Oracle® Servers X8-2 and X8-2L Installation Guide

Part No: E93391-08
April 2021

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Using This Documentation

- **Overview** – Provides specifications and describes how to install and power on Oracle Server X8-2 and Oracle Server X8-2L 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 these products and related products are available at:

- Oracle Server X8-2 – https://www.oracle.com/goto/x8-2/docs
- Oracle Server X8-2L – https://www.oracle.com/goto/x8-2l/docs

Feedback

Provide feedback about this documentation at https://www.oracle.com/goto/docfeedback.

Installation Procedure

This section provides an overview of the Oracle Server X8-2 or Oracle Server X8-2L 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 the servers.

Step	Description	Links
1	Review the product notes for any late-breaking information about the server.	■ Oracle Server X8-2 - `https://www.oracle.com/goto/x8-2/docs` ■ Oracle Server X8-2L - `https://www.oracle.com/goto/x8-2l/docs`
2	Prepare to install the server: ■ 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.	■ "Preparing for Server Installation" on page 13 ■ "Site Planning Checklists" on page 147
3	Review the server features.	"Server Features and Components" on page 25
4	Install any separately shipped optional components.	■ "About System Components" in *Oracle Server X8-2 Service Manual* ■ "About System Components" in *Oracle Server X8-2L Service Manual*
5	Review the server management features.	"Server Management" on page 35
6	Install the server into a rack.	"Installing the Server Into a Rack" on page 39
7	■ Attach cables and power cords to the server ■ Power on the server.	"Connecting Cables and Applying Power" on page 71

Step	Description	Links
8	Connect to Oracle Integrated Lights Out Manager (ILOM).	"Using Oracle Integrated Lights Out Manager (ILOM)" on page 89
9	Prepare storage drives and configure RAID.	"Configuring Storage Drives for Operating System Installation" on page 107
10	If applicable, install operating systems or virtual machines.	■ "Installing an Operating System" on page 130 ■ *Oracle Servers X8-2 and X8-2L Operating Systems Installation Guide*
11	Review procedures for controlling system power.	"Controlling System Power" on page 131
12	Review procedures for getting the latest server firmware and software.	"Getting Firmware and Software" on page 137
13	Troubleshoot installation issues.	"Troubleshooting Installation Issues" on page 143

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 15
- “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 22
- “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 tables list the physical specifications for Oracle Server X8-2 and Oracle Server X8-2L.

Oracle Server X8-2:

Dimension	Server Specification	Measurement
Height	1-rack unit (1U) nominal	42.6 mm (1.677 inches)
Width	Server chassis	483.2 mm (19.02 inches)
Depth	Maximum overall	772 mm (30.04 inches)
Weight	Fully populated server	20.41 kg (45 lbs)

Oracle Server X8-2L:

Dimension	Server Specification	Measurements
Height	2-rack unit (2U) nominal	86.9 mm (3.42 inches)
Width	Server chassis	482 mm (18.97 inches)
Depth	Maximum overall	772 mm (30.04 inches)
Weight	Fully populated server	33.11 kg (73 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 X8-2 is a 1 rack unit (1U) server. Oracle Server X8-2L is a 2U 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 60297 standards, such as Oracle Rack Cabinet 1242. See “Rack Compatibility” on page 42.

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 X8-2 and Oracle Server X8-2L 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 servers.

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)	■ Maximum range: 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) **Note -** Maximum ambient operating temperature is derated by 1 degree C per 300 meters of elevation beyond 900 meters, up to a maximum altitude of 3,000 meters.	–40°F to 154°F (–40°C to 68°C)
Relative humidity	■ 10% to 90% noncondensing, short term 23°F to 113°F (–5°C to 55°C)	Up to 93% noncondensing 95°F (35°C) maximum wet bulb

Specification	Operating	Nonoperating
	■ 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)	
Altitude	Up to 9,840 feet (3,000 meters) **Note -** In China markets, regulations may limit installations to a maximum altitude of 6,562 feet (2,000 meters).	Maximum 39,370 feet (12,000 meters)
Acoustic noise	■ Maximum condition: 7.1 Bels A weighted ■ Idle condition: 7.0 Bels A weighted	Not applicable
Vibration	■ 0.15 G (z-axis) ■ 0.10 G (x-, y-axes), 5-500Hz swept sine IEC 60068-2-6 Test FC	■ 0.5 G (z-axis), ■ 0.25 G (x-, y-axes), 5-500Hz swept sine IEC 60068-2-6 Test FC
Shock	3.5 G, 11 ms half-sine IEC 60068-2-27 Test Ea	■ Roll-off: 1.25-inch roll-off free fall, front to back rolling directions ■ 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 X8-2 and Oracle Server X8-2L, 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 X8-2 uses internal fans that can achieve a total airflow of 90 CFM and Oracle Server X8-2L uses internal fans that can achieve 140 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 servers use AC power. The servers can operate effectively over a range of voltages and frequencies.

The following table contains the power supply specifications for Oracle Server X8-2 and Oracle Server X8-2L.

Note - The power dissipation numbers listed in the following table are the maximum rated power numbers for the power supply used in the server. The numbers are not a rating of the actual power consumption of the server. For up-to-date information about power consumption, go to an Oracle Power Calculator web site: `https://www.oracle.com/it-infrastructure/power-calculators/oracle-server-x8-2-power-calc.html` or `https://www.oracle.com/it-infrastructure/power-calculators/oracle-server-x8-2l-power-calc.html`.

Parameter	Specification
Voltage (nominal)	100-240 VAC
Input current (maximum)	100 to 127 VAC 10.0 A; and 200 to 240 VAC 7.0 A
Frequency (nominal)	50/60 Hz (47 to 63 Hz range)
Maximum power consumption	100 to 127 VAC 800 W; 200 to 240 VAC 1200 W
Maximum heat output	11,600 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 20
- "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[†,‡]	■ Product Safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences ■ EMC ■ EMC: Emissions: FCC 47 CFR 15, ICES-003, EN55022, EN55032, KN32, EN61000-3-2, EN61000-3-3

Category	Relevant Standards
	■ Immunity: EN 55024, KN35
Certifications‡	■ North America Safety (NRTL) ■ European Union (EU) ■ International CB Scheme ■ BIS (India) ■ BSMI (Taiwan) ■ RCM (Australia) ■ CCC (PRC) ■ MSIP (Korea) ■ VCCI (Japan) ■ Morocco ■ Republic of Srpska
European Union Directives	■ Restriction of Hazardous Substances (RoHS) Directive 2011/65/EU ■ Low Voltage Directive 2014/35/EU ■ EMC Directive 2014/30/EU ■ WEEE Directive 2012/19/EU

†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 X8-2 Safety and Compliance Guide*
- *Oracle Server X8-2L 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 servers, you must have the following items:

- Antistatic wrist strap
- Antistatic mat

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 39

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

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 procedures in the *Oracle Server X8-2 Service Manual* or *Oracle Server X8-2L 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 then 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
- "About System Components" in *Oracle Server X8-2 Service Manual*
- "About System Components" in *Oracle Server X8-2L Service Manual*
- *Supported PCIe Cards* in Oracle Server X8-2 Product Notes

  Oracle Server X8-2 - https://www.oracle.com/goto/x8-2/docs
- *Supported PCIe Cards* in Oracle Server X8-2L Product Notes

  Oracle Server X8-2L - https://www.oracle.com/goto/x8-2l/docs

PCIe Cards

Oracle Server X8-2 has four PCIe slots, one of which can only accommodate an internal host bus adaptor (HBA) card. Oracle Server X8-2L has eleven PCIe slots, and an additional twelfth nonstandard slot. These slots can contain cards installed at the factory, or ordered from Oracle and installed on site. All PCIe cards must be of a type supported for your server.

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 X8-2 Product Notes

  Oracle Server X8-2 - https://www.oracle.com/goto/x8-2/docs
- *Supported PCIe Cards* in Oracle Server X8-2L Product Notes

  Oracle Server X8-2L - https://www.oracle.com/goto/x8-2l/docs

Server Features and Components

This section describes the components, status indicators (LEDs), connectors, ports, and storage drives on the front and back panels of the servers.

- "Server Components" on page 25
- "X8-2 Front Panel Features" on page 28
- "X8-2 Back Panel Features" on page 29
- "X8-2L Front Panel Features" on page 30
- "X8-2L Back Panel Features" on page 32

Server Components

Feature	System Components
System chassis	1U chassis (Oracle Server X8-2) 2U chassis (Oracle Server X8-2L)
Processor	One or two processors with six integrated DDR4 memory controllers per processor. Processors with the following capabilities are supported (factory installed): (Oracle Server X8-2) ■ Intel Xeon 8260, 24 core, 2.4 GHz, 165 W ■ Intel Xeon 5218, 16 core, 2.3 GHz, 125 W ■ Intel Xeon 5222, 4 core, 3.8 GHz, 105 W (Oracle Server X8-2L) ■ 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 ■ Intel Xeon 5222, 4 core, 3.8 GHz, 105 W

Feature	System Components
	For the latest information on processor specifications, go to the Oracle x86 servers web site and navigate to the Oracle Server X8-2 or Oracle Server X8-2L page: https://www.oracle.com/servers/x86/index.html
Memory	(Oracle Server X8-2) ■ Up to 12 16 GB DDR4-2666 registered DIMMs (single rank) per processor ■ Up to 12 32 GB DDR4-2666 registered DIMMs per processor ■ Up to 12 64 GB DDR4-2666 registered or TSV DIMMs per processor (Oracle Server X8-2L) ■ Up to 12 16 GB DDR4-2666 registered DIMMs (single rank) per processor ■ Up to 12 32 GB DDR4-2666 registered DIMMs per processor ■ Up to 12 64 GB DDR4-2666 registered or TSV DIMMs per processor
Storage Drives (Oracle Server X8-2)	The storage drive configuration can comprise both hard disk drives (HDDs) or solid state drives (SSDs). The configuration includes: ■ Up to eight 2.5-inch hot-pluggable SAS3 HDDs or SATA3 SSDs, with optional support for up to eight 2.5-inch NVM-Express (NVMe) SSDs ■ Two internal SATA/PCIe M.2 flash modules
Storage Drives (Oracle Server X8-2L)	The storage drive configuration can comprise both hard disk drives (HDDs) or solid state drives (SSDs). The configuration includes: ■ Up to twelve 3.5-inch hot-pluggable SAS3/SATA3 HDDs/SSDs, or optional support for up to twelve 2.5-inch NVM-Express (NVMe) SSDs ■ Two internal hot-pluggable SATA/PCIe M.2 flash modules **Note -** The NVM-Express PCIe switch card is required for storage drive configurations that contain NVMe SSDs.
PCI Express (PCIe) slots (Oracle Server X8-2)	Four PCIe Gen3 slots that accommodate low-profile PCIe cards. ■ Slots 1 and 2: x16 electrical interface ■ Slot 3: x8 electrical interface ■ One additional internal x8 PCIe slot for use with an optional internal host bus adapter (HBA) card. This internal HBA card is used to control and manage the storage drives. **Note -** PCIe slot 1 is nonfunctional in single-processor systems.
PCI Express (PCIe) slots (Oracle Server X8-2L)	Eleven PCIe Gen3 slots that accommodate low-profile PCIe cards. ■ Slots 1 and 7: x16 electrical interface ■ Slots 1 through 6, and slots 8 through 11: x8 electrical interface **Note -** PCIe slots 1 through 5 are nonfunctional in single-processor systems.
I/O ports (Oracle Server X8-2)	■ 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 ■ One 10/100/1000BASE-T RJ-45 Gigabit Ethernet (GbE) port, labeled NET 0 ■ Two 10/25GbE SFP+ Ethernet ports, labeled NET 1 and NET 2 ■ Two 10GBASE-T RJ-45 Gigabit Ethernet (GbE) ports, labeled NET 1 and NET 2

Feature	System Components
	Note - The 10/25GbE SFP+ Ethernet ports (NET 1 and NET 2) are the default network ports for the server. When using an SFP+ port, network connectivity is disabled on the 10GBASE-T RJ-45 GbE (NET 1 and NET 2) Ethernet ports.
I/O ports (Oracle Server X8-2L)	■ 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 ■ One 10/100/1000BASE-T RJ-45 Gigabit Ethernet (GbE) port, labeled NET 0
USB 3.0 ports	One back panel, and one internal.
Service processor (SP)	The server has an integrated service processor (SP), features include: ■ 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 KVMS (keyboard, video, mouse, and storage) over IP
Management software	■ Oracle Integrated Lights Out Manager (ILOM) on the service processor. See "Using Oracle Integrated Lights Out Manager (ILOM)" on page 89. ■ 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	Two hot-swappable and highly-redundant 1200W power supplies.
Cooling fans (Oracle Server X8-2)	Four 40-mm, hot-swappable fan modules for chassis cooling. Each fan module contains two counter-rotating fan pairs. Each power supply has its own cooling fans.
Cooling fans (Oracle Server X8-2L)	Four 80-mm, hot-swappable fan modules for chassis cooling. Each fan module contains one pair of counter-rotating fans. Each power supply has its own cooling fans.
Operating systems and virtualization software	Refer to the server Product Notes for supported OS release information. ■ *Supported Operating Systems* in Oracle Server X8-2 Product Notes Oracle Server X8-2 - `https://www.oracle.com/goto/x8-2/docs` ■ *Supported Operating Systems* in Oracle Server X8-2L Product Notes Oracle Server X8-2L - `https://www.oracle.com/goto/x8-2l/docs`

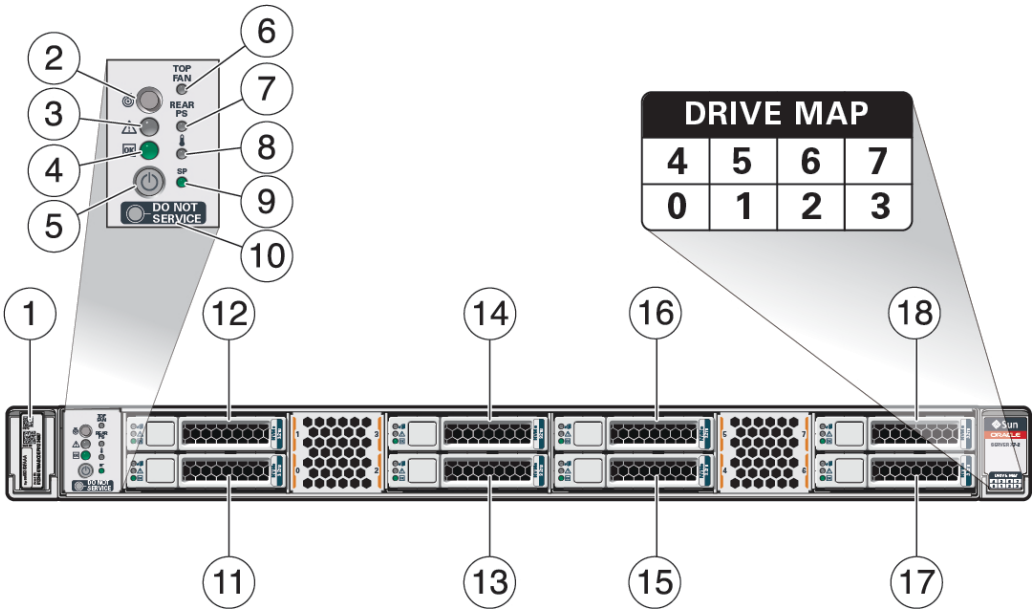
Related Information

- "X8-2 Front Panel Features" on page 28
- "X8-2 Back Panel Features" on page 29
- "About the Oracle Server X8-2" in *Oracle Server X8-2 Service Manual*
- "About the Oracle Server X8-2L" in *Oracle Server X8-2L Service Manual*

X8-2 Front Panel Features

The following figure shows the status indicators (LEDs), connectors, and storage drives located on the front panel of Oracle Server X8-2 with eight 2.5-inch storage drives.

For information about how to interpret the status indicators (LEDs), refer to "Front and Back Panel Components" in *Oracle Server X8-2 Service Manual*.



Call Out	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/button: white
3	Fault - Service Required LED: amber
4	System OK LED: green
5	On/Standby button
6	Service Required LED: Top Fan Module: amber
7	Service Required LED: Rear Power Supply: amber
8	Service Required LED: Overtemp Icon, System Over Temperature Warning: amber
9	SP OK LED: green

Call Out	Description
10	Do Not Service Indicator
11	Storage drive 0 HDD/SSD/NVMe
12	Storage drive 1 HDD/SSD/NVMe
13	Storage drive 2 HDD/SSD/NVMe
14	Storage drive 3 HDD/SSD/NVMe
15	Storage drive 4 HDD/SSD/NVMe
16	Storage drive 5 HDD/SSD/NVMe
17	Storage drive 6 HDD/SSD/NVMe
18	Storage drive 7 HDD/SSD/NVMe

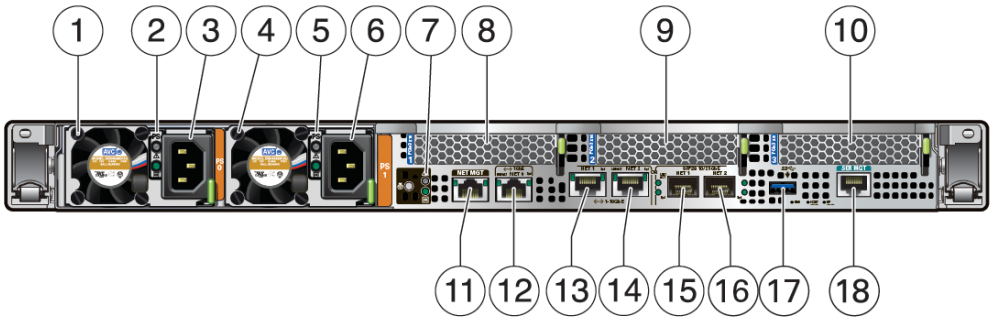
Related Information

- “X8-2 Back Panel Features” on page 29

X8-2 Back Panel Features

The following figure shows the Oracle Server X8-2 back panel and the location of status indicators (LEDs), connectors, and PCIe slots.

For information about how to interpret the status indicators (LEDs), refer to “Front and Back Panel Components” in *Oracle Server X8-2 Service Manual*.



Call Out	Description
1	PS0 Power Supply (PS) 0

Call Out	Description
2	PS0 status indicators: Fault-Service Required LED: amber; AC OK LED: green
3	PS0 AC power inlet
4	PS1 Power Supply (PS) 1
5	PS1 status indicators: Fault-Service Required LED: amber; AC OK LED: green
6	PS1 AC power inlet
7	System status indicators: Locate Button/LED: white; Fault-Service Required LED: amber; System OK LED: green
8	PCIe card slot 1 (nonfunctional in single-processor systems)
9	PCIe card slot 2
10	PCIe card slots 3 and 4
11	NET MGT: Oracle Integrated Lights Out Manager (ILOM) service processor (SP) network management (NET MGT) RJ-45 10/100/1000BASE-T port
12	NET0: Network (NET) 10/100/1000BASE-T RJ-45 Gigabit Ethernet (GbE) port
13	NET1: Network (NET) 10GBASE-T RJ-45 GbE port - optional network port
14	NET2: Network (NET) 10GBASE-T RJ-45 GbE port - optional network port
15	NET1: Network (NET) 10/25GbE SFP+ Ethernet port - default network port
16	NET2: Network (NET) 10/25GbE SFP+ Ethernet port - default network port
17	USB 3.0 connector
18	SER MGT: Serial management RJ-45 serial Ethernet port (CLI)

Note - The 10/25GbE SFP+ Ethernet ports (NET 1 and NET 2) are the default network ports for the server. When using an SFP+ port, network connectivity is disabled on the 10GBASE-T RJ-45 GbE (NET 1 and NET 2) Ethernet ports.

