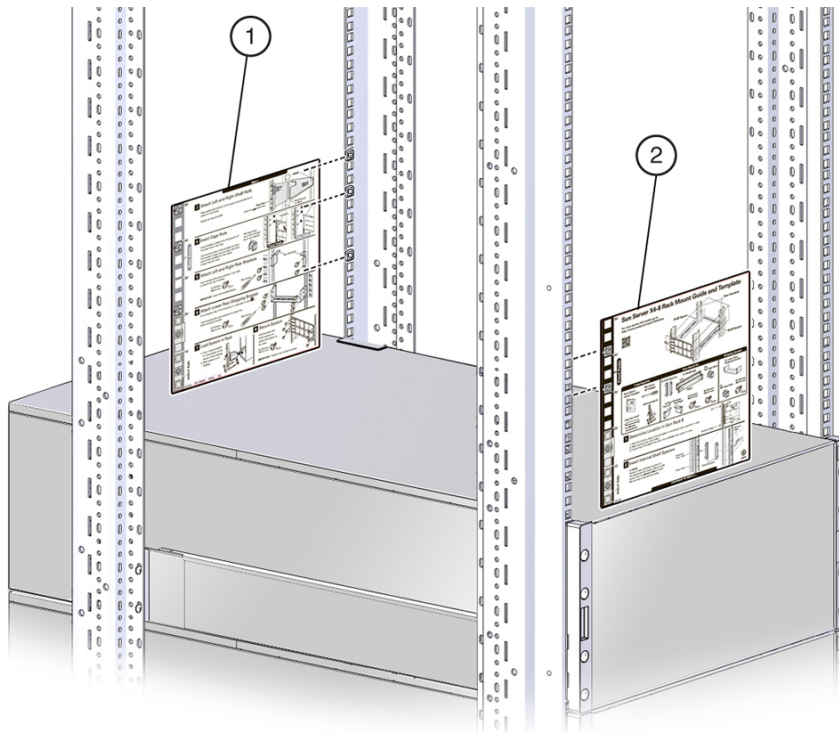
Studs on the spacers fit into the oval holes on the inside of the back rack rail. Align the bottom of the spacer with the bottom of the system rack space.



4. Use the alignment template to install cage nuts.

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

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



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

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

Note - The front of the server has four screws per side. When you place the server in the rack, the top two screws attach to the cage nuts that you install in the rack rails. The bottom screws pass through the holes in the rack and fasten to the shelf rails.

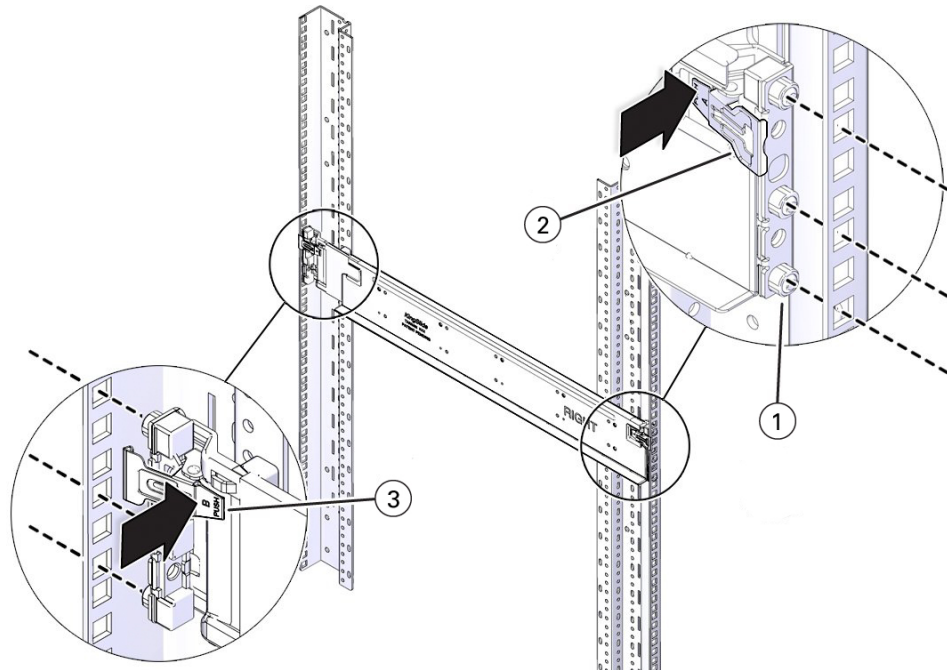
To use the cage nut insertion tool, see [“Use the Cage Nut Insertion Tool”](#) on page 50.

5. Install the left and right shelf rails.

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

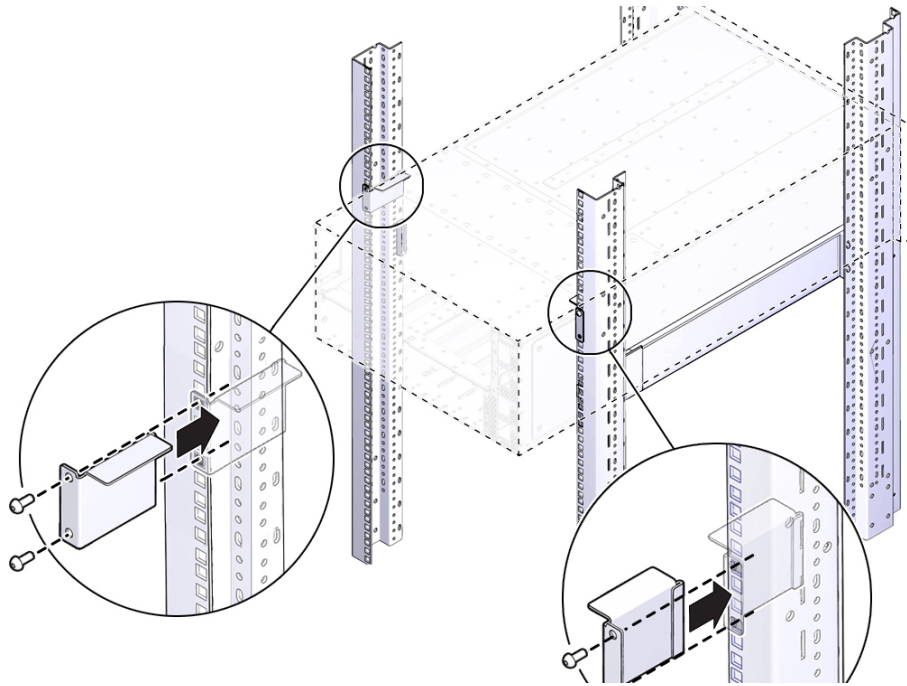
The rails have studs and a latch at each end. For each rail:

- a. **Expand the shelf rail to fit the rack.**
- b. **Insert the studs [1] into the holes on the rack, and then press the front tab [2] and back tab [3] to open the latch and fasten the shelf rail to the rack.**



6. **Attach the back mounting brackets.**
 - a. **Align each bracket so that the flanges go over the top of the server.**
 - b. **Use two screws to fasten each bracket to the rack.**

Do not tighten the screws all the way. Do that later in the procedure: [“Install the Server Into the Rack” on page 54](#).



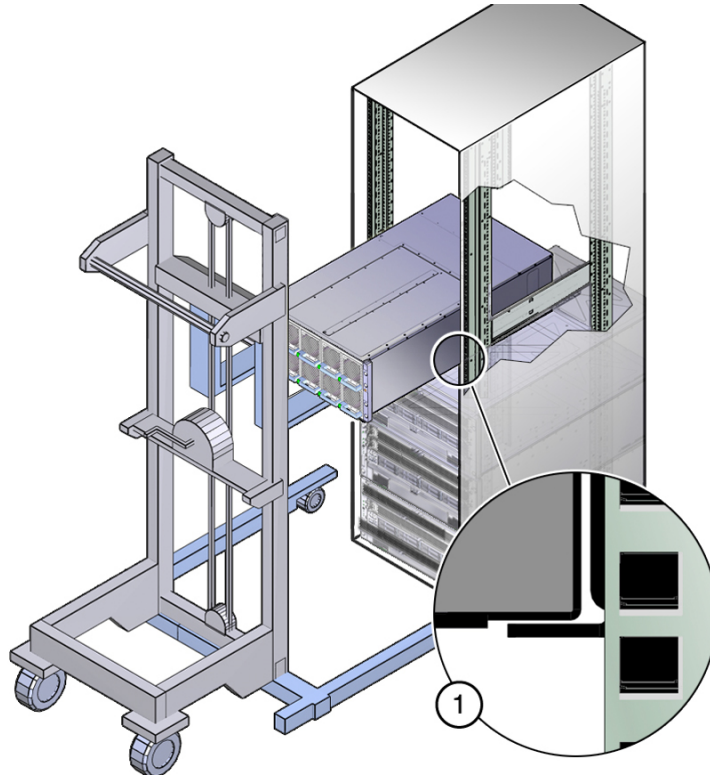
Next Steps ■ [“Install the Server Into the Rack” on page 54](#)

▼ Install the Server Into the Rack

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



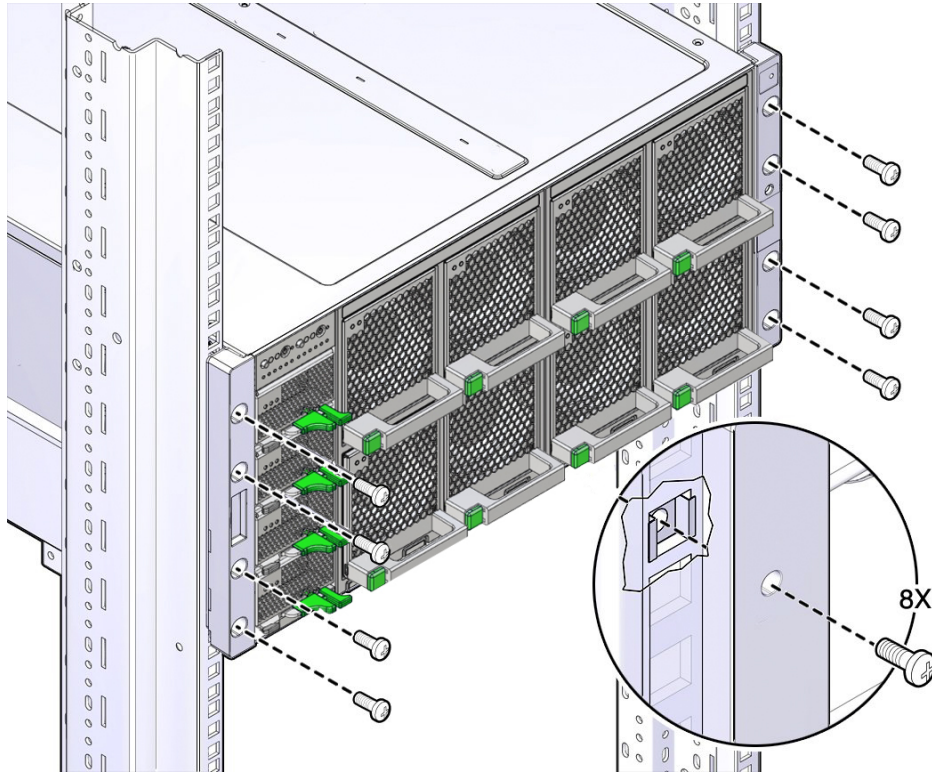
Caution - Personal injury or equipment damage: Always load equipment into a rack from the bottom up so that the rack does not become top-heavy and tip over. Deploy your rack anti-tip device to prevent the rack from tipping during equipment installation.



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

2. **Slowly slide the server into position on the shelf rails.**
Do not remove support from the lift until the server is fully supported by the shelf rails.
3. **Using a No. 2 Phillips screwdriver, use eight M6 screws to attach the front of the server to the rack.**

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



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

Related Information

- [“Install Shelf Rails and Back Mounting Brackets” on page 50](#)
- [“Connecting Cables and Applying Power” on page 57](#)

Connecting Cables and Applying Power

This section contains procedures for connecting data management and server management cables and power cords to the server. The server initial power-on procedure is also described.

