

# Oracle® Server X7-8 Installation Guide

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# Contents

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- Using This Documentation** ..... 9
  - Product Documentation Library ..... 9
  - Feedback ..... 9
  
- Installation Procedure** ..... 11
  - Installation Procedure Overview ..... 11
  
- Server Features and Components** ..... 13
  - Server Components ..... 13
  - Front Panel Features ..... 16
    - Front Panel Components ..... 16
  - Back Panel Features ..... 20
    - Back Panel Components ..... 20
  
- Preparing for Server Installation** ..... 25
  - Server Physical Specifications ..... 25
  - Receiving and Unpacking Requirements ..... 26
  - Rack Space Requirements ..... 26
  - Maintenance Space Requirements ..... 26
  - Environmental Requirements ..... 27
    - Temperature Guidelines ..... 28
    - Humidity Guidelines ..... 28
  - Ventilation and Cooling Requirements ..... 29
  - Electrical Requirements ..... 30
    - Facility Power Guidelines ..... 31
    - Circuit Breaker and UPS Guidelines ..... 31
    - Grounding Guidelines ..... 32
  - Agency Compliance ..... 32

Shipping Inventory .....	33
Tools and Equipment .....	33
Optional Component Installation .....	34
PCIe Cards .....	35
<b>Server Management .....</b>	<b>37</b>
Multiple Server Management Tool .....	37
Single Server Management Tools .....	37
Oracle ILOM .....	38
Oracle Hardware Management Pack .....	38
<b>Installing the Server Into a Rack .....</b>	<b>41</b>
Safety Precautions .....	41
ESD Precautions .....	43
Related Information .....	43
Installation Prerequisites .....	43
Rack Compatibility .....	44
▼ Unpack the Server .....	45
Rackmount Kit Contents .....	47
Rackmounting the Server .....	49
▼ Stabilize the Rack for Installation .....	49
▼ Use the Cage Nut Insertion Tool .....	49
▼ Install Shelf Rails and Back Mounting Brackets .....	50
▼ Install the Server Into the Rack .....	54
<b>Connecting Cables and Applying Power .....</b>	<b>57</b>
Cabling Requirements .....	57
Back Panel Connectors and Ports .....	58
USB Ports .....	60
SER MGT Ports .....	60
NET MGT Ports .....	61
Ethernet Ports .....	62
Preparing for Installation and Power On .....	62
▼ Prepare to Install the Server .....	63
Logging In to Oracle ILOM and Powering On the Server .....	63
▼ Log In to Oracle ILOM and Power On the Server .....	64

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<b>Using Oracle ILOM</b> .....	67
Oracle ILOM Hardware and User Interfaces .....	67
Accessing Oracle ILOM .....	68
▼ Access Oracle ILOM Using a Local Serial Connection .....	69
▼ Access Oracle ILOM Using a Remote Ethernet Connection .....	69
▼ Exit Oracle ILOM .....	72
Modifying Oracle ILOM Network Settings .....	72
▼ Modify Oracle ILOM Network Settings .....	73
▼ Test the IPv4 or IPv6 Network Configuration .....	74
Redirecting the Host Console Using Oracle ILOM .....	76
▼ Set the Mouse Mode .....	77
▼ Redirect Host Server Desktop or Storage Devices .....	77
▼ Access the Serial Remote Host Console .....	80
Troubleshooting Oracle ILOM .....	80
▼ Reset the SP Using Oracle ILOM .....	81
▼ Recover the Root Account Password .....	81
<b>Configuring Storage Drives for Operating System Installation</b> .....	83
RAID Overview .....	83
Supported Storage Devices .....	85
Configuring RAID .....	85
▼ Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port .....	86
▼ View Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility .....	101
Installing an Operating System .....	104
<b>Controlling System Power</b> .....	105
Powering the Host On and Off .....	105
▼ Power Off the Host Using the On/Standby Button .....	106
▼ Power On the Host Using the On/Standby Button .....	107
▼ Power the Host On and Off Using Oracle ILOM .....	107
Resetting the Server .....	108
▼ Reset the Server Using Oracle ILOM .....	109
<b>Getting Firmware and Software Updates</b> .....	111
Firmware and Software Updates .....	111

Options for Accessing Firmware and Software Updates .....	112
Software Releases .....	112
Getting Updates From My Oracle Support .....	113
▼ Download Firmware and Software Updates From My Oracle Support .....	113
▼ Download Software Using Oracle Software Delivery Cloud .....	114
Installing Updates Using Other Methods .....	115
Oracle Support .....	116
<b>Troubleshooting Installation Issues .....</b>	<b>117</b>
<b>Site Planning Checklists .....</b>	<b>121</b>
Preparation Checklists .....	121
Access Route and Data Center Checklist .....	121
Data Center Environment Checklist .....	122
Facility Power Checklist .....	123
Rackmount Checklist .....	123
Safety Checklist .....	125
Auto Service Request Checklist .....	125
Logistics Checklist .....	126
<b>Index .....</b>	<b>129</b>



## Using This Documentation

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- **Overview** – Provides specifications and describes how to install and power on the server for the first time.
- **Audience** – Technicians, system administrators, authorized service providers, and trained hardware service personnel who have been instructed on the hazards within the equipment and are qualified to remove and replace hardware.
- **Required knowledge** – Advanced experience troubleshooting and replacing hardware.

## Product Documentation Library

Documentation and resources for this product and related products are available at <https://www.oracle.com/goto/x7-8/docs>.

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# Installation Procedure

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This section provides an overview of the installation procedure.

Review the entire installation procedure and find links to more information on each step. For installation instructions, see [“Installation Procedure Overview”](#) on page 11.

## Installation Procedure Overview

The following table lists the tasks you need to complete to install Oracle Server X7-8.

Step	Description	Links
1	<ul style="list-style-type: none"><li>■ Review the product notes for any late-breaking information about the server.</li><li>■ Review the server features.</li><li>■ Review the server management features.</li></ul>	<ul style="list-style-type: none"><li>■ <a href="#">Oracle Server X7-8 Product Notes</a></li><li>■ <a href="#">“Server Features and Components”</a> on page 13</li><li>■ <a href="#">“Server Management”</a> on page 37</li></ul>
2	Prepare to install the server.	<ul style="list-style-type: none"><li>■ <a href="#">“Preparing for Server Installation”</a> on page 25</li><li>■ <a href="#">“Site Planning Checklists”</a> on page 121</li></ul>
3	Install any separately shipped optional components.	<a href="#">Oracle Server X7-8 Service Manual</a>
4	Install the server into a rack.	<a href="#">“Installing the Server Into a Rack”</a> on page 41
5	Attach cables and power cords to the server, and power on the server.	<a href="#">“Connecting Cables and Applying Power”</a> on page 57
6	Connect to Oracle Integrated Lights Out Manager (ILOM).	<a href="#">“Using Oracle ILOM”</a> on page 67
7	Prepare the server drives and configure RAID.	<a href="#">“Configuring Storage Drives for Operating System Installation”</a> on page 83
8	If applicable, install one of the following operating systems or virtual machine software: <ul style="list-style-type: none"><li>■ Oracle Solaris</li><li>■ Oracle Linux</li></ul>	<a href="#">Oracle Server X7-8 Operating Systems Installation Guide</a>

Step	Description	Links
	<ul style="list-style-type: none"><li>■ Oracle VM Server</li><li>■ Microsoft Windows Server</li><li>■ VMware ESCi 6.5</li></ul>	
9	Review procedures for controlling system power.	<a href="#">“Controlling System Power” on page 105</a>
10	Review the procedures for updating the latest server firmware and software.	<a href="#">“Getting Firmware and Software Updates” on page 111</a>
11	Troubleshoot installation issues.	<a href="#">“Troubleshooting Installation Issues” on page 117</a>

# Server Features and Components

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

- [“Server Components” on page 13](#)
- [“Front Panel Features” on page 16](#)
- [“Back Panel Features” on page 20](#)

## Server Components

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

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

System B and SMOD1 are inactive in single 4-socket systems and in 8-socket systems.

- [“Front Panel Features” on page 16](#) shows the locations and assignments of components on the front of the server.
- [“Back Panel Features” on page 20](#) shows the locations and assignments of components on the back of the server.

The following table shows the available system configurations:

Server Type	System Configuration	SMOD Assignments
Single 4-socket	System A is active	SMOD0 supports System A
	System B is not present	SMOD1 is inactive
Dual 4-socket	System A is active	SMOD0 supports System A
	System B is active	SMOD1 supports System B

Server Type	System Configuration	SMOD Assignments
Single 8-socket	System A and System B are combined into a single 8-socket server	SMOD0 supports the single server SMOD1 provides some additional functionality

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

Component	Configuration	Details
CPU Module (CMOD)	<p>Single 4-socket – CMODs in slots 0 through 3</p> <p>Dual 4-socket – CMODs in slots 0 through 7</p> <p>Single 8-socket –CMODs in slots 0 through 7</p>	<p>The system contains up to eight CMODs, located behind the fan modules and fan frames. CMODs include processors and memory.</p> <p>For the latest information on CPU specifications, go to the Oracle x86 servers web site and navigate to the Oracle Server X7-8 page: <a href="http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html">http://www.oracle.com/technetwork/server-storage/sun-x86/overview/index.html</a></p>
System Module (SMOD)	<p>Single 4-socket – SMOD0 is active, SMOD1 is inactive.</p> <p>Dual 4-socket – SMOD0 supports System A. SMOD1 supports System B.</p> <p>Single 8-socket –All functions on SMOD0 are available. Some functions on SMOD1 are available as well.</p>	<p>The system contains two SMODs, located on the rear panel. These provide I/O, management I/O, USB, external drives, and the service processor.</p>
Memory	<p>12 DIMMs per CMOD</p> <ul style="list-style-type: none"> <li>■ 4-socket servers – maximum 48 DIMMs (3 TB) per server</li> <li>■ 8-socket servers – maximum 96 DIMMs (6 TB)</li> </ul>	<p>Supported DIMMs include:</p> <ul style="list-style-type: none"> <li>■ 16 GB DDR4 ECC Registered DIMMs</li> <li>■ 32 GB DDR4 Registered ECC RDIMMs</li> <li>■ 64 GB DDR4 Registered ECC LRDIMMs</li> </ul>
Storage Drives	<p>4-socket servers – 4 drives per server for up to 4.8 TB per server</p> <p>8-socket servers – 8 drives for up to 9.6 TB per server</p>	<p>2.5-inch back accessible, hot-swappable drives. Supported drives include:</p> <ul style="list-style-type: none"> <li>■ SAS3 hard disk drives (HDDs)</li> <li>■ eMLC solid state drives (SSDs)</li> </ul>
PCI Express (PCIe) slots	<p>4-socket servers – 8 PCIe slots on 4 DPCCs per server</p> <p>8-socket server – Sixteen PCIe slots on 8 DPCCs</p>	<p>Sixteen hot-swappable PCIe 3.0 slots supported on eight dual PCIe card carriers (DPCCs).</p> <p>Eight slots are PCIe x8, and eight slots are PCIe x16.</p>

Component	Configuration	Details
I/O ports	Single 4-socket and single 8-socket – SMOD0 only  Dual 4-socket servers – ports available on SMOD0 and on SMOD1	Each SMOD provides: <ul style="list-style-type: none"> <li>■ One RJ-45 serial management (SER MGT) port</li> <li>■ One 10/100/1000BASE-T RJ-45 ILOM SP network management (NET MGT) port</li> <li>■ Four 10Gbps RJ-45 Ethernet ports, labeled NET0 through NET3</li> </ul>
USB ports	Single 4-socket and single 8-socket – SMOD0 only  Dual 4-socket servers – ports available on SMOD0 and on SMOD1	Each SMOD provides one internal and one external USB 3.0 port
Service Processor	Single 4-socket and single 8-socket – SMOD0 only  Dual 4-socket servers: <ul style="list-style-type: none"> <li>■ SMOD0 supports System A</li> <li>■ SMOD1 supports System B</li> </ul>	Each server has an integrated service processor (SP). The SP provides IPMI 2.0-compliant remote management capabilities. The SP features include: <ul style="list-style-type: none"> <li>■ Oracle ILOM version 4.0</li> <li>■ Local Oracle ILOM command-line access using a serial connection</li> <li>■ 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)</li> <li>■ Support for remote KVMS (keyboard, video, mouse, and storage) over IP</li> </ul>
Management Software	Each server supports management software	The following options are available: <ul style="list-style-type: none"> <li>■ Oracle ILOM – Available on the SP.</li> <li>■ Oracle Hardware Management Pack – Included as part of the Oracle Solaris operating system, or available as a stand-alone product for other supported operating systems. For details, refer to the support matrix: <a href="https://www.oracle.com/goto/ohmp">https://www.oracle.com/goto/ohmp</a>.</li> <li>■ Oracle Enterprise Manager Ops Center – For specific information, refer to <a href="http://www.oracle.com/technetwork/oem/ops-center/index.html">http://www.oracle.com/technetwork/oem/ops-center/index.html</a>.</li> </ul>
Power supplies	Single 4-socket and single 8-socket servers – All power supplies support the server  Dual 4-socket servers –PS 0 and PS1 support System A. PS2 and PS3 support System B	Four redundant, hot-swappable back panel accessible 3060W power supplies
Cooling fans	All fans operate in all configurations.	Eight 80mm hot-swappable, redundant fan modules at chassis front.  Each power supply has its own redundant fans that operate when the power supply is active.

Component	Configuration	Details
Operating systems and virtualization software	Each server supports its own OS	For more information on software, refer to <a href="#">Oracle Server X7-8 Operating Systems Installation Guide</a> .

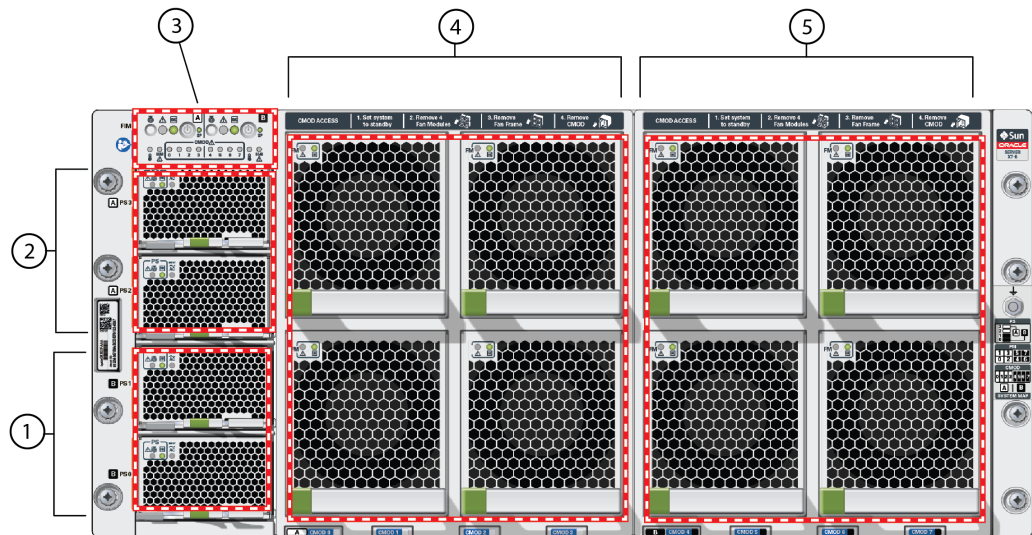
### Related Information

- “Front Panel Features” on page 16
- “Back Panel Features” on page 20

## Front Panel Features

### Front Panel Components

The following figure shows the server front panel.



Callout	Assignment	Description
1	System B	Power supplies 0 and 1

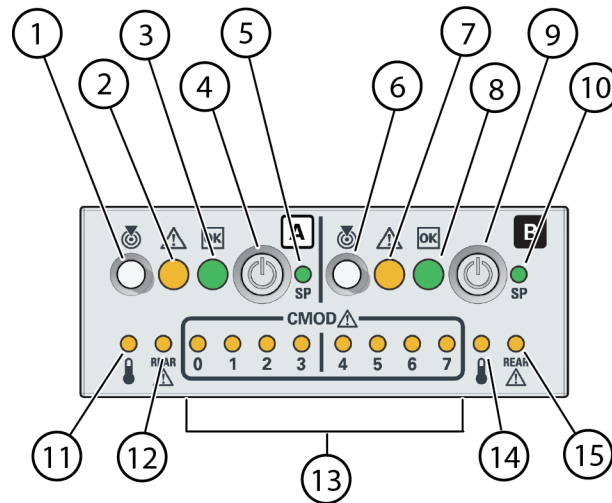


Callout	Assignment	Description
2	System A	Power supplies 2 and 3
3	See <a href="#">“Front Indicator Module” on page 17</a>	Front indicator module (FIM)
4	System A	Fan modules 0, 1, 2, and 3
5	System B	Fan modules 3, 4, 5, and 6

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

## Front Indicator Module

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



Callout	Assignment	Description
1	System A	Locate Button and indicator
2	System A	Fault-Service Required indicator
3	System A	System OK indicator
4	System A	On/Standby button
5	System A	SP OK indicator

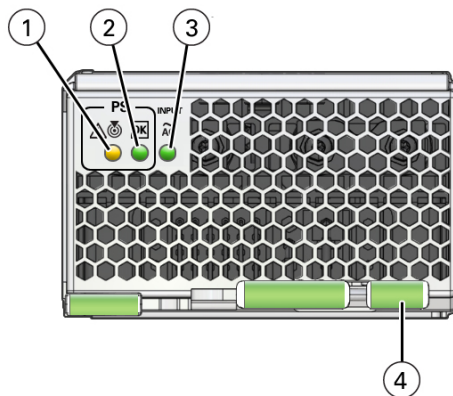
Callout	Assignment	Description
6	System B	System Locate Button and Indicator
7	System B	Fault-Service Required indicator
8	System B	System OK indicator
9	System B	On/Standby button
10	System B	SP OK indicator
11	System A	System Overtemperature Warning indicator
12	System A	Chassis rear Fault-Service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

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

## Power Supply Controls and Indicators

The following figure shows the power supply controls and indicators.

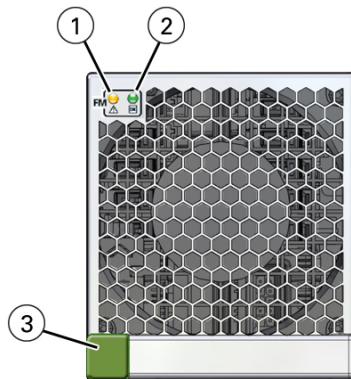
**Note** - For details on system power and the related controls and indicators, see [“Controlling System Power” on page 105](#).