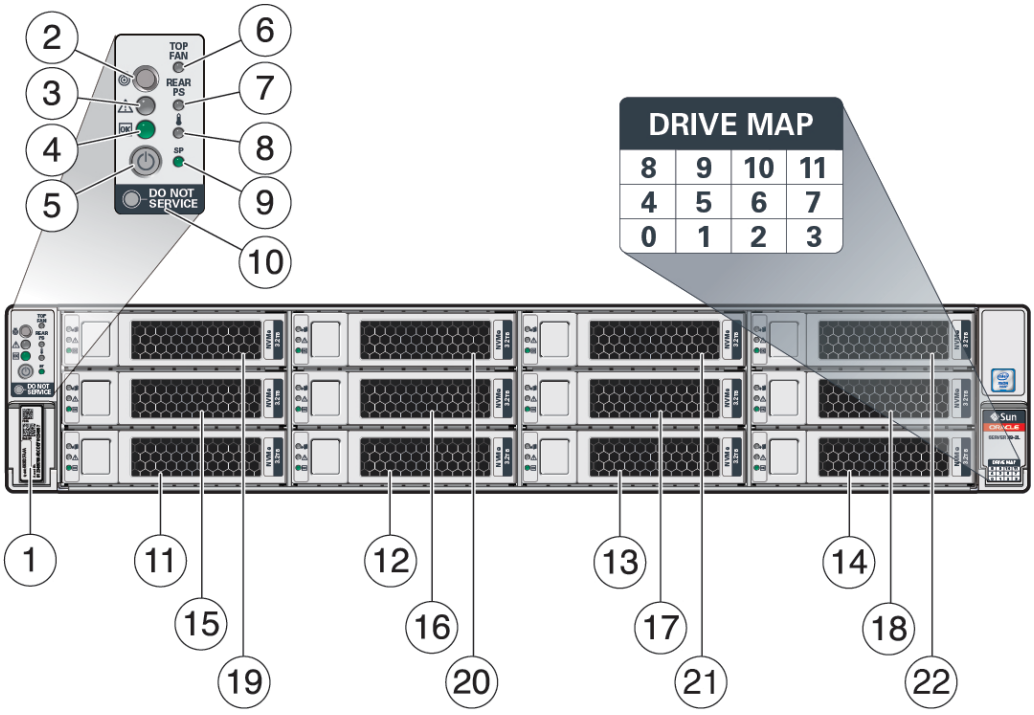
Related Information

- “X8-2 Front Panel Features” on page 28
- “Server Components” on page 25

X8-2L Front Panel Features

The following figure shows the status indicators (LEDs), connectors, and drives located on the front panel of Oracle Server X8-2L configured with twelve 3.5-inch storage drives.

For information about how to interpret the status indicators (LEDs), refer to *Oracle Server X8-2L Service Manual*.



Call Out	Description
1	Product Serial Number (PSN) label and Radio Frequency Identification (RFID) tag
2	Locate LED/Locator button: white
3	Fault - Service Required LED: amber
4	System OK LED: green
5	On/Standby button
6	Service Required LED: Top Fan Module: amber
7	Service Required LED: Rear Power Supply: amber
8	Service Required LED: Overtemp Icon, System Over Temperature Warning: amber
9	SP OK LED: green
10	Do Not Service Indicator
11	Storage drive 0 HDD/SSD/NVMe

Call Out	Description
12	Storage drive 1 HDD/SSD/NVMe
13	Storage drive 2 HDD/SSD/NVMe
14	Storage drive 3 HDD/SSD/NVMe
15	Storage drive 4 HDD/SSD/NVMe
16	Storage drive 5 HDD/SSD/NVMe
17	Storage drive 6 HDD/SSD/NVMe
18	Storage drive 7 HDD/SSD/NVMe
19	Storage drive 8 HDD/SSD/NVMe
20	Storage drive 9 HDD/SSD/NVMe
21	Storage drive 10 HDD/SSD/NVMe
22	Storage drive 11 HDD/SSD/NVMe

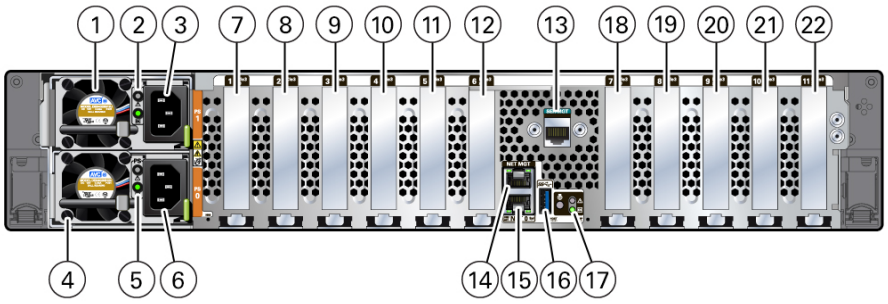
Related Information

- “X8-2L Back Panel Features” on page 32

X8-2L Back Panel Features

This section shows Oracle Server X8-2L back panel and the location of status indicators (LEDs), connectors, and PCIe slots.

For information about how to interpret the status indicators (LEDs), refer to *Oracle Server X8-2L Service Manual*.



Call Out	Description
1	PS0 Power Supply (PS) 0
2	PS0 status indicators: Service Required LED: amber; AC OK LED: green
3	PS0 AC power inlet
4	PS1 Power Supply (PS) 1
5	PS1 status indicators: Service Required LED: amber; AC OK LED: green
6	PS1 AC power inlet
7	PCIe slot 1 (nonfunctional in single-processor systems)
8	PCIe slot 2 (nonfunctional in single-processor systems)
9	PCIe slot 3 (nonfunctional in single-processor systems)
10	PCIe slot 4 (nonfunctional in single-processor systems)
11	PCIe slot 5 (nonfunctional in single-processor systems)
12	PCIe slot 6
13	SER MGT: Serial management RJ-45 serial Ethernet port
14	NET MGT: Oracle Integrated Lights Out Manager (ILOM) service processor (SP) network management RJ-45 10/100/1000BASE-T Ethernet port
15	NET0: Network (NET) 10/100/1000BASE-T RJ-45 Gigabit Ethernet (GbE) port
16	USB 3.0 connector
17	System status LEDs: Locate/Button: white; Fault - Service Required: amber; System OK: green
18	PCIe slot 7
19	PCIe slot 8
20	PCIe slot 9
21	PCIe slot 10
22	PCIe slot 11

Related Information

- “X8-2L Front Panel Features” on page 30
- “Server Components” on page 25

Server Management

This section describes the tools you can use to manage Oracle Server X8-2 or X8-2L.

- "Multiple Server Management Tools" on page 35
- "Single Server Management Tools" on page 35
- "Oracle Integrated Lights Out Manager (ILOM)" on page 36
- "Oracle Hardware Management Pack" on page 37
- "Unified Extensible Firmware Interface (UEFI)" on page 37

Multiple Server Management Tools

If you are managing multiple servers in a data center, you can use Oracle Enterprise Manager Ops Center.

For information, refer to the product information page at: `https://www.oracle.com/enterprise-manager/technologies/`. For documentation, refer to the Oracle Enterprise Manager Cloud Control Documentation Library at: `https://docs.oracle.com/en/enterprise-manager/related-products.html`

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 36	■ Preinstalled service processor (SP) with integrated firmware. No installation required. Some initial configuration is required.	■ Configure and manage server components locally or remotely.

Tool/Link	Type and Environment	Function
	■ Operates independently of the host. ■ Provides a web interface and a command-line interface (CLI).	■ 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 36.
“Oracle Hardware Management Pack” on page 37	■ Provides commands and agents that operate at the operating system level, and can be used across multiple systems. ■ Is available as a standalone product for supported operating systems. Refer to the support matrix for specific information: `https://www.oracle.com/goto/ohmp`	Monitor hardware through the host operating system, either remotely using SNMP or locally using command-line interface tools.
“Unified Extensible Firmware Interface (UEFI)” on page 37	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 X8-2 or X8-2L. The servers are 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 91
- “Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 92

See “Using Oracle Integrated Lights Out Manager (ILOM)” on page 89.

For Oracle Integrated Lights Out Management (ILOM) information, refer to the product information page at: `https://www.oracle.com/servers/technologies/integrated-lights-out-manager.html`. For documentation, refer to the Oracle Integrated Lights Out Manager (ILOM) 5.0 Documentation Library at: `https://www.oracle.com/goto/ilom/docs`

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 Oracle Hardware Management Pack information, refer to the product information page at: `https://www.oracle.com/servers/technologies/hardware-management-pack.html`. For documentation and OS support matrix, refer to the Oracle Hardware Management Pack Documentation Library at: `https://www.oracle.com/goto/ohmp/docs`

For more details on 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 X8-2 and Oracle Server X8-2L both support 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.

For instructions on accessing and using the UEFI BIOS Setup Utility, refer to "Using UEFI BIOS" in *Oracle Server X8-2 Service Manual* or "Using UEFI BIOS" in *Oracle Server X8-2L Service Manual*.

Installing the Server Into a Rack

This section describes how to install the server into a rack using the slide-rail assembly in the Rackmount Kit. Figures for the rackmounting procedures depict Oracle Server X8-2L. The procedures are the same for Oracle Server X8-2.

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

- "Installation Prerequisites" on page 39
- "Safety Precautions" on page 40
- "ESD Precautions" on page 41
- "Rack Compatibility" on page 42
- "Rackmount Kit Contents" on page 43
- "Rackmounting the Server" on page 44

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 optional components purchased for the server. See "Optional Component Installation" on page 22.
- Confirm that your site meets the required 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 X8-2 weighs approximately 45 lbs (20.41 kg). Oracle Server X8-2L weighs 73 lbs (33.11 kg). Two people are needed to mount either 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 (Tma) 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 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 attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

Caution - Mounted equipment: Do not use slide-rail-mounted equipment as a shelf or a workspace.

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 either *Oracle Server X8-2 Safety and Compliance Guide* or *Oracle Server X8-2L Safety and Compliance Guide* and in *Important Safety Information for Oracle's Hardware Systems*.

Rack Compatibility

The rack into which you install Oracle Server X8-2 or Oracle Server X8-2L must meet the requirements listed in the following table. Oracle Rack Cabinet 1242 and Sun Rack II are compatible with both servers. For information about the racks, see "Preparing for Server Installation" on page 13.

Item	Requirement
Structure	■ Four-post rack (mounting at both front and back). Supported rack types: square hole (9.5 mm) and round hole (M6 or 1/4-20 threaded only). ■ Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 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 90 cm (35.43 inches) with the cable management arm, or 80 cm (31.5 inches) without the cable management arm.
Clearance width between front and back mounting planes	Distance between structural supports and cable troughs is at least 45.6 cm (18 inches).
Minimum clearance for service access	■ 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
Height	199.9 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

Requirement	Specification
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)

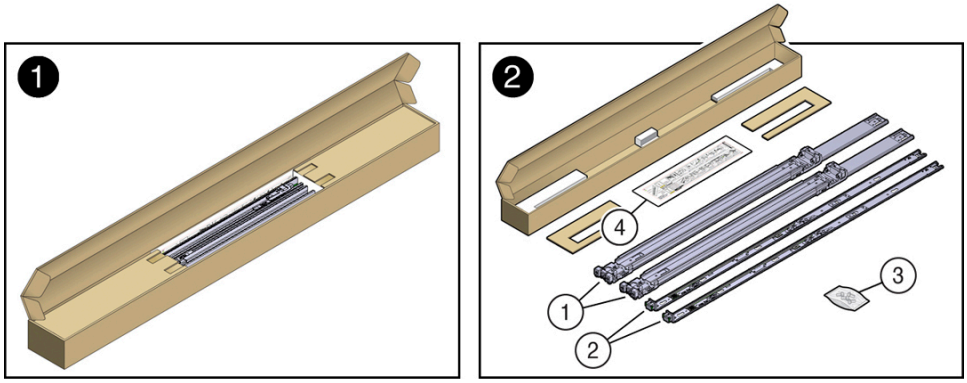
Note - Depth is measured from front door handle to back door handle.

Related Information

- “Preparing for Server Installation” on page 13

Rackmount Kit Contents

The following figure shows the Rackmount Kit contents. For additional instructions on how to install your server in a four-post rack using the slide-rail and cable management arm options, refer to the Rackmounting Template.



Call Out	Description
1	Slide-rails
2	Mounting brackets
3	Four M4 x 5 fine-pitch mounting bracket securing screws (optional)
4	Rackmounting Template

Related Information

- “Rack Compatibility” on page 42

Rackmounting the Server

To rackmount the server, secure the rack to the floor, stabilize the rack, and install the mounting brackets and slide rails. 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 and remove the front and back doors from the rack cabinet, only if they impinge on the mounting bay.**
2. **To prevent the rack cabinet from tipping during the installation, fully extend the rack cabinet anti-tilt bar, which is located at the bottom front of the rack cabinet.**
3. **If the rack includes leveling feet beneath the rack cabinet to prevent the rack from rolling, 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

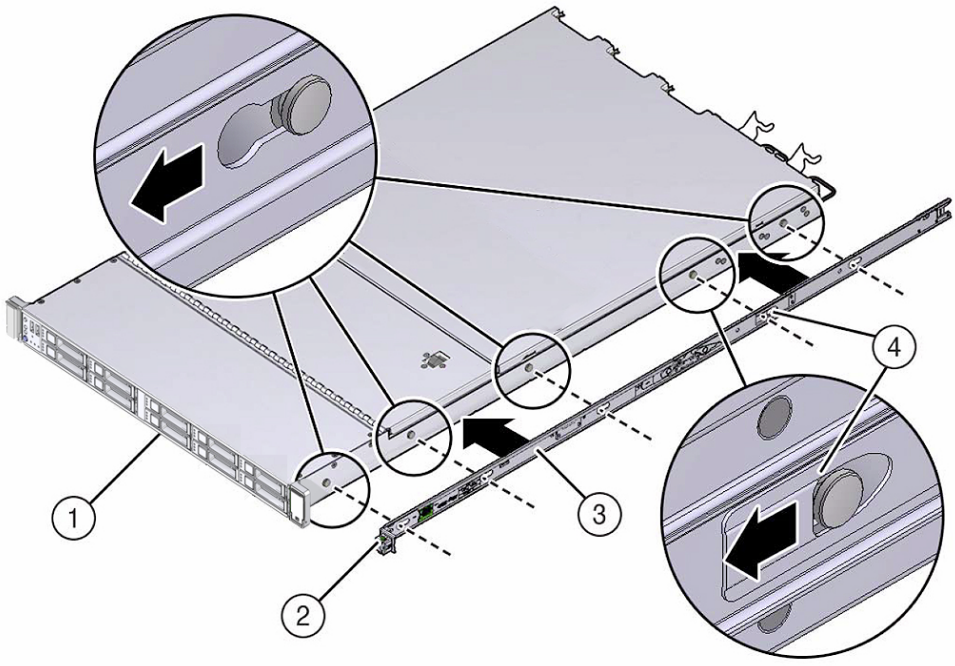
- “Safety Precautions” on page 40

- “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.

▼ Install Mounting Brackets on the Server

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

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



Call Out	Description
1	Chassis front
2	Slide-rail lock
3	Mounting bracket
4	Mounting bracket clip

2. **When the heads of the five chassis locating pins protrude through the five keyhole openings in the mounting bracket, pull the mounting bracket toward the front of the chassis until the mounting bracket clip locks into place with an audible click.**
3. **Verify that the back locating pin is engaged with the mounting bracket clip.**
4. **Repeat Step 1 through Step 3 to install the other mounting bracket on the other side of the server.**

Related Information

- “Mark the Rackmount Location” on page 46
- “Attach the Slide-Rails” on page 50

▼ Mark the Rackmount Location

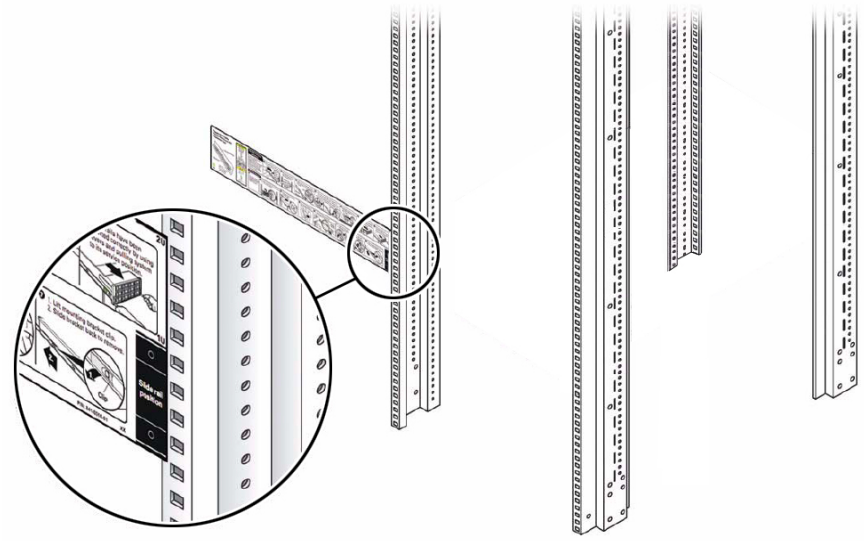
Identify the location in the rack where you want to place the server. Oracle Server X8-2 requires one rack unit (1U). Oracle Server X8-2L requires two rack units (2U). Use the Rackmounting Template to identify the correct mounting holes for the slide-rails.

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

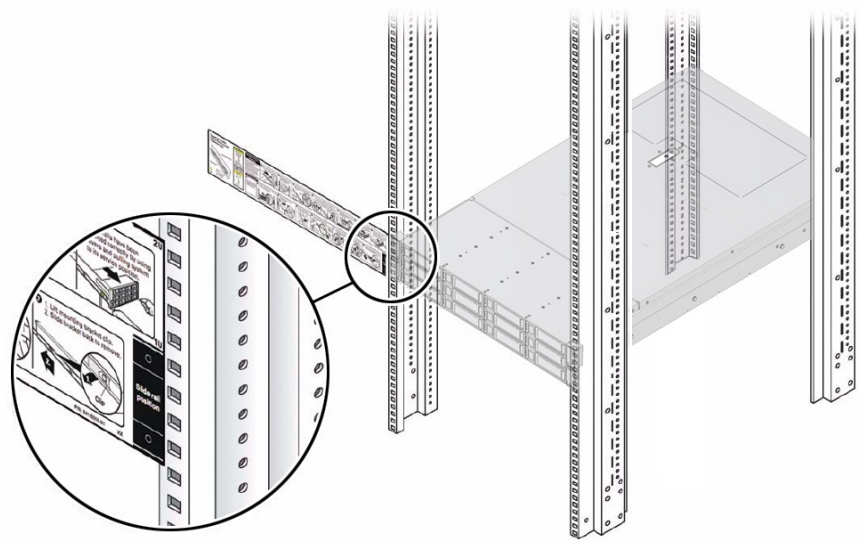
1. **Ensure that there is at least 1 rack unit (1U) or two rack units (2U) of vertical space in the rack cabinet to install the server.**

   See “Rack Compatibility” on page 42.
2. **Place the Rackmounting Template against the front rails, and measure up from the bottom of the Rackmounting Template.**

The bottom edge of the Rackmounting Template card corresponds to the bottom edge of the server,



3. **Mark the mounting holes for the front slide-rails.**



4. **Mark the mounting holes for the back slide-rails.**

Related Information

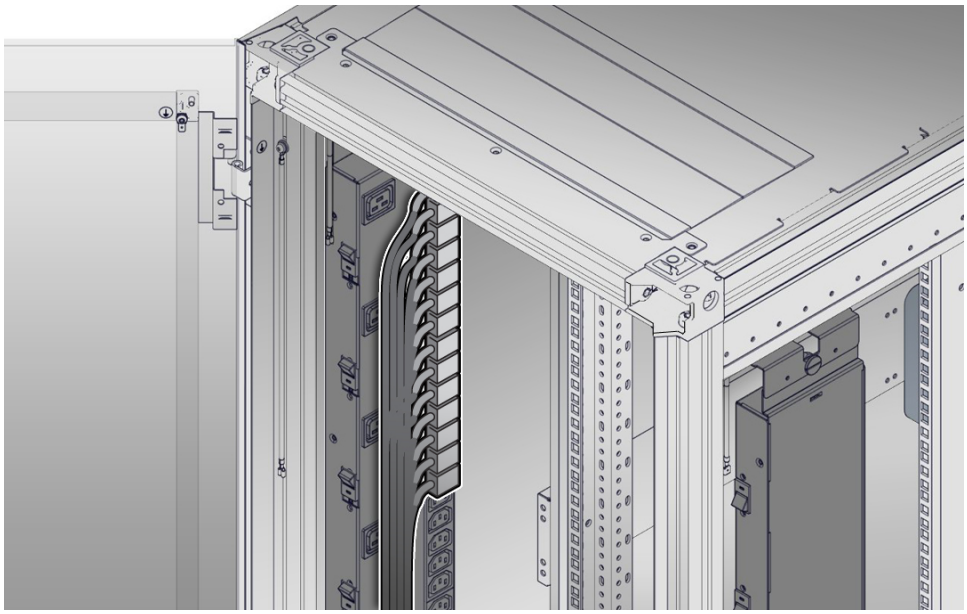
- “Rack Compatibility” on page 42
- “Install Mounting Brackets on the Server” on page 45
- “Attach the Slide-Rails” on page 50

▼ Install AC Power Cables and Slide-Rails

1. **Before you install the slide-rails into the rack, install right-angle AC power cables into the left-side and right-side PDU electrical sockets.**

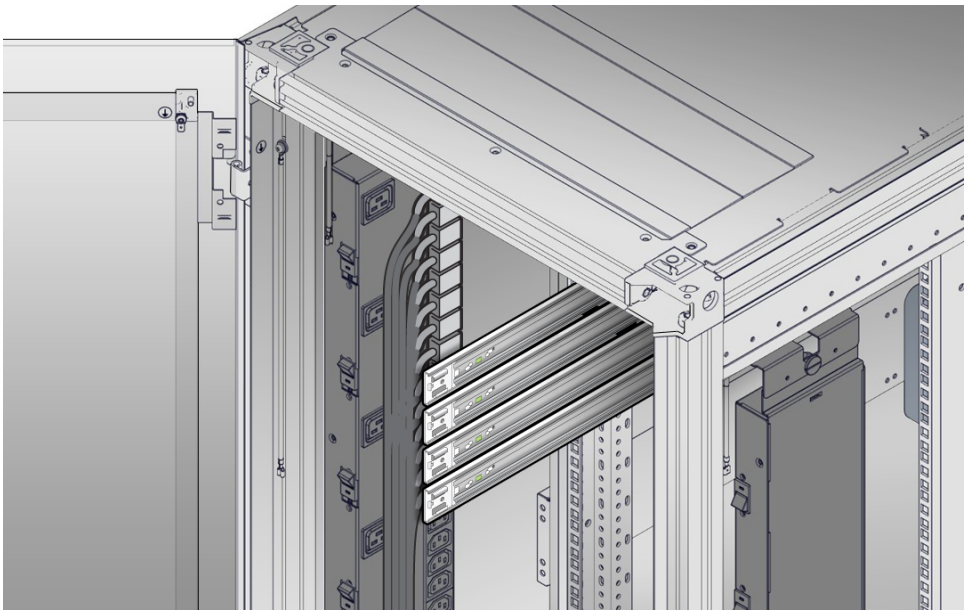
   Use the following 2-meter right-angle AC power cable for this procedure:

- 7079727 - Pwrcord, Jmpr, Bulk, SR2, 2m, C14RA, 10A, C13



2. Install the slide-rails into the rack.

See “Attach the Slide-Rails” on page 50.