- [“Cabling Requirements” on page 57](#)
- [“Back Panel Connectors and Ports” on page 58](#)
- [“Server Management Connection Options” on page 63](#)
- [“Connect Cables and Power Cords” on page 64](#)
- [“Power On the Server” on page 66](#)

Related Information

- [“Installation Procedure Overview” on page 11](#)
- [“Using Oracle Integrated Lights Out Manager \(ILOM\)” on page 73](#)

Cabling Requirements

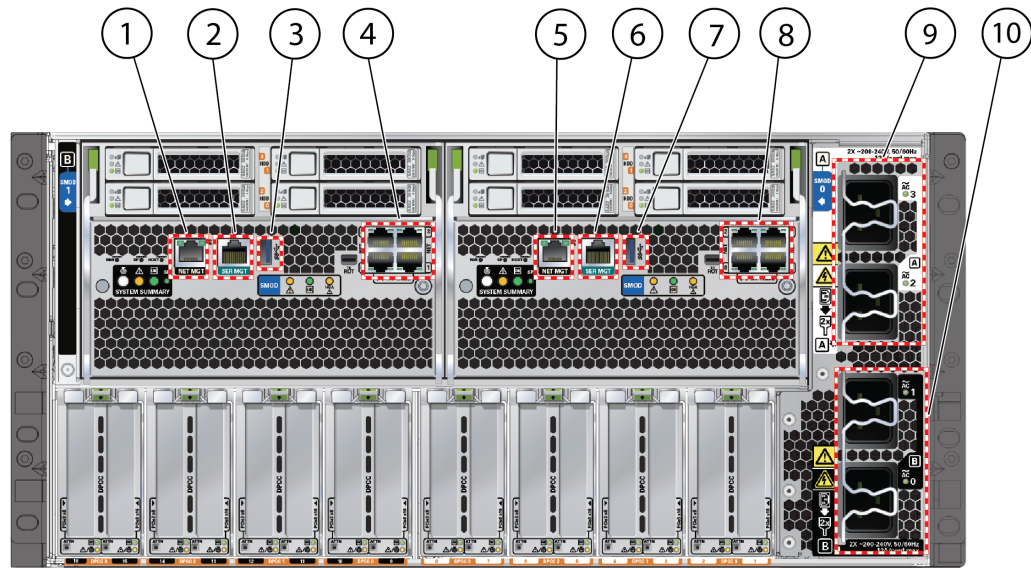
Read the following cable requirements for connecting the server.

- **Minimum cable connections for the server:**
 - At least one server on-board Ethernet network connection (NET port)
See [“Ethernet Ports” on page 62](#).
 - Serial management port (SER MGT): Service processor (SP) local connection for Oracle ILOM boot messages
See [“SER MGT Ports” on page 60](#).
 - Power cables for the server power supplies
See [“Connect Cables and Power Cords” on page 64](#).
- **SP management ports:** There are two service processor management ports.

- The SER MGT port uses an RJ-45 cable and is always available. This port is the default connection to the Oracle ILOM SP.
See [“SER MGT Ports” on page 60](#).
- The network management port (NET MGT) port is the optional connection to the Oracle ILOM SP. The SP network management port uses an RJ-45 cable for a 10/100 BASE-T connection.
See [“NET MGT Ports” on page 61](#).
- **NET Ethernet ports:** The Ethernet ports, labeled NET0, NET1, NET2, and NET3, connect the server to the network. The server Ethernet interfaces operate at 100 Mbit/sec, 1000 Mbit/sec, and 10,000 Mbit/sec.
See [“Ethernet Ports” on page 62](#).
- **USB Ports:** USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running without affecting server operations.
See [“USB Ports” on page 60](#).
- **AC power cables:** The server includes four power supply connectors, one for each power supply.
See [“Connect Cables and Power Cords” on page 64](#).

Back Panel Connectors and Ports

The following figure shows the locations of cable connectors and ports on the back of Oracle Server X8-8 and the cables and devices that you connect to them.



Callout	Description	System/SMOD	Available On...
1	Net management port (NET MGT): See “NET MGT Ports” on page 61	System B – SMOD1	Dual 4-socket systems only
2	Serial management port (SER MGT): See “SER MGT Ports” on page 60	System B – SMOD1	Dual 4-socket systems only
3	USB port: See “USB Ports” on page 60	System A or B	<ul style="list-style-type: none"> ■ Inactive on single 4-socket systems ■ System B on dual 4-socket systems ■ System A on single 8-port systems Dual 4-socket systems only
4	NET0, NET1, NET2, and NET3 ports on dual 4-socket and single 8-socket systems. Unused on single 4-socket systems. See “Ethernet Ports” on page 62	System B – SMOD1	Dual 4-socket and single 8-socket systems
5	Net management port (NET MGT): See “NET MGT Ports” on page 61	System A – SMOD0	All systems
6	Serial management port (SER MGT): See “SER MGT Ports” on page 60	System A – SMOD0	All systems
7	USB port: See “USB Ports” on page 60	System A – SMOD0	All systems

Callout	Description	System/SMOD	Available On...
8	NET0, NET1, NET2, and NET3 ports: See “Ethernet Ports” on page 62	System A – SMOD0	All systems
9	Power connectors 2 and 3. Connect to 200-240 VAC only. See “Connect Cables and Power Cords” on page 64	System A – SMOD0	Always connect all four power supplies
10	Power connectors 0 and 1. Connect to 200-240 VAC only. See “Connect Cables and Power Cords” on page 64	System B – SMOD1	Always connect all four power supplies

USB Ports

Each SMOD has a single external USB 3.0 port. The USB port supports hot-plug insertion and removal. You can connect and disconnect a USB cable or a peripheral device while the server is running without affecting server operations.

- For a single 4-socket system, the USB port on SMOD0 connects to System A and the USB port on SMOD1 is inactive.
- For a dual 4-socket system, the USB port on SMOD0 connects to System A and the USB port on SMOD1 connects to System B.
- For a single 8-socket system, both USB ports connect to System A.

See the location of the USB ports at [“Back Panel Connectors and Ports” on page 58](#).

Each USB port supplies 5V output at 2A.

Related Information

- [“Back Panel Connectors and Ports” on page 58](#)
- [“Cabling Requirements” on page 57](#)

SER MGT Ports

The SER MGT RJ-45 port, located on the SMOD rear panel, provides the default management connection to the Oracle ILOM SP. The service processor SER MGT port uses an RJ-45 cable and terminal (or emulator) to provide access to the Oracle ILOM command-line interface (CLI). Using Oracle ILOM, you can configure it to connect to the system console. Each SMOD has

a SER MGT port; however, the SER MGT port on SMOD1 is only active on dual 4-socket systems.

For DTE to DTE communications, you can use a RJ-45 to DB-9 crossover adapter with a standard RJ-45 cable to achieve the required null modem configuration.

Note - This port does not support network connections.



Related Information

- [“Back Panel Connectors and Ports” on page 58](#)
- [“Cabling Requirements” on page 57](#)

NET MGT Ports

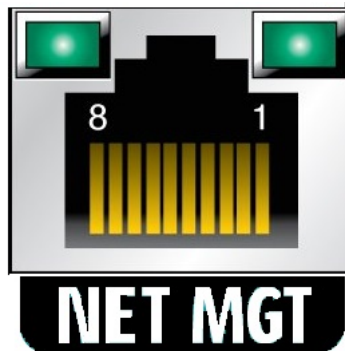
The NET MGT port, located on the rear panel, provides an optional Ethernet connection from Oracle ILOM to the SP. The NET MGT port uses an RJ-45 cable for a 10/100/1000 BASE-T connection.

Each SMOD has a NET MGT RJ-45 port located on the back panel. It provides an optional Ethernet connection to the Oracle ILOM SP. The NET MGT port on SMOD1 is only active in dual 4-socket systems.

The NET MGT port is configured by default to use Dynamic Host Configuration Protocol (DHCP). If your network does not use a DHCP server, this port is not available until you configure network settings through the SER MGT port.

See [“Back Panel Connectors and Ports” on page 58](#).

Note - You can configure the host network media for the network ports in Oracle ILOM or the BIOS options for the network controller. See [“Modifying Network Settings” on page 78](#).



Related Information

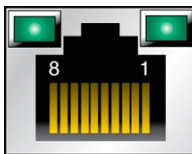
- [“Back Panel Connectors and Ports” on page 58](#)
- [“Cabling Requirements” on page 57](#)

Ethernet Ports

Each SMOD includes four RJ-45 1-GigabitEthernet (10GbE) network connectors, labeled NET0, NET1, NET2, and NET3. The Ethernet port enables you to connect the system to the network. Use any of these ports to connect the server to the network. The Ethernet port uses an RJ-45 cable for a 10/100/1000BASE-T connection. The ports on SMOD1 are not active in single 4-socket systems.

Note - To achieve 10 GbE network speeds, use Category 6 (or better) cables and network devices that support 1000BASE-T networks.

Indicators for RJ-45 ports are located above each port and display Link/Activity (left) and Speed (right). There are two status indicators (LEDs) for each Ethernet port:



The following table lists the Speed LED color and the Ethernet transfer rates for each connection type.

Connection Type	IEEE Terminology	Speed LED Color	Transfer Rate
Fast Ethernet	100BASE-TX	Off	100 Mbps
GigabitEthernet	1000BASE-T	Off	1,000 Mbps
10 GigabitEthernet	10GBASE-T	Green	10,000 Mbps

Related Information

- [“Back Panel Connectors and Ports” on page 58](#)
- [“Power On the Server” on page 66](#)

Server Management Connection Options

Before you begin cabling the system, you need to decide on a method for connecting to the Oracle Integrated Lights Out Manager (ILOM) service processor for system A, and for system B on dual 4-socket systems.

- **Serial connection to SER MGT port (CLI only)** This connection method requires a terminal device for connecting to the server's serial management port (SER MGT). To communicate with the SP, you need a terminal, a terminal server, or a laptop running terminal emulation software. Set up the terminal device to communicate using 9600 baud, 8 bit, no parity, and 1 stop bit. For information, see [“Log In to Oracle ILOM Using a Local Serial Connection” on page 75](#).

On the rear panel, use an RJ-45 to DB9 crossover cable, or a standard RJ-45 cable with an adapter to set up a null modem configuration.

- **Dedicated remote network management connection** – If you have a networking environment running Dynamic Host Control Protocol (DHCP), use the Oracle ILOM defaults to easily configure your Ethernet management port (NET MGT) connection. For information, see [“Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 76](#).

Note - To access Oracle ILOM over the network you need to know its host name or IP address. The factory default uses a DHCP connection. If your network supports DHCP, you can obtain the host name or IP address of the Oracle ILOM service processor from the DHCP server.

- **Sideband network management connection** – If you do not have a dedicated management network or you wish to utilize one of the server's standard Ethernet ports you can set up a sideband connection to Oracle ILOM. For information, refer to "Sideband Network Management Connection" in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0* at <https://www.oracle.com/goto/ilom/docs>.
- **Host-to-ILOM interconnect** – For information, refer to "Dedicated Interconnect SP Management" in *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

Related Information

- [“Back Panel Features” on page 29](#)
- [“Connect Cables and Power Cords” on page 64](#)
- Oracle Integrated Lights Out Manager (ILOM) Documentation Library at: <https://www.oracle.com/goto/ilom/docs>

▼ Connect Cables and Power Cords

This procedure uses a terminal or terminal emulator to establish a first-time connection to the Oracle ILOM command line interface (CLI) through the serial management port (SER MGT), and then powers on the server.

- For single 4-socket and single 8-socket systems, complete these steps for system A only.
- For dual 4-socket systems, complete these steps for system A and system B.

For the location of the status indicators on the server front panel, see [“Front Panel Features” on page 28](#).

1. **For network access, connect an Ethernet cable between the server's Ethernet ports (NET0, NET1, NET2, or NET3) and the network to which the server will communicate.**

See [“Ethernet Ports” on page 62](#).

2. **Connect any other cables to back panel accessible connections, as needed.**

3. **Make a connection to the Oracle ILOM service processor.**

See [“Server Management Connection Options” on page 63](#).

Choose one of the following options.

- **Connect a serial cable between the serial management port (SER MGT) and a terminal device.**

After initial configuration, you can connect and configure access using the Ethernet management (NET MGT) port.

- **Connect an RJ-45 Ethernet cable to the management port (NET MGT) and the management network.**

4. Use the power cords to connect the four AC inlets on the four power supplies to two separate AC power sources.

Note - To ensure redundancy and allow the server to operate during single AC grid failure, server power should come from at least two separate AC sources or grids.

Attach four power cords to four AC inlets with cable clips (Back panel AC power block: AC 0 through AC 3). For line redundancy, apply AC source PDU1 (GRID1) to AC 0 and AC 2 and AC source PDU2 (GRID2) to AC 1 and AC 3. SMOD0 System A: AC 3, AC 2 (Top pair); SMOD1 System B: AC 1, AC 0 (bottom pair)

Do not attach power cables to the power supplies until you have finished connecting the data cables to the server. 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.