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

## Fan Module Controls and Indicators

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



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

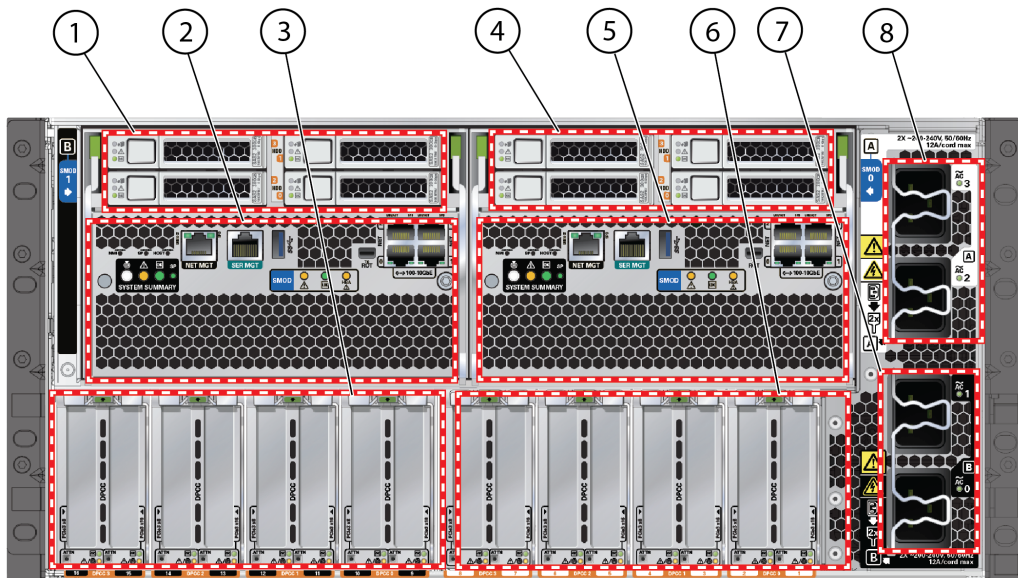
## Back Panel Features

### Back Panel Components

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

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

The following figure shows the Oracle Server X7-8 back panel.



Callout	Assignment	Description
1	System B	HDD/SSD slots: <ul style="list-style-type: none"> <li>■ Top row: 3, 1</li> </ul>

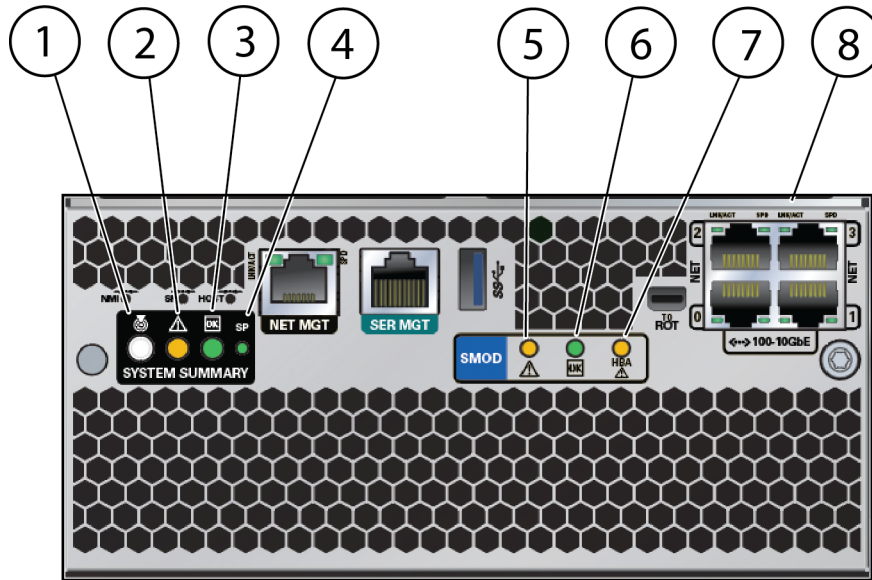
Callout	Assignment	Description
		<ul style="list-style-type: none"> <li>■ Bottom row: 2, 0</li> </ul>
2	System B	SMOD1
3	System B	PCIe cards 9 through 16 <ul style="list-style-type: none"> <li>■ PCIe 16 is on the left</li> <li>■ PCIe 9 is on the right, middle</li> </ul>
4	System A	HDD/SSD slots 0 through 3: <ul style="list-style-type: none"> <li>■ Top row: 3, 1</li> <li>■ Bottom row: 2, 0</li> </ul>
5	System A	SMOD0
6	System A	PCIe cards 1 through 8 <ul style="list-style-type: none"> <li>■ PCIe 8 is on the middle left</li> <li>■ PCIe 1 is on the right</li> </ul>
7	System A	AC inputs 2 and 3
8	System B	AC inputs 0 and 1

For information on how to interpret the status indicators (LEDs), refer to the [“Troubleshooting and Diagnostics”](#) in *Oracle Server X7-8 Service Manual*.

## Back Panel Status Indicators and Buttons

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

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

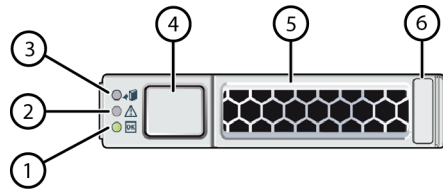


Callout	Description
1	Locate indicator/button – Used to identify the server.
2	Chassis Service Required indicator (SMOD0 only) – For details, refer to <a href="#">Oracle Server X7-8 Service Manual</a> .
3	System OK – For details, see <a href="#">“Controlling System Power” on page 105</a> .
4	SP OK – Steady on if SP is operating, flashes while SP is booting, off if SP has no power.
5	SMOD Service Required indicator – Indicates a system module (SMOD) fault
6	SMOD OK indicator – Steady on if SMOD is operating, flashes while SMOD is booting, off if SMOD has no power.
7	HBA Service Required indicator – Indicates a host bus adapter (HBA) fault
8	NET0, NET1, NET2, and NET3 ports

**Note** - For details on system power and the related controls and indicators, see [“Controlling System Power” on page 105](#).

## Storage Controls and Indicators

The following figure shows the storage controls and indicators.



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





# Preparing for Server Installation

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The following sections provide information on how to prepare for the server installation.

- “Server Physical Specifications” on page 25
- “Receiving and Unpacking Requirements” on page 26
- “Rack Space Requirements” on page 26
- “Maintenance Space Requirements” on page 26
- “Environmental Requirements” on page 27
- “Ventilation and Cooling Requirements” on page 29
- “Electrical Requirements” on page 30
- “Agency Compliance” on page 32
- “Shipping Inventory” on page 33
- “Tools and Equipment” on page 33
- “Optional Component Installation” on page 34
- “PCIe Cards” on page 35

## Server Physical Specifications

The following table lists the physical specifications for Oracle Server X7-8.

Dimension	Measurement
Height	5 U/219 mm (8.62 in.)
Width	446 mm (17.56 in.)
Depth	850 mm (33.6 in.)
Weight	114 kg (250 lbs)

## Receiving and Unpacking Requirements

When the server is unloaded at your site, leave it in its shipping carton until you take it to a designated unpacking area. To avoid particle contamination, do not move it to the data center until after it is unpacked.

Before moving the server to the data center, ensure that the route to the data center has adequate clearance, and is free of raised-pattern flooring that causes vibration.

## Rack Space Requirements

Oracle Server X7-8 is a five rack unit (5U) server. For physical dimensions, see [“Server Physical Specifications” on page 25](#).

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

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

The following sections provide additional space requirements:

- [“Receiving and Unpacking Requirements” on page 26](#)
- [“Maintenance Space Requirements” on page 26](#)

## Maintenance Space Requirements

The maintenance area for the rackmounted Oracle Server X7-8 must have the required access space. The following table lists the maintenance access requirements for the server when it is installed in a rack.

Location	Maintenance Access Requirement
Back of the server	91.4 cm (36 inches)

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

## Environmental Requirements

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



**Caution** - Set conditions to the optimal temperature and humidity ranges to minimize the chance of downtime due to component failure. Operating your Oracle Server X7-8 for extended periods at or near the operating range limits, or installing it in an environment when it remains at or near nonoperating range limits could significantly increase hardware component failure.

Specification	Operating	Nonoperating
Ambient temperature (Does not apply to removable media)	<ul style="list-style-type: none"> <li>■ 41°F to 95°F (5°C to 35°C) up to 2,953 feet (900 meters)</li> <li>■ Optimal: 69.8°F to 73.4°F (21°C to 23°C)</li> </ul> <p><b>Note</b> - Maximum ambient operating temperature is derated by 1 degree C per every 300 meters elevation beyond 900 meters, up to a maximum altitude of 3,000 meters elevation.</p>	-40°F to 154°F (-40°C to 68°C)
Relative humidity	<ul style="list-style-type: none"> <li>■ 10% to 90% noncondensing, short term 25°F to 113°F (-5°C to 55°C)</li> <li>■ 5% to 90% noncondensing, but not to exceed 0.024 kg of water per kg of dry air (0.053 lbs water/2.205 lbs dry air)</li> </ul>	Up to 93% noncondensing 95°F (35°C) maximum wet bulb
Altitude	<p>Maximum 9,840 feet (3,000 meters) at 95°F (35°C)</p> <p><b>Note</b> - In China markets, regulations might limit installations to a maximum altitude of 6,562 feet (2,000 meters).</p>	Maximum 39,370 feet (12,000 meters)
Acoustic Noise	<ul style="list-style-type: none"> <li>■ Maximum condition: 8.1 Bels</li> <li>■ Idle condition: 5.8 Bels</li> </ul>	Not applicable
Vibration	<ul style="list-style-type: none"> <li>■ 0.15 G (z-axis)</li> <li>■ 0.10 G (x-, y-axes), 5-500Hz swept sine</li> </ul>	<ul style="list-style-type: none"> <li>■ 0.5 G (z-axis)</li> <li>■ 0.25 G (x-, y-axes), 5-500Hz swept sine</li> </ul>

Specification	Operating	Nonoperating
	IEC 60068-2-6 Test FC	IEC 60068-2-6 Test FC
Shock	3 Gs, 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 28](#)
- [“Humidity Guidelines” on page 28](#)
- [“Ventilation and Cooling Requirements” on page 29](#)

## Temperature Guidelines

An ambient temperature range of 21° to 23° Celsius (70° to 74° Fahrenheit) is optimal for server reliability and operator comfort. Most computer equipment can operate in a wide temperature range, but near 22° Celsius (72° Fahrenheit) is 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 ambient relative humidity range of 45 to 50 percent is acceptable for safe data processing operations. Most computer equipment can operate in a wide range (20 to 80 percent), but 45 to 50 percent is the optimal range for the following reasons:

- Helps protect computer systems from corrosion problems associated with high humidity levels.
- Provides the greatest operating time buffer in the event of air conditioner control failure.
- Reduces or eliminates 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 less dissipated in areas where the relative humidity level is below 35 percent.



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**Caution** - ESD risk becomes critical when levels drop below 30 percent.

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## 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 the Oracle Server X7-8, draw cool air 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, cover the empty sections with filler panels. Gaps between components can adversely affect airflow and cooling in the rack.

Oracle Server X7-8 functions while installed in a natural convection airflow. Follow these environmental specifications for optimal ventilation:

- Ensure that air intake is at the front of the system, and the air outlet is at 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 unobstructed airflow through the chassis. The server uses internal fans that can achieve a total airflow of 100 CFM within the specified range of operating conditions.
- Ensure that ventilation openings such as cabinet doors, for both the inlet and exhaust of the server, are unobstructed. For example, the Oracle's cabinets are optimized for cooling. Both the front and back doors have 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. 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, which improves cooling performance.

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**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.

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

## Electrical Requirements

Oracle Server X7-8 uses AC power. The following table contains the power supply specifications.

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**Note** - The power dissipation numbers listed in the following table are the maximum rated power numbers for the power supply used in the system. The numbers are not a rating of the actual power consumption of the system. For up-to-date information on power consumption, go to the Oracle Power Calculators web site <http://www.oracle.com/us/products/servers-storage/sun-power-calculators/index.html>, and click the Oracle Server X7-8 link.

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Parameter	Specification
Voltage (nominal)	200-240 VAC
Input current (maximum)	<ul style="list-style-type: none"> <li>■ 23A @ 200 to 240 VAC</li> <li>■ 12A max per cord</li> </ul>
Frequency (nominal)	50/60 Hz
Maximum power consumption	<ul style="list-style-type: none"> <li>■ Single 4-socket –1980 W</li> <li>■ Dual 4-socket – 3950 W</li> <li>■ Single 8-socket – 3880 W</li> </ul>
Maximum heat output	13475 BTU/Hr

Your Oracle Server X7-8 can operate effectively over a range of voltages and frequencies.




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**Caution** - The system must have a reliable power source. If the system exceeds the voltage and frequency ranges, damage to the server might occur. 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 disturbances, use a dedicated power distribution system, power-conditioning equipment, and lightning arresters or power cables to protect from electrical storms.

See the following sections for additional guidelines.

- [“Facility Power Guidelines” on page 31](#)
- [“Circuit Breaker and UPS Guidelines” on page 31](#)
- [“Grounding Guidelines” on page 32](#)

## Facility Power Guidelines

Electrical work and installations must comply with applicable local, state, or national electrical codes. To determine what type of power 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.

To accommodate PDU power cords, 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, the design of your power system must ensure that adequate power is provided to Oracle Server X7-8.

- Use dedicated AC breaker panels for all power circuits that supply power to Oracle Server X7-8.
- Ensure that the electrical work and installations comply with applicable local, state, or national electrical codes.
- Ensure that the Oracle Server X7-8 electrical circuits are grounded.
- Verify that the customer supplies the circuit breakers. One circuit breaker is required for each server power cord.
- 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:

- Use grounding-type power cords for the rack that are compatible with the Oracle Server X7-8.
- Always connect the 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 the facility administrator or qualified electrical engineer who verifies the grounding method for the building also performs the grounding work.

## Agency Compliance

The server complies with the following specifications.

Category	Relevant Standards
Regulations <sup>†,‡</sup>	<ul style="list-style-type: none"> <li>■ Product Safety: UL/CSA 60950-1, EN 60950-1, IEC 60950-1 CB Scheme with all country differences</li> <li>■ EMC                             <ul style="list-style-type: none"> <li>■ Emissions: FCC CFR 47 Part 15, ICES-003, EN55022, EN61000-3-2, EN61000-3-3</li> <li>■ Immunity: EN55024</li> </ul> </li> </ul>
Certifications <sup>‡</sup>	<ul style="list-style-type: none"> <li>■ North America (NRTL)</li> <li>■ European Union (EU)</li> <li>■ International CB Scheme</li> <li>■ BIS (India)</li> <li>■ BSMI (Taiwan)</li> <li>■ RCM (Australia)</li> <li>■ CCC (PRC)</li> <li>■ MSIP (Korea)</li> <li>■ VCCI (Japan)</li> <li>■ Customs Union EAC</li> </ul>
European Union Directives	<ul style="list-style-type: none"> <li>■ 2006/95/EC Low Voltage Directive</li> <li>■ 2004/108/EC EMC Directive</li> <li>■ 2011/65/EU RoHS Directive</li> <li>■ 2012/19/EU WEEE Directive</li> </ul>

<sup>†</sup>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 X7-8 Safety and Compliance Guide*
- *Important Safety Information for Oracle's Hardware Systems*

## Shipping Inventory

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

The carton contains the server and the ship kit. The ship kit for Oracle Server X7-8 includes the following items:

- Power cords, packaged separately with the country kit
- Rackmount kit containing shelf rails, mounting brackets, screws, and Rackmounting Template.
- Start Here document
- Miscellaneous hardware, cables, and connectors
- Legal and safety documents

### Related Information

- [“Optional Component Installation” on page 34](#)

## Tools and Equipment

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

- No. 2 Phillips screwdriver
- Flat screwdriver or cage nut insertion tool
- ESD mat and grounding strap for installing additional components
- Mechanical lift

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

- ASCII terminal
- Workstation
- Terminal server
- Laptop running terminal emulation software

### Related Information

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

## Optional Component Installation

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

You can order and purchase the following optional components separately:

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

If you ordered any options that are field-replaceable units (FRUs) or customer-replaceable units (CRUs), refer to the component removal and installation replacement procedures in [“Servicing Components” in \*Oracle Server X7-8 Service Manual\*](#).

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

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**Note** - You must have an Oracle Service contract to access the Oracle System Handbook. Customers with service contracts can also access the Oracle System Handbook at: [https://support.oracle.com/handbook\\_private/](https://support.oracle.com/handbook_private/)

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To access the handbook, log in to My Oracle Support at <https://support.oracle.com>. Click the Knowledge tab, and in the Knowledge Links section, click Oracle System Handbook. In the handbook, click Current Systems, and click the name and model of your server. On the product page that opens for the server, click Full Components List for a list of components.

**Related Information**

- [“Server Components” on page 13](#)
- [“Replaceable Components” in \*Oracle Server X7-8 Service Manual\*](#)
- [“Supported PCIe Cards” in \*Oracle Server X7-8 Product Notes\*](#)

## PCIe Cards

The server has sixteen Gen 3 PCIe slots. These 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. The Dual PCIe Card Carrier (DPCC) slots are hot pluggable.

Some PCIe cards require configuration, either when you install the server, or when you add or change them.

For information about supported PCIe cards, refer to [“Supported PCIe Cards” in \*Oracle Server X7-8 Product Notes\*](#).



# Server Management

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This section describes the tools you can use to manage the server.

- “Multiple Server Management Tool” on page 37
- “Single Server Management Tools” on page 37
- “Oracle ILOM” on page 38
- “Oracle Hardware Management Pack” on page 38

## Multiple Server Management Tool

If you are managing multiple servers, you can use Oracle Enterprise Manager Ops Center. For information about Ops Center, refer to [https://docs.oracle.com/cd/E59957\\_01/index.htm](https://docs.oracle.com/cd/E59957_01/index.htm).

For more information about system management tools, refer to <https://www.oracle.com/goto/system-management>.

## Single Server Management Tools

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

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

Tool/Link	Type and Environment	Function
	<ul style="list-style-type: none"> <li>Included as part of the Oracle Solaris operating system starting with Oracle Solaris 11.2, or available as a stand-alone product for other supported operating systems. Refer to the support matrix for specific information: <a href="https://www.oracle.com/goto/ohmp">https://www.oracle.com/goto/ohmp</a>.</li> </ul>	using SNMP or locally using CLI tools.

## Oracle ILOM

Oracle Integrated Lights Out Manager (ILOM) enables you to manage Oracle Server X7-8 and connect to the server SP. The server is shipped initially with the latest version of Oracle ILOM.

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

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

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

- [“Access Oracle ILOM Using a Local Serial Connection” on page 69](#)
- [“Access Oracle ILOM Using a Remote Ethernet Connection” on page 69](#)

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

## Oracle Hardware Management Pack

Oracle Hardware Management Pack provides CLI tools for managing your servers from the operating system command line, and an SNMP monitoring agent.