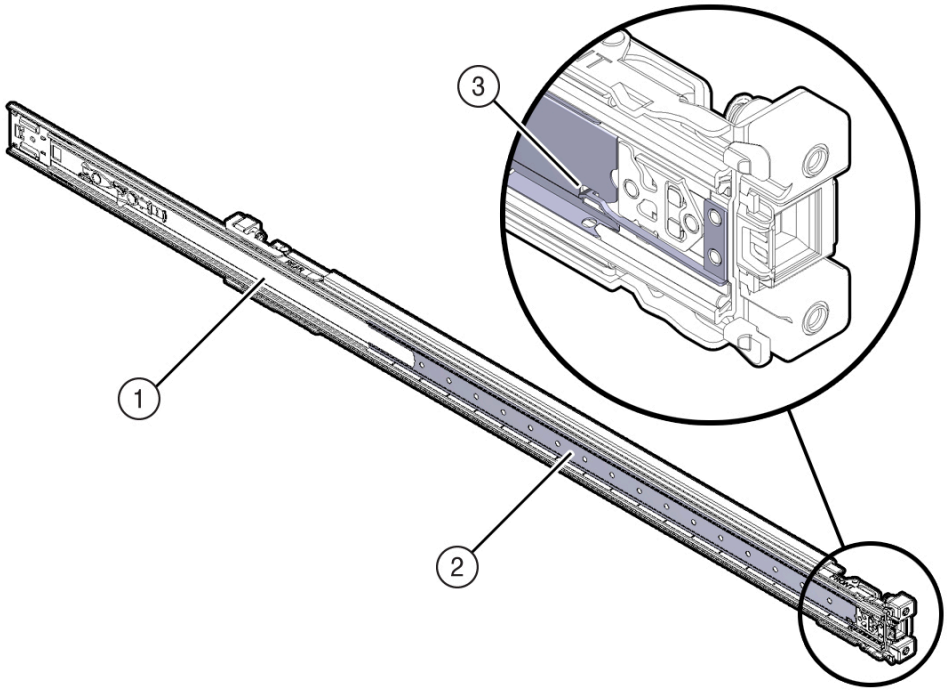


▼ Attach the Slide-Rails

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

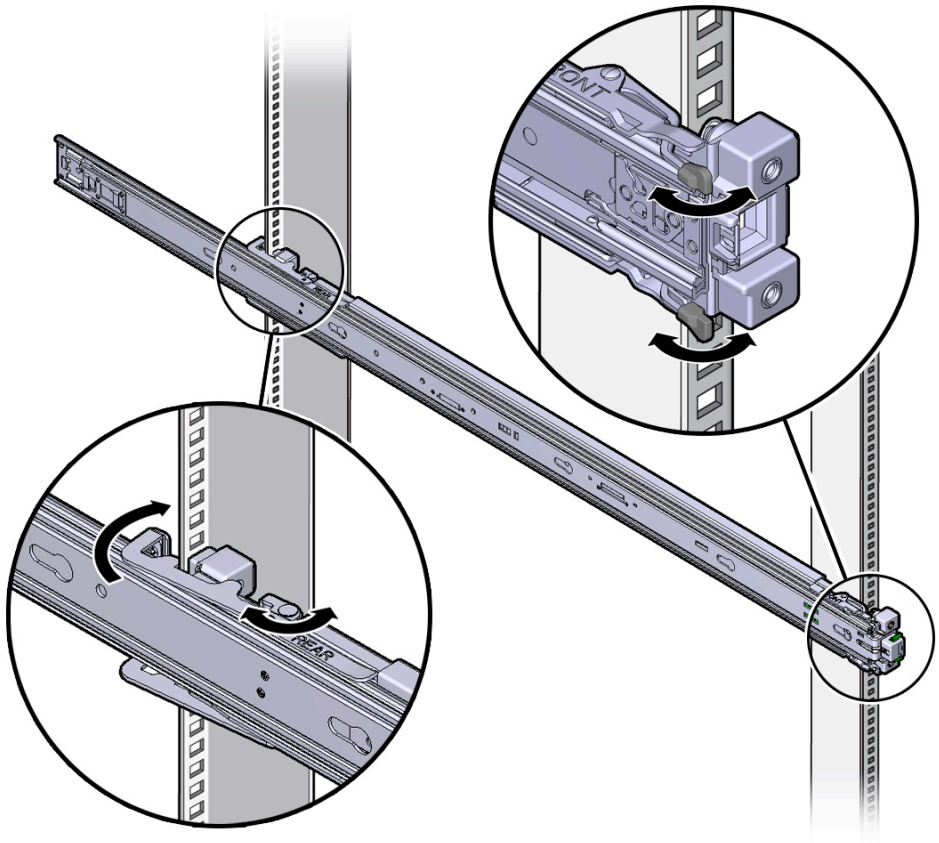
Note - Before you install the slide-rails, be sure to install right-angle AC power cables (part number 7079727 - Pwrcord, Jmpr, Bulk, SR2, 2m, C14RA, 10A, C13). In the 1000 mm rack, the standard rail kit slide-rails obstruct access to the front of the 15kVA and 22kVA Power Distribution Unit (PDU) electrical sockets. If you use the standard AC power cables, first plug them in, and then install the slide-rails into the rack. After you install the slide-rails, you cannot disconnect or remove the standard AC power cables from the PDU but you can remove them from the system.

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



Call Out	Description
1	Slide-rail
2	Ball-bearing track
3	Locking mechanism

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



3. **Align the front of the slide-rail assembly against the outside of the front rack rail, and push until the assembly locks into place with an audible click.**

4. **Repeat Step 1 through Step 3 to attach the slide-rail assembly to the other side of the rack.**

Related Information

- “Install Mounting Brackets on the Server” on page 45

- “Mark the Rackmount Location” on page 46
- “Install the Server Into the Slide-Rail Assemblies” on page 53

▼ Install the Server Into the Slide-Rail Assemblies

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

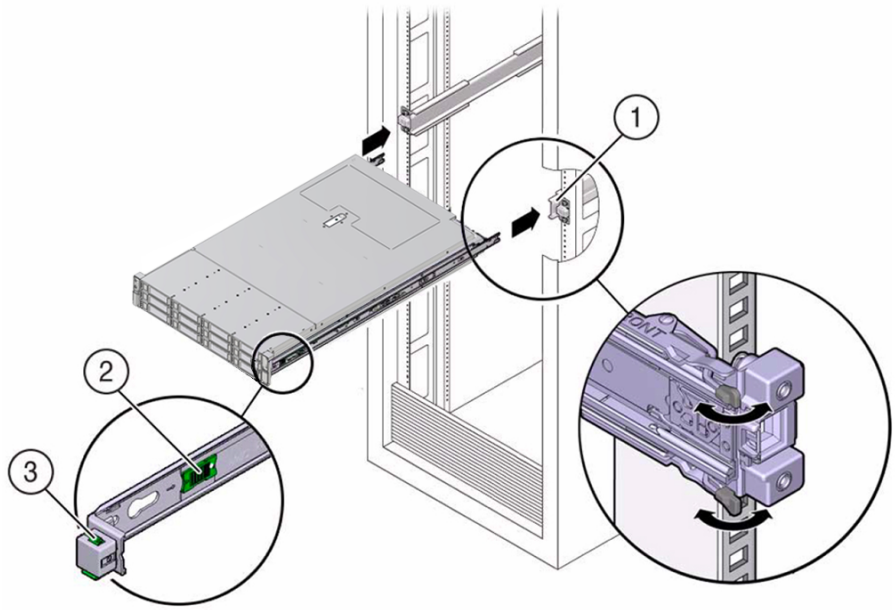
Caution - Personal Injury or Equipment Damage: This procedure requires a minimum of two people because of the weight of the server. Attempting this procedure alone could result in equipment damage or personal injury.

Caution - 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. Extend the rack anti-tilt bar to prevent the rack from tipping during equipment installation.

1. **Push the slide-rails as far as possible into the slide-rail assemblies in the rack.**

2. **Position the server so that the back ends of the mounting brackets are aligned with the slide-rail assemblies that are mounted in the rack.**

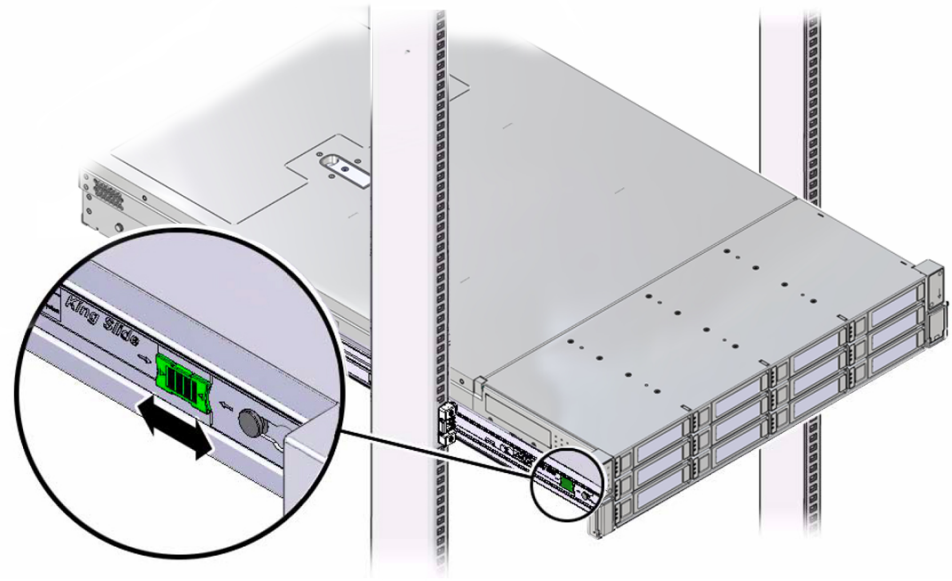
3. **Insert the mounting brackets into the slide-rails, and then push the server into the rack until the mounting brackets are flush with the slide-rail stops (approximately 30 cm, or 12 inches).**



Call Out	Description
1	Inserting mounting bracket into slide-rail
2	Slide-rail release button
3	Slide-rail lock

4. **Simultaneously push and hold the green slide-rail release buttons on each mounting bracket while you push the server into the rack. Continue pushing**

the server into the rack until the slide-rail locks (on the front of the mounting brackets) engage the slide-rail assemblies with an audible click.



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

Related Information

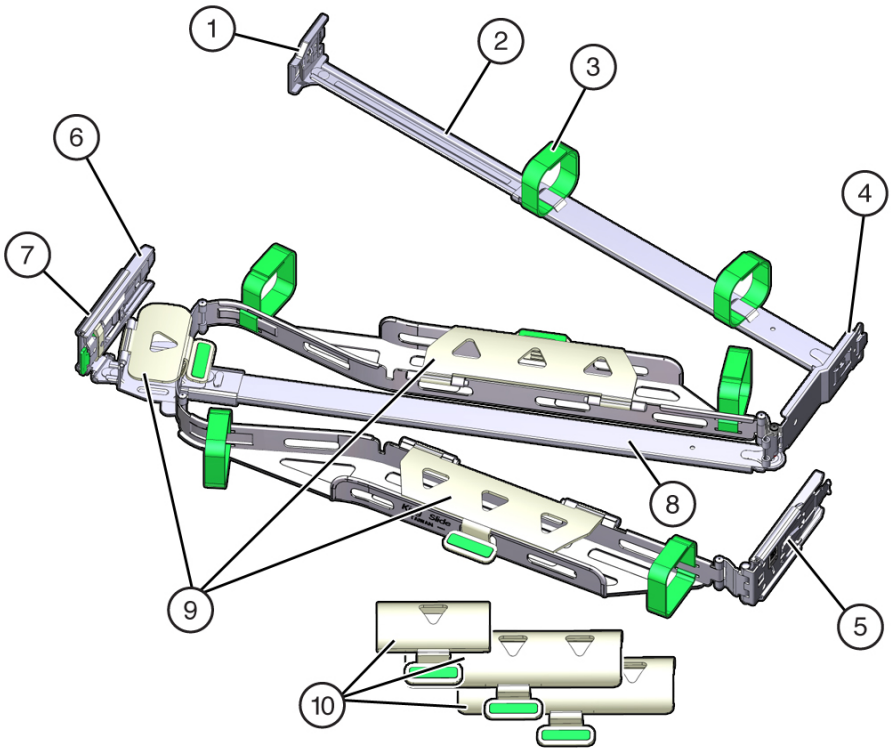
- “Install the Cable Management Arm (Optional)” on page 55

▼ Install the Cable Management Arm (Optional)

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

Note - Before you install the CMA, ensure that the right-angle AC power cables are long enough to connect to the rackmounted servers when routed through the CMA.

1. **Unpack the CMA, which contains the following components.**



Call Out	Description
1	Connector A
2	Front slide bar
3	Velcro straps (6)
4	Connector B
5	Connector C
6	Connector D

Call Out	Description
7	Slide-rail latching bracket (used with connector D)
8	back slide bar
9	Server flat cable covers
10	Server round cable covers

2. **Ensure that you install the flat cable covers for your server on the CMA.**

3. **Ensure that the six Velcro straps are threaded into the CMA.**

Note - Ensure that the two Velcro straps located on the front slide bar are threaded through the opening in the top of the slide bar, as shown in the illustration in Step 1. This prevents the Velcro straps from interfering with the expansion and contraction of the slide bar when the server is extended out of the rack and returned to the rack.

4. **To make it easier to install the CMA, extend the server approximately 13 cm (5 inches) out of the front of the rack.**

5. **Take the CMA to the back of the equipment rack, and ensure that you have adequate room to work at the back of the server.**

Note - References to "left" or "right" in this procedure assume that you are facing the back of the equipment rack.

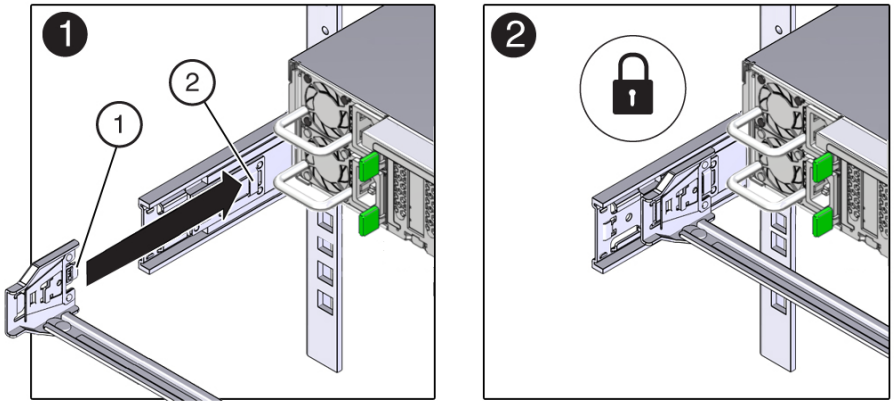
Note - Throughout this installation procedure, support the CMA and do not allow it to hang under its own weight until it is secured at all four attachment points.

6. **To install CMA connector A into the left slide-rail:**

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

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

b. Gently tug on the left side of the front slide bar to verify that connector A is properly seated.



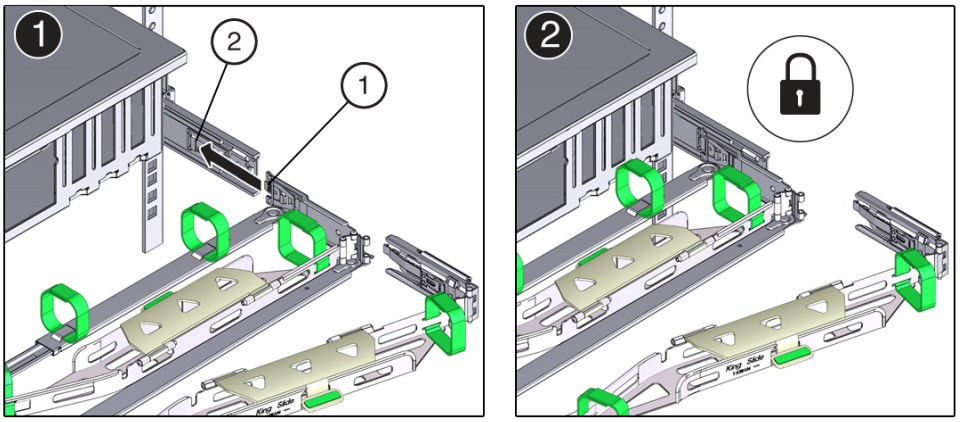
Call Out	Description
1	Connector A tab
2	Left slide-rail front slot

7. To install CMA connector B into the right slide-rail:

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

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

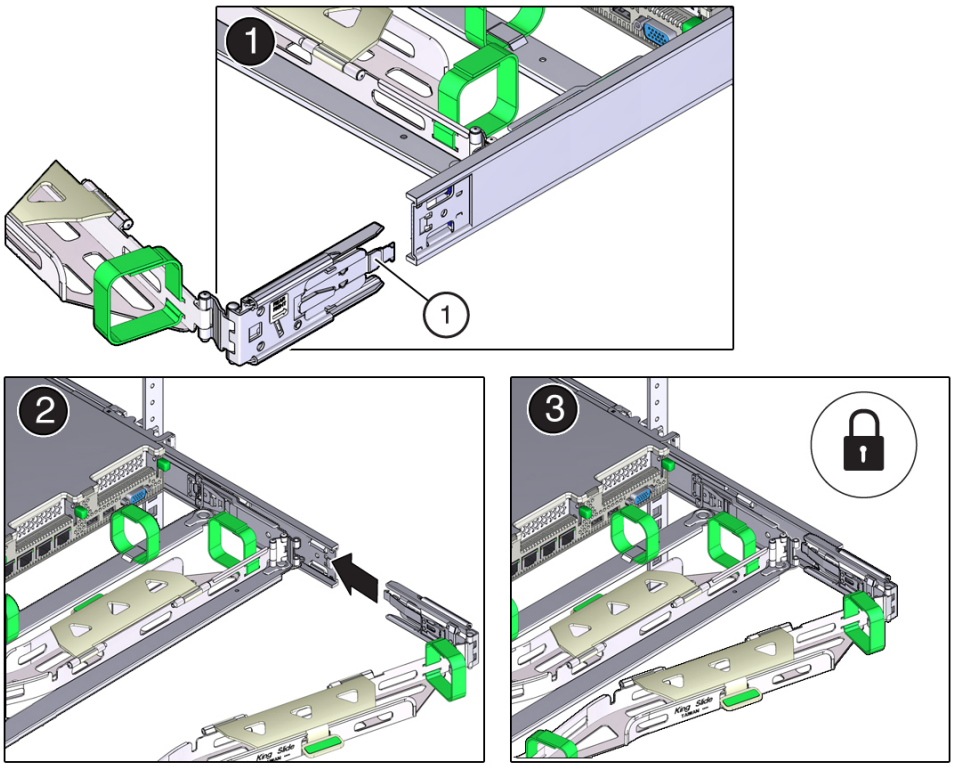
b. Gently tug on the right side of the front slide bar to verify that connector B is properly seated.