Note - 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.

See [“Back Panel Connectors and Ports” on page 58](#), [“Back Panel Features” on page 29](#), and [“Electrical Requirements” on page 18](#).

5. Confirm that the server(s) successfully enter Standby power mode.

When the power cords are connected to the server AC inlets and power sources, the following actions occur (on SMOD0 for single 4-socket and single 8-socket systems, and on SMOD0 and SMOD1 on dual 4-socket systems):

- The green AC OK power supply LEDs illuminate.
- While the Oracle ILOM SP initializes, the green SP OK LED blinks rapidly.
- After the Oracle ILOM SP fully initializes, the host is in Standby power mode. The AC OK power supply LED indicators are lit, the green SP OK LED is steady on, and the System OK LED flashes slowly.

In Standby power mode, the server is not initialized or powered on.

See Also ■ [“Back Panel Connectors and Ports” on page 58](#)

▼ Power On the Server

- Before You Begin**
- The system chassis must be in the rack and already cabled with the power cords plugged in.
 - For single 4-socket systems and single 8-socket systems, perform this procedure for system A.
 - For dual 4-socket systems, perform this procedure for system A and system B.
 - Each server should be in Standby power mode with the front OK indicator blinking (on for 100ms, off for 2900ms).

1. Confirm that the server is in Standby power mode.

The AC OK power supply LED indicators are lit, the green SP OK LED is steady on, and the System OK LED flashes slowly.

2. Choose one of the following methods to apply Main power to a server.

- **On/Standby button: When physically at the system, press the On/Standby button on the front of each server.**

The green System OK indicator LED is steady on, and the server is in Main power mode.

- **Oracle ILOM serial connection with an attached terminal device:**

a. Press Enter on the terminal device to create a connection between the serial console and the Oracle ILOM SP.

The Oracle ILOM Login prompt appears.

b. Log in to Oracle ILOM. Type your default user name and password.

The default Oracle ILOM user name is `root` and the default password is `changeme`.

For example:

```
host-name login: root
Password: changeme
```

The Oracle ILOM command prompt (`->`) appears.

Note - To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, refer to the Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at <https://www.oracle.com/goto/ilom/docs>.

c. Power on the server to Main power, type:

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

The host boots and the server enters Main power mode. The following actions occur:

- The green System OK LED on the server front panel flashes slowly, indicating that the host is booting.
- The green System OK LED lights steady on when the host is fully booted and the server is in Main power mode.

d. Connect to the host console, type:

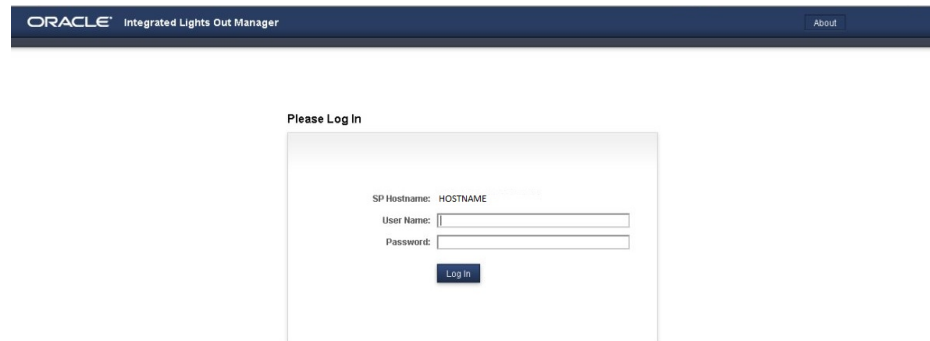
```
-> start /HOST/console
```

The serial management port (SER MGT) output is automatically routed to the server's host serial local console.

■ **When using a remote network connection to access Oracle ILOM using a web browser:**

- a. **Type the IP address of the server in the address field of your browser and press Enter.**

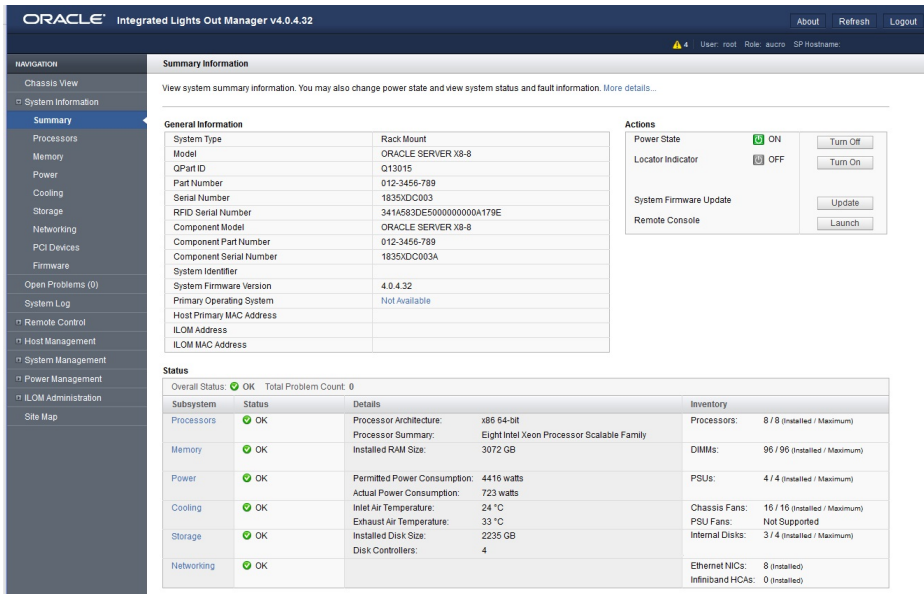
The Oracle ILOM login screen appears.

The image shows the Oracle ILOM login interface. At the top is a dark blue header bar with the Oracle logo and the text "Integrated Lights Out Manager" on the left, and an "About" link on the right. Below the header, the text "Please Log In" is centered. Underneath is a white rectangular login box containing the following elements: "SP Hostname: HOSTNAME" with a small refresh icon to its right; a "User Name:" label followed by a text input field; a "Password:" label followed by a text input field; and a dark blue "Log In" button at the bottom center.

- b. Type your user name and password, and click Log In.**

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

The default Oracle ILOM user name is root and the default password is changeme.



Note - To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, see the Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at: <https://www.oracle.com/goto/ilom/docs>.

c. **From the Actions pane, click the Turn On button for the Power State.**

The host boots and the server enters Main power mode. The following actions occur:

- The green System OK LED on the server front panel flashes slowly, indicating that the host is booting.
- The green System OK LED lights steady on when the host is fully booted and the server is in Main power mode.

d. **Confirm that the server successfully enters Main power mode.**

When the server boots and goes to Main power mode, the following actions occur:

- The Power State icon turns green.

- Other subsystem states (except for Storage which requires additional host software) should read OK.
- **Oracle ILOM remote network connection using a secure shell session:**
 - a. **Initiate a secure shell (ssh) session to the server SP. From a terminal window or command prompt, type:**

```
ssh root@hostname
```

Where *hostname* can be the DNS name or the IP addresss for the server.

The Oracle ILOM Login prompt appears.

- b. **Log in to Oracle ILOM. Type your default user name and password.**

The default Oracle ILOM user name is *root* and the default password is *changeme*.

For example:

```
host-name login: root
```

```
Password: changeme
```

The Oracle ILOM command prompt (->) appears.

Note - To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, refer to the Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at <http://www.oracle.com/goto/ilom/docs>.

- c. **Power on the server to Main power mode, type:**

```
-> start /System
```

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

The host boots and the server enters Main power mode. The following actions occur:

- The green System OK LED on the server front panel flashes slowly, indicating that the host is booting.
 - The green System OK LED lights steady on when the host is fully booted and the server is in Main power mode.
- d. **Redirect the serial output from the server to the SSH client, type:**

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

For more information about powering on the server, see [“Power On the Server” on page 66](#).

- **For dual 4-socket systems, repeat these steps for SMOD1.**

Using Oracle Integrated Lights Out Manager (ILOM)

Oracle Server X8-8 is shipped with the latest version of Oracle Integrated Lights Out Manager (ILOM). Oracle ILOM is system management firmware embedded on the service processor (SP). The SP provides extensive management and monitoring capabilities for the server.

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

- [“Oracle ILOM Hardware and Interfaces” on page 74](#)
- [“Accessing Oracle ILOM” on page 74](#)
- [“Modifying Network Settings” on page 78](#)
- [“Redirecting the Host Console Using Oracle ILOM” on page 82](#)
- [“Troubleshooting Oracle ILOM” on page 86](#)

For information about Oracle ILOM features, refer to the Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at <https://www.oracle.com/goto/ilom/docs>.

Connecting to Oracle ILOM

You can connect to Oracle ILOM using one of these methods:

- **Serial connection to SER MGT port (CLI only)** – For information, see [“Log In to Oracle ILOM Using a Local Serial Connection” on page 75](#).
- **Dedicated remote network management connection** – For information, see [“Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 76](#).
- **Sideband network management connection** – For information, refer to "Sideband Network Management Connection" in *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

- **Host-to-ILOM interconnect** – For information, refer to "Dedicated Interconnect SP Management" in *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

For information about Oracle ILOM features, refer to the Oracle Integrated Lights Out Manager (ILOM) Documentation Library at <https://www.oracle.com/goto/ilom/docs>.

Oracle ILOM Hardware and Interfaces

The following table lists the major components and interfaces of Oracle ILOM.

Component	Function
Hardware	<ul style="list-style-type: none">■ Embedded service processor (SP) chipset that monitors the status and configuration of components such as fans, processors, memory, PCIe devices, storage drives, and power supplies■ Two back panel external connections: NET MGT port Ethernet connection and SER MGT port RJ-45 serial management connection
Interfaces	<ul style="list-style-type: none">■ Web browser interface■ Command-line interface (CLI), available over SSH or through a direct connection to the SER MGT port■ SNMP v3 interface

Related Information

- Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at: <https://www.oracle.com/goto/ilom/docs>

Accessing Oracle ILOM

You can log in to the Oracle ILOM command-line interface (CLI) locally using the RJ-45 serial management port (SER MGT). You also can log in to the Oracle ILOM web interface or CLI remotely using one of the network ports on the server.

To log in to Oracle ILOM, follow these procedures:

- [“Log In to Oracle ILOM Using a Local Serial Connection” on page 75](#)

- [“Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 76](#)

To log out of Oracle ILOM, follow this procedure: [“Log Out of Oracle ILOM” on page 78](#)

▼ Log In to Oracle ILOM Using a Local Serial Connection

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, change the default password (changeme) for the default Administrator account (root) after your initial login. If this default Administrator account has since been changed, contact your system administrator for an Oracle ILOM user account with Administrator privileges.

For information about how to change the root password, refer to the Oracle Integrated Light Out Manager (ILOM) Documentation library at <https://www.oracle.com/goto/ilom/docs>.

Note - To prevent unauthorized access to Oracle ILOM, create a user account for each user. For details, refer to the Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at <https://www.oracle.com/goto/ilom/docs>.

1. **Ensure that the server is cabled for a local serial connection to Oracle ILOM.**
See [“Connecting Cables and Applying Power” on page 57](#).
2. **Press Enter on the terminal device that is connected to the server.**
3. **At the Oracle ILOM login prompt, type your user name, and press Enter.**
4. **At the password prompt, type the password associated with your user name, and press Enter.**

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

Related Information

- [“Server Management Connection Options” on page 63](#)
- [“Troubleshooting Oracle ILOM” on page 86](#)

▼ Log In to Oracle ILOM Using a Remote Ethernet Connection

You can log in to the Oracle ILOM web interface or CLI remotely using one of the network ports on the server.

You need to know the IP address or host name of the SP to log in to Oracle ILOM remotely. If you do not know the IP address of the SP, see [“Troubleshooting Oracle ILOM” on page 86](#).

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

For information about how to change the root password, refer to the Oracle Integrated Light Out Manager (ILOM) Documentation library at <https://www.oracle.com/goto/ilom/docs>.

Note - To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, refer to the Oracle Integrated Lights Out Manager (ILOM) Documentation Library at <https://www.oracle.com/goto/ilom/docs>.

To improve response times, disable the web browser proxy server (if one is enabled).

1. **Ensure that the server is cabled for a remote network management connection to Oracle ILOM.**

See [“Connecting Cables and Applying Power” on page 57](#).

2. **Establish a connection to the Oracle ILOM web interface or the CLI.**

- **To establish a connection to the Oracle ILOM web interface:**

- a. **Type the IP address of the server in the address field of your web browser and press Enter.**
- b. **On the Oracle ILOM login screen, type your user name and password, and click Log In.**

The Summary Information page appears, indicating that you successfully logged in to Oracle ILOM.