- Oracle Hardware Management Pack CLI tools**
  - Allows you to configure Oracle servers
  - Works with Oracle Solaris, Oracle VM, Oracle Linux, and other variants of Linux operating systems
  - You can script the tools to support multiple servers, providing that the servers are of the same type

- **Hardware Management Agent SNMP Plugins**
  - Allows you to use SNMP to monitor Oracle servers from the operating system using a single host IP address
  - Connect to two management points (Oracle ILOM and the host) with only one connection
- **Oracle Linux Fault Management Architecture (FMA)**
  - Allows you to manage faults at the operating system level using commands similar to those in the Oracle ILOM Fault Management shell

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





# Installing the Server Into a Rack

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This section describes how to install the server into a rack using the shelf rail assembly in the rackmount kit.

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

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

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

## Related Information

- [“Installation Procedure” on page 11](#)
- [“Preparing for Server Installation” on page 25](#)

## Safety Precautions

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



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**Caution - Stabilize rack:** Deploy the anti-tilt device on the rack before starting an installation.

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**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 device to prevent the rack from tipping during equipment installation.

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**Caution - Lifting equipment:** Oracle Server X7-8 weighs 114 kg (250 lbs). Only use a mechanical lift to lift and mount the server into the rack enclosure.

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**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.

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**Caution - Elevated operating ambient temperature:** If you install the server in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be higher than the room ambient temperature. Install the equipment in an environment compatible with the maximum ambient temperature (T<sub>ma</sub>) specified for the server. For server environmental requirements, see [“Environmental Requirements” on page 27](#).

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**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.

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

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

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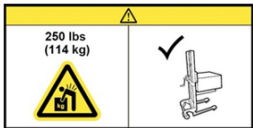


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**Caution - Reliable earthing:** Maintain reliable earthing of rackmounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (for example, use of power strips).

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

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

## ESD Precautions

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

- Use a grounding wrist strap, foot strap, or equivalent safety equipment.
- Place components on an antistatic surface, such as an static discharge mat, an antistatic bag, or a disposable antistatic mat.
- Wear a 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 the [Oracle Server X7-8 Safety and Compliance Guide](#) and in the *Important Safety Information for Oracle's Hardware Systems*.

## Related Information

- [“Safety Precautions” on page 41](#)

## Installation Prerequisites

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

- Install all optional components purchased for the server. See [“Optional Component Installation” on page 34.](#)
- Ensure that your site meets the electrical and environmental requirements. See [“Preparing for Server Installation” on page 25.](#)

## Rack Compatibility

The rack into which you install Oracle Server X7-8 must meet the requirements listed in the following table. The Oracle Rack Cabinet 1242 and Oracle's Sun Rack II Cabinet are compatible with the server. For information on these Oracle racks, see [“Preparing for Server Installation” on page 25.](#)

Item	Requirement
Structure	Four-post rack (mounting at both front and back) with 9.5mm square holes.  Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60297 standards.
Distance between front and back mounting planes	Minimum 61 cm and maximum 91.5 cm (24 inches to 36 inches).
Clearance depth in front of front mounting plane	Distance to front cabinet door is at least 2.54 cm (1 inch).
Clearance depth behind front mounting plane	Distance to back cabinet door is at least 80 cm (31.49 inches).
Clearance width between front and back mounting planes	Distance between structural supports and cable troughs is at least 45.6 cm (18 inches).
Minimum clearance for service access	<ul style="list-style-type: none"> <li>■ Clearance, front of server: 123.2 cm (48.5 inches)</li> <li>■ Clearance, back of server: 91.4 cm (36 inches)</li> </ul>

The following table lists the Oracle Rack Cabinet 1242 rack specifications:

Requirement	Specification
Usable rack units	42
Height	199. cm (78.74 inches)
Width (with side panels)	60 cm (23.62 inches)
Maximum dynamic load	1005 kg (2215 lbs)

### Related Information

- [“Preparing for Server Installation” on page 25](#)

## ▼ Unpack the Server

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

**Before You Begin** This procedure requires a mechanical lift.



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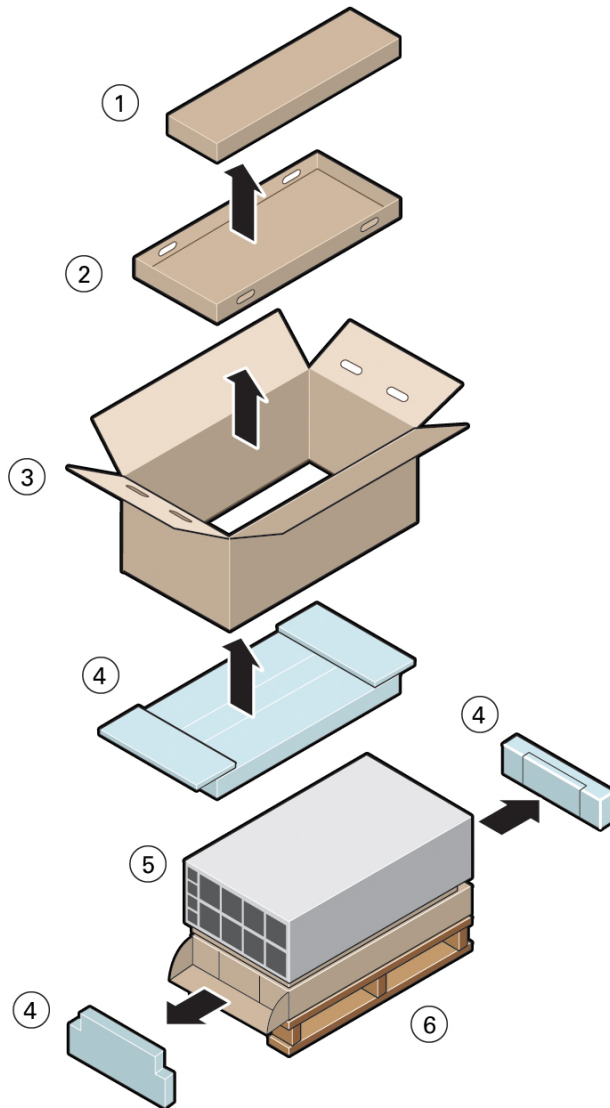
**Caution** - Equipment damage or personal injury. The server is heavy. Do not attempt to install the server without a mechanical lift.

---

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

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

The following figure shows the contents of the shipping container:



Callout	Description
1	Rackmounting kit. See <a href="#">“Rackmount Kit Contents” on page 47</a> .
2	Tray
3	Box
4	Foam inserts
5	Server
6	Pallet

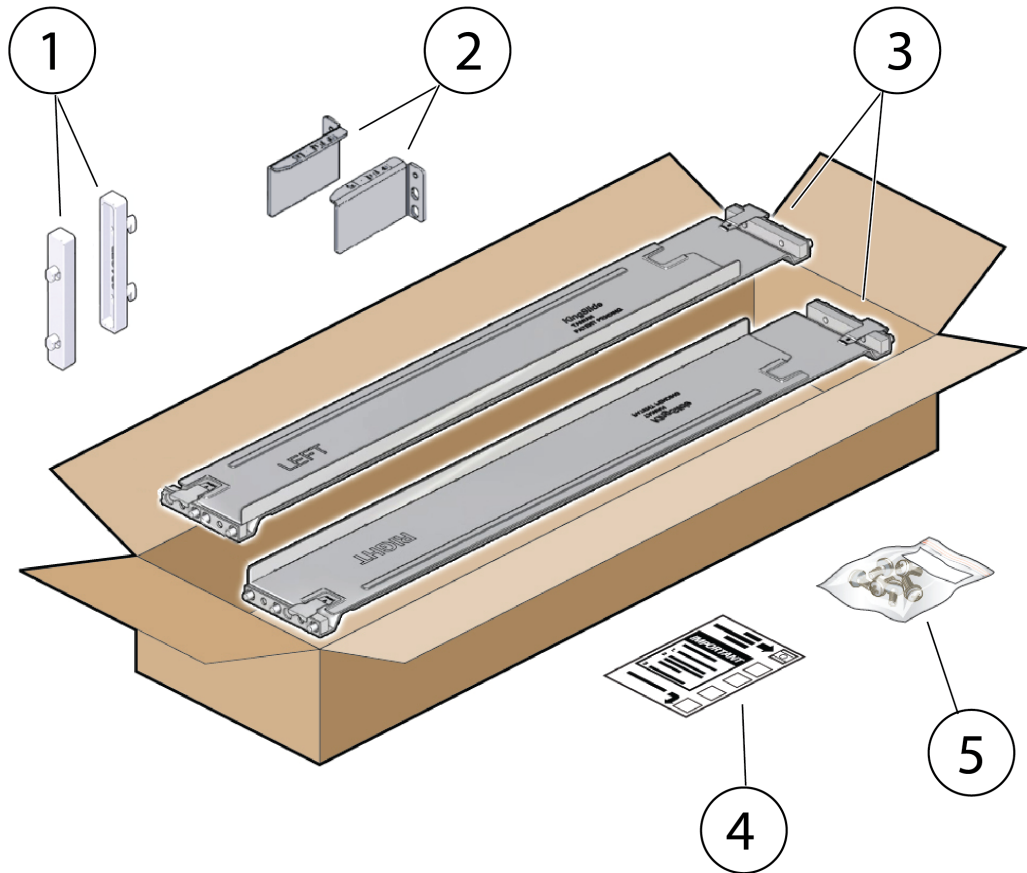
2. **Open the top of the box.**
  - a. **Cut the straps.**
  - b. **Cut or remove the tape.**
  - c. **Open the flaps.**
3. **Remove the tray and set it aside.**
4. **Lift the box up and away from the server.**
5. **Remove the foam inserts.**
  - a. **Fold the corrugated flap down to release the front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

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

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

## Rackmount Kit Contents

The following figure shows the contents of the Rackmount Kit.



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

### Related Information

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



## Rackmounting the Server

To rackmount the server, stabilize the rack, and install the shelf rails and back mounting brackets and then, install the server into the rack.

### ▼ Stabilize the Rack for Installation

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

1. **Open the front and rear doors from the rack cabinet. Remove the doors only if they interfere with access to the equipment.**
2. **To prevent the rack cabinet from tipping during the installation, fully extend the rack cabinet's anti-tilt legs or anti-tilt bar, which are located at the bottom front of the rack cabinet.**



---

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

---

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

#### Related Information

- “Safety Precautions” on page 41
- “Preparing for Server Installation” on page 25
- Oracle rack cabinet documentation at: <https://www.oracle.com/goto/oraclerack1242/docs>

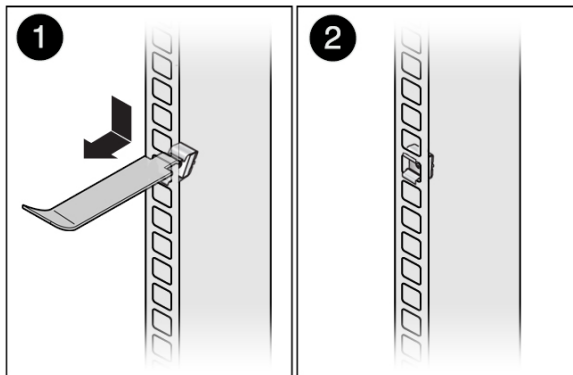
### ▼ Use the Cage Nut Insertion Tool

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

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

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

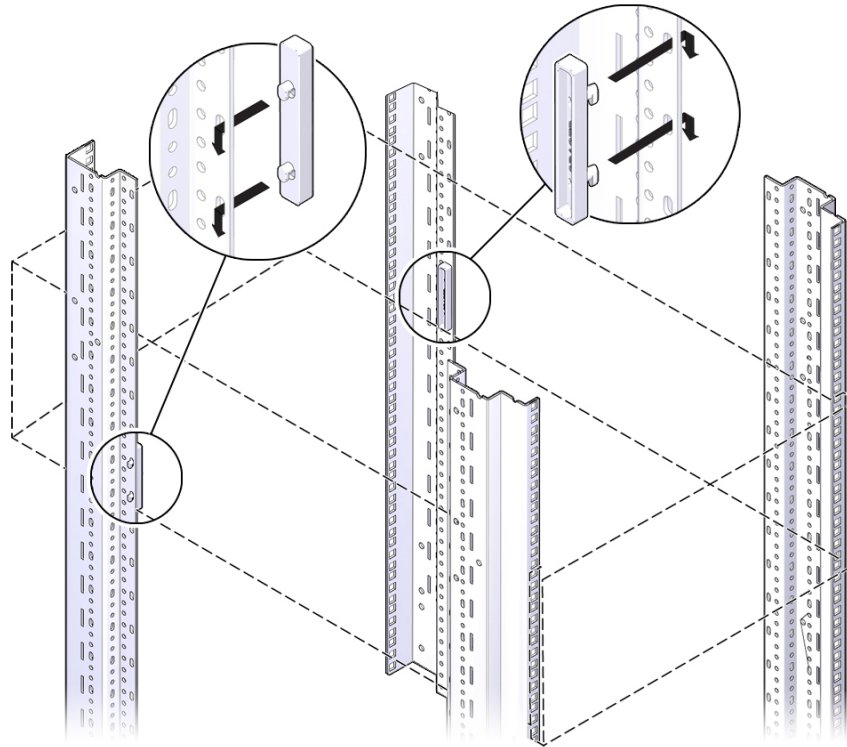
1. **Hook the side lip of a cage nut in one of the rail holes.**
2. **Insert the tip of the cage nut insertion tool through the rail hole and hook the other lip of the cage nut.**
3. **Using the insertion tool, pull the cage nut through the hole until the top lip snaps into place.**



## ▼ Install Shelf Rails and Back Mounting Brackets

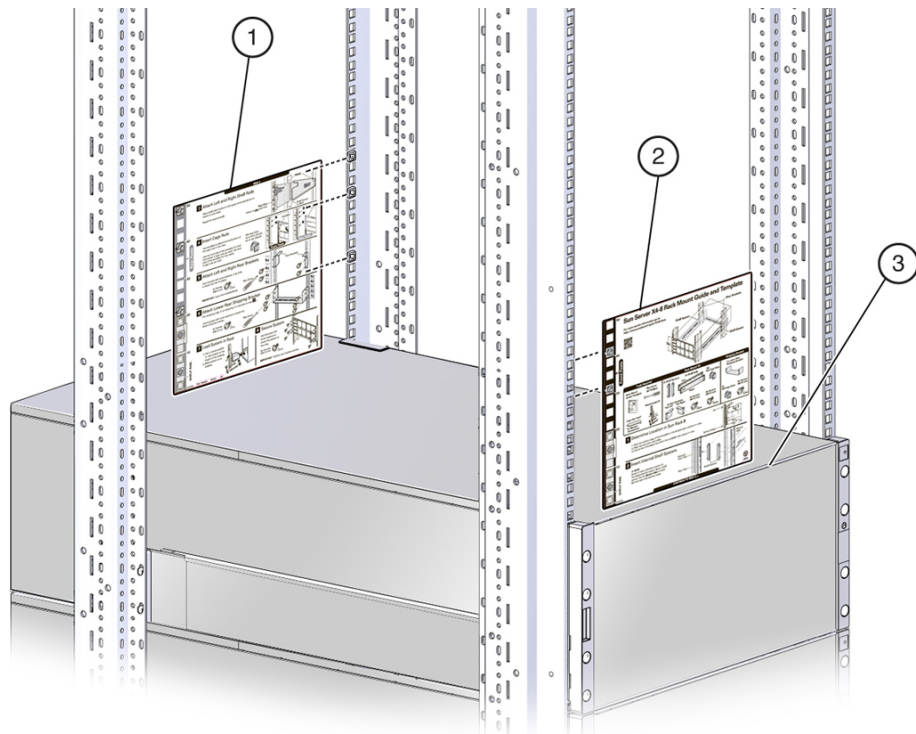
1. **Ensure that your rack meets the requirements in [“Rack Compatibility” on page 44](#).**
2. **Determine the server location in the rack.**  
The server requires five rack units, and should go directly above the unit below it with no gaps.
3. **Install the two spacers in back rack rails.**

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



4. **Use the alignment template to install cage nuts.**
  - a. **Align the template with the holes where you intend to place the server.**

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



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

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

---

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

---

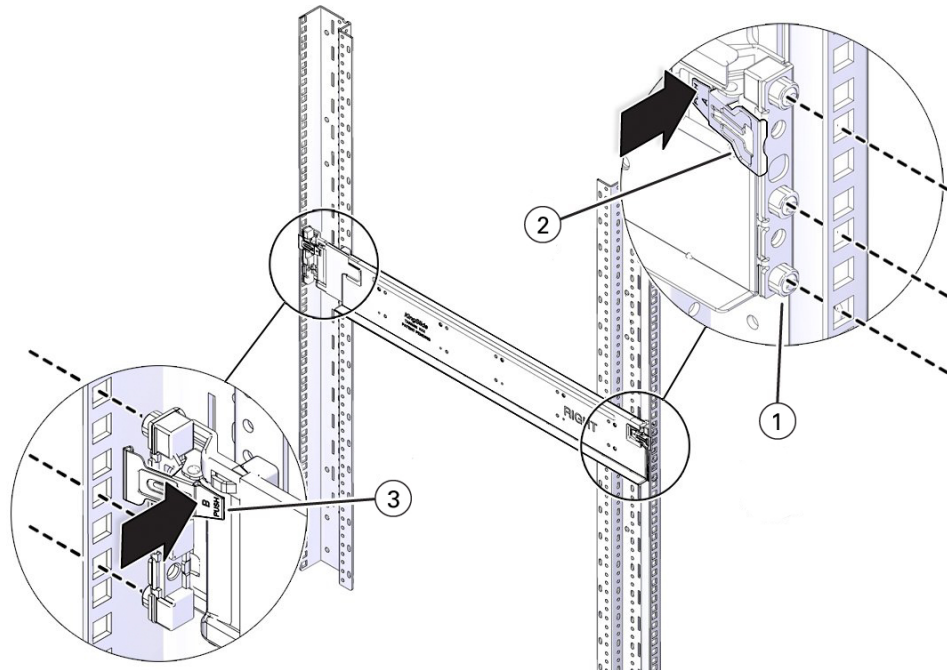
To use the cage nut insertion tool, see [“Use the Cage Nut Insertion Tool”](#) on page 49.