Call Out	Description
1	Connector B tab
2	Right slide-rail front slot

8. To install CMA connector C into the right slide-rail:

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



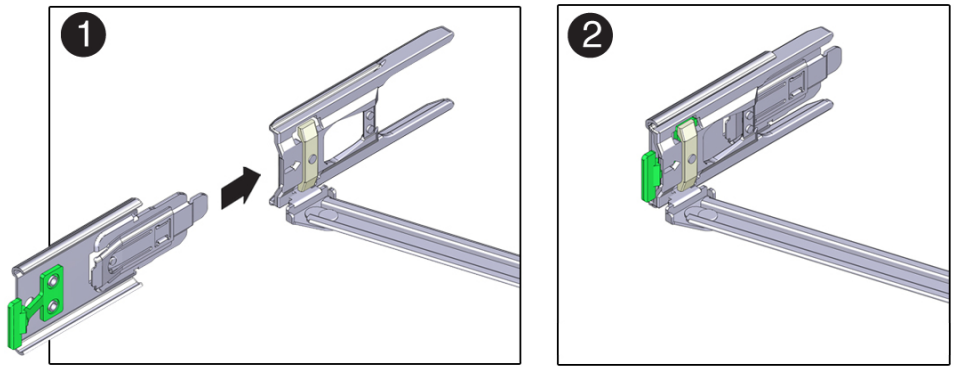
Call Out	Description
1	Connector C locking spring

b. **Insert connector C into the right slide-rail until it locks into place with an audible click [frames 2 and 3].**

c. **Gently tug on the right side of the CMA back slide bar to verify that connector C is properly seated.**

9. **To prepare CMA connector D for installation, remove the tape that secures the slide-rail latching bracket to connector D, and ensure that the latching bracket is properly aligned with connector D [frames 1 and 2].**

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



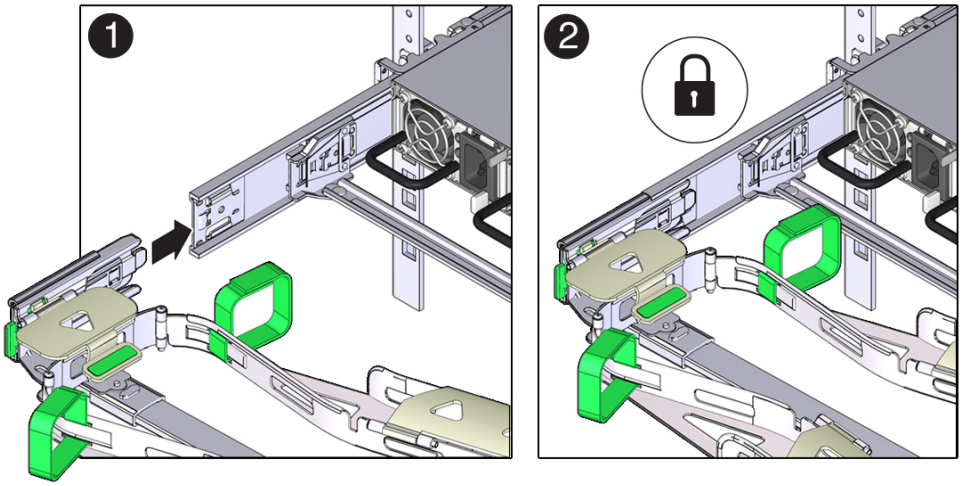
10. **To install CMA connector D into the left slide-rail:**

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

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

    b. **Gently tug on the left side of the CMA back slide bar to verify that connector D is properly seated.**

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



11. **Gently tug on the four CMA connection points to ensure that the CMA connectors are fully seated before you allow the CMA to hang by its own weight.**

12. **To verify that the slide-rails and the CMA are operating properly before routing cables through the CMA:**

    a. **Ensure that the rack anti-tilt bar is extended to prevent the rack from tipping forward when the server is extended.**

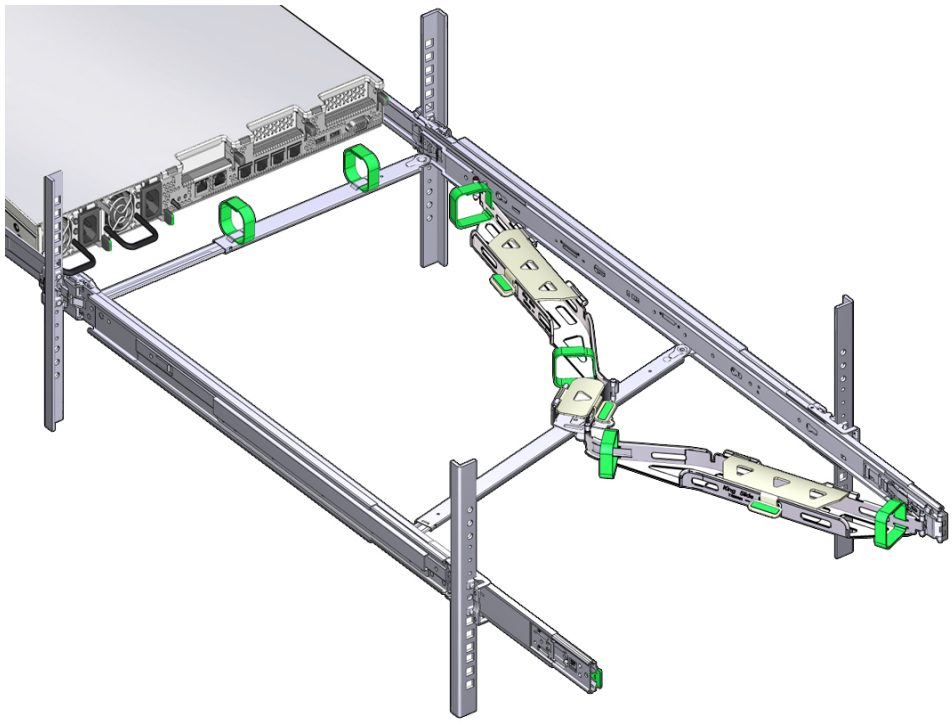
Caution - To reduce the risk of personal injury, stabilize the rack cabinet and extend the anti-tilt bar before extending the server from the rack.

For instructions to stabilize the rack, see "Stabilize the Rack" on page 44.

    b. **Slowly pull the server out of the rack until the slide-rails reach their stops.**

    c. **Inspect the attached cables for any binding or kinks.**

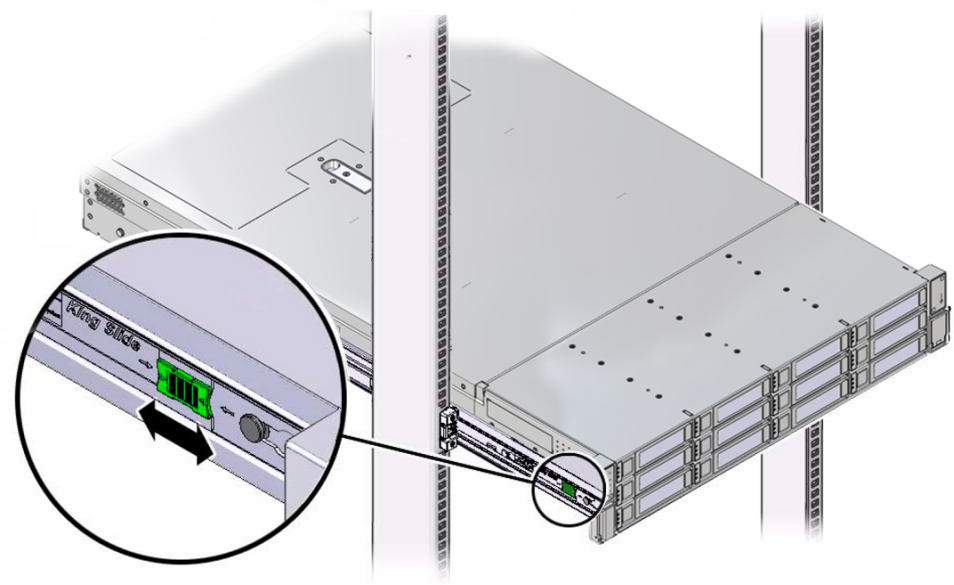
d. **Verify that the CMA extends fully with the slide-rails.**



13. **To return the server to the rack:**

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

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



c. **Continue pushing the server into the rack until the slide-rail locks (on the front of the server) engage the slide-rail assemblies.**
You hear an audible click when the server is in the normal rack position.

14. **Connect cables to the server, as required.**
Instructions for connecting the server cables are provided in "Connecting Cables and Applying Power" on page 71.

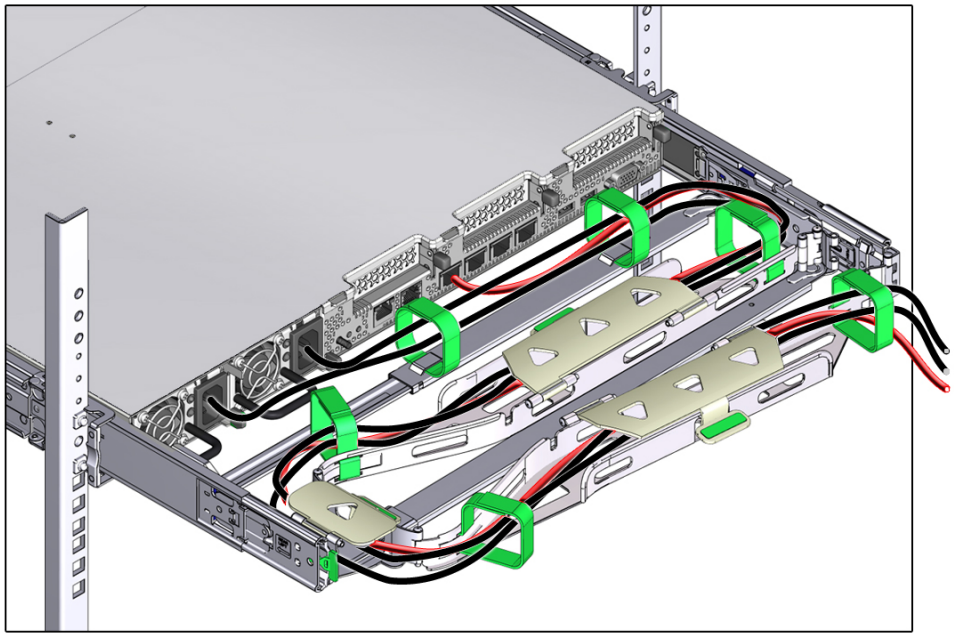
15. **Open the CMA cable covers, route the server cables through the CMA cable troughs (in the order specified below), close the cable covers, and secure the cables with the six Velcro straps.**

a. **First through the front-most cable trough.**

b. **Then through the small cable trough.**

c. Then through the back-most cable trough.

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



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

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

Related Information

- “Remove the Cable Management Arm” on page 66

▼ Remove the Cable Management Arm

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

Before you begin this procedure, refer to the illustration provided in Step 1 in the procedure “Install the Cable Management Arm (Optional)” on page 55 to identify CMA connectors A, B, C, and D. Disconnect the CMA connectors in the reverse order in which you installed them, that is, disconnect connector D first, then C, then B, and finally A.

Throughout this procedure, after you disconnect any of the CMA four connectors, do not allow the CMA to hang under its own weight.

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

---

1. **To prevent the rack from tipping forward when the server is extended, ensure that the rack anti-tilt bar is extended.**

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

For instructions to stabilize the rack, see “Stabilize the Rack” on page 44.

2. **To make it easier to remove the CMA, extend the server approximately 13 cm (5 inches) out of the front of the rack.**

3. **To remove the cables from the CMA:**

   a. **Disconnect all cables from the back of the server.**

   b. **If applicable, remove any additional Velcro straps that were installed to bundle the cables.**

   c. **Unwrap the six Velcro straps that are securing the cables.**

   d. **Open the three cable covers to the fully opened position.**

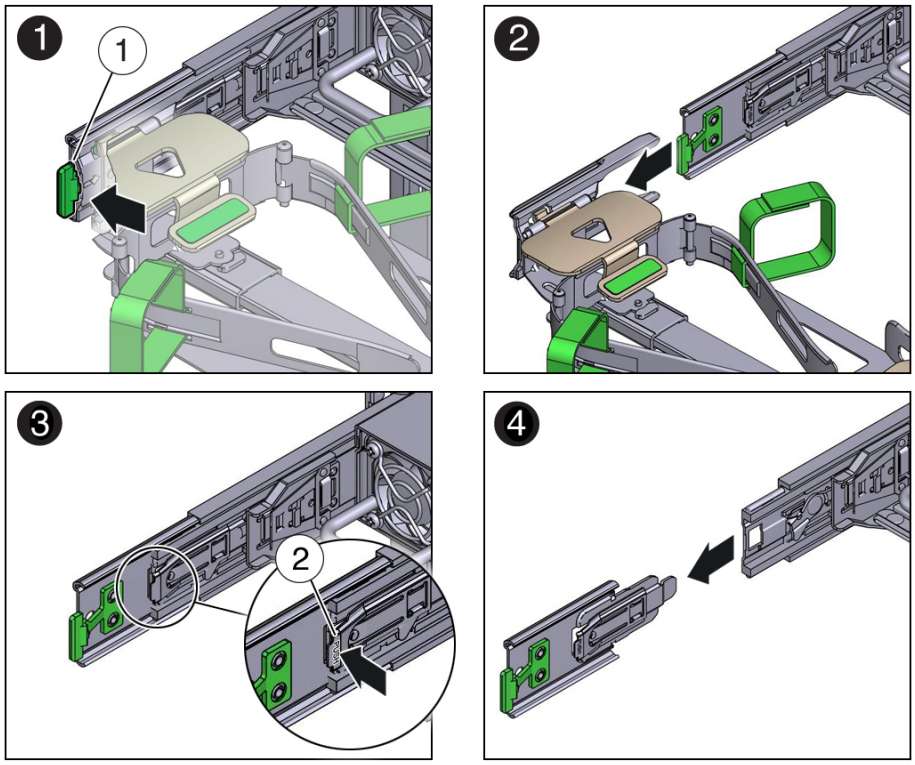
e. **Remove the cables from the CMA and set them aside.**

4. **To disconnect connector D:**

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

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

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



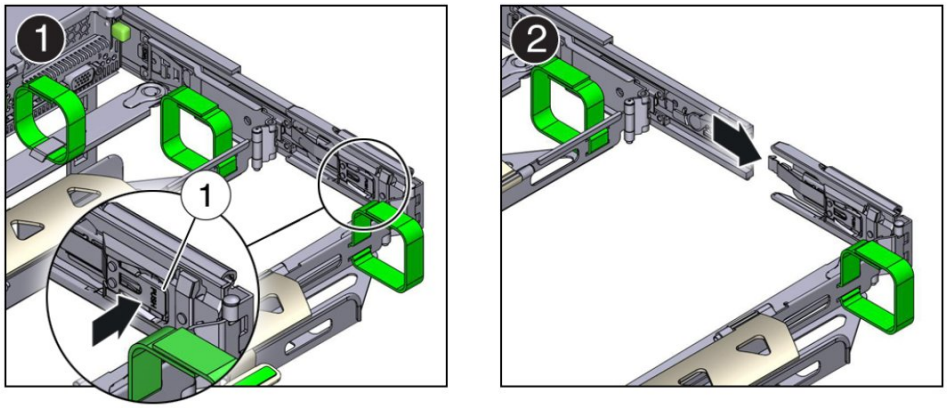
Call Out	Description
1	Connector D release tab (green)
2	Slide-rail latching bracket release tab (labeled PUSH)

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

5. To disconnect connector C:

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

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

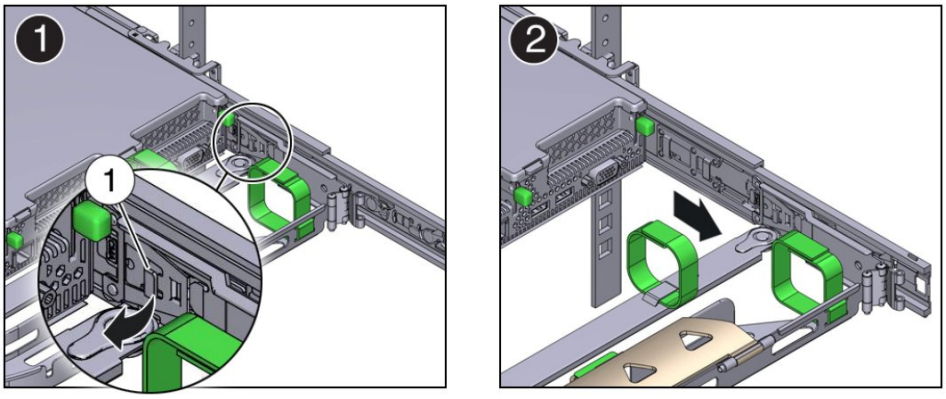


Call Out	Description
1	Connector C release tab (labeled PUSH)

6. To disconnect connector B:

a. **Place your right arm under the CMA to support it and grasp the back end of connector B with your right hand.**

b. **Use your left thumb to pull the connector B release lever to the left, away from the right slide-rail (callout 1), and use your right hand to pull the connector out of the slide-rail [frames 1 and 2].**

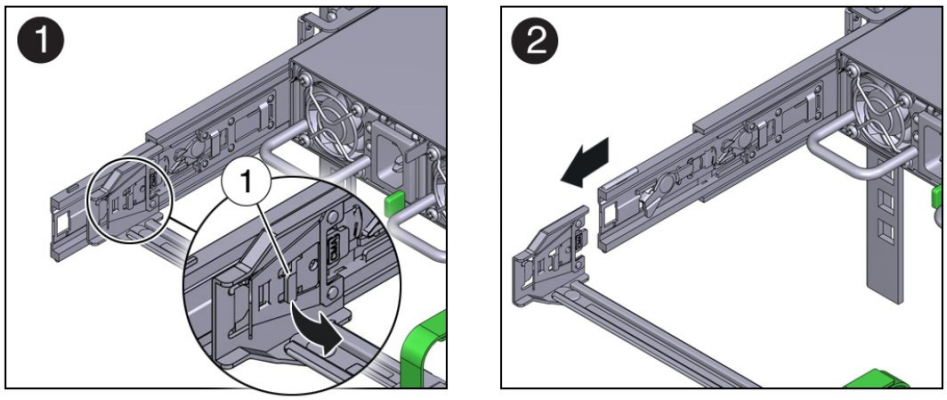


Call Out	Description
1	Connector B release lever

7. **To disconnect connector A:**

a. **Place your left arm under the CMA to support it and grasp the back end of connector A with your left hand.**

b. **Use your right thumb to pull the connector A release lever to the right, away from the left slide-rail (callout 1), and use your left hand to pull the connector out of the slide-rail [frames 1 and 2].**



Call Out	Description
1	Connector A release lever

8. **Remove the CMA from the rack and place it on a flat surface.**

9. **Go to the front of the server and push it back into the rack.**

Related Information

- “Install the Cable Management Arm (Optional)” on page 55

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 71
- "X8-2 Back Panel Connectors and Ports" on page 73
- "X8-2L Back Panel Connectors and Ports" on page 74
- "Configuring Oracle Server X8-2 Network Media" on page 79
- "Server Management Connection Options" on page 80
- "Connect Cables and Power Cords" on page 81
- "Power On the Server" on page 83

Related Information

- "Installation Procedure Overview" on page 11
- "Using Oracle Integrated Lights Out Manager (ILOM)" on page 89
- Oracle Integrated Lights Out Manager (ILOM) 5.0 Documentation Library at: `https://www.oracle.com/goto/ilom/docs`

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 77.
  - Serial management port (SER MGT): Service processor (SP) local connection for Oracle ILOM boot messages

See “SER MGT Ports” on page 76.