ORACLE Integrated Lights Out Manager v4.0.4.32

User: root Role: admin SP Hostname:

Summary Information

View system summary information. You may also change power state and view system status and fault information. [More details...](#)

General Information

System Type	Rack Mount
Model	ORACLE SERVER X8-8
QPart ID	Q13015
Part Number	012-3456-789
Serial Number	1835XDC003
RFD Serial Number	341A583DE50000000004179E
Component Model	ORACLE SERVER X8-8
Component Part Number	012-3456-789
Component Serial Number	1835XDC003A
System Identifier	
System Firmware Version	4.0.4.32
Primary Operating System	Not Available
Host Primary MAC Address	
ILOM Address	
ILOM MAC Address	

Actions

Power State: ☒ ON ☐ OFF [Turn Off](#) [Turn On](#)

Locator Indicator: ☒ OFF [Turn On](#)

System Firmware Update: [Update](#)

Remote Console: [Launch](#)

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: Eight Intel Xeon Processor Scalable Family	Processors: 8 / 8 (Installed / Maximum)
Memory	<input checked="" type="checkbox"/> OK	Installed RAM Size: 3072 GB	DIMMs: 96 / 96 (Installed / Maximum)
Power	<input checked="" type="checkbox"/> OK	Permitted Power Consumption: 4416 watts Actual Power Consumption: 723 watts	PSUs: 4 / 4 (Installed / Maximum)
Cooling	<input checked="" type="checkbox"/> OK	Intel Air Temperature: 24 °C Exhaust Air Temperature: 33 °C	Chassis Fans: 16 / 16 (Installed / Maximum) PSU Fans: Not Supported
Storage	<input checked="" type="checkbox"/> OK	Installed Disk Size: 2235 GB Disk Controllers: 4	Internal Disks: 3 / 4 (Installed / Maximum)
Networking	<input checked="" type="checkbox"/> OK		Ethernet NICs: 8 (Installed) Infiniband HCAs: 0 (Installed)

■ **To establish a connection to the Oracle ILOM CLI:**

a. **From the command line, initiate a secure shell session, type:**

```
ssh username@host
```

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

The Oracle ILOM password prompt appears.

Password:

b. **At the Oracle ILOM password prompt, type your password and press Enter.**

Password: **changeme**

Oracle ILOM displays the default command prompt `->`, indicating that you successfully logged in to the Oracle ILOM CLI.

▼ Log Out of Oracle ILOM

See the following procedure to log out of the Oracle ILOM web interface or CLI.

- **To end an Oracle ILOM session:**
 - **Oracle ILOM web interface** – Click the **Log out** button in the top-right corner of the screen.
 - **From the Oracle ILOM CLI** – Type **exit** at the CLI prompt.

Modifying Network Settings

This section provides information about the default network settings on the service processor (SP), and procedures for viewing and modifying those settings in Oracle ILOM:

- [“Modify Network Settings” on page 78](#)
- [“Test the IPv4 or IPv6 Network Configuration” on page 80](#)

The server supports dual-stack IPv4 and IPv6 settings, which enable Oracle ILOM to fully operate in an IPv4 or IPv6 network environment.

- **IPv4 configurations** – DHCP is enabled by default, allowing a DHCP server on the network to automatically assign network settings to the service processor.
- **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 accept the default settings. However, if you want to modify the service processor network settings, use the following procedures.

▼ Modify Network Settings

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

This procedure provides web interface and CLI instructions for viewing and modifying the network settings that are assigned to the SP.

1. **Log in to Oracle ILOM as an Administrator from the web interface or CLI.**

For details, see [“Accessing Oracle ILOM” on page 74](#).

2. **To modify the SP network settings, use either the Oracle ILOM web interface or CLI:**

■ **From the web interface:**

- a. **Click ILOM Administration → Connectivity → Network.**
- b. **Modify the settings on the Network Settings page, as required.**
For details, click the *More Details* link.
- c. **Click Save.**

Note - All user sessions on the SP are terminated upon saving the IP network property changes. To log back in to Oracle ILOM, use the newly assigned SP IP address.

■ **From the CLI:**

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

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

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

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

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

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

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

IPv4 Example:

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

IPv6 Example:

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

Note - A dual-stack network connection is enabled when both the IPv4 and IPv6 State properties are set to enabled. By default, Oracle ILOM is factory-configured with network settings enabled for a dual stack (IPv4 and IPv6) network connection. If the IPv4 State property is enabled (SP/network state=enabled), and the IPv6 State property is disabled (SP/network state=disabled), Oracle ILOM supports an IPv4-only network connection.

- d. **To commit the IPv4 and IPv6 pending network changes in Oracle ILOM, type:**

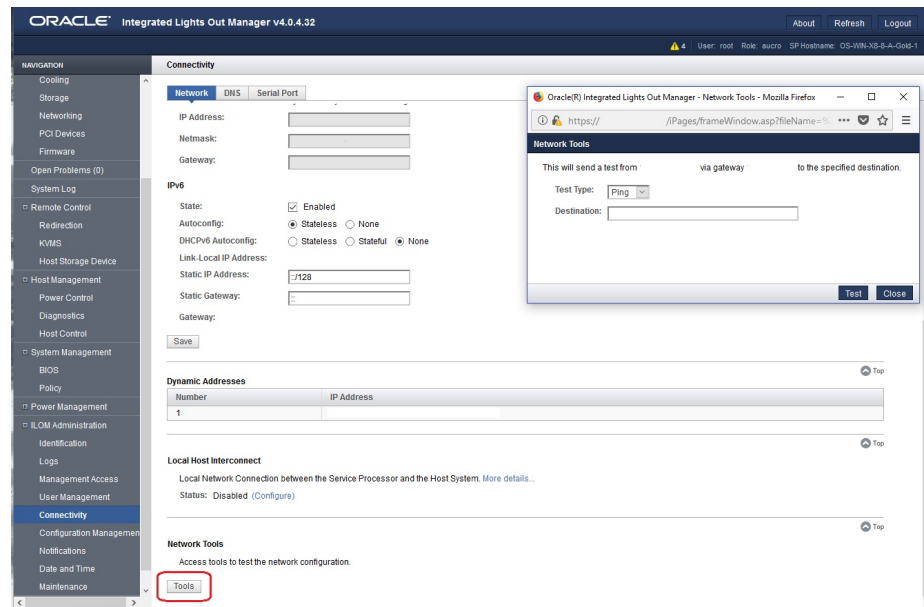
```
set /SP/network commitpending=true
```

Note - All user sessions on the SP are terminated upon committing the IP network property changes. To log back in to Oracle ILOM, use the newly assigned SP IP address.

▼ Test the IPv4 or IPv6 Network Configuration

- **Use either the Oracle ILOM web interface or CLI to test the IPv4 or IPv6 network configuration:**
 - **From the Oracle ILOM web interface:**
 - a. **Click ILOM Administration → Connectivity → Network.**
 - b. **On the Connectivity page, click the Tools button.**

The Network Tools dialog box appears.



- c. In the Network Tools dialog box, in the Test Type list box, select Ping (for an IPv4 configuration) or Ping6 (for an IPv6 network configuration).

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

- d. Type the IPv4 or IPv6 test destination address in the Destination field and click Test.

■ From the Oracle ILOM CLI:

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

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

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

```

Properties:
ping = (Cannot show property)
ping6 = (Cannot show property)
Commands:
cd
set
show

```

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

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

Redirecting the Host Console Using Oracle ILOM

Use Oracle ILOM Remote System Console Plus to remotely redirect a host server desktop or a host server storage device.

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

Oracle ILOM Remote System Console Plus supports a full-control console video session for a primary user and view-only console video sessions for all other signed-in users. By default, a maximum of four video redirection sessions can be launched from the Oracle ILOM web interface. To prevent other signed-in video session users on the SP from viewing confidential data, you can set the Maximum Client Session Count property to 1 on the KVMS page in the Oracle ILOM web interface.

For instructions, see the following procedures:

- [“Set the Mouse Mode” on page 83](#)
- [“Redirect Host Server Desktop or Storage Devices” on page 83](#)

▼ Set the Mouse Mode

In Oracle ILOM, you can set the Mouse Mode property to optimize mouse movement in the Oracle ILOM Remote System Console Plus. The mouse mode can be set to either Absolute or Relative and must be set according to the requirements of the operating system that you are using to connect to Oracle ILOM. Read the following guidelines to determine the appropriate mouse mode for your system.

Operating Systems	Mouse Mode
Windows Server	Absolute
Oracle Linux 7	Absolute
Oracle VM	Not applicable
VMware ESXi Software	Not applicable

For more information about selecting a mouse mode, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

To set the Mouse mode, perform the following steps:

1. **Log in to the Oracle ILOM web interface.**
See [“Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 76](#).
2. **Navigate to the Remote Control → KVMS page, and then select a Mouse mode from the Mouse Mode drop-down list.**
3. **Click Save.**

▼ Redirect Host Server Desktop or Storage Devices

Before you begin, ensure that the following requirements are met:

- The following user credentials are required:
 - Console (c) user role privileges are required to use Oracle ILOM Remote System Console Plus.
 - A user account on the host server is required to log in to the redirected host desktop.
 - To exclusively control the storage media from the Oracle ILOM System Remote Console Plus application, you must have root privileges on a Linux client or root administrator privileges on a Windows client.
- The mouse mode is set correctly (see [“Set the Mouse Mode” on page 83](#)).
- Java Runtime Environment (JRE) 7, 1.3.1 or later is installed. For IPv4 networks, a 32-bit or 64-bit JDK is required. For IPv6 networks, a 32-bit or 64-bit Java Development Kit (JDK) 170636 or higher is required.
- The remote management client is connected to a network that has access to one of the Ethernet management ports on the server.

To launch the Oracle ILOM Remote System Console Plus application, follow these steps:

1. Log in to the Oracle ILOM web interface.

For instructions, see [“Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 76](#).

2. To launch the Oracle ILOM Remote System Console Plus application, click `Remote Control` → `Redirection`, and click the `Launch Remote Console` button.

The following events can occur:

- If this is the first time launching the Oracle ILOM Remote System Console Plus application, a prompt to launch the Java web start program appears. Follow the instructions provided in the prompt to continue launching the Oracle ILOM Remote System Console Plus application.
- If your system does not meet the Java security requirements for launching Oracle ILOM Remote System Console Plus, a Java error message appears. Follow the instructions provided in the Java error message to launch the Oracle ILOM Remote System Console Plus application.
- The Oracle ILOM Remote System Console Plus window for video redirection appears.
- The redirected video console displays the remote host server in its present state. For example, if the host server is powering on, a set of boot messages appears in the video console.
- When a prompt for logging in to the host server appears, type your user credentials for the remote host server.

For additional details about launching the Oracle ILOM Remote System Console Plus application, click the *More Details* link on the Redirection web page.

Note - Full-control user mode is automatically enabled for the primary user. View-only user mode is automatically enabled for all subsequent signed-in session users.

3. **To take full-control or relinquish full-control of the current redirection session, click either `Take Full-Control` or `Relinquish Full-Control` in the KVMS menu.**

A view-only user can choose to take full-control of the redirection session and force the existing primary user to view-only mode.

The primary user can relinquish full-control privileges for the current redirection session and switch to view-only mode.

4. **To redirect storage media, perform the following actions:**

- a. **Verify that you have full-control privileges for the redirection session. If not, click `Take Full-Control` in the KVMS menu.**

If you are the primary user with full-control privileges, the option for `Take Full-Control` is disabled in the KVMS menu.

- b. **Click `Storage` in the KVMS menu.**

The Storage Device dialog box appears.

- c. **To add a storage image (such as a DVD image) to the Storage Device dialog box, click `Add`.**

- d. **Browse to the image file that you want to add, and then click `Select`.**

- e. **To redirect storage media, select a storage media entry in the Storage Device dialog box, and click `Connect`.**

The Oracle ILOM Remote System Console Plus application must have exclusive control of the storage device before it can establish a redirection connection to the storage device.

After establishing a connection to the device, the label on the `Connect` button in the Storage Device dialog box changes to `Disconnect`.

- f. **To stop a storage media redirection session, select the storage media entry in the Storage Device dialog box and click `Disconnect`.**

- g. **To remove a storage media entry listed in the Storage Device dialog box, click the storage media entry, and click `Remove`.**

5. **To exit the Oracle ILOM Remote System Console Plus, click Exit in the KVMS menu.**

For more information about Oracle ILOM Remote System Console Plus, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

▼ Access Serial Remote Host Console

Before you begin, you can configure properties in Oracle ILOM to make the serial host console easier to view and to enable logging. For more information, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

This procedure describes how to access the host console remotely. To connect to the host console locally, see “[Log In to Oracle ILOM Using a Local Serial Connection](#)” on page 75.