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

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

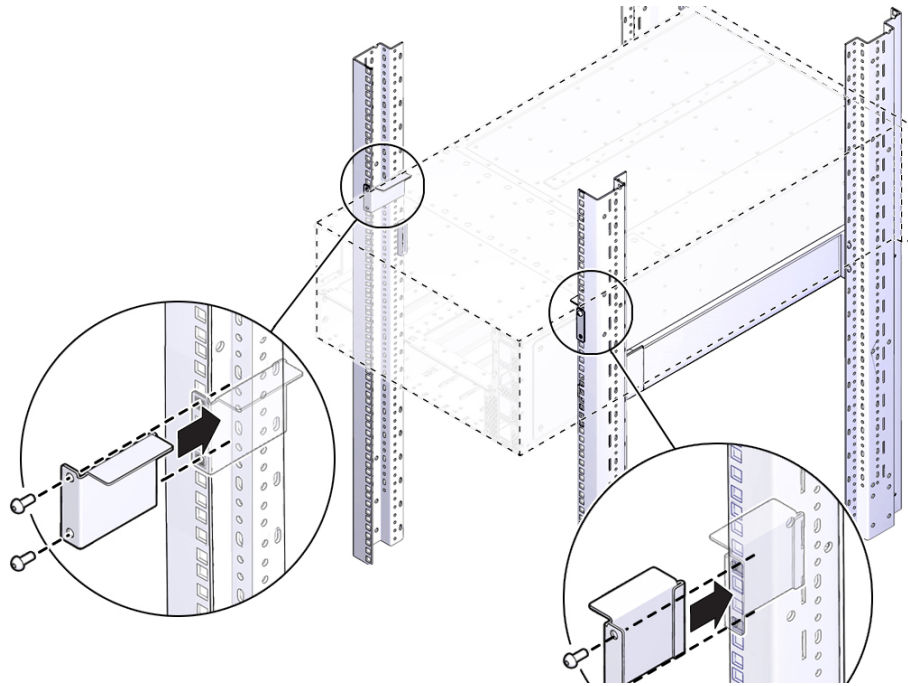
The rails have studs and a latch at each end. For each rail:

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



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

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



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

## ▼ Install the Server Into the Rack

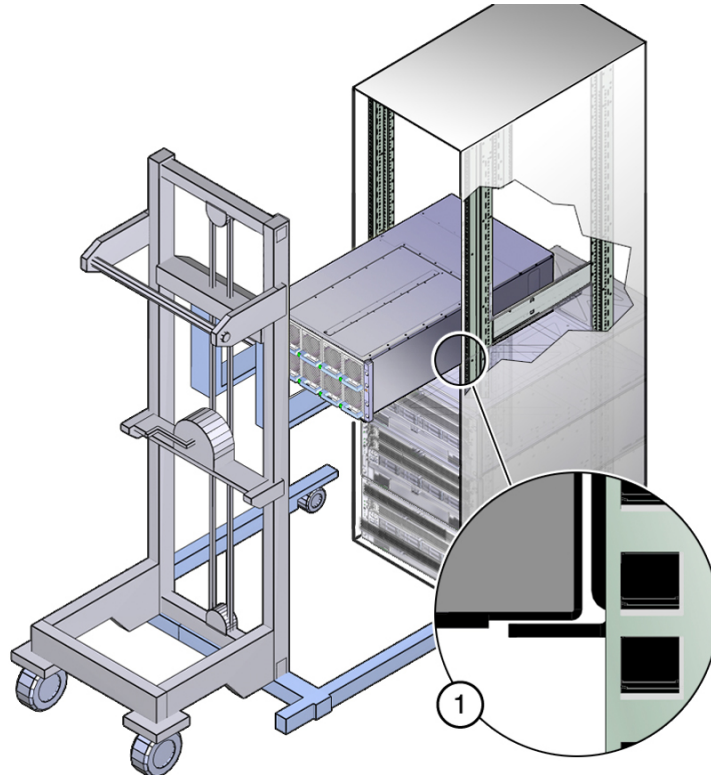
1. Use a lift to raise the server to its position in the rack.



---

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

---



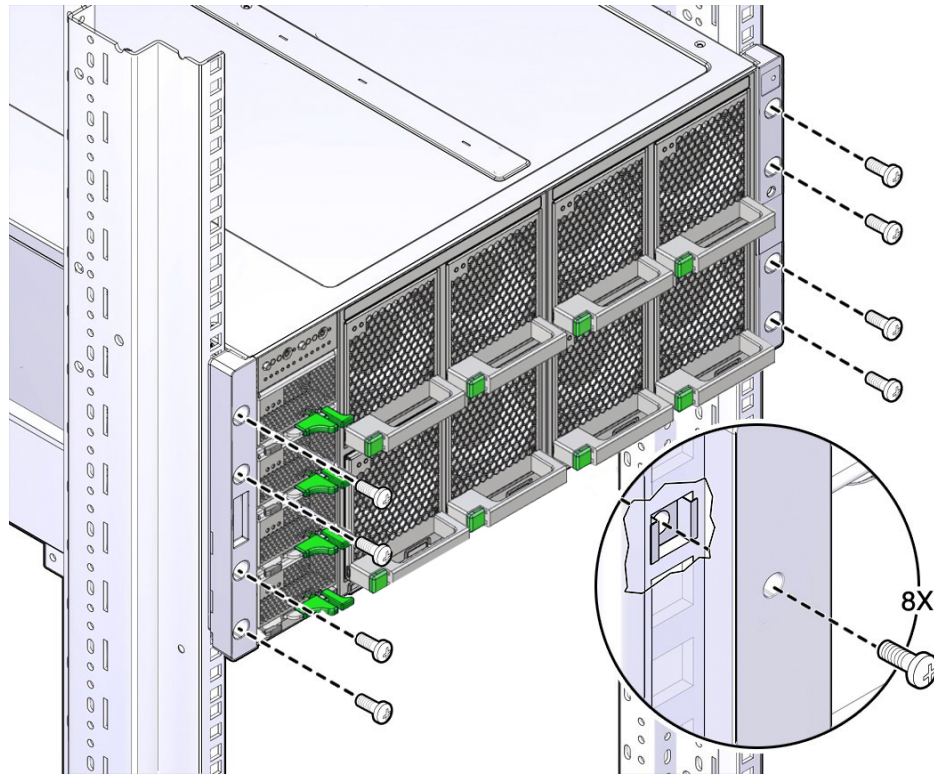
---

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

---

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

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



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

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



# Connecting Cables and Applying Power

---

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

- [“Cabling Requirements” on page 57](#)
- [“Back Panel Connectors and Ports” on page 58](#)
- [“Preparing for Installation and Power On” on page 62](#)
- [“Logging In to Oracle ILOM and Powering On the Server” on page 63](#)

## Related Information

- [“Installation Procedure Overview” on page 11](#)
- [“Using Oracle ILOM” on page 67](#)

## 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)
  - Serial management port (SER MGT): SP local connection for Oracle ILOM boot messages
  - Power cables for the server power supplies
- **SP management ports:** There are two service processor management ports for use with the Oracle ILOM SP.
  - The SER MGT port uses an RJ-45 cable and is always available. This port is the default connection to the Oracle ILOM SP.
  - The network management port (NET MGT) port is the optional connection to the Oracle ILOM SP.

The NET MGT port is configured to use DHCP by default. To set a static IP address, see [“Modify Oracle ILOM Network Settings” on page 73](#). The SP network management port uses an RJ-45 cable for a 10/100 BASE-T connection.

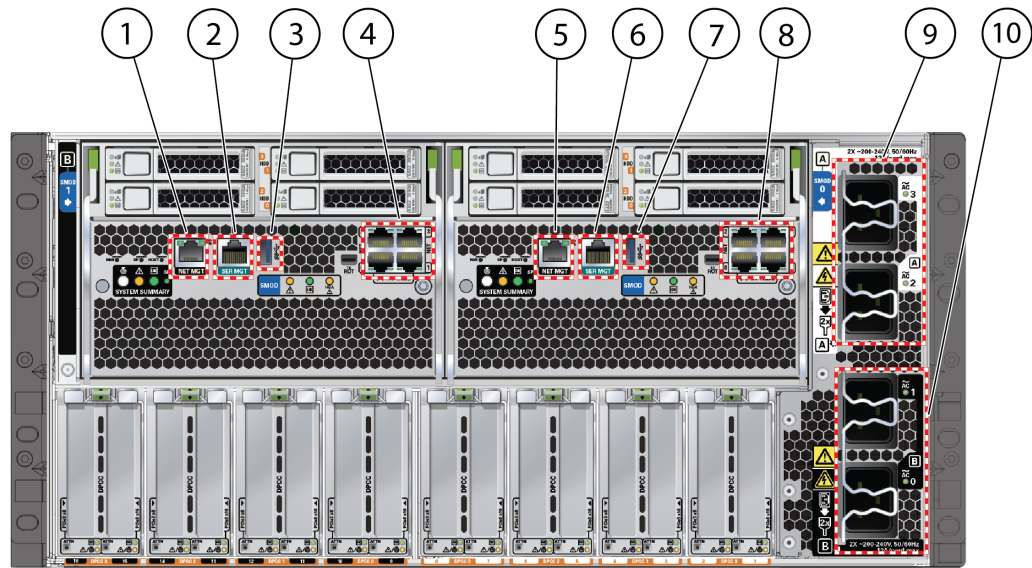
- **Ethernet ports:** The Ethernet ports, labeled NET0, NET1, NET2, and NET3, connect the server to the network. The Ethernet interfaces operate at 100 Mbit/sec, 1000 Mbit/sec, and 10,000 Mbit/sec.
- **USB Ports:** USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running without affecting server operations.
- **AC power cables:** Four power supply connectors are available, one for each power supply.

### Related Information

- [“USB Ports” on page 60](#)
- [“SER MGT Ports” on page 60](#)
- [“NET MGT Ports” on page 61](#)
- [“Ethernet Ports” on page 62](#)

## Back Panel Connectors and Ports

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



Callout	Description	System/SMOD	Available On...
1	Net management port (NET MGT)	System B –SMOD1	Dual 4-port systems only
2	Serial management port (SER MGT)	System B –SMOD1	Dual 4-port systems only
3	USB port	System A or B	<ul style="list-style-type: none"> <li>■ Inactive on single 4-port systems</li> <li>■ System B on dual 4-port systems</li> <li>■ System A on single 8-port systems</li> </ul> Dual 4-port systems only
4	<ul style="list-style-type: none"> <li>■ NET0, NET1, NET2, and NET3 ports on dual 4-port and single 8-port systems</li> <li>■ Unused on single 4-port systems</li> </ul>	System B –SMOD1	Dual 4-port and single 8-port systems
5	Net management port (NET MGT)	System A – SMOD0	All systems
6	Serial management port (SER MGT)	System A – SMOD0	All systems
7	USB port	System A – SMOD0	All systems
8	NET0, NET1, NET2, and NET3 ports on all systems	System A – SMOD0	All systems
9	Power connectors 2 and 3. Connect to 200-240 VAC only.	System A – SMOD0	Always connect all four power supplies

Callout	Description	System/SMOD	Available On...
10	Power connectors 0 and 1. Connect to 200-240 VAC only.	System B –SMOD1	Always connect all four power supplies

## USB Ports

Each SMOD has a single USB 3.0 port.

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

See the location of the USB ports at [“Back Panel Connectors and Ports” on page 58](#). USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running without affecting server operations.

Each USB port supplies 5V output at 2 A.

### Related Information

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

## SER MGT Ports

Each SMOD has a SER MGT port; however, the SER MGT port on SMOD1 is only active on dual 4-socket servers.

This port provides a default connection to the Oracle ILOM SP. For DTE-to-DTE communications, you can use an RJ-45 to DB-9 crossover adapter with a standard RJ-45 cable to achieve the required null modem configuration.



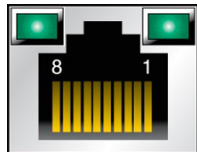
### Related Information

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

## NET MGT Ports

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

The NET MGT port uses an RJ-45 cable for a 10/100/1000BASE-T connection. See [“Back Panel Connectors and Ports” on page 58](#).



### Related Information

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

## Ethernet Ports

Each SMOD includes four RJ-45 1-GigabitEthernet (10GbE) network connectors, labeled NET0, NET1, NET2, and NET3. The ports on SMOD1 are only active in dual 4-socket servers.

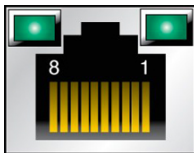
Use these ports to connect the server to the network.

---

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

---

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



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

### Related Information

- [“Back Panel Connectors and Ports” on page 58](#)
- [“Logging In to Oracle ILOM and Powering On the Server” on page 63](#)

## Preparing for Installation and Power On

Setting up the server for the first time takes about 1 hour. If you are installing optional components and hardware, plan for additional time.



---

**Caution - Do not apply Main power until instructed to do so.** The server includes an SP to configure and boot the host server. After the SP and host networking connections are made, configure the host server, apply Main power, and view the SP messages.

---

## ▼ Prepare to Install the Server

Use this procedure to establish a physical management connection to the Oracle ILOM SP using a terminal device to connect to the serial management port (SER MGT).

Alternatively you can connect to the Oracle ILOM SP remotely using the network management port (NET MGT). For instructions, see [“Access Oracle ILOM Using a Remote Ethernet Connection” on page 69.](#)

1. **Obtain a terminal device to communicate with the SP, which can be a terminal, a terminal server, or a laptop running terminal emulation software.**
2. **Set up the terminal device to communicate using 8 bit, no parity, and 1 stop bit.**
3. **For DTE-to-DTE communication, obtain an RJ-45 crossover adapter with a standard RJ-45 cable to set up a null modem configuration so that transmit and receive signals are crossed over.**
4. **Locate the connectors for System A (SMOD0) and System B (SMOD1)**

## Logging In to Oracle ILOM and Powering On the Server

This procedure explains how to power on the server locally using a serial connection and Oracle ILOM.

- To power on the server remotely using an Ethernet connection and Oracle ILOM, see [“Access Oracle ILOM Using a Remote Ethernet Connection” on page 69.](#)
- To power on the server using other methods, see [“Controlling System Power” on page 105.](#)

## ▼ Log In to Oracle ILOM and Power On the Server

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

For single 4-socket and single 8-socket systems, complete these steps for SMOD0 only. For double 4-socket systems, complete these steps for SMOD0 and SMOD1.

For the location of the status indicators on the server front panel, see [“Front Panel Features” on page 16](#).

**Before You Begin** Obtain a terminal, a terminal server, or a laptop running terminal emulation software.

- 1. Configure the terminal device to communicate using 8 bit, no parity, and 1 stop bit.**

For DTE-to-DTE communication, obtain an RJ-45 crossover adapter with a standard RJ-45 cable to set up a null modem configuration so that transmit and receive signals are crossed over.

- 2. Connect a serial cable between the server SER MGT port and the terminal device.**

- 3. Use the power cords to connect the power supplies AC inlets to two separate AC power sources.**

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

- The green AC OK power supply LEDs illuminate.
- While the Oracle ILOM SP initializes, the green SP OK LED flashes rapidly.
- After the Oracle ILOM SP fully initializes, the 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.

- 4. Press Enter on the terminal device to create a connection between the terminal and the Oracle ILOM SP.**

- 5. At the Oracle ILOM Login prompt, log in to Oracle ILOM using the CLI and the root user account and the password changeme:**

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



The Oracle ILOM CLI prompt (->) appears.

**6. Power on the server and redirect the host output to display on the serial terminal device:**

```
-> start /System
```

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

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

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

The host boots and the server enters Main power mode. The host power-on self-test (POST) and BIOS output appear on the serial terminal device. The following actions occur:

- The green System OK flashes rapidly to indicate that the host is booting.
- The green System OK LED lights are steady on when the host is booted and the server is in Main power mode.

For optimal security, change the root password when working in Oracle ILOM. For information on how to change the root password and other Oracle ILOM tasks, refer to the Oracle ILOM documents at <https://www.oracle.com/goto/ilom/docs>.

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



# Using Oracle ILOM

---

Oracle Integrated Lights Out Manager (ILOM) is system management firmware embedded on the SP. It provides extensive management and monitoring capabilities for the server. The server is shipped with Oracle ILOM version 4.0 or later.

This section describes how to access and start using Oracle ILOM. it includes:

- “Oracle ILOM Hardware and User Interfaces” on page 67
- “Accessing Oracle ILOM” on page 68
- “Modifying Oracle ILOM Network Settings” on page 72
- “Redirecting the Host Console Using Oracle ILOM” on page 76
- “Troubleshooting Oracle ILOM” on page 80

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

## Oracle ILOM Hardware and User Interfaces

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

- **Direct connection to SER MGT port (CLI only)** – For information, see “Access Oracle ILOM Using a Local Serial Connection” on page 69.
- **Dedicated remote network management connection** – For information, see “Access Oracle ILOM Using a Remote Ethernet Connection” on page 69.
- **Remote sideband management connection** – For information, refer to Sideband Network Management Connection in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.
- **Host-to-ILOM interconnect** – For information, refer to Dedicated Interconnect SP Management in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

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

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

### Related Information

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

## Accessing Oracle ILOM

You can log in to the Oracle ILOM 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 one of these procedures:

- [“Access Oracle ILOM Using a Local Serial Connection” on page 69](#)
- [“Access Oracle ILOM Using a Remote Ethernet Connection” on page 69](#)

To log out of Oracle ILOM, follow this procedure:

- [“Exit Oracle ILOM” on page 72](#)

## ▼ Access 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 and enforce user authentication and authorization in Oracle ILOM after your initial login, change the default password (changeme) for the default Administrator account (root). If this default Administrator account was changed, contact your system administrator for an Oracle ILOM user account with Administrator privileges.

---

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

---

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

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

### Related Information

- [“Connecting Cables and Applying Power” on page 57](#)
- [“Troubleshooting Oracle ILOM” on page 80](#)

## ▼ Access Oracle ILOM Using a Remote Ethernet Connection

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

You need to know the IP address or host name of the SP to log in to Oracle ILOM remotely. If you do not know the IP address of the SP, see [“Troubleshooting Oracle ILOM” on page 80](#).

---

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

---

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.**

For instructions to establish a physical management connection to Oracle ILOM see [“Log In to Oracle ILOM and Power On the Server” on page 64](#).