- Power cables for the server power supplies

  See “Connect Cables and Power Cords” on page 81.

- **SP management ports:**

  The server includes two management ports for use with the Oracle ILOM service processor (SP).

  - The serial management port (SER MGT) is the default connection to the Oracle ILOM SP. The SP serial management port uses an RJ-45 cable and is always available for a CLI connection.

    See “SER MGT Ports” on page 76.

  - The network management port (NET MGT) is the optional connection to the Oracle ILOM SP. The SP network management port uses an RJ-45 cable for a 10/100/1000 BASE-T connection.

    See “NET MGT Port” on page 77.

- **NET Ethernet ports:**

  The Oracle Server X8-2 back panel includes five Ethernet network ports, labeled SER MGT, NET MGT, NET 0, NET 1, and NET 2 that connect the server to the network. The server Ethernet interfaces operate at 1000 Mbps, and 10,000 Mbps.

  - NET 0: 10/100/1000BASE-T RJ-45 GbE port
  - NET 1: 10/25GbE SFP+ port or 10GBASE-T RJ-45 GbE port options
  - NET 2: 10/25GbE SFP+ port or 10GBASE-T RJ-45 GbE port options

  See “X8-2 Back Panel Connectors and Ports” on page 73.

  The Oracle Server X8-2L back panel includes three network Ethernet ports, labeled SER MGT, NET MGT, NET 0 that connect the server to the network. The server Ethernet interfaces operate at 100 Mbps (Oracle Server X8-2L only), 1000 Mbps, and 10,000 Mbps.

  - NET 0: 10/100/1000BASE-T RJ-45 GbE port

  See “X8-2L Back Panel Connectors and Ports” on page 74.

  See “Ethernet Ports” on page 77.

- **USB Ports:** The server USB ports support hot-plug insertion and removal. You can connect and disconnect USB cables and peripheral devices while the server is running without affecting server operations.

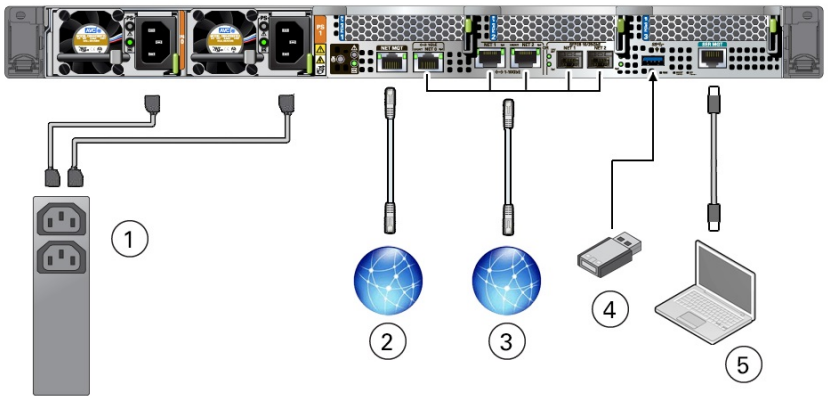
  See “USB Port” on page 76.

- **AC power cables:** The server has two power supply connectors, one for each power supply.

  See “Connect Cables and Power Cords” on page 81.

X8-2 Back Panel Connectors and Ports

The following figure shows the locations of cable connectors and ports on the back of Oracle Server X8-2 and the cables and devices that you connect to them.

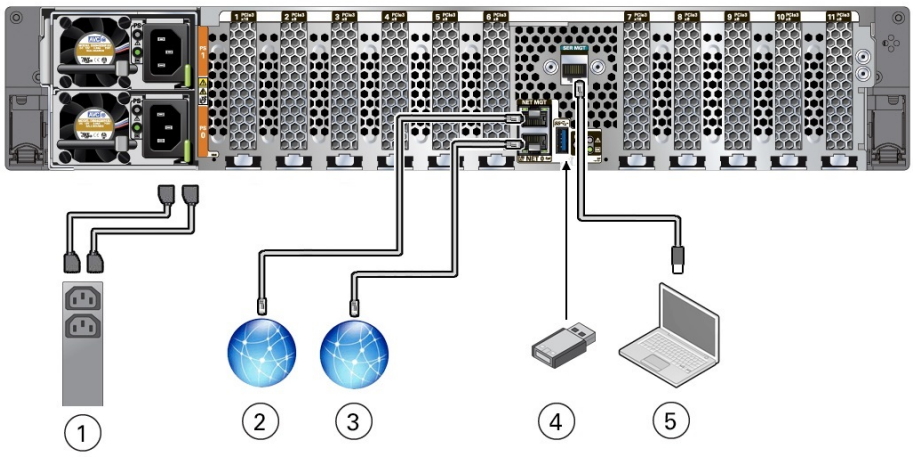


Call Out	Cable Port or Expansion Slot	Description
1	Power supply 0 input power Power supply 1 input power	The server has two power supply connectors, one for each power supply, labeled PS0 and PS1. Power supply 0 input power and Power supply 1 input power both connect to a rack power distribution unit (PDU). Do not attach power cables to the power supplies until you finish 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 signals 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 “Connect Cables and Power Cords” on page 81.
2	Network management port (NET MGT)	The service processor NET MGT port is the optional connection to the Oracle ILOM service processor. The service processor NET MGT port uses an RJ-45 cable for a 10/100/1000BASE-T connection. See “NET MGT Port” on page 77.

Call Out	Cable Port or Expansion Slot	Description
		The NET MGT port is configured by default to use Dynamic Host Configuration Protocol (DHCP). To set a static IP address, see "Modifying Network Settings" on page 94.
3	Ethernet ports: ■ NET 0, 10/100/1000BASE-T RJ-45 GbE port ■ NET 1 and NET 2, 10/25GbE SFP+ ports ■ NET 1 and NET 2, 10GBASE-T RJ-45 GbE ports	Three out of five Gigabit Ethernet (GbE) ports enable you to connect the system to the network. See "Ethernet Ports" on page 77. Up to 10GbE is supported when using copper Gigabit Interface Converters (GBICS); up to 25GbE is supported when using optical GBICs. **Note -** The 10/25GbE SFP+ ports are the default network ports for the server. When using an SFP+ port, network connectivity is disabled on the 10GBASE-T RJ-45 GbE ports.
4	USB port	The USB port supports hot-plugging. You can connect and disconnect a USB cable or a peripheral device while the server is running without affecting system operations. See "USB Port" on page 76.
5	Serial management port (SER MGT)	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. See "SER MGT Ports" on page 76. **Note -** This port does not support network connections.

X8-2L Back Panel Connectors and Ports

The following figure shows the locations of cable connectors and ports on the back of Oracle Server X8-2L and the cables and devices that you connect to them.



Call Out	Cable Port or Expansion Slot	Description
1	Power supply 0 input power Power supply 1 input power	The server has two power supply connectors, one for each power supply. Power supply 0 input power and Power supply 1 input power both connect to a rack power distribution unit (PDU). 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 “Connect Cables and Power Cords” on page 81.
2	Network management port (NET MGT)	The service processor NET MGT port is the optional connection to the Oracle ILOM service processor. The service processor NET MGT port uses an RJ-45 cable for a 10/100/1000BASE-T connection. See “NET MGT Port” on page 77. The NET MGT port is configured by default to use Dynamic Host Configuration Protocol (DHCP). To set a static IP address, see “Modifying Network Settings” on page 94.
3	Ethernet port (NET 0)	The Ethernet port enables you to connect the system to the network. The Ethernet port uses an RJ-45 cable for a 10/100/1000BASE-T connection. See “Ethernet Ports” on page 77.

Call Out	Cable Port or Expansion Slot	Description
4	USB 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. See "USB Port" on page 76.
5	Serial management port (SER MGT)	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. See "SER MGT Ports" on page 76. **Note -** This port does not support network connections.

USB Port

One USB 3.0 port is located at the rear panel. For Oracle Server X8-2 see the location of the USB port at "X8-2 Back Panel Features" on page 29. For Oracle Server X8-2L, see the location of the USB port at "X8-2L Back Panel Features" on page 32.

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. The USB port supplies 5V output at 2A.

SER MGT Ports

The SER MGT RJ-45 port, located on the rear panel, provides the default management connection to the Oracle ILOM SP. See "X8-2 Back Panel Features" on page 29 or "X8-2L Back Panel Features" on page 32 for more information.

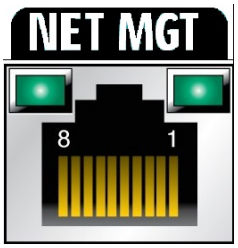
For DTE to DTE communications, you can use a RJ-45 to DB-9 crossover adapter with a standard RJ-45 cable to achieve the required null modem configuration.

NET MGT Port

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.

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 "X8-2 Back Panel Features" on page 29 or "X8-2L Back Panel Features" on page 32 for more information.

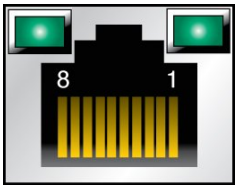
Note - You can configure the host network media for the network ports in Oracle ILOM or the BIOS options for the network controller. See "Configure Oracle Server X8-2 Network Media" on page 79.



Ethernet Ports

Oracle Server X8-2 has three RJ-45 Gigabit Ethernet (GbE) ports (labeled NET0, NET1, and NET2) and two SFP+/SFP28 10/25GbE ports (labeled NET1 and NET2) on the server back panel. RJ-45 port NET0 supports 10/100/1000 GbE, and RJ-45 ports NET1 and NET2 support 1/10 GbE.

Oracle Server X8-2L has one RJ-45, 10/100/1000 GbE port, labeled NET0. Use any of these ports to connect the server to the network.



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

There are two status indicators (LEDs) for each Ethernet port:

- Indicators for RJ-45 ports are located above each port and display Link/Activity (left) and Speed (right)
- Indicators for SFP28 ports (Oracle Server X8-2 only) are located above and below each port and display Link/Activity (top) and Speed (bottom)

The following tables list the Ethernet transfer rates and the Speed LED colors for each server.

Oracle Server X8-2

Connection Type	IEEE Terminology	Speed LED Color	Transfer Rate
Gigabit Ethernet (RJ-45)	1000BASE-T	Off	1,000 Mbits/sec
Gigabit Ethernet (RJ-45)	10GBASE-T	Green	10,000 Mbits/sec
10 Gigabit Ethernet (SFP+/ SFP28)	10GBASE-T	Off	10,000 Mbits/sec
25 Gigabit Ethernet (SFP+/ SFP28)	25GBASE-T	Green	25,000 Mbits/sec

Oracle Server X8-2L

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

Configuring Oracle Server X8-2 Network Media

Oracle Server X8-2 provides three network ports, one i210 based Gigabit Ethernet copper port and two ports attached to the network controller, which use either two 1/10-Gigabit Ethernet RJ-45 copper ports or two 10/25-Gigabit Ethernet SFP+/SFP28 ports. Configure network media by selecting the media type for the Ethernet ports using either Oracle ILOM or the BIOS options for the network controller.

When the Oracle ILOM `auto_media_detection` option is enabled (default), either plug an Ethernet cable into the RJ-45 port or connect an SFP+/SFP28 transceiver into an SFP port. The system automatically configures the `active_media` option. If both SPF and RJ-45 ports are plugged in, the system defaults to the SFP port, and the RJ-45 ports are not usable.

Note - Do not install an Avago 10G SR Optical transceiver (part number AFBR-703SDDZ-SN1) into an SFP28 port on the Oracle Server X8-2. If installed, it could be extremely difficult to remove and might also cause damage to the SFP28 metal cage on the system motherboard.

▼ Configure Oracle Server X8-2 Network Media

To manually change the network media selection, perform the following procedure.

1. **Power on the server and connect to Oracle ILOM.**

   See “Power On the Server” on page 83 and “Connecting to Oracle ILOM” on page 89.

2. **In Oracle ILOM, change the network media selection.**

   For example, change `active_media` from `SFP28` to `RJ45`. Then reset or power cycle the system to change `current_active_media` to `RJ45`.

```
-> cd /HOST/network
/HOST/network
-> ls
  /HOST/network
     Targets:
     Properties:
         active_media = SFP28
         auto_media_detection = disabled
         current_active_media = SFP28
      Commands:
         cd
         set
```

```
        show
-> show current_active_media
  /HOST/network
     Properties:
         current_active_media = SFP28
-> set active_media=RJ45
Set 'active_media' to 'RJ45'
```

3. **Reset or power cycle the system for the new media selection to take effect.**

   See "Controlling System Power" on page 131.

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.

- **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 91

  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 92.

  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 5.0* 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 5.0.x* at https://www.oracle.com/goto/ilom/docs.

Related Information

- "X8-2 Back Panel Features" on page 29
- "X8-2L Back Panel Features" on page 32
- "Connecting Cables and Applying Power" on page 71
- Oracle Integrated Lights Out Manager (ILOM) Documentation Library at: https://www.oracle.com/goto/ilom/docs

Connect Cables and Power Cords

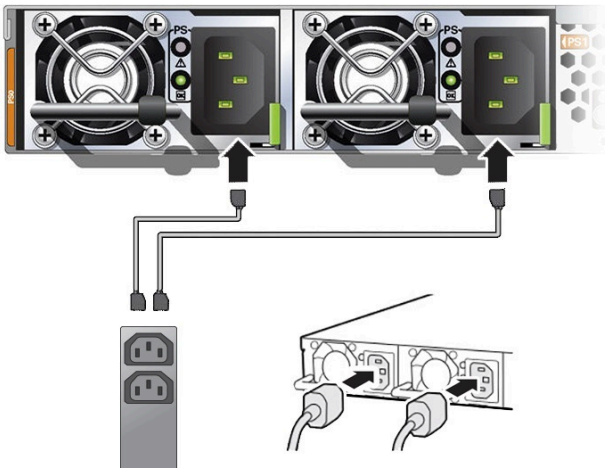
1. **For network access, connect an Ethernet cable between the server's Ethernet ports (NET0, NET1, or NET2) and the network to which the server will communicate.**
   See "Ethernet Ports" on page 77.
2. **Connect any other cables to back panel accessible connections, as needed.**
3. **Make a connection to the Oracle ILOM service processor.**
   See "Server Management Connection Options" on page 80.
   Choose one of the following options:

   - **Connect a serial cable the server's 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.

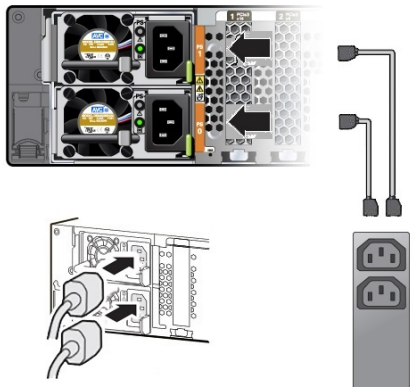
   - **Connect an RJ-45 Ethernet cable to the server's management port (NET MGT) and the management network.**

4. **Connect two power cords to two power supplies at the back of the server from two separate AC power sources.**
   Use Velcro straps to secure power cords to the power supply handles.
   The server is equipped with two power supplies. The server can operate with one power source; however, using only one power source eliminates redundancy.

Oracle Server X8-2:



Oracle Server X8-2L



Caution - Damage to Server Components: Do not operate the server unless all included fans and components are fully installed.

5. **Confirm that the server is in Standby power mode.**

When the server power cords are connected, the following actions occur:

- The green AC OK power supply indicators (LEDs) light.
- The Oracle ILOM SP initializes. During initialization, the green SP OK LED flashes rapidly.
- Once the Oracle ILOM SP has fully initialized, the green SP OK LED is steady on and the green System OK LED flashes slowly, indicating that the host is in Standby power mode.

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

Related Information

- “X8-2 Front Panel Features” on page 28
- “X8-2 Back Panel Features” on page 29
- “X8-2L Front Panel Features” on page 30
- “X8-2L Back Panel Features” on page 32

▼ Power On the Server

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 the server.**

   - **On/Standby button: When physically present at the system, press the On/Standby button to apply Main power to the 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) 5.0 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:

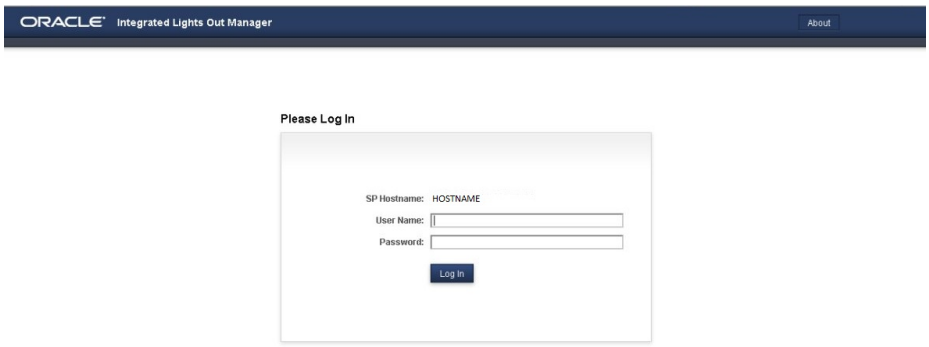
```
-> start /HOST/console
```

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

- **Oracle ILOM remote network connection using a web browser:**

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

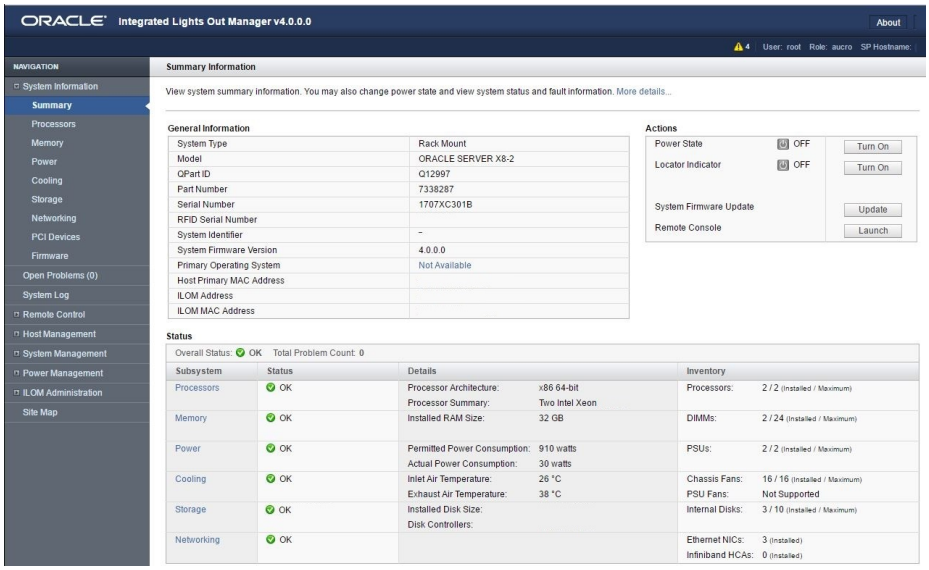
The Oracle ILOM login screen appears.



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

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

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



Note - To prevent unauthorized access to Oracle ILOM, create user accounts for each user. For details, see the Oracle Integrated Lights Out Manager (ILOM) 5.0 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.

- **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) 5.0 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 83.

Using Oracle Integrated Lights Out Manager (ILOM)

Oracle Server X8-2 and Oracle Server X8-2L are 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.

- "Connecting to Oracle ILOM" on page 89
- "Oracle ILOM Hardware and Interfaces" on page 90
- "Accessing Oracle ILOM" on page 90
- "Modifying Network Settings" on page 94
- "Redirecting the Host Console Using Oracle ILOM" on page 98
- "Troubleshooting Oracle ILOM" on page 102

Related Information

- "Installation Procedure Overview" on page 11
- "Connecting Cables and Applying Power" on page 71
- Oracle Integrated Lights Out Manager (ILOM) 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 91.
- **Dedicated remote network management connection –** For information, see "Log In to Oracle ILOM Using a Remote Ethernet Connection" on page 92.

- **Sideband network management connection –** For information, refer to "Sideband Network Management Connection" in *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 5.0.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 5.0.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	■ 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	■ 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) 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 91
- “Log In to Oracle ILOM Using a Remote Ethernet Connection” on page 92

To log out of Oracle ILOM, follow this procedure:

- “Log Out of Oracle ILOM” on page 94

▼ 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 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`.