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

For instructions, see “[Connecting to Oracle ILOM](#)” on page 73.

2. **At the Oracle ILOM prompt (->), type `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 and then press Shift 9 to enter the open parenthesis (character.**

Troubleshooting Oracle ILOM

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

- You need to reset the Oracle ILOM SP to complete an upgrade or to clear an error.
Resetting the power on the server SP automatically disconnects any current Oracle ILOM sessions and renders the SP unmanageable until the reset process is complete.
- As the system administrator, you forgot the root account password and need to recover it.

For instructions to address each issue, see the following sections:

- [“Reset the Service Processor Using Oracle ILOM” on page 87](#)
- [“Recover the Root Account Password” on page 87](#)

▼ Reset the Service Processor Using Oracle ILOM

- If the Oracle ILOM service processor (SP) becomes unresponsive, use one of the following methods to reset the SP:
 - 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 resume working in Oracle ILOM.

▼ Recover the Root Account Password

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: `hostname 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 Locate button on the front of the server.

3. Return to your serial console and press Enter.

The Oracle ILOM password prompt appears.

4. At the Oracle ILOM prompt, 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 ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

Configuring Storage Drives for Operating System Installation

This section provides instructions for preparing storage devices for operating system (OS) installation.

Section	Description
“RAID Overview” on page 89	Provides an overview of RAID and operating systems.
“Configuring RAID” on page 91	Provides information and links to the procedures for configuring RAID on your server HBA.
“Supported Storage Devices” on page 91	Lists the HDDs and SSD drives, and HBAs supported on your server and provides links to the procedures for configuring RAID on them.
“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port” on page 92	<p>The Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port controls the HDDs and SSD drives, which are shipped with RAID 0 volumes. You can use a BIOS utility to combine storage drives into RAID arrays.</p> <p>To learn more about this HBA, refer to the <i>Oracle Storage 12 Gb/s SAS PCIe RAID HBA, Internal Installation Guide</i> at https://docs.oracle.com/cd/E87591_01/index.html.</p>
“View Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility” on page 103	Oracle Flash Accelerator F640 PCIe Cards should be ready to install an OS without any additional configuration. You can use the BIOS Setup Utility to see a list of installed Oracle Flash Accelerator F640 PCIe Cards.
“Installing an Operating System” on page 106	After you have configured storage drives, you can install an operating system on them.

RAID Overview

RAID (redundant array of independent disks) configures disk drives into logical units called "volumes." There are several types of RAID configurations, which are distinguished as numerical RAID levels (RAID 0, RAID 1, RAID 5, and so forth). Each supported RAID level requires a specified number of storage devices to complete the array.

The following table lists the disk requirements for each supported RAID level.

RAID Level	Number of Disks Required
0	1
1	2
5	3
6	3
10	4
50	6
60	6

There are two types of RAID, hardware and software RAID:

- **Hardware RAID** - A host bus adapter (HBA) manages the array and presents the volumes to the OS as simple disks. Hardware RAID unburdens the OS, and is more robust than software RAID.

The Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port on your server supports hardware RAID. For instructions, see [“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port” on page 92](#).

- **Software RAID** - The OS manages the array, which is created and configured using an OS. In a typical use case, you boot an OS on one device to create a software RAID volume on a different device. For details, refer to the instructions in your operating system documentation.

Note the following conditions:

- Your server might have other storage devices where you can install an OS as well. These might or might not support or require RAID; however, if you do configure a RAID volume on these devices, you must do so before installing an OS. For instructions, refer to the documentation for the device, and [Oracle Server X8-8 Operating Systems Installation Guide](#).
- The UEFI BIOS utility in your server does not display items in the boot list until *after* an OS is installed on the storage device and then the server is booted. This is unlike older BIOS utilities that display devices where you can install an OS.

To see devices where you can install an OS, you have to use an OS installation program.

Related Information

- [“Installation Procedure Overview” on page 11](#)
- Host Bus Adapter (HBA) Documentation Collection at: https://docs.oracle.com/cd/E87591_01/index.html

Configuring RAID

Some devices, including Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port, must include a RAID volume before they can present a valid target for OS installation programs.

The server is shipped with Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port configured as RAID 0 volumes, meaning that each volume includes a single disk drive. Other volumes combine multiple disks into arrays, which can increase performance and provide redundancy.

To configure the Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port see [“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port” on page 92.](#)

Because altering RAID configuration might destroy any data or OS image on the affected drives, you should back up any data on the drive, and you should create the volume before installing an OS on it.

Supported Storage Devices

Your server might be equipped with one of the following storage devices:

- Internal host bus adaptor (HBA) PCIe card and a combination of hard disk drives (HDDs) and solid state drives (SSDs).

Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port manages the server's SSDs and HDDs, which are shipped configured as RAID 0 volumes.

For instructions to configure RAID on the internal HBA, see [“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port” on page 92.](#)

- Oracle Flash Accelerator F640 PCIe Cards. You can install an OS on these cards without any additional configuration.

See [“View Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility” on page 103.](#)

▼ Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port

The Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port manages the HDDs and SSDs in your system. When the system is shipped, the HDD and SSD drives are configured into RAID 0 volumes. Use this procedure to reconfigure these into RAID volumes according to your performance and redundancy needs.



Caution - Degraded Performance. Combining HDD and SSD drives in the same array is not recommended. An array with both HDDs and SSDs operates at HDD speed, which is significantly lower than the speed of the SSDs.

1. **Configure the server for a one-time boot to BIOS.**

- a. **Access the Oracle ILOM web interface.**
- b. **Navigate to Host Management → Host Control.**
- c. **Select BIOS from the drop-down list, and select Save.**

This causes the server to boot to BIOS on the next boot.

2. **Access a system console.**

For more information, see “[Redirect Host Server Desktop or Storage Devices](#)” on page 83 and refer to *Oracle X8 Series Servers Administration Guide* at <https://www.oracle.com/goto/x86admindiag/docs>.

3. **Power on or reset the server.**

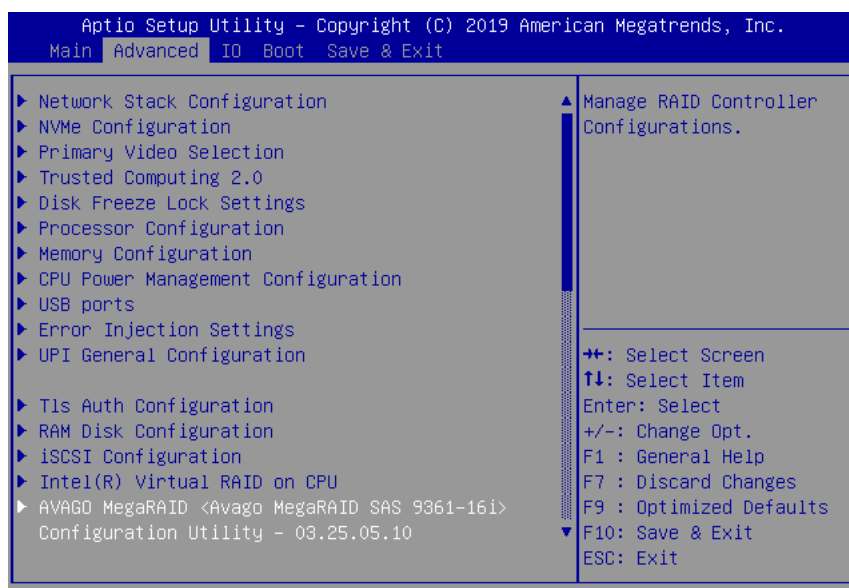
For example, to reset the server:

- **From the local server,** press the On/Standby button on the front panel of the server for approximately 1 second to power off the server, and then press the On/Standby button again to power on the server.
- **From the Oracle ILOM web interface,** select Host Management → Power Control, and in the Select Action list box, select Power On. Click Save, and then click OK.
- **From the Oracle ILOM CLI,** type: `reset /System`.

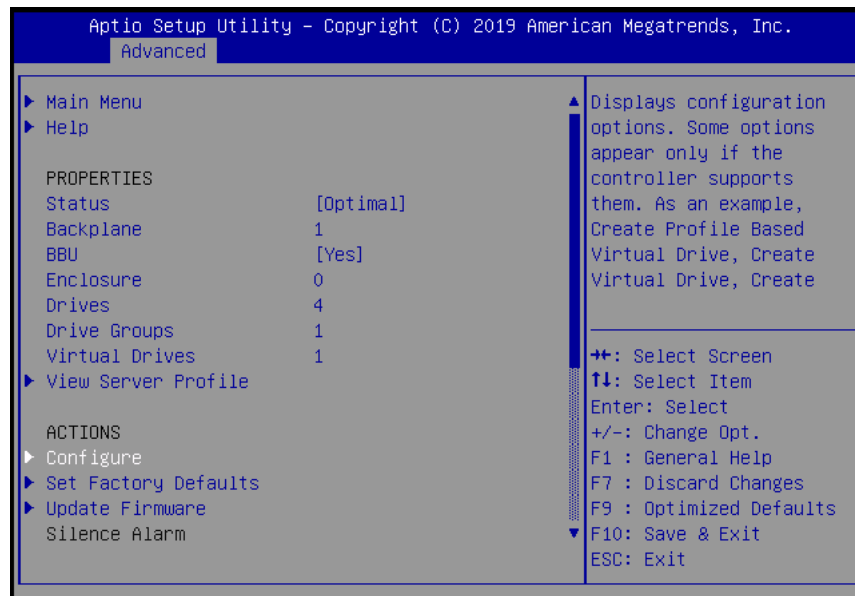
The system boots to the BIOS Setup Utility.

Note - The steps and screens in this procedure are examples. What you actually see might differ depending on your system's equipment and configuration.

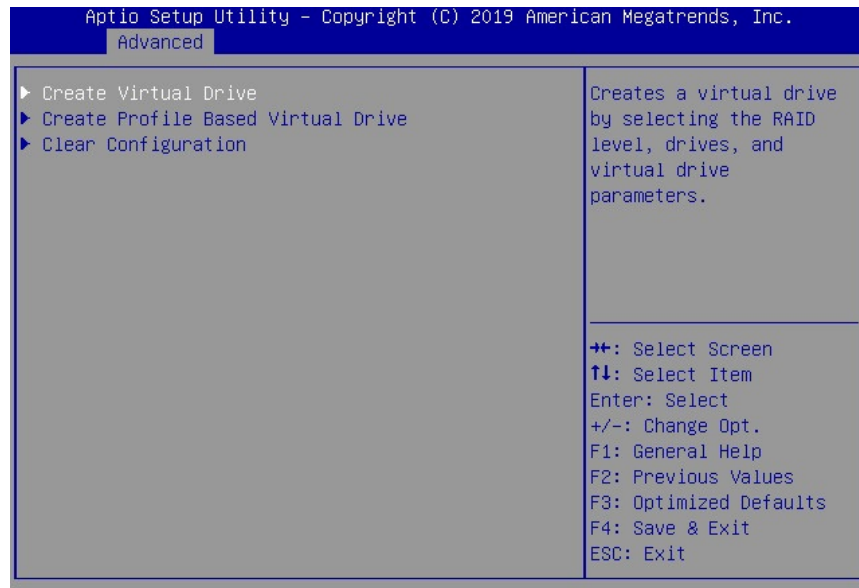
4. **On the BIOS Setup Utility screen, select the Advanced tab, select Avago MegaRAID Configuration Utility, and press Enter.**



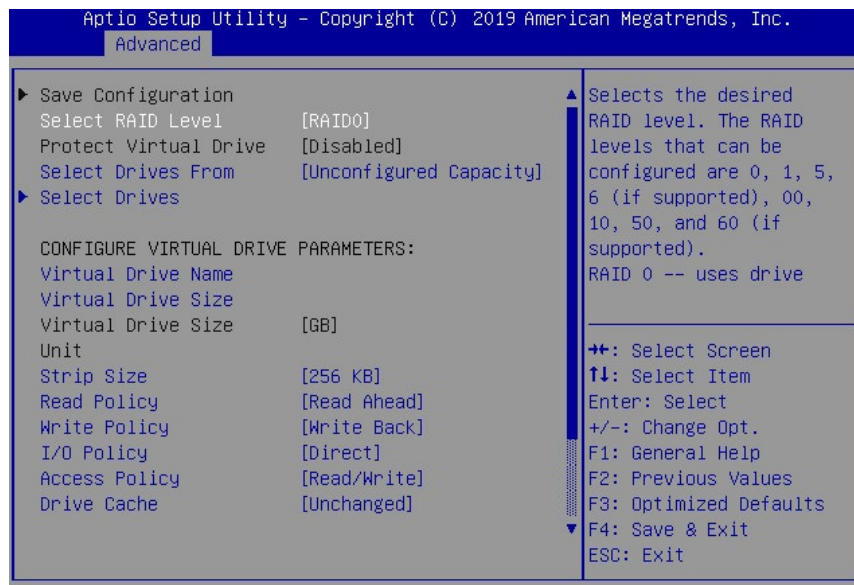
5. From the ACTIONS menu, select Configure and press Enter.