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

■ **To establish a connection to the web interface:**

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

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

The screenshot shows the Oracle Integrated Lights Out Manager (ILOM) interface. The main content area is titled "Summary Information" and is divided into several sections:

- General Information:** A table listing system details:
 

System Type	Rack Mount
Model	ORACLE SERVER X7-8
QPart ID	Q13015
Part Number	7336848-C
Serial Number	1715XC4009B
RFID Serial Number	341A583DE5000000004009B
System Identifier	
System Firmware Version	4.0.2.0
Primary Operating System	Oracle Linux Server release 7.4
Host Primary MAC Address	
ILOM Address	
ILOM MAC Address	
- Status:** A table showing the overall status and details for various subsystems:
 

Subsystem	Status	Details	Inventory
Processors	OK	Processor Architecture: x86 64-bit Processor Summary: Four Intel Xeon Processor Scalable Family	Processors: 4 / 4 (installed / Maximum)
Memory	OK	Installed RAM Size: 3072 GB	DIMMs: 48 / 48 (installed / Maximum)
Power	OK	Permitted Power Consumption: 2174 watts Actual Power Consumption: 572 watts	PSUs: 2 / 2 (installed / Maximum)
Cooling	OK	Inlet Air Temperature: 26 °C Exhaust Air Temperature: 37 °C	Chassis Fans: 8 / 8 (installed / Maximum) PSU Fans: Not Supported
Storage	OK	Installed Disk Size: 2235 GB Disk Controllers: 4	Internal Disks: 3 / 4 (installed / Maximum)
Networking	OK		Ethernet NICs: 4 (installed) Infiniband HCAs: 3 (installed)
- Actions:** A panel on the right with control buttons:
  - Power State: ON (with a green power icon) and a "Turn Off" button.
  - Locator Indicator: OFF (with a blue indicator icon) and a "Turn On" button.
  - System Firmware Update: "Update" button.
  - Remote Console: "Launch" button.

- **To establish a connection to the CLI:**

- a. **From a command line, initiate a Secure Shell session. Type:**

```
ssh username@host
```

Where *username* is the user name of an Oracle ILOM account with Administrator privileges and *host* is either the IP address or host name (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.

### Related Information

- [“Redirecting the Host Console Using Oracle ILOM” on page 76](#)
- [“Troubleshooting Oracle ILOM” on page 80](#)

## ▼ Exit 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 at the top-right corner of the screen.
  - **Oracle ILOM CLI** – At the CLI prompt (->), type `exit`.

## Modifying Oracle ILOM Network Settings

The section provides instructions for viewing and configuring settings that Oracle ILOM uses to communicate with the network. It includes:

- [“Modify Oracle ILOM Network Settings” on page 73](#)
- [“Test the IPv4 or IPv6 Network Configuration” on page 74](#)

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

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



## ▼ Modify Oracle ILOM Network Settings

When you use Oracle ILOM to deploy or manage the server, you can optionally modify the default network settings provided for the 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 68](#).**
2. **To modify the SP network settings, use either the Oracle ILOM web interface or CLI:**
  - **From the web interface:**
    - a. **Click ILOM Administration → Connectivity → Network.**
    - b. **Modify the settings on the Network Settings page, as required. For details, click the *More Details* link.**
    - c. **Click Save.**

---

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

---

- **From the CLI:**
  - a. **To view the assigned IPv4 and IPv6 network settings on the SP, perform the following:**
    - For IPv4, type: `show /SP/network`
    - For IPv6, type: `show /SP/network/ipv6`
  - b. **To view the descriptions about each IPv4 and IPv6 network property, perform the following:**
    - For IPv4, type: `help /SP/network`
    - For IPv6, type: `help /SP/network/ipv6`

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

IPv4 Example:

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

IPv6 Example:

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

---

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

---

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

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

---

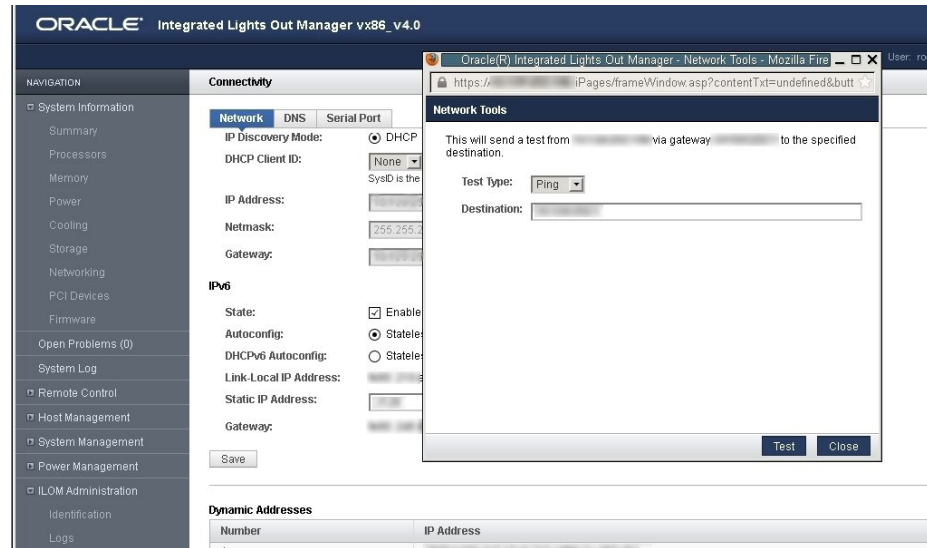
**Note** - All user sessions on the SP are terminated upon committing the IP network property changes. To log back in to Oracle ILOM, use the newly assigned SP IP address.

---

## ▼ Test the IPv4 or IPv6 Network Configuration

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

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

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

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

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

```
ping6 = (Cannot show property)
Commands:
cd
set
show
```

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

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

## Redirecting the Host Console Using Oracle ILOM

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

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

- Access the server BIOS Setup Utility remotely
- Install an operating system on the server
- Configure an operating system on the server
- Configure or install other software on the server

The Oracle ILOM Remote System Console Plus supports a full-control console video session for a primary user and view-only console video sessions for all other signed-in users. By default, a maximum of four video redirection sessions can be launched from the Oracle

ILOM web interface. To prevent other signed-in video session users on the SP from viewing confidential data, you can set the Maximum Client Session Count property to 1 on the KVMS page in the Oracle ILOM web interface.

For instructions, see the following procedures:

- “Set the Mouse Mode” on page 77
- “Redirect Host Server Desktop or Storage Devices” on page 77

## ▼ 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. You can set Mouse mode to either Absolute or Relative, according to the requirements of the operating system that you are using to connect to Oracle ILOM. Review the following guidelines to determine the appropriate Mouse mode for your system:

- For Windows and Oracle Solaris operating systems, set the Mouse mode to Absolute.
- For newer versions of Linux operating systems, such as Oracle Linux 7.x or Oracle Linux 6.x, set the Mouse mode to Absolute.
- For older versions of Linux operating systems, such as Oracle Linux 5.x, set the Mouse mode to Relative and switch to Absolute if the mouse does not work properly.
- For Oracle VM and VMware ESXi, Mouse mode settings do not apply.

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

To set the Mouse mode, perform the following steps:

1. **Log in to the Oracle ILOM web interface.**  
See “Access Oracle ILOM Using a Local Serial Connection” on page 69.
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 the 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 77](#)).
- 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.

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

For instructions, see [“Accessing Oracle ILOM” on page 68](#).

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

After clicking the Launch Redirection 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 start 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, enter your user credentials for the remote host server.

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

---

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

---

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

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

The primary user can relinquish full-control privileges for the current redirection session and switch to view-only mode.
4. **To redirect storage media, perform the following actions:**
  - a. **Verify that you have full-control privileges for the redirection session. If not, click Take Full-Control in the KVMS menu.**

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

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

Browse to the image file that you want to add, and then click Select.
  - d. **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 to 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.
  - e. **To stop a storage media redirection session, select the storage media entry in the Storage Device dialog box and click Disconnect.**
  - f. **To remove storage media entries 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 on using the Oracle ILOM Remote System Console Plus, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance, Firmware Release 4.0.x* at <https://www.oracle.com/goto/ilom/docs>.

## ▼ Access the Serial Remote Host Console

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

This procedure describes how to access the host console remotely. To connect to the host console locally, see “[Access Oracle ILOM Using a Local Serial Connection](#)” on page 69.

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

For instructions, see “[Access Oracle ILOM Using a Local Serial Connection](#)” on page 69.

- 2. At the Oracle ILOM prompt (->), type `start /HOST/console`.**

The serial console output appears on the screen.

---

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

---

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

## Troubleshooting Oracle ILOM

This section addresses two issues that might occur regarding the Oracle ILOM SP:

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



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

- [“Reset the SP Using Oracle ILOM” on page 81](#)
- [“Recover the Root Account Password” on page 81](#)

## ▼ Reset the SP Using Oracle ILOM

- **If the Oracle ILOM SP becomes unresponsive, use one of the following methods to reset it:**
  - **From the Oracle ILOM web interface, click Administration → Maintenance → Reset SP.**
  - **From the Oracle ILOM CLI, type the command: `reset /SP`**

---

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

---

## ▼ Recover the Root Account Password

System administrators can recover the preconfigured Oracle ILOM local root account or the password for the local root account by using the preconfigured Oracle ILOM default password.

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

To recover the root account password, perform these steps:

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

For example: `host-name login: default`

Press and release the physical presence button

Press return when this is completed...

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

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

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

The Oracle ILOM password prompt appears.

**4. Type the password for the default user account: defaultpassword.**

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

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

# Configuring Storage Drives for Operating System Installation

---

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

Section	Description
<a href="#">“RAID Overview” on page 83</a>	Provides an overview of RAID and operating systems.
<a href="#">“Supported Storage Devices” on page 85</a>	Lists the HBAs supported on your server and provides links to the procedures for configuring RAID on them.
<a href="#">“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port” on page 86</a>	<p>The Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port controls the HDDs and SSDs, which are shipped with RAID 0 volumes. You can use a BIOS utility to combine them into RAID arrays.</p> <p>To learn more about the this HBA, refer to the <i>Oracle Storage 12 Gb/s SAS PCIe RAID HBA, Internal Installation Guide</i> at <a href="https://docs.oracle.com/cd/E87591_01/index.html">https://docs.oracle.com/cd/E87591_01/index.html</a>.</p>
<a href="#">“View Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility” on page 101</a>	<p>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.</p> <p>For more information about this card, refer to the Oracle Flash Accelerator F640 PCIe Card and Oracle 6.4 TB NVMe SSD Documentation Library at: <a href="https://www.oracle.com/goto/oracleflashf640/docs">https://www.oracle.com/goto/oracleflashf640/docs</a></p>
<a href="#">“Installing an Operating System” on page 104</a>	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 identified by their 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	4
60	6

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

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

The Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port on your server supports hardware RAID. For instructions, see [“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port” on page 86](#).

- **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 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 the [Oracle Server X7-8 Operating Systems Installation Guide](#).
- The UEFI BIOS utility in your server does not display items in the boot list until *after* an OS is installed on the storage device and then the server is booted. This is unlike older BIOS utilities that display devices where you can install an OS.

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

#### Related Information

- [“Installation Procedure Overview” on page 11](#)
- HBA Documentation Collection at: [https://docs.oracle.com/cd/E87591\\_01/index.html](https://docs.oracle.com/cd/E87591_01/index.html)

## Supported Storage Devices

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

- Internal HBA card and a combination of HDDs and SSDs.  
Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port manages the server hard disk drives (HDDs) and solid state drives (SSDs), which are shipped configured as RAID 0 volumes.  
For instructions to configure RAID on the internal HBA, see [“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port” on page 86.](#)
- Oracle Flash Accelerator F640 PCIe Cards. You can install an OS on these cards without any additional configuration.  
See [“View Installed Oracle Flash Accelerator F640 PCIe Cards in BIOS Setup Utility” on page 101.](#)

## Configuring RAID

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

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

To configure the Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port see [“Configure RAID on Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal 16-Port” on page 86.](#)

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.

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

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



---

**Caution** - Degraded Performance. Combining HDDs and SSDs in the same array is not recommended. It causes the entire array to operate at the speed of the HDDs, 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 77 and refer to *Oracle X7 Series Servers Administration Guide* at <https://www.oracle.com/goto/x86admindiag/docs>.

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

For example, to reset the server:

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

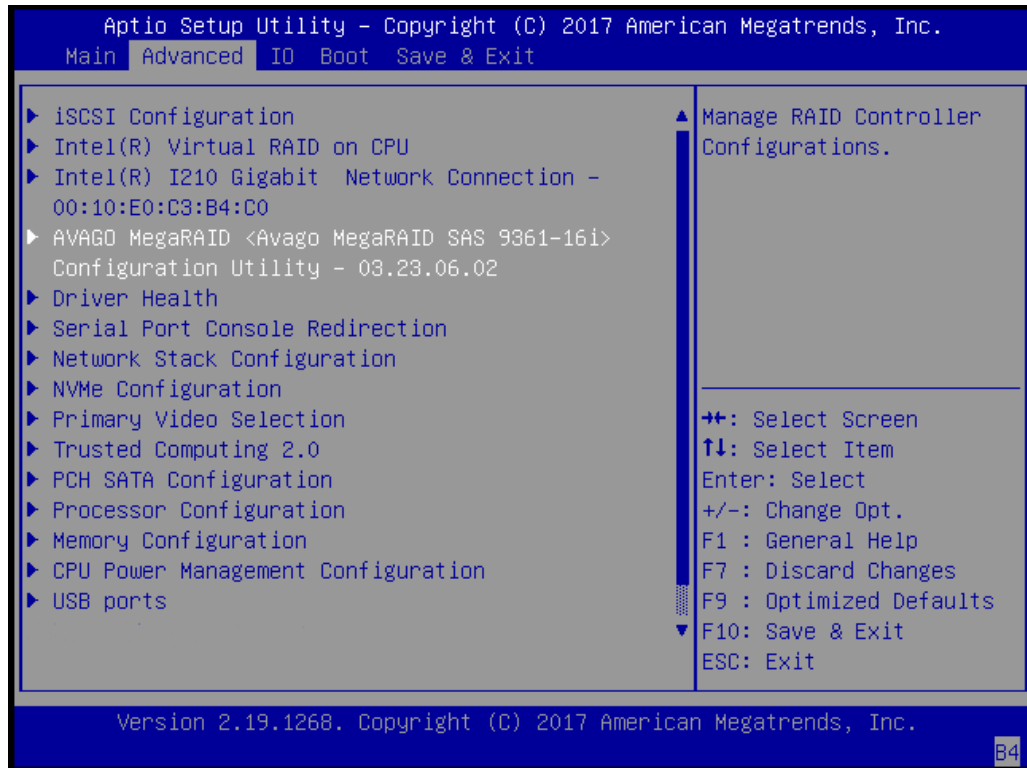
The system boots to the BIOS Setup Utility.

---

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

---

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

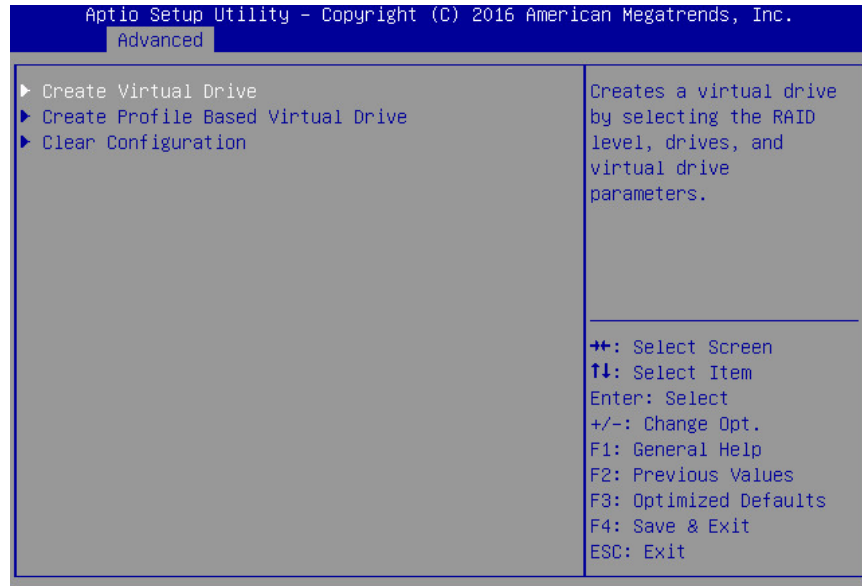


5. From the ACTIONS menu, select Configure and press Enter.

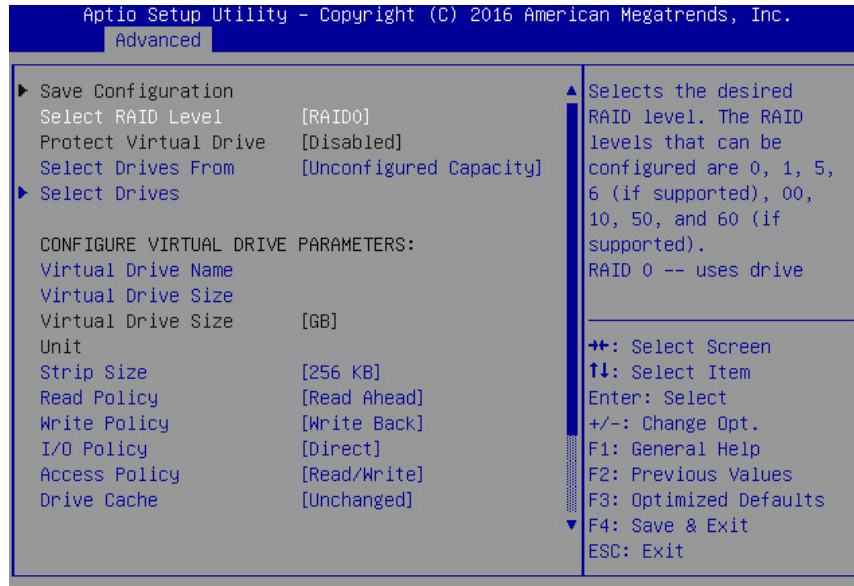




**6. Select Create Virtual Drive, and press Enter.**

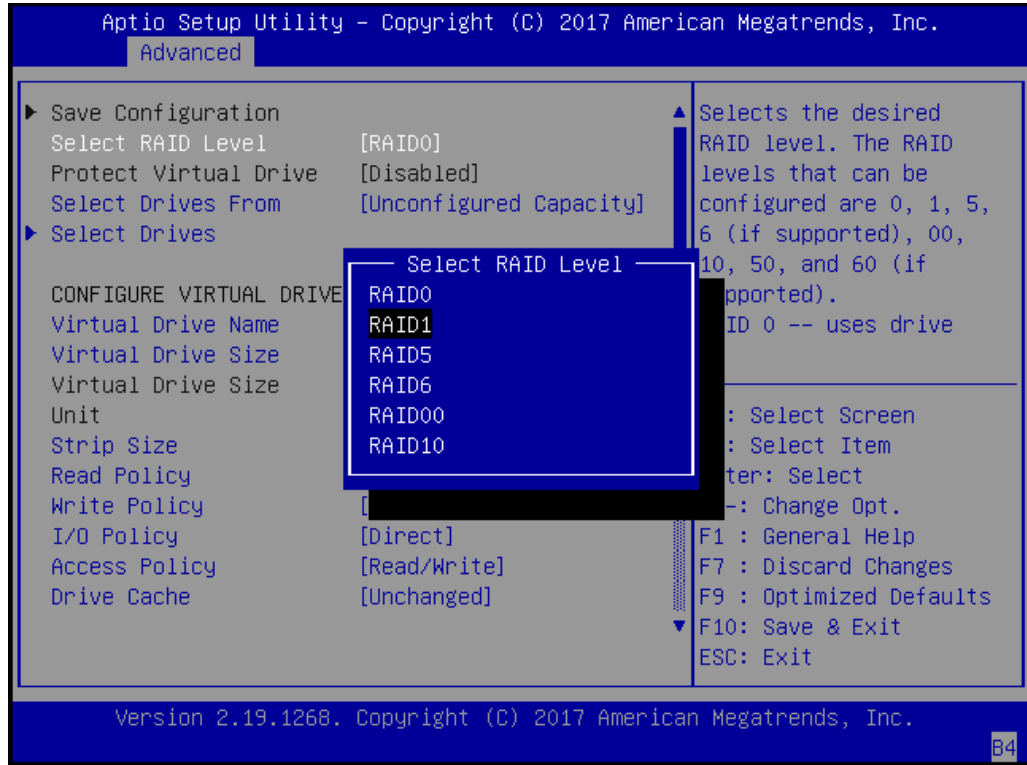


The Create Virtual Drive menu appears.