---

1. **Ensure that the server is cabled for a local serial connection to Oracle ILOM.**
   See “Connecting Cables and Applying Power” on page 71.
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

- “Connecting Cables and Applying Power” on page 71

- “Troubleshooting Oracle ILOM” on page 102

▼ 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 service processor (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 102.

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 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 71.

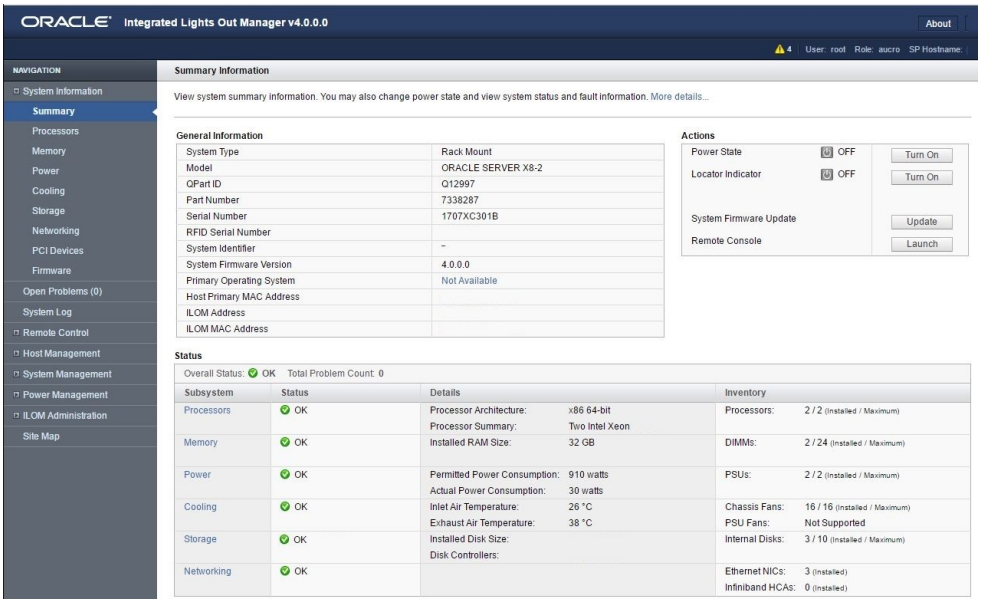
2. **Establish a connection to the Oracle ILOM web interface or the CLI.**

   - **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.



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

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

```
ssh username@hostname
```

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.