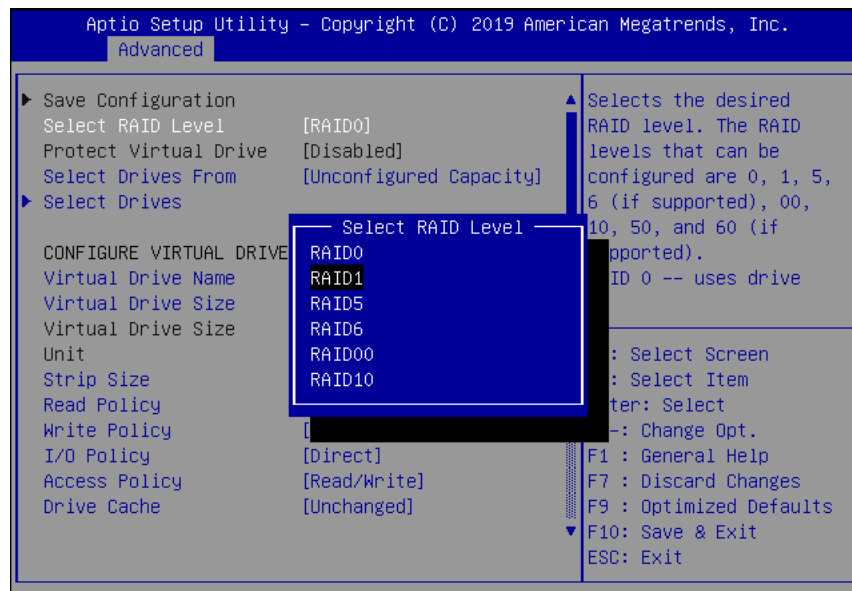
6. Select Create Virtual Drive, and press Enter.



The Create Virtual Drive menu appears.

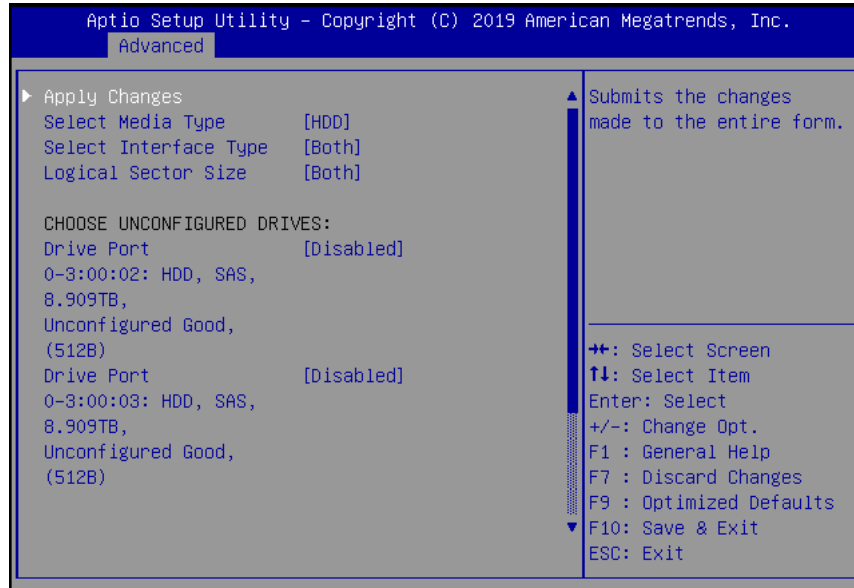


7. **Set the RAID level. Choose Select RAID level, specify the supported RAID level, and press Enter.**



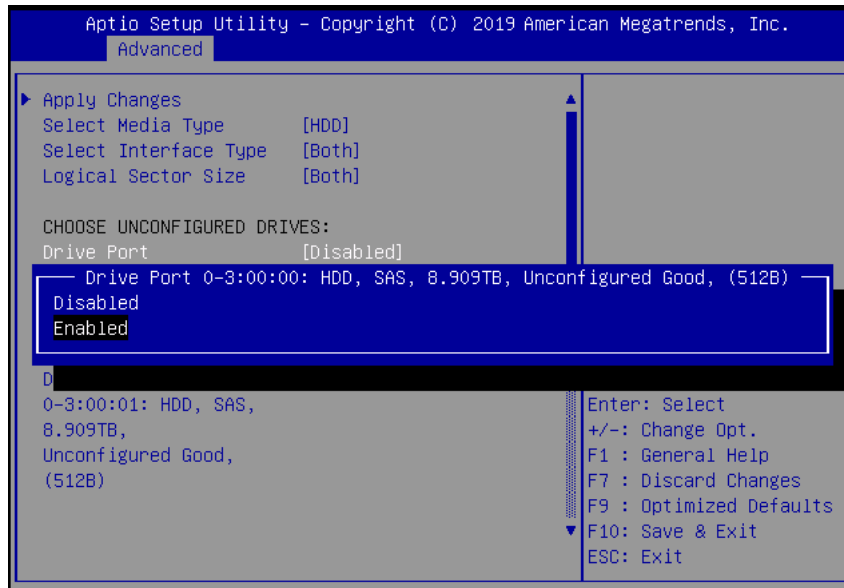
8. **Navigate to Select Drives, and press Enter.**

A list of drives appears.

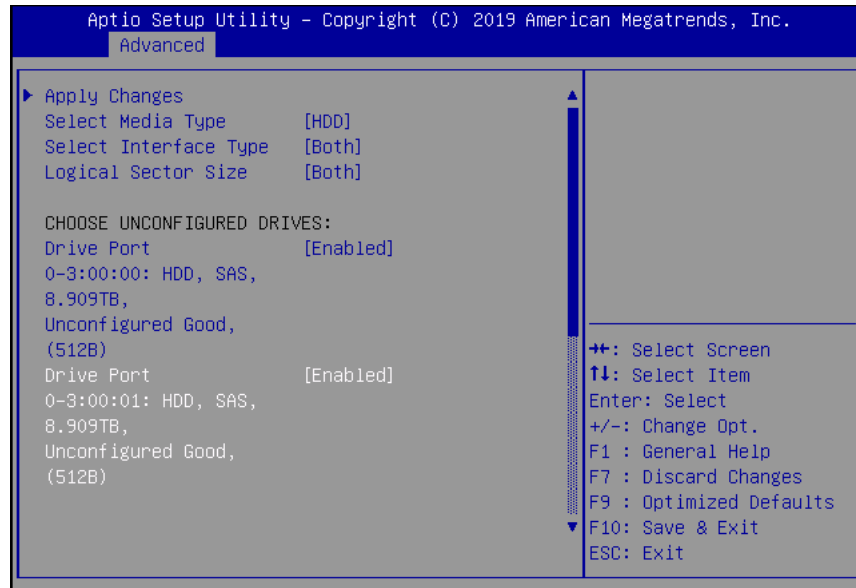


9. For each drive that you want to include in the RAID volume, do the following:
 - a. Use the arrow keys to navigate to the drive.
 - b. Use the arrow keys to navigate to the Enabled or Disabled field associated with the drive, and press Enter.
 - c. In the pop-up window, select Enabled, and press Enter.

The drive is now listed as Enabled.



d. Press ESC to close the pop up.

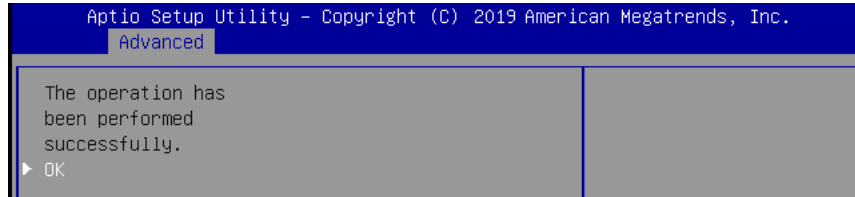


Note - You can navigate to the bottom of the list and select Check All to enable all drives, or Uncheck All to disable them.

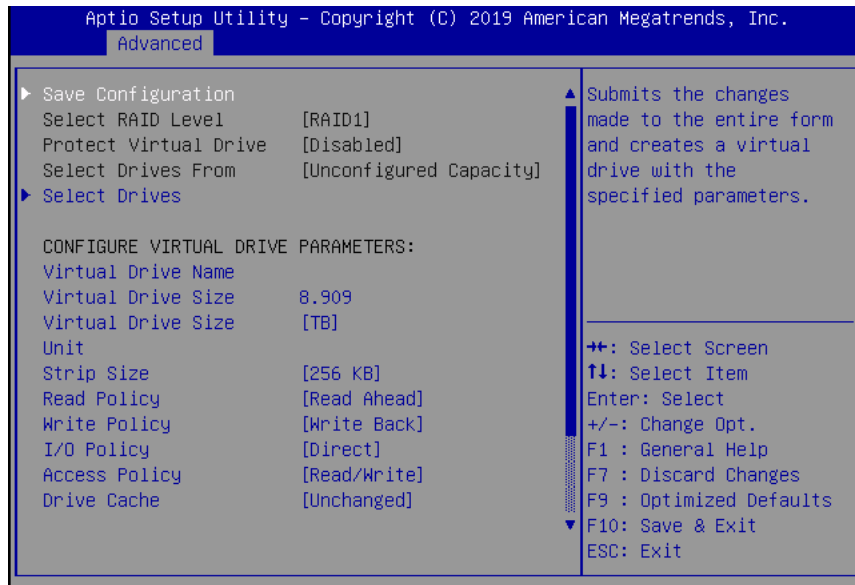
10. Select Apply Changes, and press Enter.

The RAID volume is created with the drives you specified, and the Confirmation page is displayed.

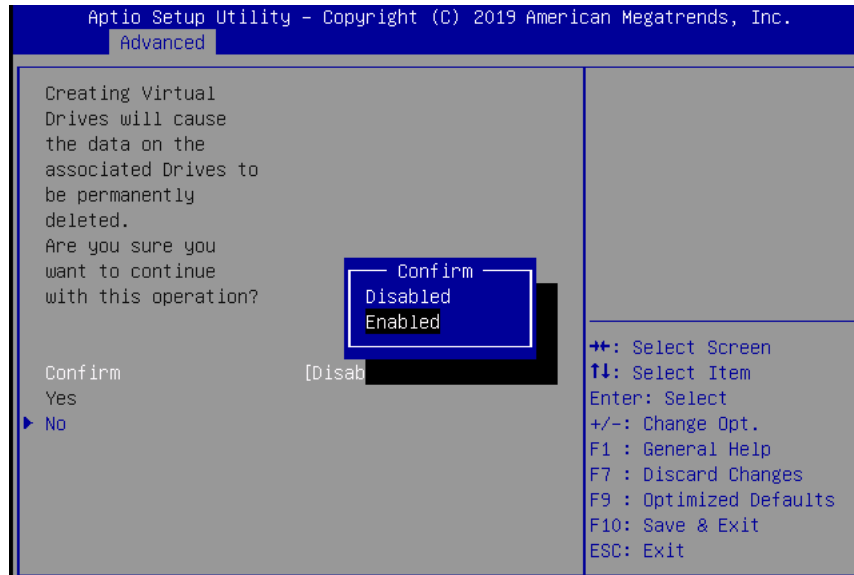
For more information on performing this procedure, refer to *12Gb/s MegaRAID SAS Software User Guide* at <https://docs.broadcom.com/docs/pub-005110>.



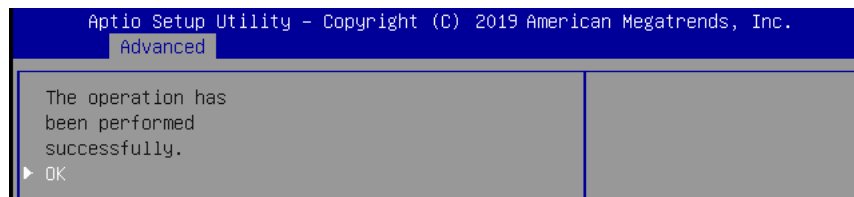
11. To return to the Create Virtual Drive Advanced menu, press ESC.
12. Select Save Configuration.