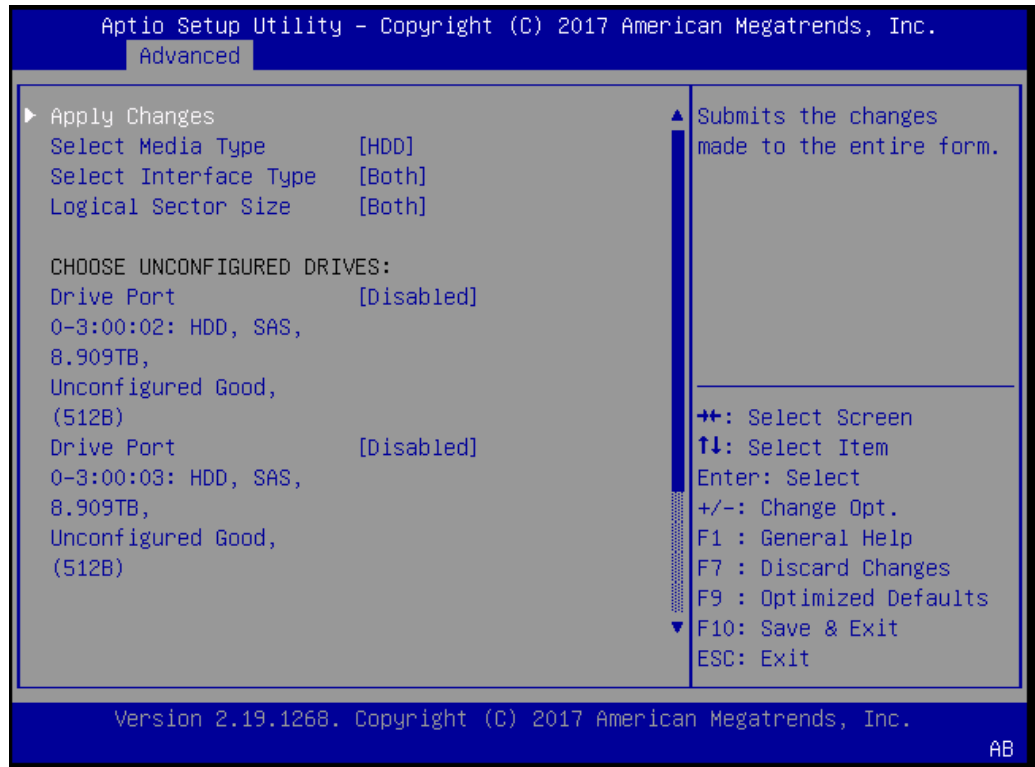
**7. Select Select RAID Level, and press Enter.**

**8. When the popup appears, select a RAID level.**



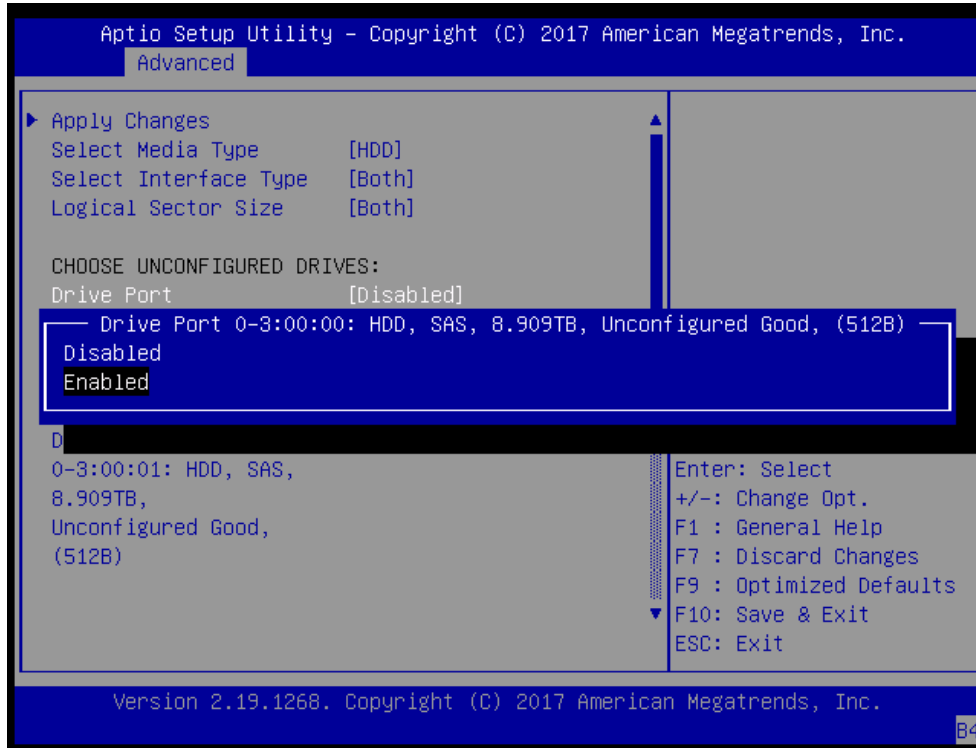
**9. Navigate to Select Drives, and press Enter.**

A list of drives appears.

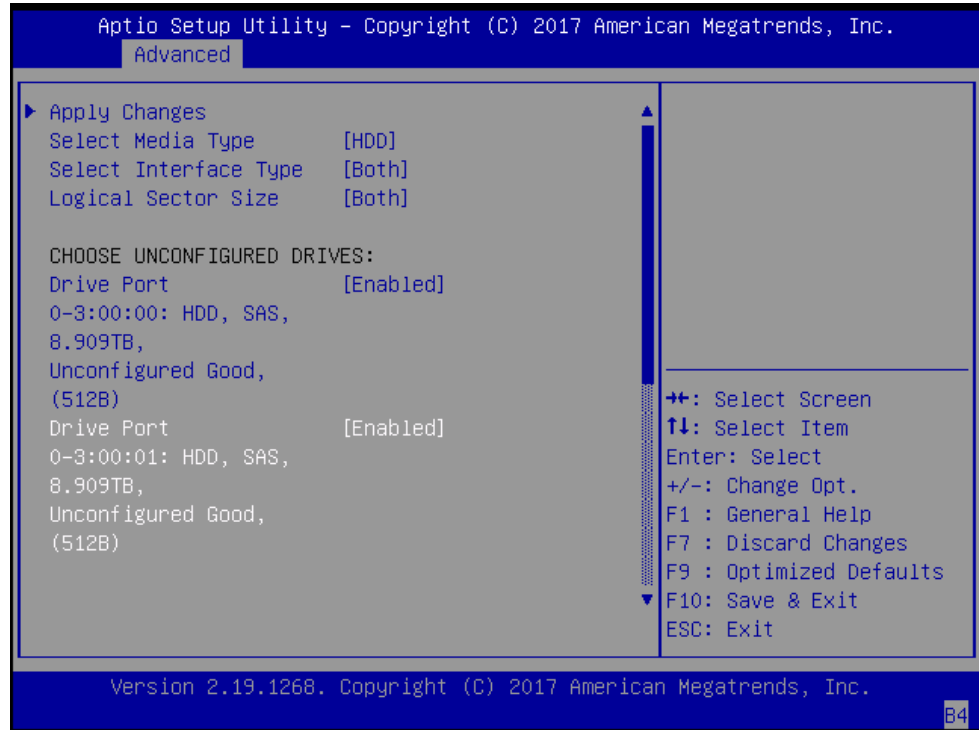


10. For each drive that you want to include in the RAID volume, do the following:
  - a. Use the arrow keys to navigate to the drive.
  - b. Press Enter.
  - c. In the pop-up window, select Enabled, and press Enter.

The drive is now listed as Enabled.



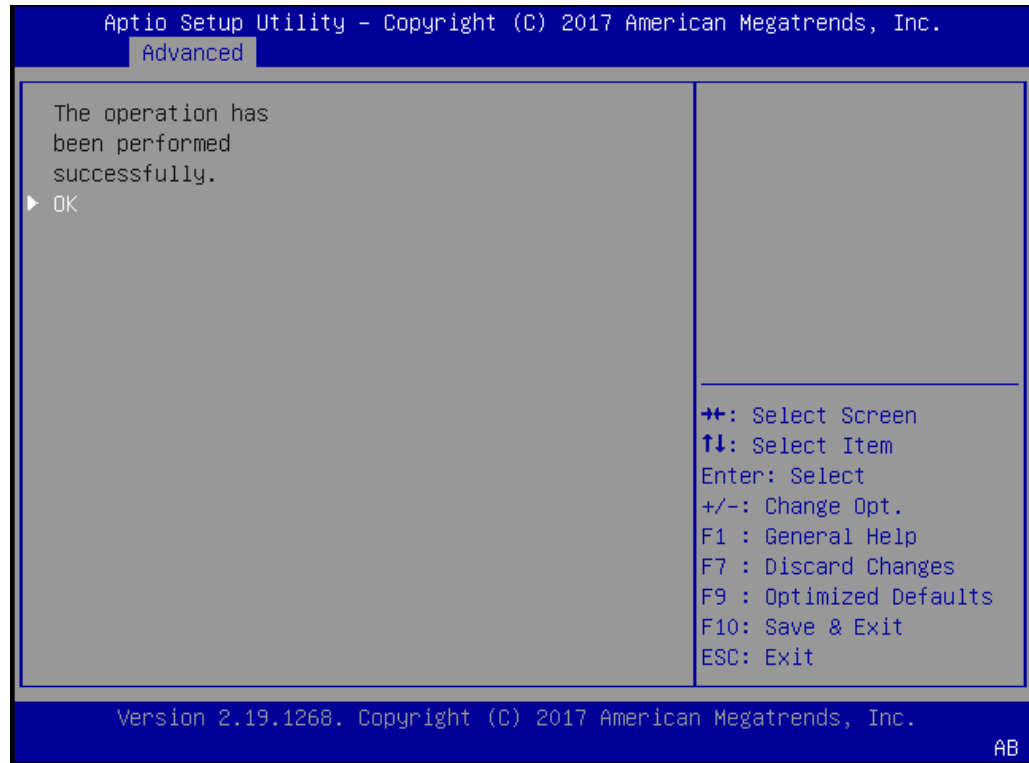
**d. Repeat Step 10 until all the desired drives are Enabled.**



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

**11. Select Apply Changes, and press Enter.**

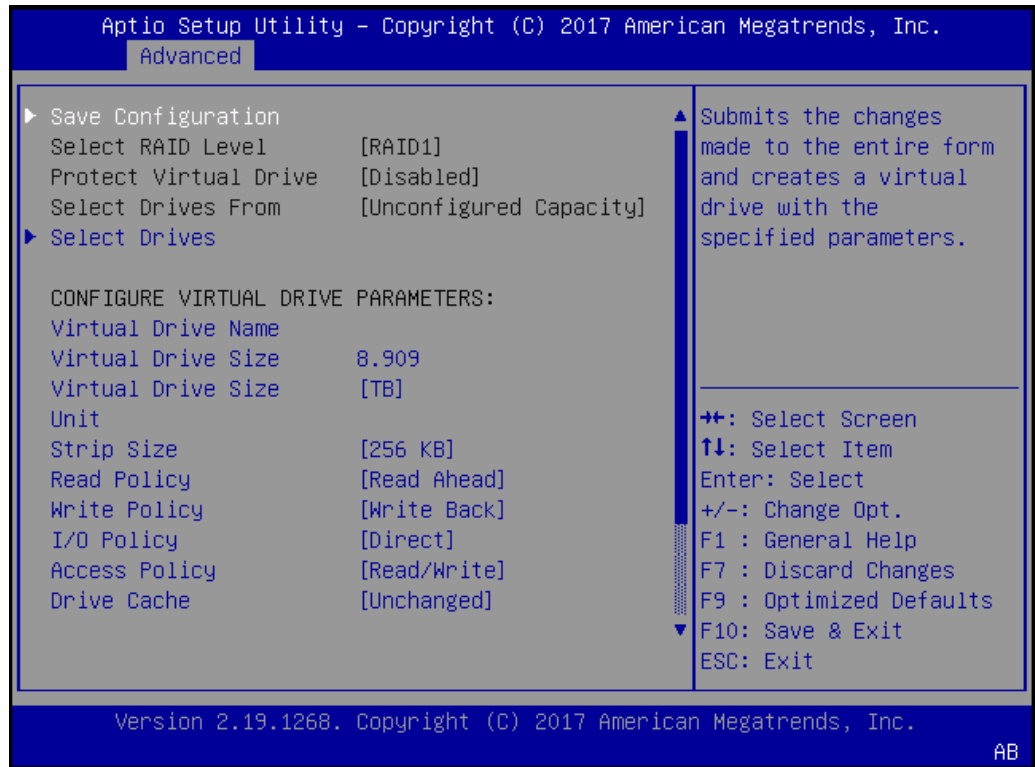
A window confirms that you have finished configuring the RAID volume.



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

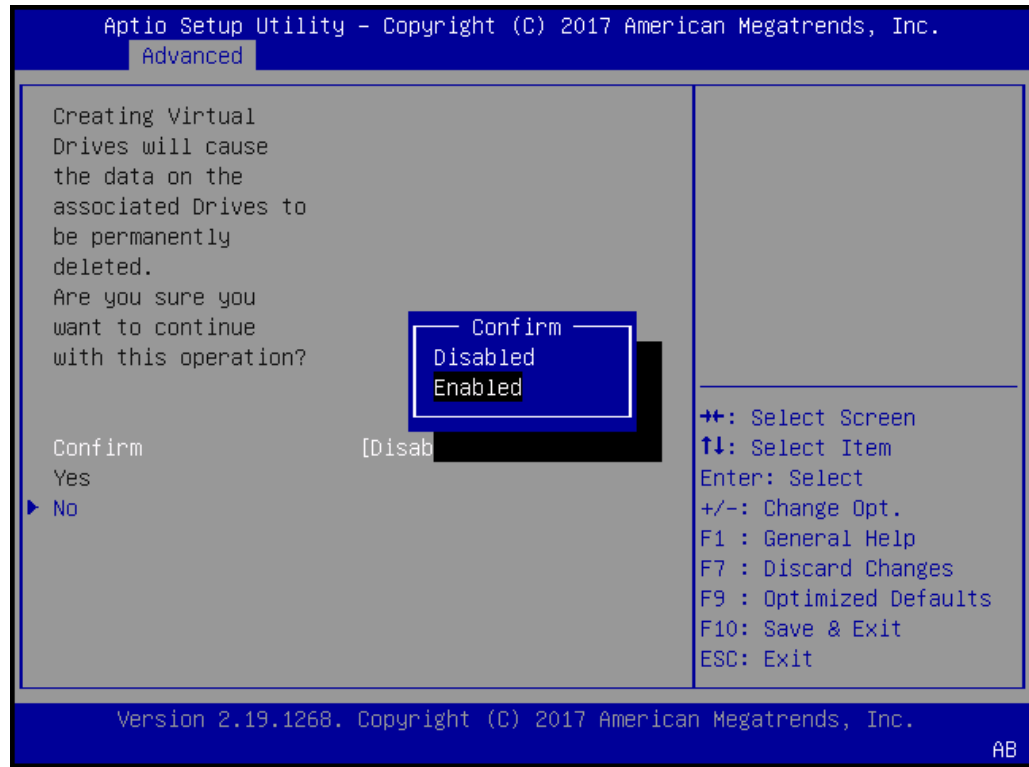
12. To return to the Create Virtual Drive Advanced menu, press the ESC key twice.

**13. Select Save Configuration, and press Enter.**





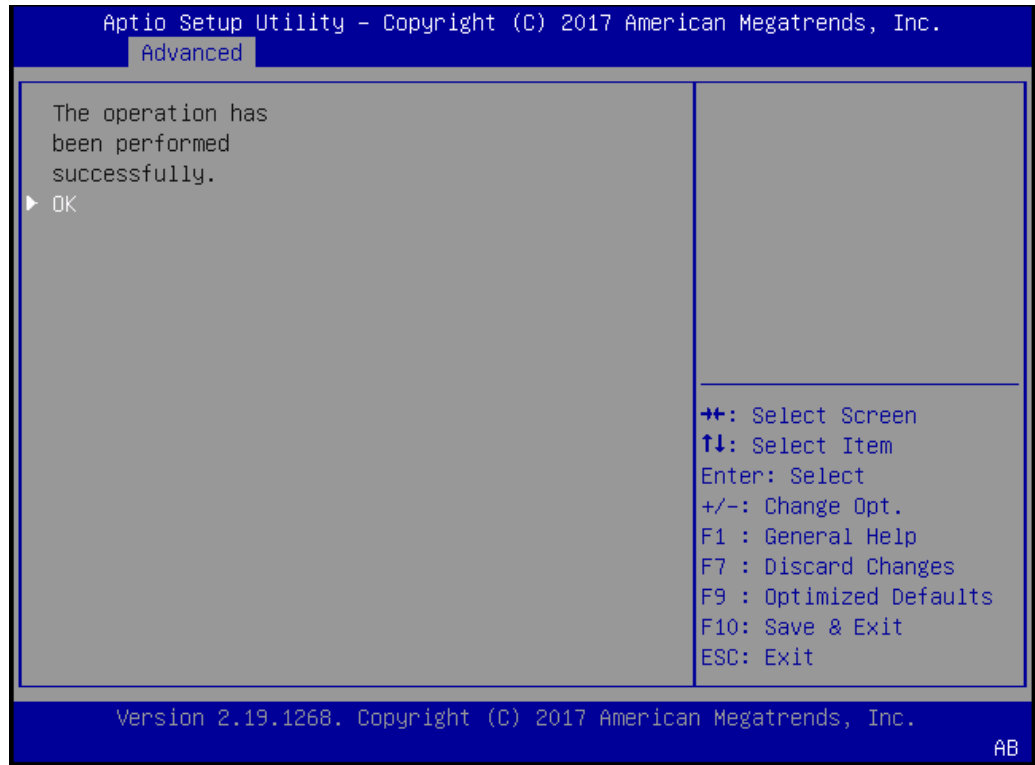
14. **Select Confirm and then press Enter, then select Enabled and press Enter.**



The [Disabled] changes to [Enabled].