For example:

```
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:

- "Modifying Network Settings" on page 94
- "Test the IPv4 or IPv6 Network Configuration" on page 96

The servers support 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 DCHP 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 90.

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

   - **From the Oracle ILOM 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 service processor IP address.

   - **From the Oracle ILOM 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 service processor IP address.

▼ Test the IPv4 or IPv6 Network Configuration

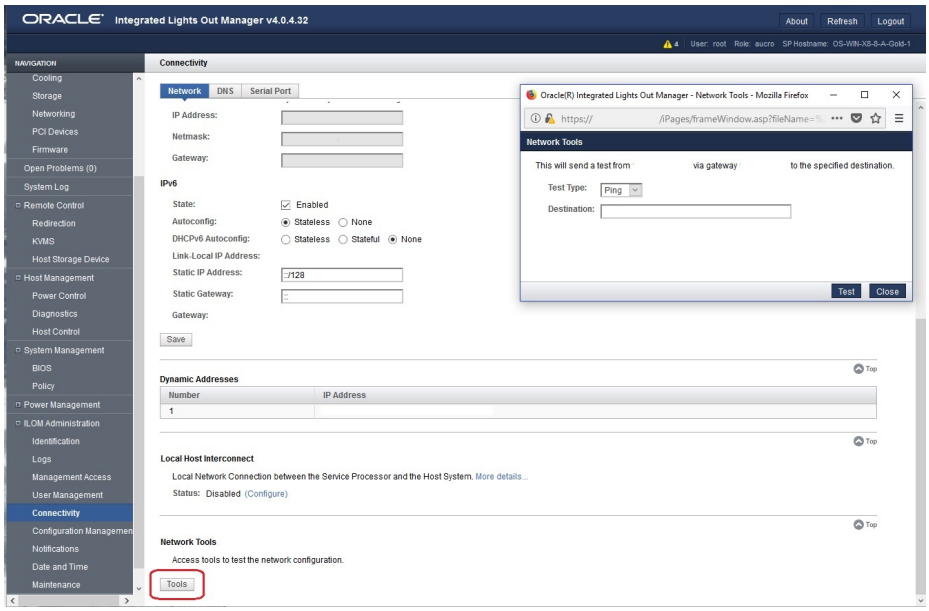
- **Use either the Oracle ILOM web interface or CLI to test the IPv4 or IPv6 network configuration.**

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

- “Set the Mouse Mode” on page 99
- “Redirect Host Server Desktop or Storage Devices” on page 99

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 5.0.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 92.

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 99).
- 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 92.

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.

   A 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.**

   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 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 using Oracle ILOM Remote System Console Plus, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 5.0.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 5.0.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 91.

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

   For instructions, see "Log In to Oracle ILOM Using a Local Serial Connection" on page 91.

2. **At the Oracle ILOM command 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 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 103
- “Reset the Service Processor From the Server Back Panel” on page 103
- “Recover the Root Account Password” on page 105

Note - x86 Delay BIOS Firmware Option Can Cause a Longer Reset and Multiple Reboots. If the server has a pending BIOS upgrade, a routine reset will take longer to complete. The pending BIOS upgrade will cause the server to power cycle and reboot several times. This is expected behavior. If the upgrade includes an FPGA update, the process can take as long as 26 minutes to complete.

Note that a pending BIOS upgrade exists when both of these conditions are true: You updated the BIOS and SP firmware using Oracle ILOM. During the Oracle ILOM firmware update process, you selected Delay BIOS Upgrade.

▼ 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.

▼ Reset the Service Processor From the Server Back Panel

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

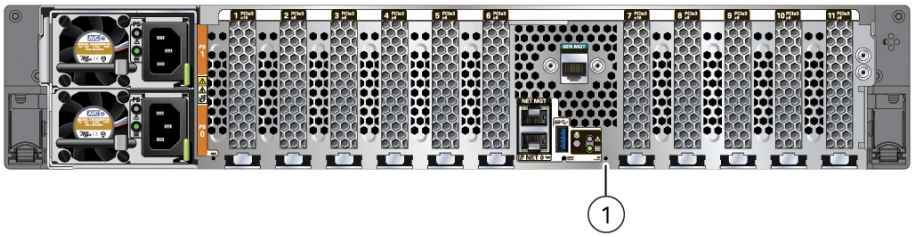
1. **Using a non-conducting stylus, press the Reset SP pinhole button located on the server back panel.**

   The stylus should be non-conductive with a diameter no more than 1.5 mm. To depress the pinhole button, the stylus should reach 6.5 mm into the chassis. Care should be taken to not over penetrate into the chassis, or probe the sensitive electrical components near the button.

Caution - Using a conductive tool, such as a metal paper clip or graphite pencil, can cause a short that can cause an immediate host power off, and/or circuit damage.

Oracle Server X8-2:

Oracle Server X8-2L:



Callout	Description	Icon
1	SP Reset pinhole button	SP

2. **After the SP reboots, log in again to continue 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. 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.**

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 *Oracle ILOM Administrator's Guide* 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 107	Provides an overview of RAID and operating systems.
"Configuring RAID" on page 109	Provides information and links to the procedures for configuring RAID on your server HBA.
"Supported Storage Devices" on page 109	Lists the HDDs and SSD drives, and HBAs supported on your server and provides links to the procedures for configuring RAID on them.
"Configuring RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port" on page 110	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. To learn more about this HBA, refer to the *Oracle Storage 12 Gb/s SAS PCIe RAID HBA, Internal Installation Guide* at `https://docs.oracle.com/cd/E87591_01/index.html`.
"Viewing Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility" on page 119	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.
"Rapid Storage Technology Enterprise (RSTe)" on page 121 480 GB M.2 SATA SSD	You can install an OS on an M.2 SATA SSD without any additional configuration. Or, you can use the BIOS Setup Utility to configure these SSDs with an Intel Rapid Storage Technology enterprise (RSTe) RAID before installing an OS.
"Installing an Operating System" on page 130	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.

  Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port HBA on your server supports hardware RAID. For instructions, see "Configuring RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port" on page 110.
- **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 Servers X8-2 and X8-2L 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 Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port see “Configuring RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port” on page 110.

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 “Configuring RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16 Port” on page 110.
- Oracle Flash Accelerator F640 PCIe Cards. You can install an OS on these cards without any additional configuration.

  See “Viewing Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility” on page 119.

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

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 drives 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 99 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:

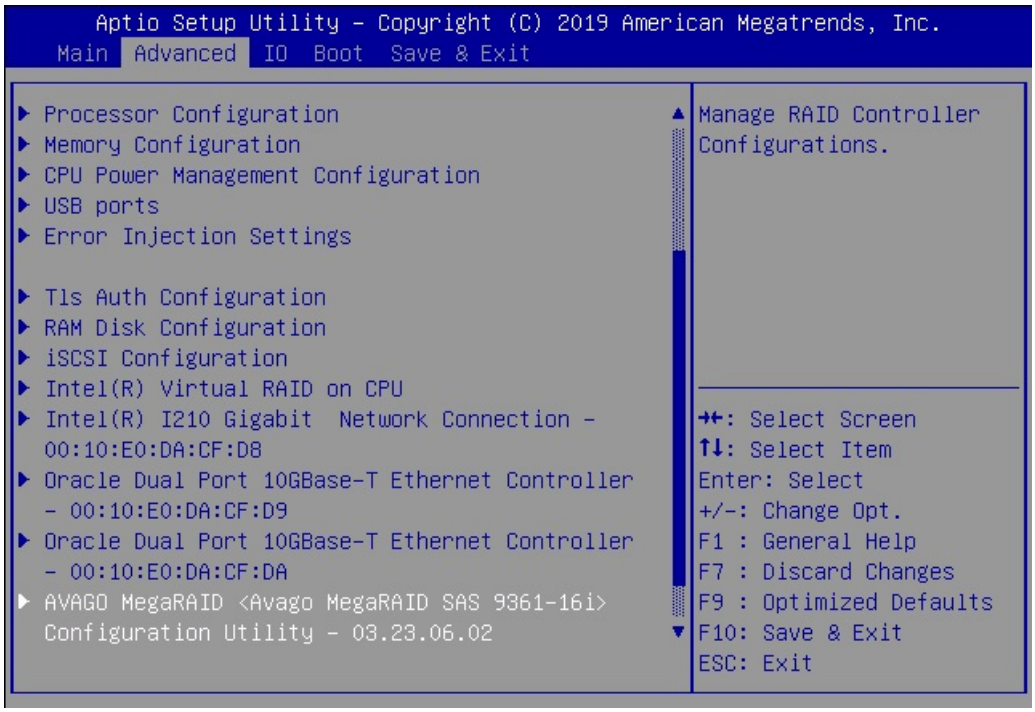
   - **From the local server,** press the On/Standby button on the front panel of the server for approximately 1 second to power off the server, and then press the On/Standby button again to power on the server.
   - **From the Oracle ILOM web interface,** select `Host Management → Power Control`, and in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

   For more details, see "Controlling System Power" on page 131.

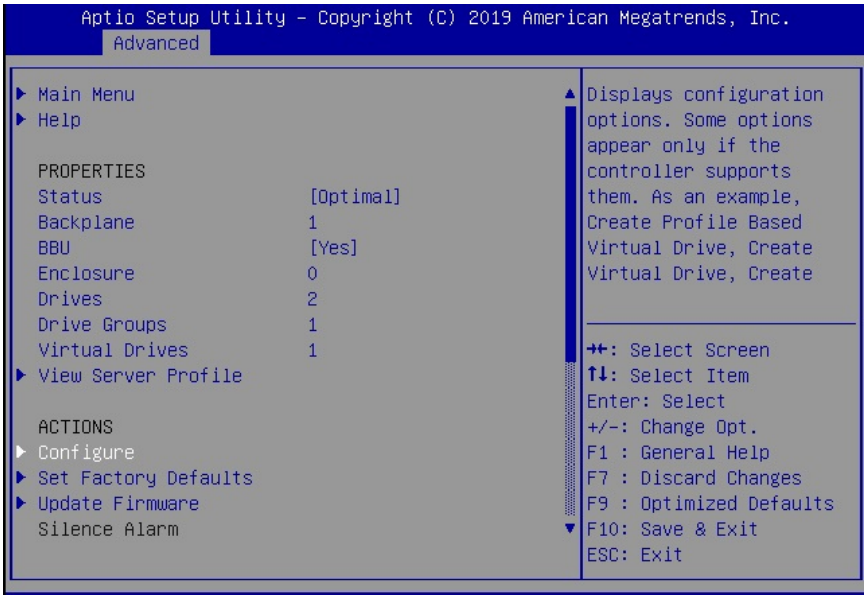
   The system boots to the BIOS Setup Utility.

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

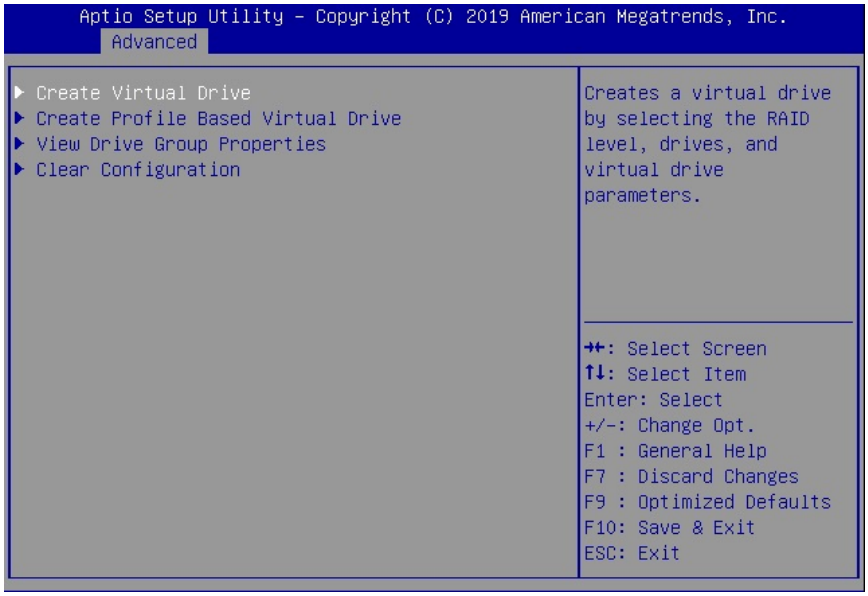
4. **On the BIOS Setup Utility screen, select the Advanced tab, select `Avago MegaRAID Configuration Utility`, and press Enter.**



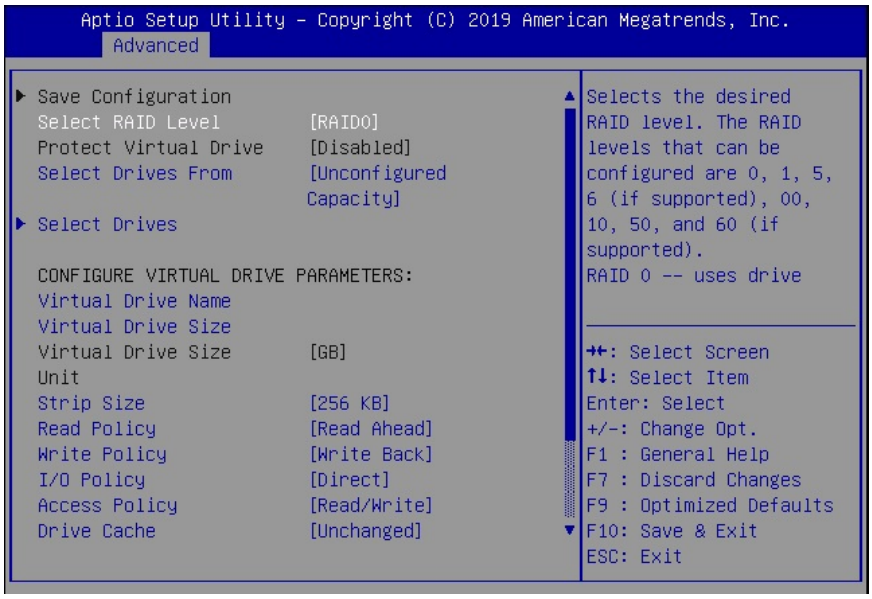
5. **From the ACTIONS menu, select `Configure` and press Enter.**



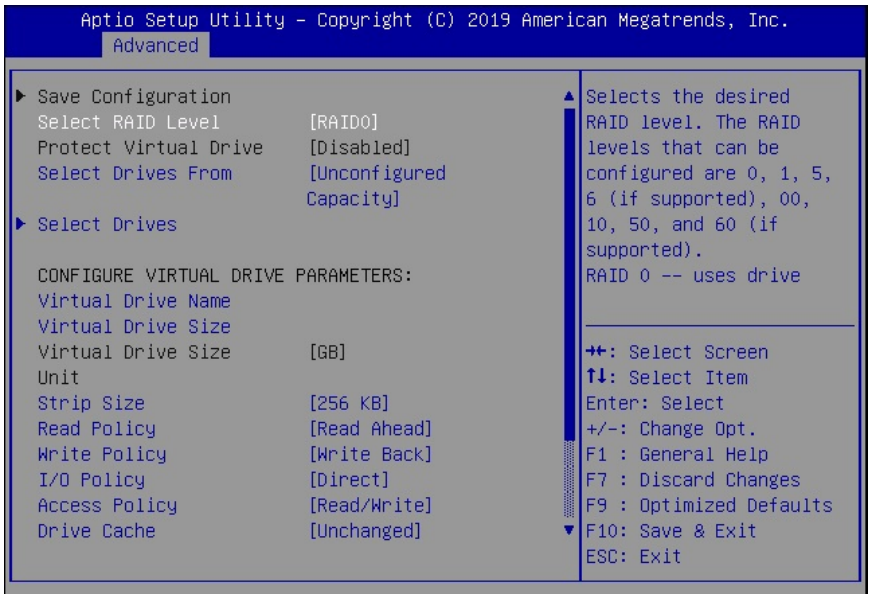
6. **Select `Create Virtual Drive` and press Enter.**



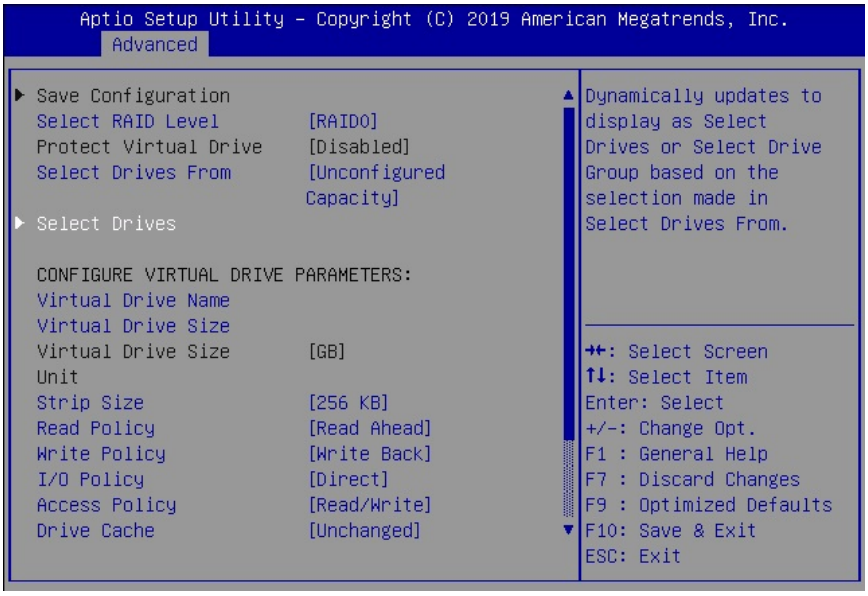
The Create Virtual Drive menu appears.



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.**



9. **For each drive that you want to include in the RAID volume, do the following:**

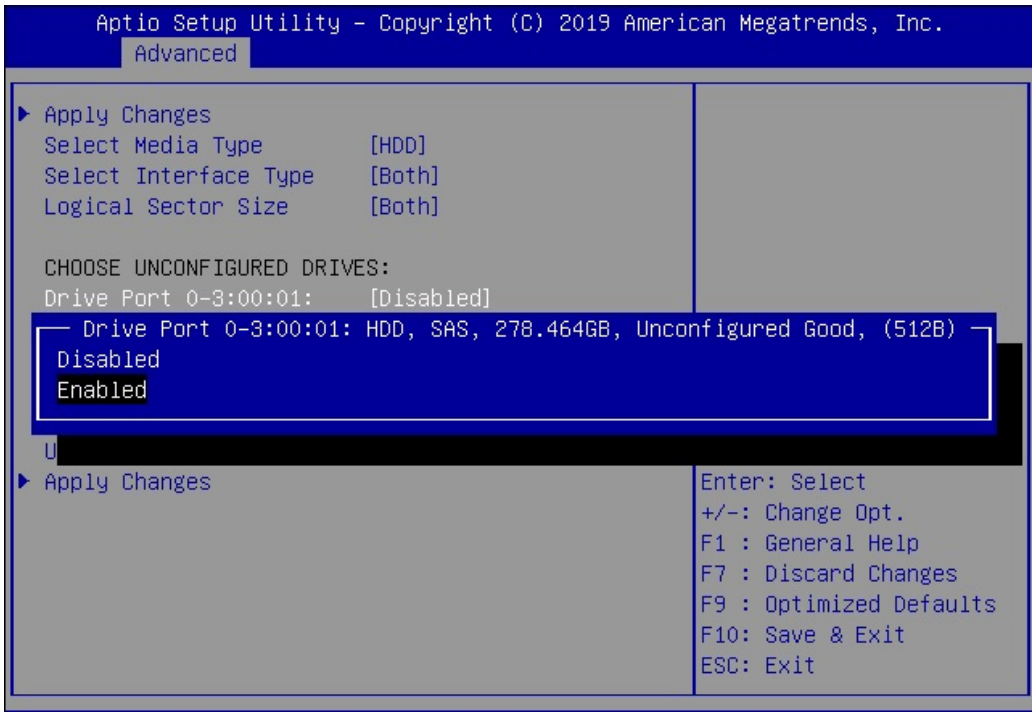
   a. **Use the arrow keys to navigate to the drive.**

   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.



10. Select `Apply Changes`, and press Enter.

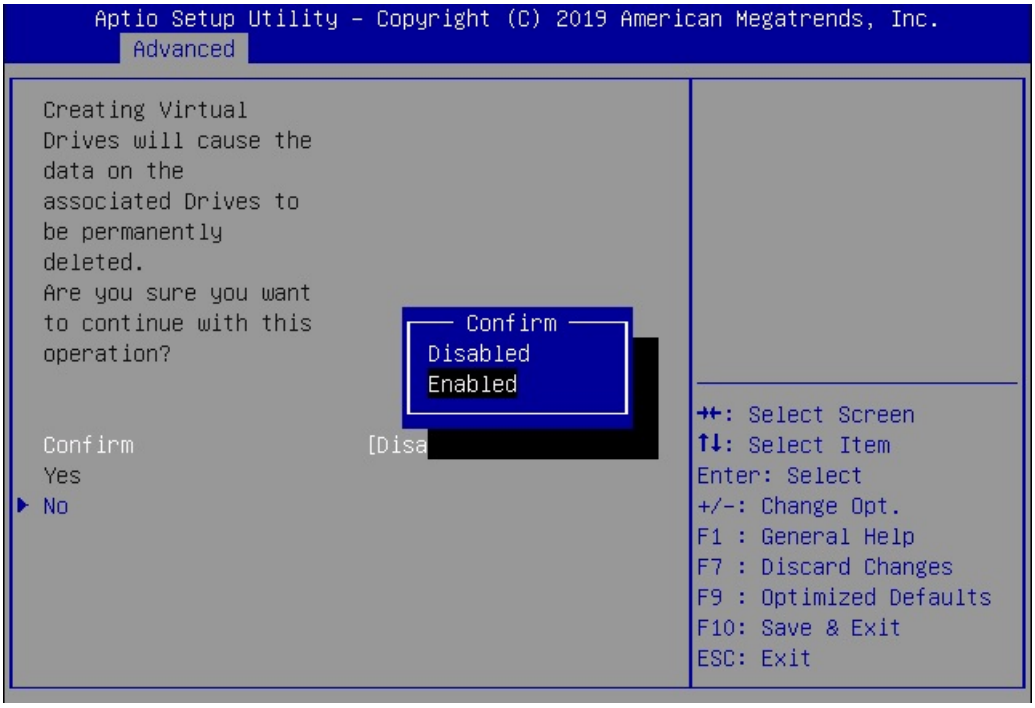
The RAID volume is created with the drives you specified, and the Confirmation page is displayed.

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:**

    a. **Press ESC to exit from the Avago MegaRAID Configuration Utility and to return to the Configuration Utility menu.**

    b. **Navigate to the View Drive Group Properties menu, and press Enter.**

    c. **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.

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

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

You can install an operating system on an Oracle Flash Accelerator F640 PCIe Cards 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 99 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 `Graceful Reset`, `Reset`, or `Power On`. Click `Save`, and then click `OK`.
- **From the Oracle ILOM CLI,** type: `reset /System`.

For more details, see "Controlling System Power" on page 131.

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

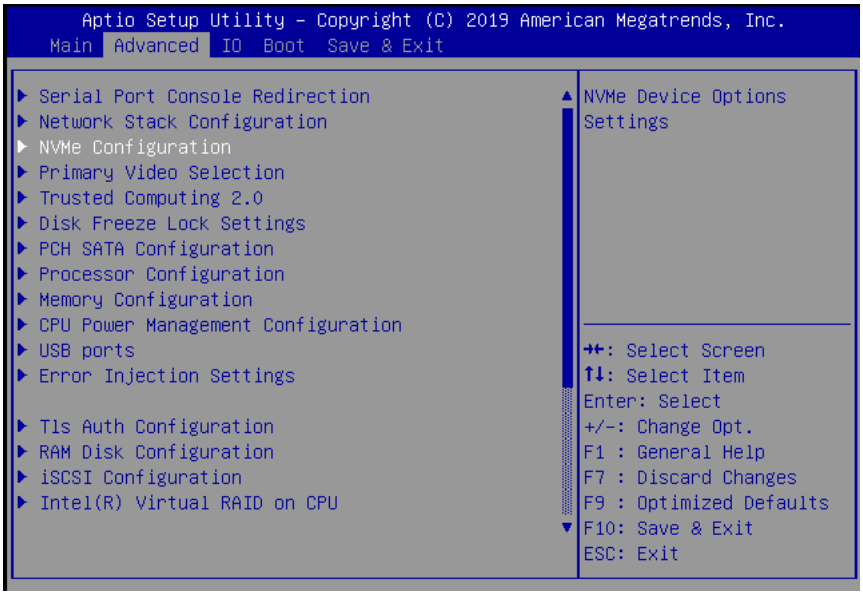
4. **When prompted in the BIOS screen, press `F2` (Ctrl+E from a serial connection) to launch the BIOS Setup Utility.**

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`.**



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

Rapid Storage Technology Enterprise (RSTe)

You can create and manage RAID arrays on the Oracle Servers X8-2 and X8-2L SATA M.2 SSDs using Intel Rapid Storage Technology Enterprise (RSTe), which provides the following benefits:

- Additional protection from data loss.
- Data is protected against a drive failure when you configure your system for RAID level 1 (mirror).
- Additional advantage of allowing an operating system to install directly to the RAID volume.
- BIOS exports the volumes as a target device to the operating system installer, streamlining the OS installation.
- The OS uses the system CPUs to manage and configure the RAID volumes.
- You can configure the volumes from the BIOS level or from Windows or Linux operating systems.

Note - VMware ESXi and Oracle Solaris do not support RSTe. You can mirror Oracle Solaris M.2 root volumes with Oracle ZFS File System.

▼ Configure RAID Using RSTe

This procedure configures a RAID volume so that you can install an operating system.

Note - This procedure applies only to servers with SATA M.2 SSDs.

1. **Access the host console locally or through Oracle ILOM.**

   For instructions, see "Accessing Oracle ILOM" on page 90.

2. **Reset or power on 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 `Graceful Reset`, `Reset`, or `Power On`. Click `Save`, and then click `OK`.

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

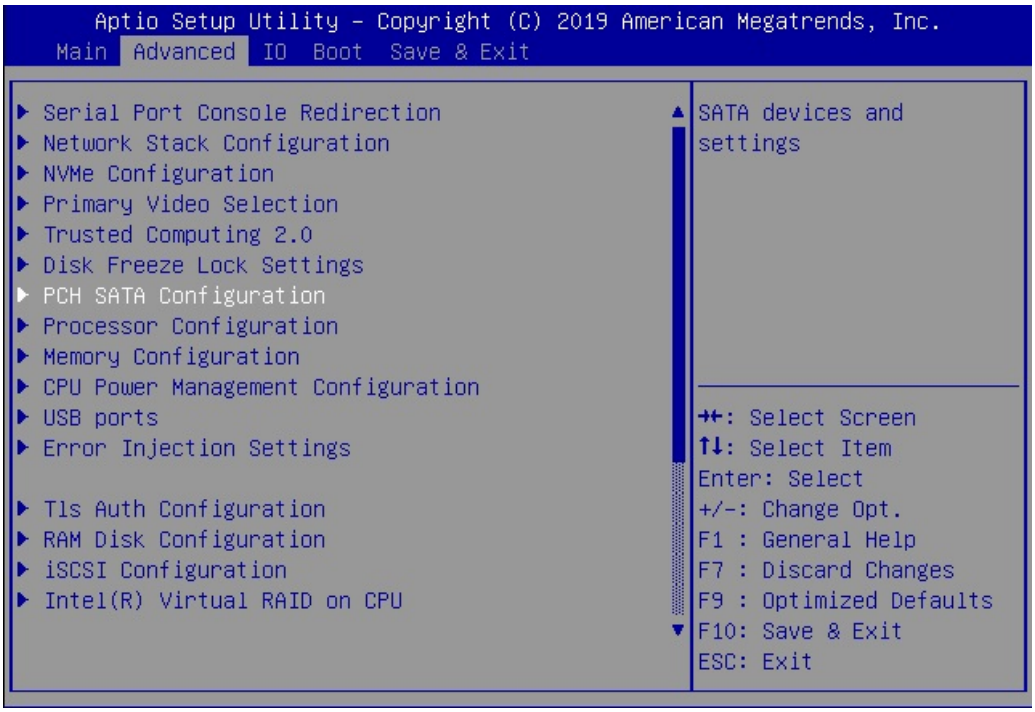
For more details, see "Controlling System Power" on page 131.

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

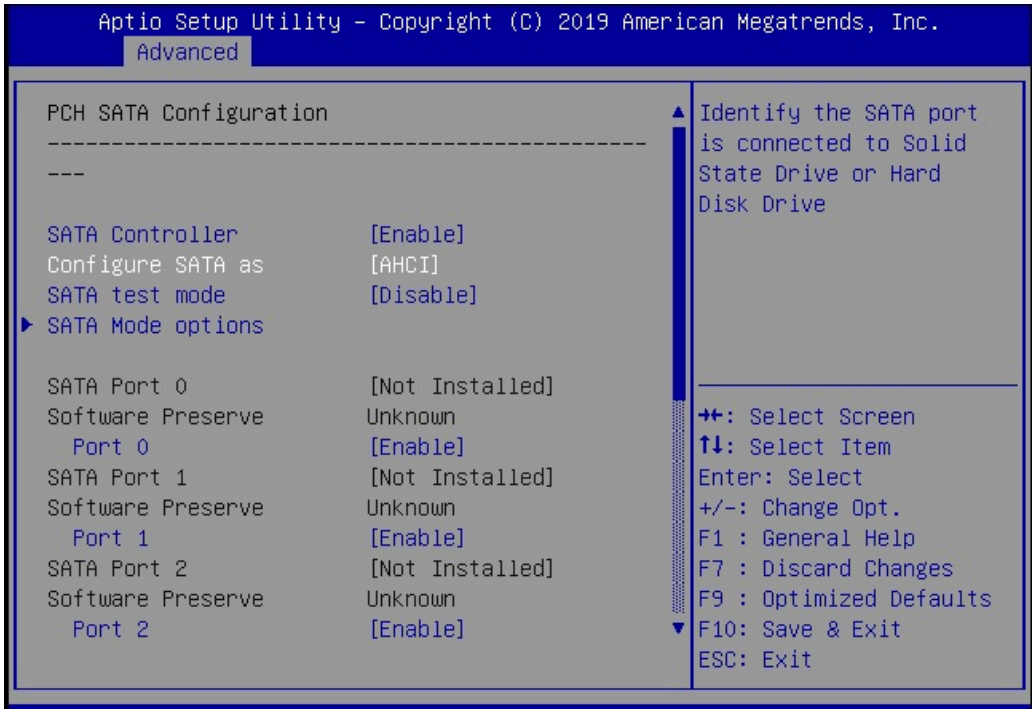
3. **When prompted in the BIOS screen, press `F2` (Ctrl+E from a serial connection) to launch the BIOS Setup Utility.**

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

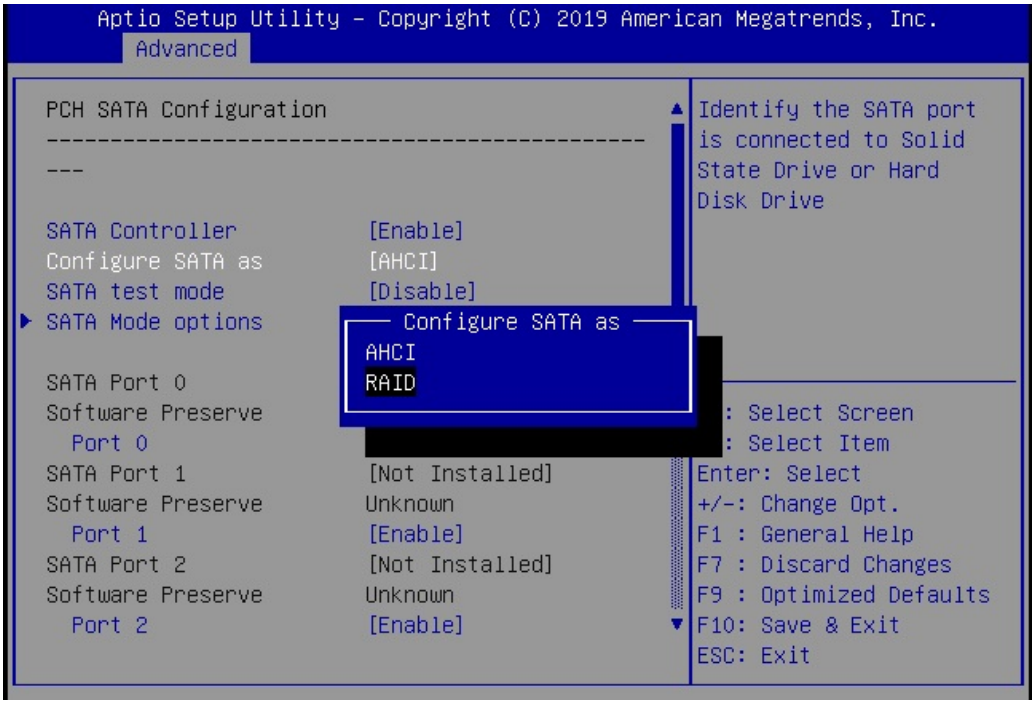
4. **On the BIOS Setup Utility screen, select the Advanced tab, select `PCH SATA Configuration`, and press Enter.**



5. **On the PCH SATA Configuration screen, select `Configure SATA as`.**



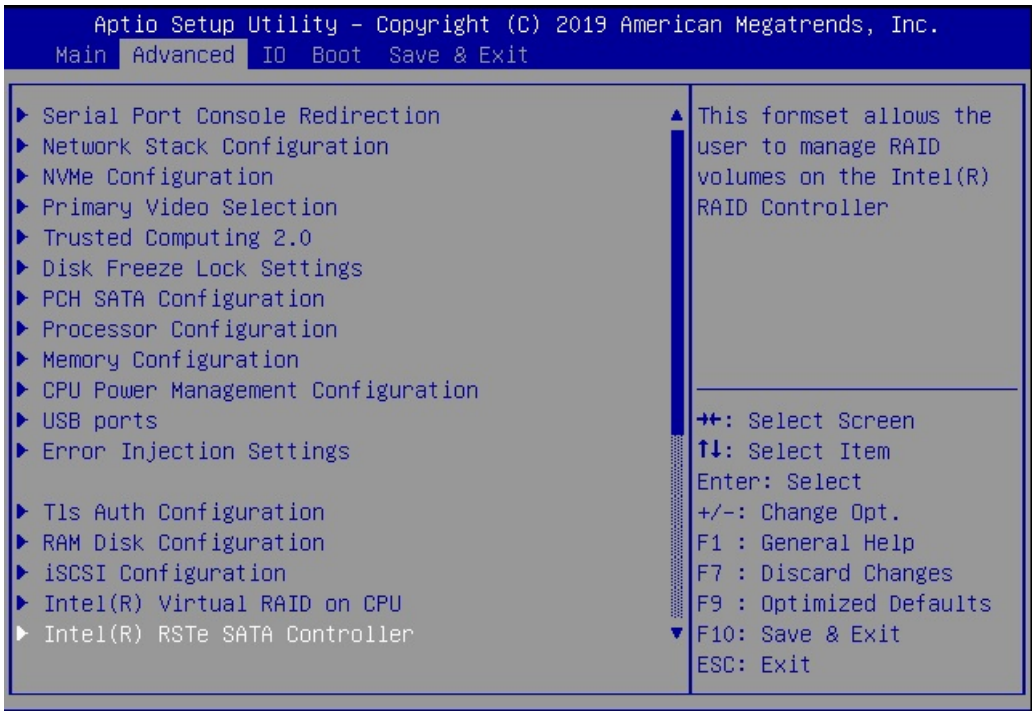
6. **In the Configure SATA as pop up, select `RAID` and press Enter.**



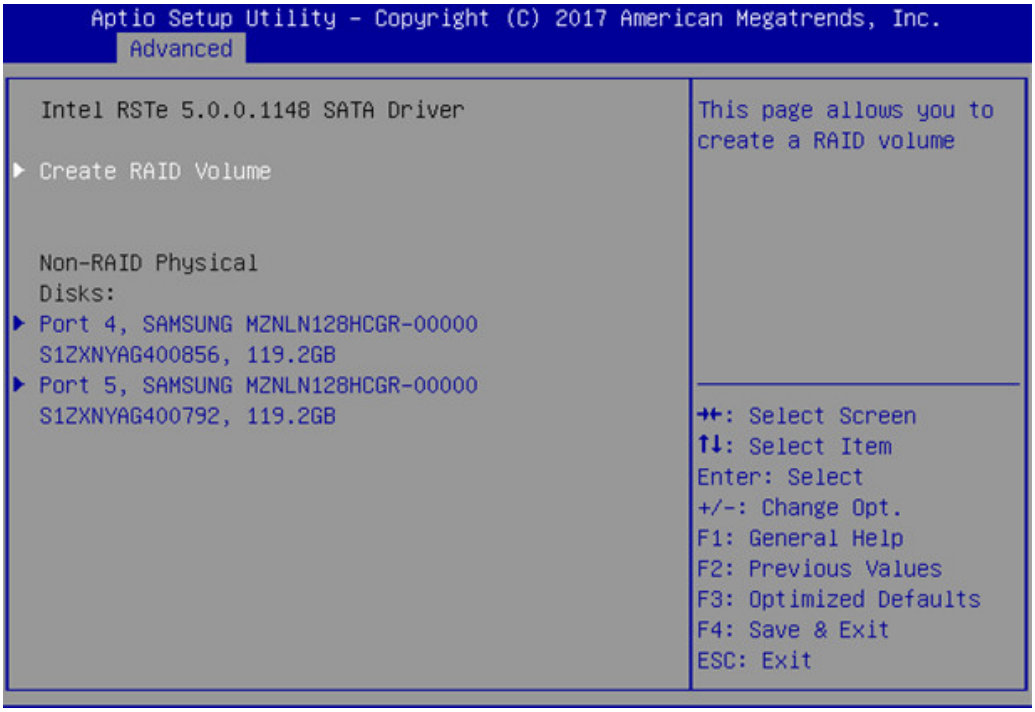
7. **On the Save&Exit screen, select `Save Changes and Exit` and press Enter.**

8. **Press F2 to return to the main BIOS Setup Utility menu.**

9. **Return to the Advanced menu and press Enter to select the `Intel RSTe SATA Controller` option.**

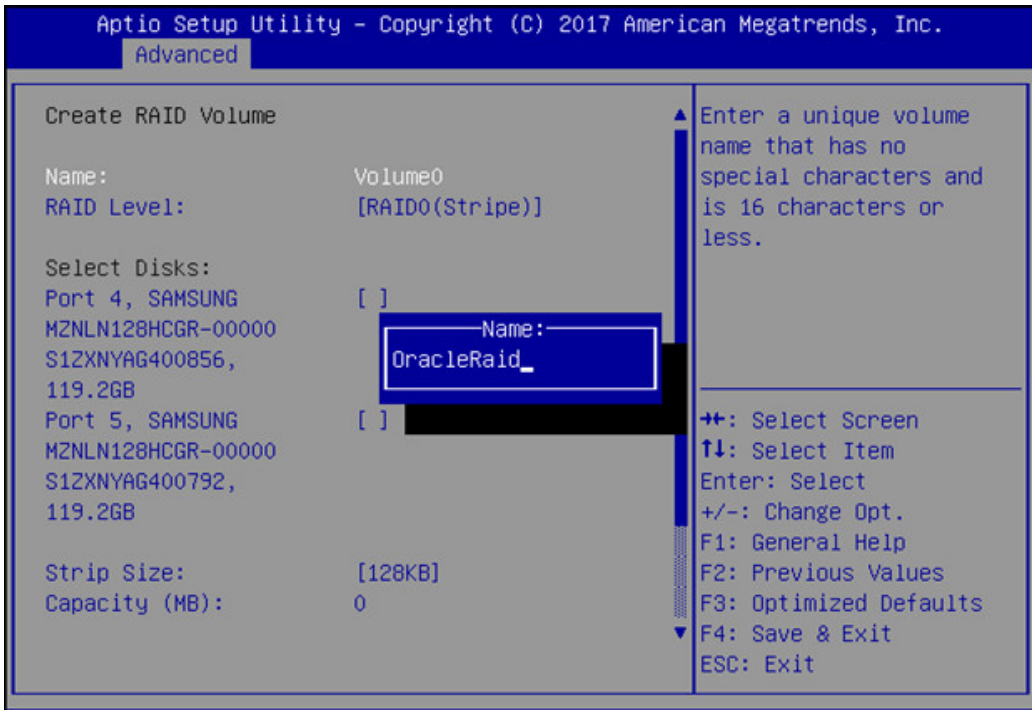


10. **Select `Create RAID Volume` and press Enter.**

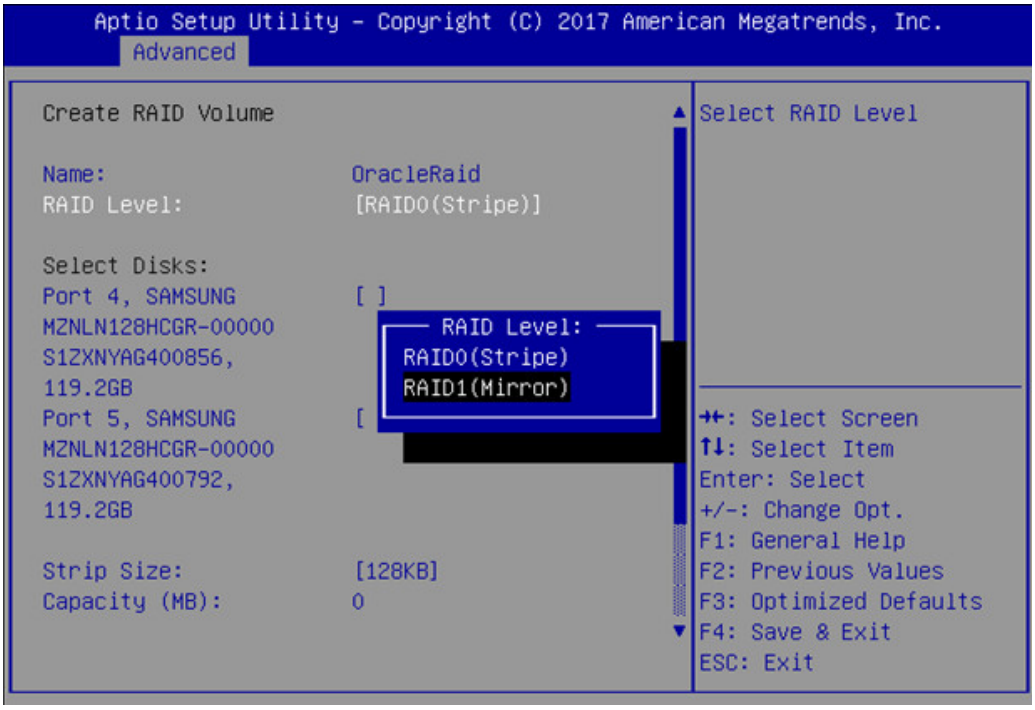


11. **On the Create RAID Volume Screen, select `Name`, and press Enter.**

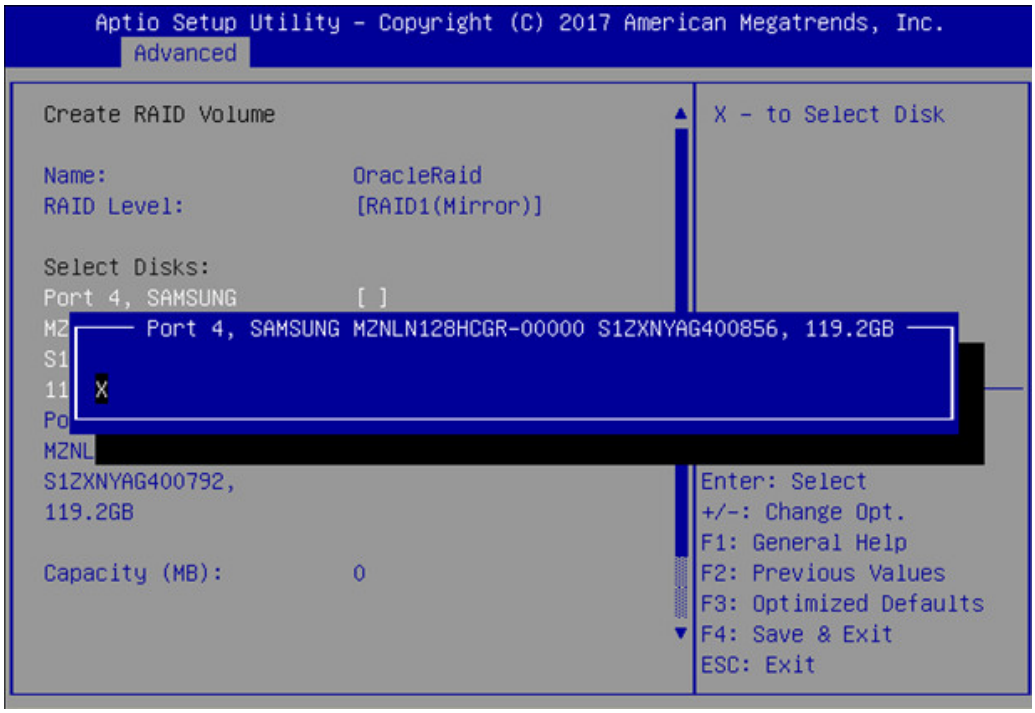
You can assign a name to the RAID volume.



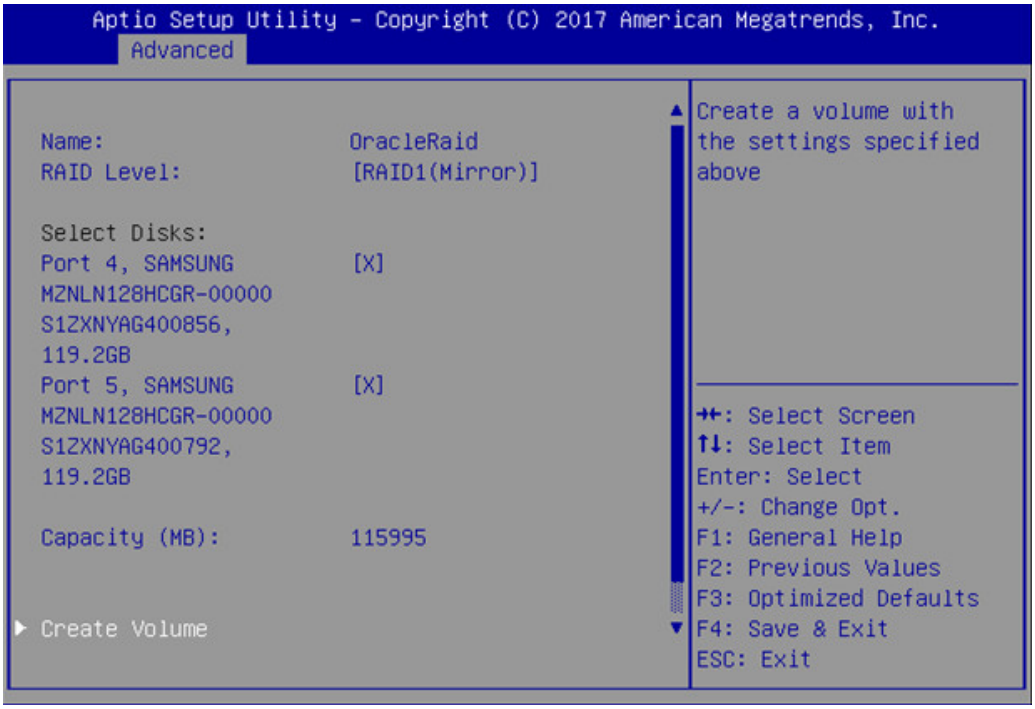
12. **Select `RAID Level` and press Enter to set the RAID level.**



13. **Select the disk you are configuring for RAID.**



14. **Scroll to the bottom of the Create RAID Volume screen and select `Create Volume`. Press Enter.**



15. **The volume appears under RAID volumes. Press ESC to return to the BIOS Setup Utility Main menu.**

16. **On the Save&Exit screen, select `Save Changes and Exit` and press Enter.**

    This completes the RAID configuration. You can now install an operating system on the volume that you created.

Installing an Operating System

For details on installing an operating system on Oracle Server X8-2 and Oracle Server X8-2L, refer to *Oracle Servers X8-2 and X8-2L 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 131
- "Resetting the Server" on page 134

Related Information

- "Installation Procedure Overview" on page 11
- Oracle Integrated Lights Out Manager (ILOM) 5.0 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 power cords to completely remove power. **Caution - Equipment damage.** Do not disconnect power cords when the system is in Main power mode. Place the system in Standby power mode before disconnecting the 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 OK indicator blinks slowly. The green SP OK indicator is steady on.	If the server is completely powered off, plug in the power cords to apply Standby power. If the server is in Main power mode, use Oracle ILOM or the Power button to remove host power.