13. **Select Confirm, select Enabled, and press Enter.**



14. **To save your new boot configuration, select Yes.**



15. **To verify that the RAID volume was created:**
- Press ESC to exit from the Avago MegaRAID Configuration Utility and to return to the Configuration Utility menu.**
 - Navigate to the View Drive Group Properties menu, and press Enter.**
 - Review the logical drive information on the page that is displayed.**

- d. **Press ESC to return to the Main menu of the BIOS Setup Utility.**
- e. **Navigate to the Save&Exit menu, select Save Changes and Exit, and press Enter.**

This completes the RAID configuration. You can now install an OS on the logical drive.

▼ View Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility

This task uses the BIOS Setup Utility to display a list of installed Oracle Flash Accelerator F640 PCIe Cards.

You can install an OS on the Oracle Flash Accelerator F640 PCIe Card without any additional configuration. All installed Oracle Flash Accelerator F640 PCIe Card controllers (two per card) are visible to an OS installer program.

Note - Each Oracle Flash Accelerator F640 PCIe Card supports two 3.2TB drives, each with its own controller. These appear in the BIOS Setup Utility, and in OS installation programs as two separate 3.2TB drives.

1. **Configure the server for a one-time boot to BIOS.**
 - a. **Access the Oracle ILOM web interface.**
 - b. **Navigate to Host Management → Host Control.**
 - c. **Select BIOS from the drop-down list, and select Save.**

This causes the server to boot to BIOS on the next boot.

2. **Access a system console.**

For more information, see “[Redirect Host Server Desktop or Storage Devices](#)” on page 83 and refer to *Oracle X8 Series Servers Administration Guide* at <https://www.oracle.com/goto/x86adminddiag/docs>.

3. **Power on or reset the server.**

For example, to reset the server:

- **From the local server**, press the On/Standby button on the front panel of the server for approximately 1 second to power off the server, and then press the On/Standby button again to power on the server.
- **From the Oracle ILOM web interface**, select Host Management → Power Control, and in the Select Action list box, select Power On. Click Save, and then click OK.
- **From the Oracle ILOM CLI**, type: `reset /System`.

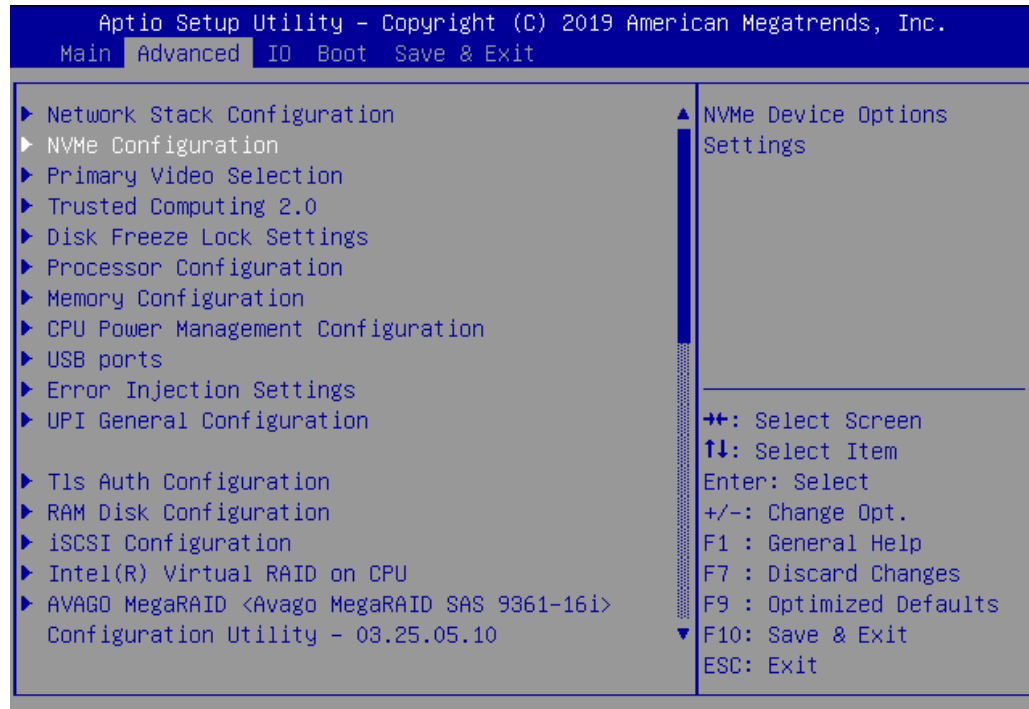
The power-on self-test (POST) sequence begins. The system boots to the BIOS Setup Utility.

4. **When prompted in the BIOS screen, press F2 (Ctrl+E from a serial connection) to launch the BIOS Setup Utility.**

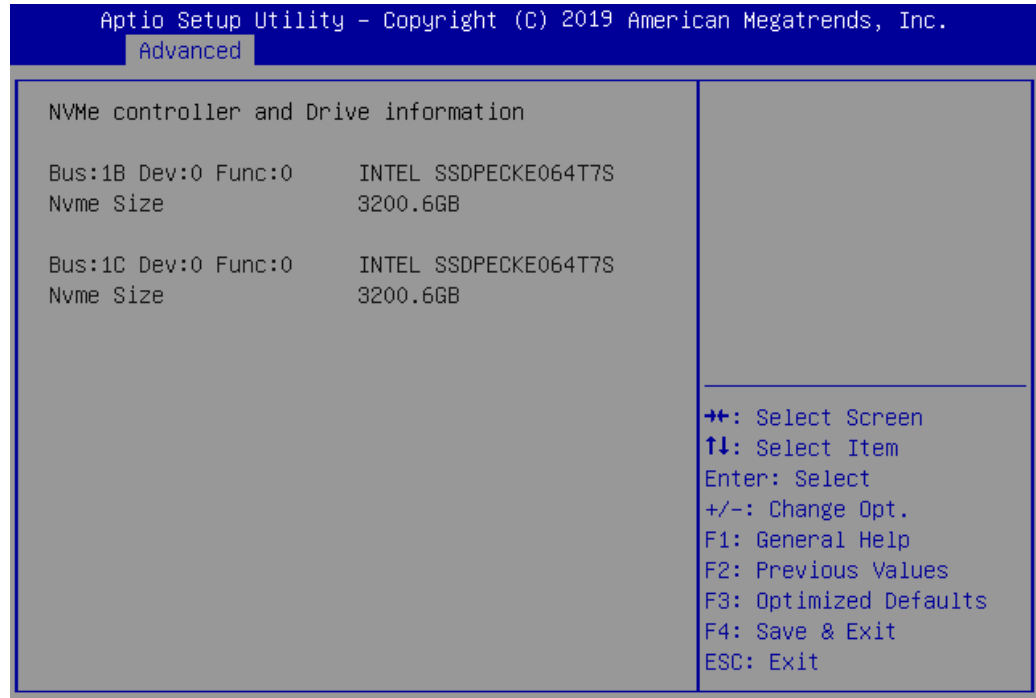
Note - The steps and screens in this procedure are examples. What you actually see might differ depending on your system equipment and configuration.

5. **Navigate to the Advanced page.**

6. Select NVMe Configuration, and press Enter.



A list of installed Oracle Flash Accelerator F640 PCIe Cards appears.



Installing an Operating System

For details on installing an operating system on Oracle Server X8-8, refer to the [Oracle Server X8-8 Operating Systems Installation Guide](#).

Controlling System Power

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

- “Powering the Host On and Off” on page 107
- “Resetting the Server” on page 111

Related Information

- “Installation Procedure Overview” on page 11
- Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at: <https://www.oracle.com/goto/ilom/docs>

Powering the Host On and Off

Your server has three power modes (states): Power off, Standby power, and Main power.

Power State	Description	Indicators	Action
Power off	The server is completely powered off when the AC power cords are disconnected.	All indicators are off. The server is disconnected from all power sources.	Disconnect all four power cords to completely remove power. Caution - Equipment damage. Do not disconnect power cords when systems are in Main power mode. Place all systems in Standby power mode before disconnecting power cords.
Standby power	When the server is in Standby power mode, the service processor is powered on but the host is powered off.	The green system System OK indicator blinks slowly. The green SP OK indicator is steady on.	If the server is completely powered off, plug in all four power cords to apply Standby power. If the server is in Main power mode, use Oracle ILOM or the Power button to remove

Power State	Description	Indicators	Action
			<p>host power. On dual 4-socket systems, complete this action for both servers.</p> <p>You can power the host off gracefully, or immediately.</p> <p>Caution - Data loss. To prevent data loss, prepare the operating system for shutdown before you immediately power off.</p>
Main power	When you power on the host, the server enters Main power mode.	<p>The green System OK indicator is steady on.</p> <p>On single 4-socket and single 8-socket systems, only the System OK indicator for System A (SMOD0) is lit.</p>	<p>Use Oracle ILOM or the On/Standby button to apply host power.</p> <p>On dual 4-socket systems, you must complete this action for both servers.</p>

For instructions on powering the host off and on, see the following procedures:

- [“Power Off the Host Using the On/Standby Button” on page 108](#)
- [“Power On the Host Using the On/Standby Button” on page 109](#)
- [“Power the Host On and Off Using Oracle ILOM” on page 109](#)

▼ Power Off the Host Using the On/Standby Button

For dual 4-socket systems, you can complete this action for both servers.

1. **Locate the On/Standby button for the corresponding server on the system front panel.**

The front panel includes buttons for System A and System B. System B is only active on dual 4-socket systems.

2. **Press the On/Standby button.**

- **To perform a graceful shutdown, press and release the Power button.**

ACPI-enabled operating systems perform an orderly shutdown. Operating systems that are not ACPI-enabled might ignore this event and fail to shut down the host.

The System OK indicator blinks. The service processor SP OK indicator is steady on. The server goes into Standby power mode.

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

The System OK indicator blinks. The service processor SP OK indicator is steady on. The server goes to Standby power mode.



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

- **To completely power off the server, disconnect the four power cords from the back panel of the server.**

▼ Power On the Host Using the On/Standby Button

1. **Verify that the server is in Standby power mode.**

In Standby power mode:

- Host is powered off but the SP is powered on.
- Power supplies are connected to a power source.
- AC OK power supply indicators illuminate.
- SP OK indicator is steady on.
- System OK status indicator blinks slowly.

See front and back panels in [“Server Features and Components” on page 25](#).

2. **Locate and press the On/Standby buttons on the front panel FIM.**

The front panel includes buttons for System A and System B. System B is only present on dual 4-socket systems.

With the power on:

- Host boots and the server enters Main power mode.
- System OK indicator goes steady on when the host is fully booted.

▼ Power the Host On and Off Using Oracle ILOM

This procedure provides Oracle ILOM web interface and CLI instructions to remotely power on or power off the host.

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



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

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

You must be logged on with Administrator privileges. For details, see “[Using Oracle Integrated Lights Out Manager \(ILOM\)](#)” on page 73.

- **From the web interface:**

- a. **In the left pane, click Host Management → Power Control.**

- b. **In the Select Action list box, select one of the following:**

- **Reset** – Assert a power-cycle to the server, while keeping power applied to system components, such as storage drives.
 - **Graceful Reset** – Gracefully shut down the host operating system before you power cycle the server.
 - **Immediate Power Off** – Directly shut down the power to the server.
 - **Graceful Shutdown and Power Off** – Gracefully shut down the host operating system before you shut down the power to the server.
 - **Power On** – Apply full power to the system.
 - **Power Cycle** – Turn off system power to all system components and apply Main power to all system components.

- c. **Click Save, and then click OK.**

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

- `reset /SYSTEM`
 - `stop /SYSTEM`
 - `stop -f /SYSTEM`
 - `start /SYSTEM`

For more information, refer to Controlling Host Power, in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

Resetting the Server

It is unnecessary to power the server off and on to reset the server because a reset maintains host power but causes the processors to reinitialize. During the reset process, the server retains some register information. This is important in case of a system host panic, as error information might be available upon system recovery.



Caution - Possible Data Loss. Resetting the server causes any unsaved data on the server to be lost.