15. **Select Yes, and press Enter.**

A screen confirms that the array was created.



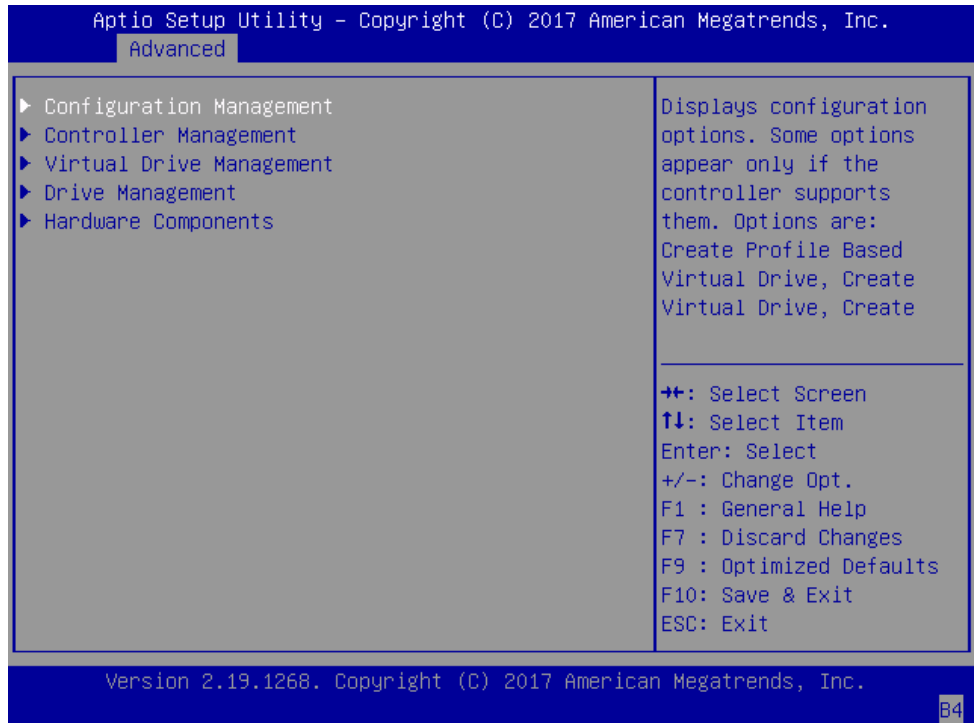
**16. To verify that the RAID volume was created:**

**a. Use the ESC key to navigate to Configuration Management.**

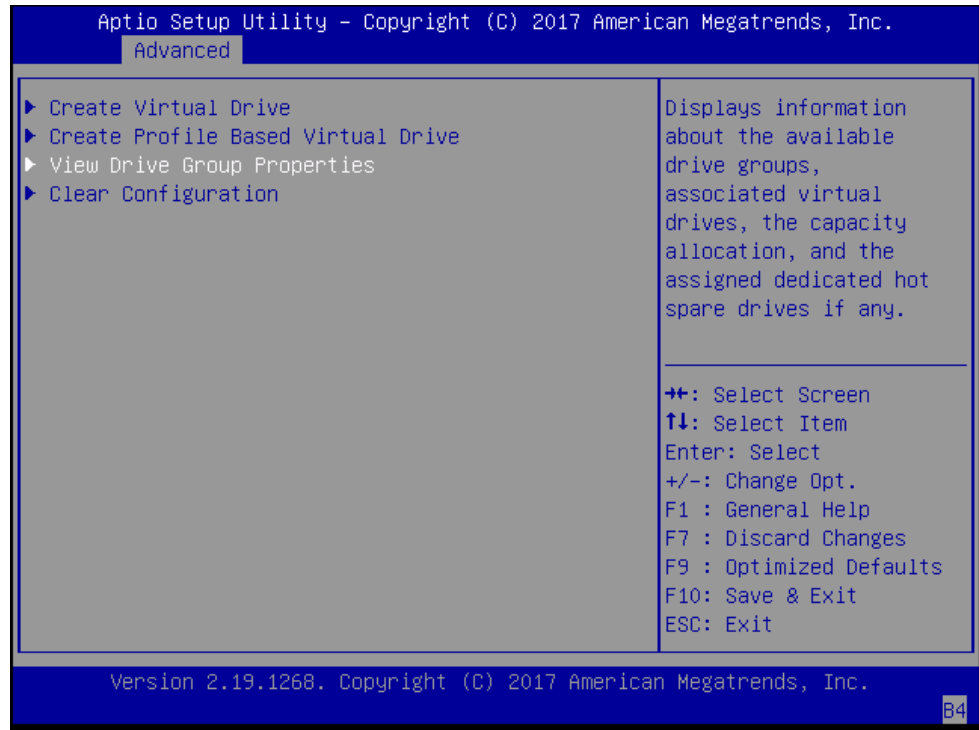
Alternatively, from the Advanced menu, select the Avago MegaRAID Configuration Utility, and press Enter.

- Select the Main menu (if it is not already selected) and then press Enter.

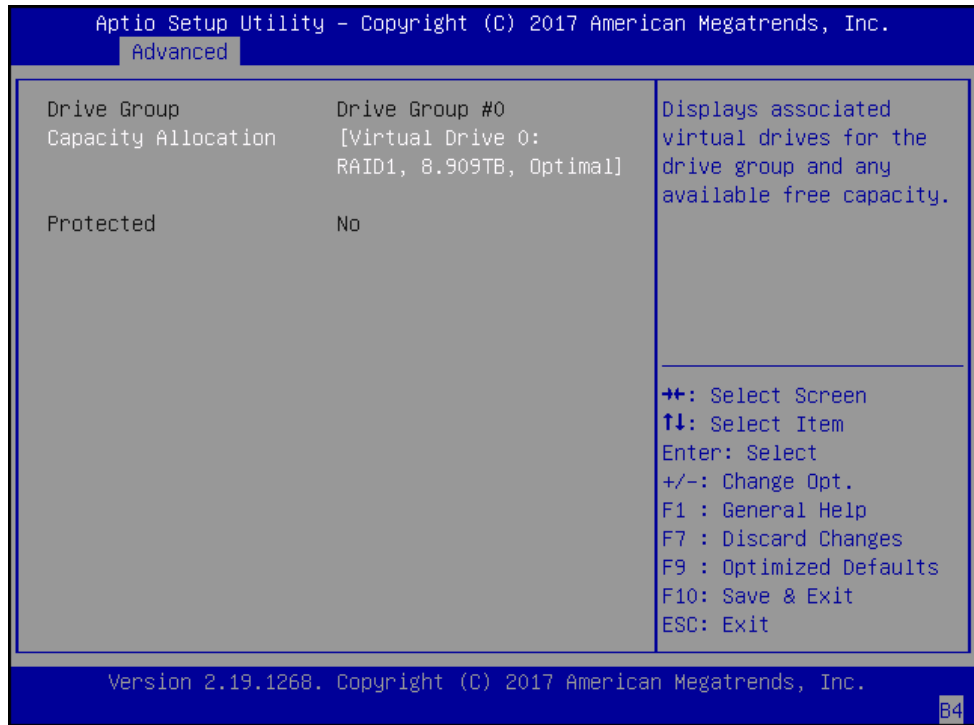
- Select Configuration Management and, press Enter.



**b. Select View Drive Group Properties, then press Enter.**



c. Examine the drive group properties.



d. Press the Esc key multiple times to return to the BIOS Setup Utility Main menu.

17. Navigate to the Save and Exit menu, select Save Changes and Exit,, and press Enter.

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

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

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

---

**Note** - Each Oracle Flash Accelerator F640 PCIe Card supports two 3.2 TB drives, each with its own controller. These appear in the BIOS Setup Utility, and in OS installation programs as two separate 3.2 TB 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 77 and refer to *Oracle X7 Series Servers Administration Guide* at <https://www.oracle.com/goto/x86admindiag/docs>.

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

For example, to reset the server:

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

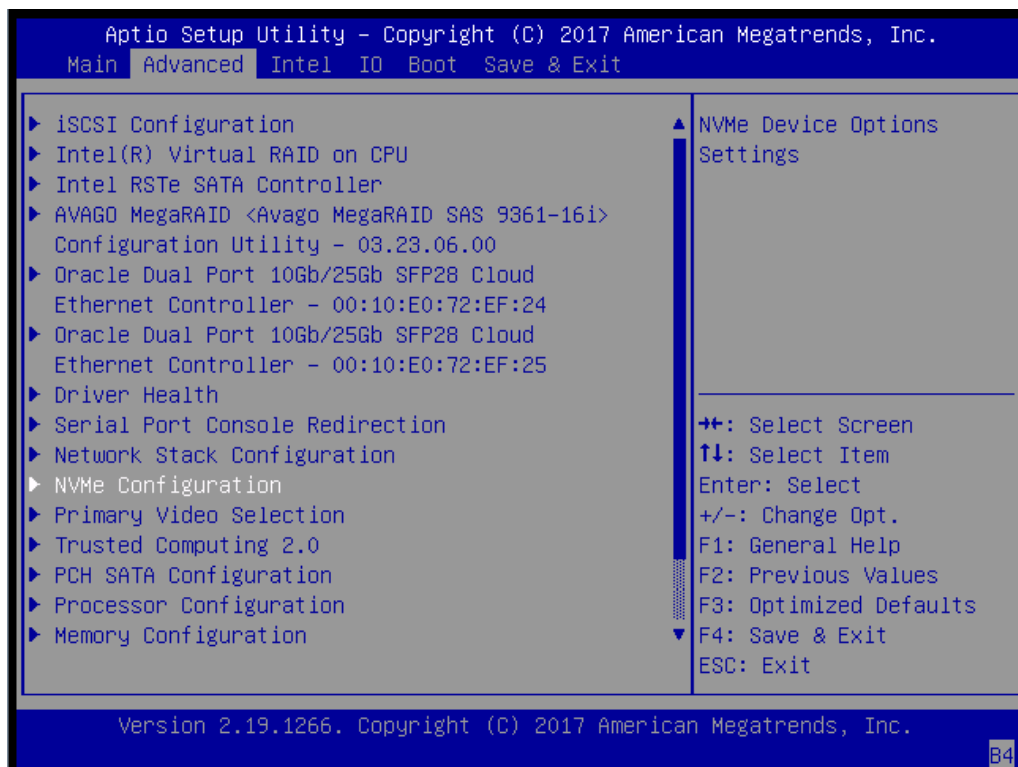
The system boots to the BIOS setup utility.

---

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

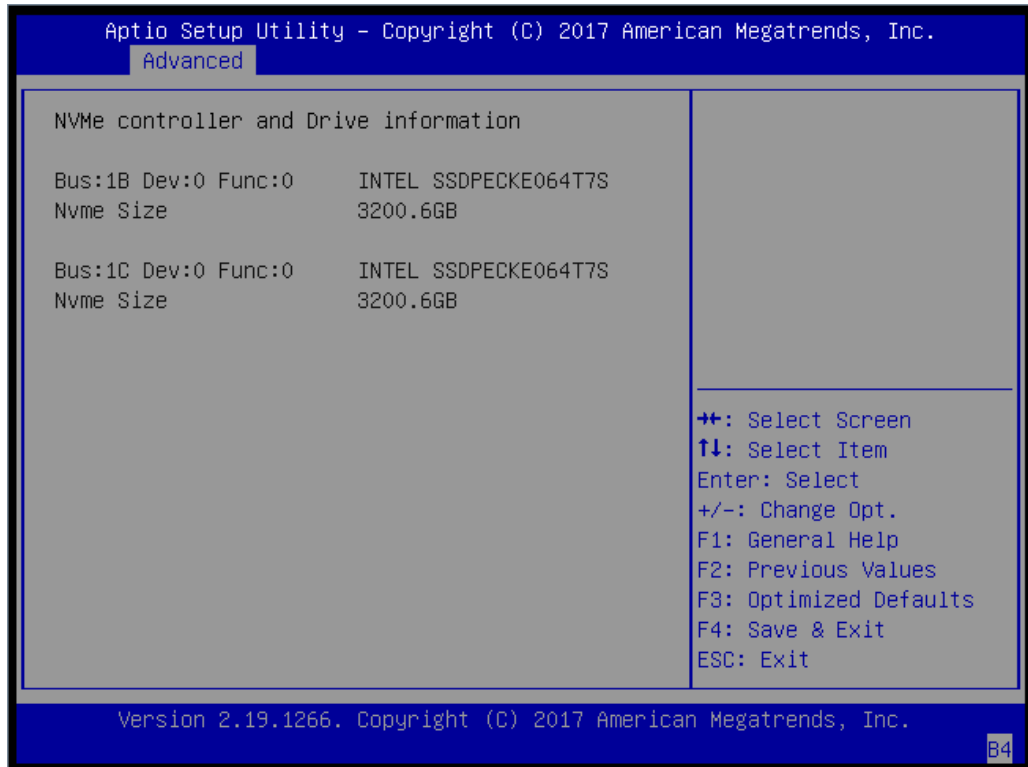
---

4. **Navigate to the Advanced menu.**



5. **Select NVMe Configuration, and press Enter.**

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



## Installing an Operating System

To prepare for operating system installation, see [“Supported Storage Devices” on page 85](#).

For instructions to install an operating system on your Oracle Server X7-8, refer to [Oracle Server X7-8 Operating Systems Installation Guide](#).



# Controlling System Power

---

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

- “Powering the Host On and Off” on page 105
- “Resetting the Server” on page 108

## Related Information

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

## Powering the Host On and Off

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

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

Power State	Description	Indicators	Action
			<p>the Power button to remove host power. On dual 4-socket systems, complete this action for both servers.</p> <p>You can power the host off gracefully, or immediately.</p>
Main power	When you power on the host, the server enters Main power mode.	<p>In Main power mode, the green System OK indicator is steady on.</p> <p>On single 4-socket and single 8-socket systems, only the System OK indicator for System A (SMOD0) comes on.</p>	<p>Use Oracle ILOM or the On/Standby button to apply host power.</p> <p>On dual 4-socket systems, you must complete this action for both servers.</p>

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

- [“Power Off the Host Using the On/Standby Button” on page 106](#)
- [“Power On the Host Using the On/Standby Button” on page 107](#)
- [“Power the Host On and Off Using Oracle ILOM” on page 107](#)

## ▼ Power Off the Host Using the On/Standby Button

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

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

The front panel includes buttons for System A and System B. System B is only present on dual 4-socket systems.
2. **Press the On/Standby button.**
  - **To perform a graceful shutdown, press and release the On/Standby button.**

The ACPI-enabled operating systems performs an orderly shutdown.

The system System OK indicator flashes. The SP OK indicator is steady on.
  - **To perform an immediate shutdown, press and hold the On/Standby button for at least 5 seconds.**

The system System OK indicator flashes. The SP OK indicator is steady on.



---

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

---

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

## ▼ Power On the Host Using the On/Standby Button

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

See [“Preparing for Installation and Power On” on page 62.](#)

In Standby power mode, the host is powered off but the SP is powered on. The power supplies are connected to a power source, the AC OK power supply indicators illuminate, the SP OK indicator is steady on, and the System OK status indicator flashes slowly.

2. **Locate the On/Standby button on the front panel.**

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

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

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

## ▼ Power the Host On and Off Using Oracle ILOM

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

---

**Note** - These commands affect power to the host but not to the SP. To completely power off the server, you must 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 ILOM” on page 67](#).

- **From the web interface:**

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

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

- **Reset** — Assert a power cycle to the server, while keeping power applied to system components such as hard disk drives.
- **Immediate Power Off** — Directly shut down the power to the service.
- **Graceful Shutdown and Power Off** — Gracefully shut down the host operating system prior to shutting down the power to the server.
- **Power On** — Apply Main power to the server.
- **Power Cycle** — Turn off system power to all system components, and then apply Main power to all system components.

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

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

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

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

## Resetting the Server

It is not necessary to power the server off and on to reset the server. A reset maintains host power but causes the processors to reinitialize. In the process, some register information is retained. This is important in case of a system host panic, as error information might be available upon system recovery.



---

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

---

## ▼ Reset the Server Using Oracle ILOM

1. **Log in to the Oracle ILOM web interface or CLI.**  
Use 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 then click OK.**  
The server resets.
  - **From the CLI :**
    - a. **Type the following command:**  
-> reset /System
    - b. **When prompted, type y to confirm:**  
Are you sure you want to reset /System (y/n)? y  
Performing hard reset /System



# Getting Firmware and Software Updates

---

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 complete 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 111](#)
- [“Options for Accessing Firmware and Software Updates” on page 112](#)
- [“Software Releases” on page 112](#)
- [“Getting Updates From My Oracle Support” on page 113](#)
- [“Download Software Using Oracle Software Delivery Cloud” on page 114](#)
- [“Installing Updates Using Other Methods” on page 115](#)
- [“Oracle Support” on page 116](#)

## Firmware and Software Updates

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

You must update your server firmware and software as soon as possible after a new software release becomes available. Software releases often include bug fixes, and updating your server ensures that your server has the latest firmware and software. These updates will 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, you can use either the Oracle ILOM web interface or the 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 file that is included with each patch in a software release, includes what changed or remained the same, and bugs that are fixed with the current release.

## Options for Accessing Firmware and Software Updates

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

- **My Oracle Support** – All system software releases are available from the My Oracle Support web site at <https://support.oracle.com>.  
For information on what is available on the My Oracle Support web site, see “[Software Releases](#)” on page 112.
- **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 115.

## Software Releases

Software releases on My Oracle Support are grouped by product family (such as Oracle Server), then the product (the specific server), and finally 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 file and a set of subdirectories containing firmware or software files. The ReadMe file contains details on the components that have changed since the prior software release and the bugs that have been fixed.

My Oracle Support provides the set of software release packages for your server as 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
X7-8 SW <i>release</i> – Firmware Pack	Contains all system firmware, including Oracle ILOM, BIOS, and option card firmware.	You need the latest firmware.