Power State	Description	Indicators	Action
			You can power the host off gracefully, or immediately. **Caution - Data loss.** To prevent data loss, prepare the operating system for shutdown before you immediately power off.
Main power	When you power on the host, the server enters Main power mode.	The green System OK indicator is steady on.	Use Oracle ILOM or the On/Standby button to apply host power.

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

- “Power Off the Host Using the On/Standby Button” on page 132
- “Power On the Host Using the On/Standby Button” on page 133
- “Power the Host On and Off Using Oracle ILOM” on page 133

▼ Power Off the Host Using the On/Standby Button

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

   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 command-line interface (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 89.

  - **From the web interface:**

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

b. **From 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 5.0.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.

Note - x86 Delay BIOS Firmware Option Can Cause a Longer Reset and Multiple Reboots. If the server has a pending BIOS upgrade, a routine reset will take longer to complete. The pending BIOS upgrade will cause the server to power cycle and reboot several times. This is expected behavior. If the upgrade includes an FPGA update, the process can take as long as 26 minutes to complete.

Note that a pending BIOS upgrade exists when both of these conditions are true: You updated the BIOS and SP firmware using Oracle ILOM. During the Oracle ILOM firmware update process, you selected Delay BIOS Upgrade.

▼ 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 on /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 137
- "Options for Accessing Firmware and Software Updates" on page 138
- "Software Releases" on page 138
- "Getting Updates From My Oracle Support" on page 139
- "Getting Software From Software Delivery Cloud" on page 140
- "Installing Updates Using Other Methods" on page 141
- "Oracle Support" on page 142

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 about what is available on the My Oracle Support web site, see "Software Releases" on page 138.
- **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 141.

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
X8-2 or X8-2L SW *release* – Firmware Pack	Contains system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.

Package Name	Description	When to Download This Package
X8-2 or X8-2L SW *release* – OS Pack	Includes a package of tools, drivers, and utilities for an OS. An OS Pack is available for each supported operating system version. Software includes Oracle Hardware Management Pack, Avago MegaRAID software, and any optional software that Oracle recommends. For the Windows OS, the OS Pack also includes the Intel Network Teaming and Install Pack.	You need to update OS-specific tools, drivers, or utilities.
X8-2 or X8-2L SW *release* – All Packs	Includes the Firmware Pack, all OS Packs, and all documents. This pack excludes Oracle VTS image.	You need to update a combination of system firmware and OS-specific software.
X8-2 or X8-2L SW *release* – 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 139.

▼ Download Firmware and Software Updates From My Oracle Support

1. **Go to the My Oracle Support 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 Patch Search pane, in the Search tab area, click `Product or Family (Advanced)`.**

5. **In the Product field, select the product from the drop-down list or type a full or partial product name (for example, Oracle Server X8-2) until a match appears.**

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

7. **Click `Search` to view a list of the patches for the software release.**

   See "Software Releases" on page 138 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 document 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

You must have a valid Oracle 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, 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 then 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, available software to manage multiple systems in a data center. For information, refer to the product information page at: https://www.oracle.com/enterprise-manager/technologies/. For documentation, refer to the Oracle Enterprise Manager Cloud Control Documentation Library at: https://docs.oracle.com/en/enterprise-manager/related-products.html
- Oracle Hardware Management Pack. For information, refer to the product information page at: https://www.oracle.com/servers/technologies/hardware-management-pack.html.

For documentation and OS support matrix, refer to the Oracle Hardware Management Pack Documentation Library at: https://www.oracle.com/goto/ohmp/docs

- Oracle Integrated Lights Out Management (ILOM). For information, refer to the product information page at: https://www.oracle.com/servers/technologies/integrated-lights-out-manager.html. For documentation, refer to the Oracle Integrated Lights Out Manager (ILOM) 5.0 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 143
- "Technical Support Information Worksheet" on page 144
- "Locating the System Serial Number" on page 145
- "Auto Service Request" on page 145

Resources for Troubleshooting and Diagnostics

For server information about troubleshooting hardware faults, refer to "Troubleshooting and Diagnostics" in *Oracle Server X8-2 Service Manual* or "Troubleshooting and Diagnostics" in *Oracle Server X8-2L 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 resources that can assist you with resolving server issues.

Description	Reference Link
■ 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	*Oracle x86 Servers Diagnostics and Troubleshooting Guide* at `https://www.oracle.com/goto/x86admindiag/docs`
■ Administrative information for the Oracle X8 series servers	*Oracle X8 Series Servers Administration Guide* at `https://www.oracle.com/goto/x86admindiag/docs`

Description	Reference Link
■ Oracle ILOM system event log (SEL) that identifies the possible source of a problem	
■ Troubleshooting front and back panel status indicators	■ "Troubleshooting and Diagnostics" in *Oracle Server X8-2 Service Manual* ■ "Troubleshooting and Diagnostics" in *Oracle Server X8-2L Service Manual*
■ Managing server hardware faults using the Oracle ILOM Fault Management Shell	■ "Managing Server Hardware Faults Through the Oracle ILOM Fault Management Shell" in *Oracle Server X8-2 Service Manual* ■ "Managing Server Hardware Faults Through the Oracle ILOM Fault Management Shell" in *Oracle Server X8-2L 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 145.	
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 automatically opens a service request with Oracle 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 Oracle Server X8-2 or Oracle Server X8-2L before you receive the server.

- "Access Route and Data Center Checklist" on page 147
- "Data Center Environment Checklist" on page 148
- "Facility Power Checklist" on page 149
- "Rackmount Checklist" on page 150
- "Safety Checklist" on page 151
- "Auto Service Request Checklist" on page 151
- "Logistics Checklist" on page 152

Access Route and Data Center Checklist

Review the following facility requirements before you install 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 entryways conform to the width and height requirements for transportation, including the width of the unpacked unit?				

Data Center Room Considerations	Yes	No	N/A	Comment
Are there any ramps, stairs, or thresholds that are in the moving path for the new hardware?				
Have you confirmed that the access route is free of any obstacles that would expose the device to shock?				
If there are stairs, then is a loading elevator accessible for moving the equipment?				
Has the rack location been allocated?				
Is there a vacant space in the rack for the new server?				
Does the floor layout meet the equipment maintenance access requirements?				
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 42

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?				

Data Center Environment Considerations	Yes	No	N/A	Comment
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 where the server is installed.

Facility Power Considerations	Yes	No	N/A	Comment
Do you know the required operating voltage and electric current level of the server 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 for voltage and current-carrying capacities?				
Does the power frequency meet the equipment specifications?				
Will system power be delivered from two separate power grids?				
Is there a UPS to power the equipment?				
Do you have the minimum required power sources to support the power load for the new hardware? Use kilowatt (kW)/kilovolt (kVA) to express power load.				

Related Information

- “Electrical Requirements” on page 18

Rackmount Checklist

Complete the following checklist before you install the server into a rack.

Rackmount Considerations	Yes	No	N/A	Comment
Is the distance between the front and back mounting planes between a minimum of 610 mm and a 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)?				
Is the minimum clearance for service: ■ Front of server: 123.2 cm (48.5 inches) ■ Back of server: 91.4 cm (36 inches)				
Is the rack a four-post rack (mounting at both front and back)? Two-post racks are not compatible.				
Do the horizontal opening and unit vertical pitch of the rack conform to ANSI/EIA 310-D-1992 or IEC 60297 standards?				
Does the rack have RETMA rail support?				
Does the rack support Oracle cable management arms (CMAs)?				
Does the rack support installation of Oracle vented and solid filler panels?				
Is there sufficient space for cable harnesses and the power distribution units (PDUs) in the rack, if required?				
Can a label with the server serial number be printed and attached to the target rack?				
Did you label the network cables that will connect to the server?				
Does the rack support installation of standard Oracle PDUs? If not, then complete this checklist.				
Can the customer provide an equivalent pair of PDUs?				
Can the customer provide two PDUs with capacity of 110kVA per PDU?				

Rackmount Considerations	Yes	No	N/A	Comment
Can the customer provide a single PDU and its circuits to support the power requirements in case a PDU fails?				
Can the customer ensure that power loads are evenly distributed across all circuits of a single PDU?				

Related Information

- “Rack Space Requirements” on page 14
- “Installing the Server Into a Rack” on page 39

Safety Checklist

Complete the following checklist to ensure that the safety requirements are met for the data center where the server will be installed.

Safety Checklist Considerations	Yes	No	N/A	Comment
Is there an emergency power shutoff?				
Is there a fire protection system in the data center room?				
Is the computer room adequately equipped to extinguish a fire?				
Is antistatic flooring installed?				
Is the floor below the raised floor free of obstacles and blockage?				

Related Information

- “Electrical Requirements” on page 18
- *Oracle Server X8-2 Safety and Compliance Guide*
- *Oracle Server X8-2L Safety and Compliance Guide*

Auto Service Request Checklist

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

Auto Service Request Considerations	Yes	No	N/A	Comment
Do you have a My Oracle Support Online Account to register Auto Service Request?				
Do you have your 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 must include the first name, last name, and e-mail address of the contact.				

Logistics Checklist

Complete the following checklist to ensure that the logistics requirements are met for the data center where the server will be installed.

Logistics Checklist Considerations	Yes	No	N/A	Comment
Do you have contact information for the data center personnel?				
Is there security or access control for the data center?				
Are there any security background checks or security clearances required for vendor personnel to access the data center? If yes, then do you have a recommended agency?				
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, and is it protected from environmental elements?				
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?				

Logistics Checklist Considerations	Yes	No	N/A	Comment
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 the provide time constraints.				
Is a tail lift required of the delivery carrier to unload the equipment at the delivery dock?				
Will any of the following items be required to place equipment in the 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 X8-2 Service Manual*
- *Oracle Server X8-2L Service Manual*

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