▼ Reset the Server Using Oracle ILOM

1. Log in to the Oracle ILOM web interface or command-line interface (CLI) using an account with admin (a) role privileges.
2. To reset the server:
 - From the web interface:
 - a. In the left pane, click Host Management → Power Control, and select Reset from the Select Action list box.
 - b. Click Save and click OK to reset the server.
 - From the CLI :
 - a. Type the following command:

```
-> reset /System
```
 - b. When prompted, type y to confirm:

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



```
Performing hard reset /System
```


Getting Firmware and Software

This section explains the options for accessing server firmware and software updates using My Oracle Support. It also describes how to use the Oracle Software Delivery Cloud to download operating systems and software applications.

Customers are required to install the latest available operating system (OS), patches, and firmware versions for optimal system performance, security, and stability.

- [“Firmware and Software Updates” on page 113](#)
- [“Options for Accessing Firmware and Software Updates” on page 114](#)
- [“Software Releases” on page 114](#)
- [“Getting Updates From My Oracle Support” on page 115](#)
- [“Download Software Using Oracle Software Delivery Cloud” on page 116](#)
- [“Installing Updates Using Other Methods” on page 117](#)
- [“Oracle Support” on page 118](#)

Firmware and Software Updates

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

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 software and firmware. These updates increase your system performance, security, and stability.

The server Product Notes list the current server software release and firmware version that are available. To determine which firmware version is installed on your server, use either the Oracle ILOM web interface or the command-line interface (CLI).

- For the web interface, click **System Information** → **Summary**, and in the **General Information** table, for **System Firmware Version**, view the property value.

- For the CLI, at the command prompt, type: **show /System**

The ReadMe document that is included with each patch in a software release describes components changed since the last software release and bugs that are fixed with the current release.

Options for Accessing Firmware and Software Updates

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

- **My Oracle Support** – All system software releases are available from the My Oracle Support web site at <https://support.oracle.com>.
For information on what is available on the My Oracle Support web site, see “[Software Releases](#)” on page 114.
- **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 117.

Software Releases

Software releases on My Oracle Support are grouped by product family (such as Oracle Server), the product (specific server), and the software release version. A software release contains all the updated software and firmware for your server 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 document and a set of subdirectories containing firmware or software files.

The set of software releases for your server are described in the following table. You can obtain these software release packages by downloading the files from My Oracle Support.

Package Name	Description	When to Download This Package
X8-8 SW release – Firmware Pack	Contains all system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.
X8-8 SW release – OS Pack	Includes a package of all tools, drivers, and utilities for a specific	You need to update OS-specific tools, drivers, or utilities.

Package Name	Description	When to Download This Package
	<p>OS. An OS Pack is available for each supported operating system version.</p> <p>Software includes Oracle Hardware Management Pack, MegaRAID software, and any other optional software.</p> <p>For the Windows OS, the OS Pack also includes Intel Network Teaming and Install Pack.</p>	
X8-8 SW <i>release</i> – All Packs	<p>Includes the Firmware Pack, all OS Packs, and all documents.</p> <p>This pack does not include Oracle VTS image.</p>	You need to update a combination of system firmware and OS-specific software.
X8-8 SW <i>release</i> – Diagnostics	Includes Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.

Getting Updates From My Oracle Support

You can obtain updated firmware and software from the My Oracle Support web site. For information, see “[Download Firmware and Software Updates From My Oracle Support](#)” on page 115.

▼ Download Firmware and Software Updates From My Oracle Support

1. Go to the My Oracle Support web site at: <https://support.oracle.com>.
2. Sign in to My Oracle Support.
3. At the top of the page, click the **Patches & Updates** tab.
The Patch Search pane appears at the right of the screen.
4. In 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, Oracle Server X8-8) 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 to view a list of the patches for the software release.**

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

See “[Software Releases](#)” on page 114 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.**

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, on the Add to Plan button, click the down arrow 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, and in the File Download dialog box, click the patch zip file name.**

The patch for the software release downloads.

Getting Software from Software Delivery Cloud

You can obtain operating system and application software from the Oracle Software Delivery Cloud. For information, see <https://edelivery.oracle.com/osdc/faces/Home.jspx>.

▼ Download Software Using Oracle Software Delivery Cloud

Before You Begin You must have a valid user account.

1. **Navigate to the Oracle Software Delivery Cloud home page:** <https://edelivery.oracle.com/osdc/faces/Home.jspx>.

2. **At the Sign In screen, sign in.**
3. **Fill out the search information.**

For example, to search for a copy of Oracle Linux:

 - a. **In the Search by drop down list, select Product.**
 - b. **In the search field, type a product name.**

For example, type **Oracle Linux**.
 - c. **Select a platform.**

For example, click the check box next to x86 64-bit, and click **Select**.

Your selection appears in the Download Queue.
 - d. **Repeat Step a through Step c to add additional items to the Download Queue.**
 - e. **When your Download Queue is complete, click Continue.**
4. **In the list of downloadable items, select the check box next to the item(s) you want to download, and select Continue.**
5. **On the terms and restrictions page, select the check box to accept the terms and restrictions, and select Continue.**
6. **In the list of downloadable files, select the files you want to download, and click Download All.**
7. **Follow the prompts to complete the download.**

Installing Updates Using Other Methods

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

- **Oracle Enterprise Manager Ops Center** – Use Oracle Enterprise Manager Ops Center to automatically download the latest firmware from Oracle and then install the firmware onto one or more servers. Firmware updates can also be loaded manually into the Enterprise Controller.

For information, go to:

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

- **Oracle Hardware Management Pack** – Use the fwupdate CLI Tool in the Oracle Hardware Management Pack software to update firmware in the system.

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

<https://www.oracle.com/goto/ohmp/docs>

- **Oracle ILOM** – 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) 4.0 Documentation Library at:

<https://www.oracle.com/goto/ilom/docs>

Oracle Support

If you need help getting firmware or software updates, call Oracle Support. Refer to Oracle Support Contacts Global Directory at:

<https://www.oracle.com/support/contact.html>

Troubleshooting Installation Issues

This section provides information about troubleshooting resources, completing the technical support worksheet, locating the system serial number, and using the Oracle Auto Service Request feature.

- “Resources for Troubleshooting and Diagnostics” on page 119
- “Technical Support Information Worksheet” on page 120
- “Locating the System Serial Number” on page 120
- “Auto Service Request” on page 121

Resources for Troubleshooting and Diagnostics

For server information about troubleshooting hardware faults, refer to “Troubleshooting and Diagnostics” in *Oracle Server X8-8 Service Manual*.

You can access knowledge articles, white papers, and product updates from the My Oracle Support web site at <https://support.oracle.com>.

The following table lists diagnostic and troubleshooting-related procedures and references that can assist you with resolving server issues.

Description	Reference Link
<ul style="list-style-type: none">■ x86 servers diagnostics■ Runtime and firmware-based tests■ Oracle ILOM procedures■ UEFI diagnostics tests to exercise the system and isolate subtle and intermittent hardware-related problems	<i>Oracle x86 Servers Diagnostics and Troubleshooting Guide for Servers With Oracle ILOM 4.0.x</i> at https://www.oracle.com/goto/x86admindia/docs
<ul style="list-style-type: none">■ Administrative information for the Oracle X8 series servers■ Oracle ILOM system event log (SEL) that identifies the possible source of a problem	<i>Oracle X8 Series Servers Administration Guide</i> at https://www.oracle.com/goto/x86admindia/docs
<ul style="list-style-type: none">■ Troubleshooting front and back panel status indicators	“Troubleshooting and Diagnostics” in <i>Oracle Server X8-8 Service Manual</i>

Description	Reference Link
■ Managing server hardware faults using the Oracle ILOM Fault Management Shell	“Identify Hardware Faults (Oracle ILOM)” in Oracle Server X8-8 Service Manual

Technical Support Information Worksheet

If the troubleshooting information does not solve your problem, use the following table to collect information that you need to communicate to Oracle Service.

System Configuration Information Needed	Your Information
Service contract number	
System model	
Operating system	
System serial number See “Locating the System Serial Number” on page 120.	
Peripherals attached to the system	
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	
Email address and phone number for you and a secondary contact	
Street address where the system is located	

Locating the System Serial Number

When you ask for service on your system, you might need to have your server serial number. 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 side of the chassis and below the status LEDs.
- Locate the 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 Information page in the Oracle ILOM web interface.
- From the Oracle ILOM CLI, type `show /System`.

Auto Service Request

Oracle Auto Service Request (ASR) is a feature provided to customers who have Oracle Premier Support. Oracle ASR is the fastest way to restore system availability if a hardware fault occurs. Oracle ASR software is secure and customer installable, with the software and documentation downloadable from My Oracle Support at <https://support.oracle.com>. For instructions on downloading the ASR software when logged into My Oracle Support, refer to "Oracle Auto Service Request" knowledge article (doc ID 1185493.1).

When a hardware fault is detected, Oracle ASR opens a service request with Oracle automatically and transfers electronic fault telemetry data to help expedite the diagnostic process. Oracle diagnostic capabilities then analyze the telemetry data for known issues and delivers immediate corrective actions. For security, the electronic diagnostic data sent to Oracle includes only what is needed to solve the problem. The software does not use any incoming Internet connections and does not include any remote access mechanisms.

For more information about Oracle ASR, go to: <https://www.oracle.com/support/premier/auto-service-request.html>

Site Planning Checklists

This section provides checklists for site preparation.

Preparation Checklists

Complete the following checklists to ensure that your site meets the physical, electrical, and environmental requirements of the Oracle Server X8-8 before you receive the server.

- [“Access Route and Data Center Checklist” on page 123](#)
- [“Data Center Environment Checklist” on page 124](#)
- [“Facility Power Checklist” on page 125](#)
- [“Rackmount Checklist” on page 125](#)
- [“Safety Checklist” on page 126](#)
- [“Auto Service Request Checklist” on page 127](#)
- [“Logistics Checklist” on page 127](#)

Access Route and Data Center Checklist

Review the following facility requirements before installing the server.

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?				

Data Center Room Considerations	Yes	No	N/A	Comment
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 implemented?				
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)?				

Related Information

- [“Rack Compatibility” on page 44](#)

Data Center Environment Checklist

Complete the following checklist to ensure that the data center environment requirements are met for the server.

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 15](#)
- [“Ventilation and Cooling Requirements” on page 17](#)

Facility Power Checklist

Complete the following checklist to ensure that the facility power requirements are met for the data center in which the server will be installed.

Facility Power Considerations	Yes	No	N/A	Comment
Do you know the required operating voltage and electric current level of the device and peripherals?				
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 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 Requirements” on page 18](#)

Rackmount Checklist

Complete the following checklist prior to installing the server into a rack or cabinet.

Rackmount Considerations	Yes	No	N/A	Comment
Is the distance between the front and back mounting planes between the minimum of 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?				
■ 19 kg/U				

Rackmount Considerations	Yes	No	N/A	Comment
■ 785 kg total				
Is the rack a four-post rack (mounting at both front and back)?				
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 60297 standards?				
Does the rack have RETMA rail support?				
Does the rack support installation of Oracle vented and solid filler panels?				
Can the rack provide tie-downs for the Ethernet wiring harness?				
Is there sufficient space for the cable harnesses and the power distribution units (PDUs) in the rack?				
Can a label with the serial number be printed and attached to the target rack?				
Does the rack support installation of standard Oracle PDUs?				
If not, then complete this checklist.				
Can the customer provide an equivalent pair of PDUs?				
Can the customer provide two PDUs with capacity of 110kVA per PDU?				
Can the customer provide a single PDU and its circuits to support the power requirements in case one 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

- [“Installing the Server Into a Rack” on page 41](#)

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.

Safety 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

- *Oracle Server X8-8 Safety and Compliance Guide*

Auto Service Request Checklist

Complete the following checklist if you are planning to use Auto Service Request with the server.

Auto Service Request Considerations	Yes	No	N/A	Comment
Do you have an Oracle Online Account to register Auto Service Request?				
Do you have your My 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.				

Related Information

- [“Auto Service Request” on page 121](#)

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.

Logistics Checklist Considerations	Yes	No	N/A	Comment
Do you have contact information for the data center personnel?				
Is a mechanical lift available?				
Is the route free of raised tiles or other obstructions?				
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?				

Logistics Checklist Considerations	Yes	No	N/A	Comment
How many days in advance must background checks be completed?				
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?				
Are cardboard boxes and other packing material allowed in the computer room?				
Is there a time constraint on dock access? If yes, then provide time constraints.				
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

- [“Server Physical Specifications” on page 13](#)
- [“Receiving and Unpacking Requirements” on page 14](#)
- [Oracle Server X8-8 Service Manual](#)
- [Oracle Server X8-8 Safety and Compliance Guide](#)

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