Package Name	Description	When to Download This Package
X7-8 SW <i>release</i> – OS Pack	<p>Includes a package of all tools, drivers, and utilities for a specific OS. An OS Pack is available for each supported operating system version.</p> <p>Software includes Oracle Hardware Management Pack, MegaRAID software, and any other optional software.</p> <p>For the Windows OS, the OS Pack also includes Intel Network Teaming and Install Pack.</p>	You need to update OS-specific tools, drivers, or utilities.
X7-8 SW <i>release</i> – All Packs	<p>Includes the Firmware Pack, all OS Packs, and all documents.</p> <p>This pack does not include Oracle VTS image.</p>	You need to update a combination of system firmware and OS-specific software.
X7-8 SW <i>release</i> – Diagnostics	Includes Oracle VTS diagnostics image.	You need the Oracle VTS diagnostics image.

## Getting Updates From My Oracle Support

You can obtain updated firmware and software from the My Oracle Support web site. For information, see “[Download Firmware and Software Updates From My Oracle Support](#)” on page 113.

### ▼ Download Firmware and Software Updates From My Oracle Support

1. Go to the My Oracle Support web site: <https://support.oracle.com>.
2. Sign in to My Oracle Support.
3. At the top of the page, click the **Patches & Updates** tab.  
The Patch Search pane appears at the right of the screen.
4. In the **Search** tab area, click **Product or Family (Advanced)**.  
The Search tab area appears with search fields.
5. In the **Product** field, select the product from the drop-down list.

Alternatively, type a full or partial product name (for example, Oracle Server X7-8) until a match appears.

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

Expand the list to see all available software releases.

**7. Click Search.**

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

See “[Software Releases](#)” on page 112 for a description of the available software releases.

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

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

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

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

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

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

The patch for the software release downloads.

## ▼ Download Software Using Oracle Software Delivery Cloud

Oracle Software Delivery Cloud allows you to download Oracle software, including operating systems and related training products for your Oracle server.

**Before You Begin** You must have a valid user account.

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

**2. At the Sign In screen, sign in.**

**3. Fill out the search information.**

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

- a. **In the Search by drop down list, select Product.**
  - b. **In the search field, type a product name.**  
For example, type `Oracle Linux`.
  - c. **Select a platform.**  
For example, click the check box next to `x86 64-bit`, and click **Select**.  
Your selection appears in the **Download Queue**.
  - d. **Repeat Step a through Step c to add additional items to the Download Queue.**
  - e. **When your Download Queue is complete, click Continue.**
4. **In the list of downloadable items, select the check box next to the item(s) you want to download, and select Continue.**
  5. **On the terms and restrictions page, select the check box to accept the terms and restrictions, and select Continue.**
  6. **In the list of downloadable files, select the files you want to download, and click Download All.**
  7. **Follow the prompts to complete the download.**

## Installing Updates Using Other Methods

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

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

For information, go to:

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

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

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

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

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

For information, refer to the Oracle Integrated Lights Out Manager (ILOM) 4.0 Documentation Library at:

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

## Oracle Support

If you need help getting firmware or software updates, you can call Oracle Support. Use the appropriate number from the Oracle Global Customer Support Contacts Directory at:

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

# Troubleshooting Installation Issues

---

This section provides troubleshooting resources, a technical support worksheet, and information on how to locate the system serial number.

- “Resources for Troubleshooting and Diagnostics” on page 117
- “Technical Support Information Worksheet” on page 118
- “Locating the System Serial Number” on page 118
- “Auto Service Request” on page 119

## Resources for Troubleshooting and Diagnostics

For server-specific information on troubleshooting hardware faults, refer to “[Troubleshooting and Diagnostics](#)” in *Oracle Server X7-8 Service Manual*.

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

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

Description	Reference Link
<ul style="list-style-type: none"><li>■ x86 servers diagnostics</li><li>■ Runtime and firmware-based tests</li><li>■ Oracle ILOM procedures</li><li>■ UEFI diagnostics tests to exercise the system and isolate subtle and intermittent hardware-related problems</li></ul>	<i>Oracle x86 Servers Diagnostics and Troubleshooting Guide for Servers With Oracle ILOM 4.0.x</i> at <a href="https://www.oracle.com/goto/x86adminddiag/docs">https://www.oracle.com/goto/x86adminddiag/docs</a>
<ul style="list-style-type: none"><li>■ Administrative information for the Oracle X7 series servers</li><li>■ Oracle ILOM system event log (SEL) that identifies the possible source of a problem</li></ul>	<i>Oracle X7 Series Servers Administration Guide</i> at <a href="https://www.oracle.com/goto/x86adminddiag/docs">https://www.oracle.com/goto/x86adminddiag/docs</a>
<ul style="list-style-type: none"><li>■ Troubleshooting front and back panel status indicators</li></ul>	“ <a href="#">Troubleshooting and Diagnostics</a> ” in <i>Oracle Server X7-8 Service Manual</i>

Description	Reference Link
<ul style="list-style-type: none"> <li>Managing server hardware faults using the Oracle ILOM Fault Management Shell</li> </ul>	<a href="#">“Identify Hardware Faults (Oracle ILOM)” in <i>Oracle Server X7-8 Service Manual</i></a>

## Technical Support Information Worksheet

If the troubleshooting information fails to solve your problem, use the following table to collect information that you might need to communicate to Oracle Service personnel.

System Configuration Information Needed	Your Information
Service contract number	
System model	
Operating system	
System serial number (For instructions for locating this number, see <a href="#">“Locating the System Serial Number”</a> on page 118.)	
Peripherals attached to the system	
Email address and phone number for you and a secondary contact	
Street address where the system is located	
Superuser password	
Summary of the problem and the work being done when the problem occurred	
IP address	
Server name (system host name)	
Network or Internet domain name	
Proxy server configuration	

## Locating the System Serial Number

When you ask for service on your system, you might need to have your server's serial number. Record this number for future use. Use one of the following methods to locate your server's serial number:

- Look on the front panel of the server at the middle left side of the bezel.
- 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 the `show /System` command.

## Auto Service Request

Oracle Auto Service Request (ASR) is a feature provided at no additional cost to customers that 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>. When you log in to My Oracle Support, refer to the "Oracle Auto Service Request" Knowledge Article document (IS 1185493.1) for instructions of downloading the ASR software.

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

For more information on 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

- [“Access Route and Data Center Checklist” on page 121](#)
- [“Data Center Environment Checklist” on page 122](#)
- [“Facility Power Checklist” on page 123](#)
- [“Rackmount Checklist” on page 123](#)
- [“Safety Checklist” on page 125](#)
- [“Auto Service Request Checklist” on page 125](#)
- [“Logistics Checklist” on page 126](#)

## Access Route and Data Center Checklist

Review the following facility requirements before installing the server.

Data Center Room Considerations	Yes	No	N/A	Comment
Has the access route been checked for clearances of the packaged equipment?				
Do all the doors and entry ways conform to the width and height requirements for transportation, including the width of the unpacked unit?				
Are there any ramps, stairs, or thresholds that are in the moving path for the new hardware?				
Have you confirmed that the access route is free of any obstacles that would expose the device to shock?				

Data Center Room Considerations	Yes	No	N/A	Comment
If there are stairs, then is a loading elevator accessible for moving the equipment?				
Has the rack location been allocated?				
Is there a vacant space in the rack for the new server?				
Does the floor layout meet the equipment maintenance access requirements?				
Is there adequate space available for server maintenance?				
Have cabinet stabilization measures been considered?				
Will the hardware location require any non-standard cable lengths?				
Is the floor to ceiling height a minimum of 2914 mm or 2.9 m (9.6 feet)?				

### Related Information

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

## Data Center Environment Checklist

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

Data Center Environment Considerations	Yes	No	N/A	Comment
Does the computer room air handling meet temperature and humidity requirements?				
Does the installation floor layout satisfy the ventilation requirements?				
Will the equipment be positioned so that the exhaust air of one rack does not enter the air intake of another rack?				
Are the perforated floor tiles each rated at 400 CFM or greater?				
Do the data center air conditioners provide sufficient front to back airflow?				
Is airflow adequate to prevent hot spots?				
Can the data center continuously satisfy environmental requirements?				
Can more vented floor tiles be obtained if required?				

### Related Information

- [“Environmental Requirements” on page 27](#)
- [“Ventilation and Cooling Requirements” on page 29](#)

## Facility Power Checklist

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

Facility Power Considerations	Yes	No	N/A	Comment
Do you know the required operating voltage and electric current level of the device and peripherals?				
Are enough power outlets provided within 2 meters (6.5 feet) for each rack?				
Do the power outlets have appropriate socket receptacles?				
Will optional ground cables be attached to the rack?				
Are the circuit breakers for the equipment suitable in terms of voltage and current-carrying capacities?				
Does the power frequency meet the equipment specifications?				
Will system power be delivered from two separate grids?				
Is there a UPS to power the equipment? Do you have the minimum required power sources to support the power load for the new hardware? Use kilowatt (kW)/kilovolt (kVA) to express power load.				

### Related Information

- [“Electrical Requirements” on page 30](#)

## Rackmount Checklist

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

Preparation Checklists

Rackmount Considerations	Yes	No	N/A	Comment
Is the distance between the front and back mounting planes between the minimum of 610 mm and the maximum 915 mm (24 inches to 36 inches)?				
Is the clearance depth in the front of the front mounting plane (distance to the front cabinet door) at least 25.4 mm (1 inch)?				
Does the target rack meet the following minimum load capacity? <ul style="list-style-type: none"> <li>■ 19 kg/U</li> <li>■ 785 kg total</li> </ul>				
Is the rack a four-post rack (mounting at both front and back)?  Two-post racks are not compatible.				
Does the rack's horizontal opening and unit vertical pitch conform to ANSI/EIA 310-D-1992 or IEC 60297 standards?				
Does the rack have RETMA rail support?				
Does the rack support installation of Oracle vented and solid filler panels?				
Can the rack provide tie-downs for the Ethernet wiring harness?				
Is there sufficient space for the cable harnesses and the power distribution units (PDUs) in the rack?				
Can a label with the serial number be printed and attached to the target rack?				
Does the rack support installation of standard Oracle PDUs?  If not, then complete this checklist.				
Can the customer provide an equivalent pair of PDUs?				
Can the customer provide two PDUs with capacity of 110kVA per PDU?				
Can the customer provide a single PDU and its circuits to support the power requirements in case one PDU fails?				
Can the customer ensure power loads are evenly distributed across all circuits of a single PDU?				
Can the customer provide appropriate power drops for the PDUs?				

**Related Information**

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

## Safety Checklist

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

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

### Related Information

- *Oracle Server X7-8 Safety and Compliance Manual*

## Auto Service Request Checklist

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

Auto Service Request Considerations	Yes	No	N/A	Comment
Do you have an Oracle Online Account to register Auto Service Request?				
Do you have your My Oracle Support Customer Support Identifier (CSI) number?				
Do you have the host name and IP address for the server that will have Auto Service Request Manager?				
Will the system need a proxy server? If so, what is the host name and IP address for the proxy server?				
Do you have the Technical Contact information for Auto Service Request? This information should include the first name, last name, and e-mail address of the contact.				

## Related Information

- [“Auto Service Request” on page 119](#)

## Logistics Checklist

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

Logistics Checklist Considerations	Yes	No	N/A	Comment
Do you have contact information for the data center personnel?				
Is a mechanical lift available?				
Is the route free of raised tiles or other obstructions?				
Is there security or access control for the data center?				
Are there any security background checks or security clearances required for vendor personnel to access the data center? If yes, then do you have a recommended agency?				
How many days in advance must background checks be completed?				
Are there any additional security access issues?				
Is computer room access available for installation personnel?				
Are laptops, cell phones, and cameras allowed in the data center?				
Does the building have a delivery dock?				
Is there a delivery/unpacking/staging area?				
Is the delivery inside?				
If the delivery is not inside, then is the site prepared for uncrating?				
Is the unpacking/staging area protected from the elements?				
Does the building have adequate receiving space?				
Is the unpacking area air-conditioned to avoid thermal shock for various hardware components?				
Will sufficient moving personnel be available to install the hardware?				

Logistics Checklist Considerations	Yes	No	N/A	Comment
Are you prepared for uncrating and trash removal?				
Are there any restrictions on delivery and trash removal?				
Are there any restrictions on delivery truck length, width or height?				
Are cardboard boxes and other packing material allowed in the computer room?				
Is there a time constraint on dock access? If yes, then provide time constraints.				
Is tail lift required on delivery carrier to unload the equipment at the delivery dock?				
Will any of the following be required to place equipment in computer room?  Stair walkers  Lifters  Ramps  Steel plates  Floor covers				
Does the delivery carrier require any special equipment, such as non-floor damaging rollers, transport dollies, pallet jacks, or fork lifts?				

### Related Information

- [“Server Physical Specifications” on page 25](#)
- [Oracle Server X7-8 Service Manual](#)
- [Oracle Server X7-8 Safety and Compliance Guide](#)





# Index

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## A

- AC current, 105
- AC OK indicator, 16
- AC power
  - Main, 105
  - Standby, 105
- access route and data center checklist, 121
- agency compliance specifications, 32
- airflow requirements, 29
- Auto Service Request (ASR), 119
- auto service request checklist, 125

## B

- back panel
  - connections, 20
  - connectors, 58
  - features, 20
- browser interface, 67

## C

- cables
  - connecting, 63
- cabling, required cable connections, 57
- cards
  - PCIe, 35
- checklist
  - access route, 121
  - auto service request, 125
  - data center environment, 122
  - facility power, 123

- logistics, 126
- rackmount, 123
- safety, 125
- circuit breaker UPS guidelines, 31
- clearance, airflow, 29
- connector locations
  - back panel, 58
- console
  - device required, 34
  - serial, 80
- current, 30

## D

- data center environment checklist, 122
- documentation
  - for diagnostics, 9
  - for Oracle Hardware Management Pack, 39
  - for Oracle ILOM, 68
  - for server, 9

## E

- electrical specifications
  - server input current, 30
  - voltage, 30
- environmental requirements, 27
- ESD precautions, 43
- Ethernet cables, connecting, 63
- Ethernet ports
  - cabling, 57
  - pinouts, 57
- external cables, connecting, 63

**F**

- facility power checklist, 123
- fan module
  - service required LED, 19
- first-time log in
  - Oracle ILOM, 69
- front panel
  - features, 16, 16
  - indicators, 16

**G**

- Gigabit Ethernet (LAN) connectors, 63
- graceful power off, 106, 107
- guidelines
  - circuit breaker and UPS, 31
  - facility power, 31
  - grounding, 32
  - humidity, 28
  - receiving and unpacking, 26
  - temperature, 28
  - ventilation, 29

**H**

- Hardware Management Pack
  - documentation, 115
  - overview, 38, 115
- host console
  - accessing, 80
- hot-plugging USB ports, 57
- humidity guidelines, 28

**I**

- immediate power off, 106, 107
- indicators
  - back panel, 20
- installation
  - optional components, 34
  - preparing, 62
- installation task overview, 11
- installing server

- optional components, 34
- installing server into a rack, 41
- installing server, tools required, 33
- inventory, ship kit, 33
- IPMI, 67
- IPv4
  - testing, 74
- IPv6
  - testing, 74

**L**

- logging in remotely
  - Oracle ILOM, 69
- logging in using Oracle ILOM
  - locally, 69
  - remotely, 69
- logistics checklist, 126

**M**

- Main power mode, 105
- management tools, 37
- messages retention, limits of, 57
- minimum cable connections, 57
- My Oracle Support
  - using to download software release packages, 111, 112

**N**

- NET MGT port
  - pinouts, 61
- network configuration
  - IPv4
    - testing, 74
  - IPv6
    - testing, 74

**O**

- On/Standby

- button, 106
- On/Standby button, location, 106
- Oracle ILOM
  - browser interface, 69
  - command-line interface, 69
  - default username and password, 69
  - logging in, 68
  - logging in locally, 69
  - logging in remotely, 69
  - modifying service processor network settings, 72
  - powering the host on and off, 107
  - troubleshooting, 80
- Oracle ILOM interfaces
  - browser, 67
  - IPMI, 67
  - SNMP v3, 67
  - SSH command-line, 67
- P**
- PCIe cards, 35
- physical specifications, 25
- pinouts
  - Ethernet ports, 62
  - NET MGT port, 61
  - SER MGT port, 60
- ports
  - SER MGT/RJ-45, 63
  - SP NET MGT Ethernet, 63
  - USB, 57
- power
  - Main, 105
  - Standby, 105
  - state, 105
- power cables, connecting, 63
- power on the host
  - using On/Standby button, 107
  - using Oracle ILOM, 107
- power specifications, 57
- power states
  - Main, 106
  - off, 105
  - standby, 105
- precautions
  - for rackmounting, 43
  - for server installation, 43
- preparation checklists, 121
- R**
- rack compatibility, 44
- rack installation, 41
- rack safety precautions, 41
- rack space requirements, 26
- rackmount
  - kit, 41
  - kit contents, 47
  - stabilizing the rack, 49
- rackmount checklist, 123
- RAID
  - configure, 86
- rail assembly, 41
- remote Ethernet connection, 69
- requirements
  - environmental, 27
  - maintenance space, 26
  - rack space, 26
  - tools and equipment, 33
- resetting the server, 108
- resetting the service processor
  - using Oracle ILOM, 81
- RJ-45 cable, 57
- root account password, recover, 81
- S**
- safety checklist, 125
- Secure Shell (SSH) command-line interface, 67
- SER MGT port
  - pinouts, 60
- serial null modem cable
  - connecting, 63
- server
  - management tools, 37
  - physical specifications, 25
  - power on and off with On/Standby button, 107

- power on and off with Oracle ILOM, 107
- reset, 108
- space requirements, 26
- temperature guidelines, 28
- troubleshooting, 117
- service processor
  - resetting
    - using Oracle ILOM, 81
  - troubleshooting, 117
- service processor network settings, 72
  - using Oracle ILOM, 72
- shipping cartons
  - checking for damage, 33
  - contents, 33
- site planning checklists, 121
  - Logistics, 126
- SNMP v3 interface, 67
- software release packages, 111
- SP NET MGT Ethernet port, 63
- space requirements
  - server, 26
- specifications
  - agency compliance, 32
  - electrical, 30
  - environmental, 27
  - physical, 25
- standby mode, when AC connected, 57
- Standby power mode, 105
- status indicators (LEDs), 13
- storage
  - configuration, 83
- storage drives, 13
- support worksheet, 118
- system status indicators
  - back panel, 20
  - front panel, 16

## T

- temperature
  - guidelines, 28
- tools and equipment, needed for server installation, 33
- troubleshooting

- oracle ILOM, 117
- server, 117

## U

- Unified Extensible Firmware Interface (UEFI)
  - boot mode, 86
  - configuring RAID in, 86
- USB ports, 57
  - output power, 60
  - pinouts, 60

## V

- ventilation requirements, 29
- voltage, 30

## W

- web browser interface
  - Oracle ILOM, 69
- worksheet
  - support, 118