SPARC T4-2 Server

Installation Guide

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Contents

Using This Documentation

This document provides instructions, background information, and reference material for installing Oracle's SPARC T4-2 server.

Related Documentation

Documentation	Links
All Oracle products	http://www.oracle.com/documentation
SPARC T4-2 server	http://www.oracle.com/pls/topic/lookup?ctx=SPARCT4-2
Oracle Solaris OS and other systems software	http://www.oracle.com/technetwork/indexes/documentation/index.html#sys_sw
Oracle Integrated Lights Out Manager (ILOM) 3.0	http://www.oracle.com/pls/topic/lookup?ctx=ilom30
Oracle VTS 7.0	http://www.oracle.com/pls/topic/lookup?ctx=OracleVTS7.0

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Support and Accessibility

Description	Links
Access electronic support through My Oracle Support	http://support.oracle.com For hearing impaired: http://www.oracle.com/accessibility/support.html
Learn about Oracle's commitment to accessibility	http://www.oracle.com/us/corporate/accessibility/index.html

Confirming Server and Site Specifications

These topics provides background information about the server's installation procedures.

Related Information

- "Installing the Server" on page 17
- "Connecting Cables" on page 35
- "Powering On the Server for the First Time" on page 53

Installation Task Overview

Perform the following tasks to install and configure the server.

Step	Description	Links
1	Review the *SPARC T4-2 Server Product Notes* for any late-breaking news about the server.	*SPARC T4-2 Server Product Notes*
2	Review the server features, specifications, and site requirements.	"Server Overview" on page 2 "Confirming Specifications" on page 7
3	Confirm you received all of the items you ordered.	"Shipping Kit Inventory List" on page 13

Step	Description	Links
4	Familiarize yourself with the server features, controls, and LEDs required for installation.	"Front Panel Components" on page 5 "Rear Panel Components" on page 6
5	Take safety and ESD precautions and assemble the required tools.	"Handling Precautions" on page 15 "ESD Precautions" on page 15 "Tools Needed for Installation" on page 16
6	Install any optional component into the server.	"Install Optional Components" on page 18
7	Install the server into a rack.	"Installing the Server" on page 17
8	Attach data and management cables to the server.	"Connecting Cables" on page 35
9	Connect the power cords to the server, configure the Oracle ILOM SP, power on the server for the first time, and set up the operating system.	"Powering On the Server for the First Time" on page 53

Related Information

- *SPARC T4-2 Server Product Notes*
- *SPARC T4-2 Server Safety and Compliance Guide*
- *SPARC T4 Series Servers Administration Guide*
- *SPARC T4-2 Server Service Manual*

Server Overview

This topic provides a high-level introduction to the main components and capabilities of the server.

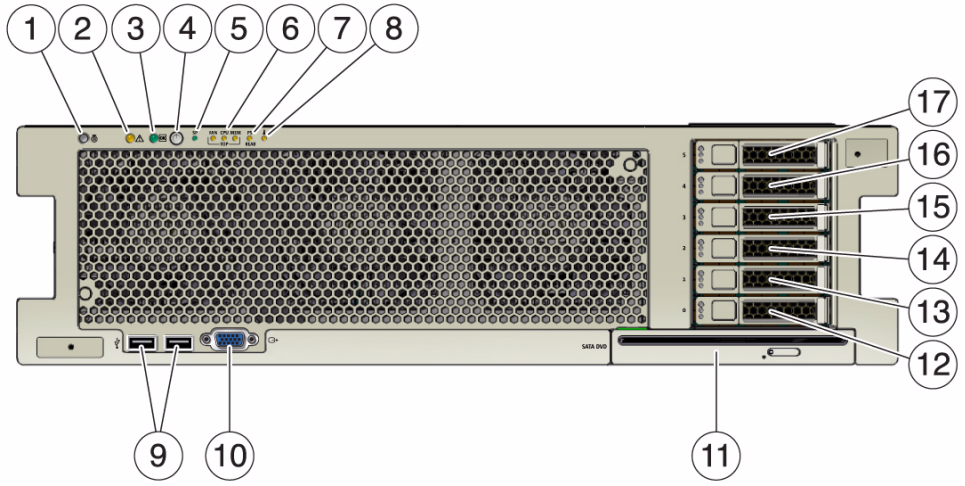
Component	Description
Chassis	Rack-mountable server.
CPU	Two processors installed on the motherboard assembly.
Memory	Up to four memory riser modules are supported (two risers per CPU). • Each riser module supports 8 DIMMs, allowing up to 16 DIMMs per processor. • A server using four riser modules fully populated with 16-GB DIMMs supports a maximum of 512 GB of system memory.
Storage devices	For internal storage, the server provides: • Six 2.5-inch drive bays, accessible through the front panel. • A slot-loading DVD+/-RW drive on front of the server, below the drive bays. • One internal high-speed USB port on the motherboard. This port can hold a USB flash device for system booting.
USB 2.0 ports	Two front, two rear, and one internal ports.
Video ports	One front and one rear high-density DB-15 video ports.
PCI Express 2.0 I/O slots	Ten PCI Express 2.0 slots that accommodate low-profile PCIe cards. All slots support x8 PCIe cards. Two slots are also capable of supporting x16 PCIe cards. • Slots 4 and 5: x4 electrical interface • Slots 0, 1, 2, 7, 8, and 9: x8 electrical interface • Slots 3 and 6: x8 electrical interface (x16 connector)

Component	Description
Network module slot	One specialized slot dedicated for use with the SPARC T4-2 Server 10 Gb Network Module card. The server does not support populating this slot with standard PCIe cards.
Ethernet ports	Four 10/100/1000 RJ-45 GbE ports on rear panel.
SPr	The SP supports the following features: • Integrated BMC, which supports the industry-standard IPMI feature set. • Supports remote KVMS, DVD, and floppy over IP. • Serial port. • Ethernet access to SP through a dedicated 10/100BaseT management port and optionally through one of the host GbE ports (using Oracle ILOM sideband management).
Power supplies	Two hot-swappable power supplies, each with autoranging, light-load efficiency mode and redundant oversubscription.
Cooling fans	Six hot-swappable, redundant fans at chassis front (top-loading). Redundant fans in each power supply.
Management software	Oracle Integrated Lights Out Manager (Oracle ILOM).

Related Information

- *SPARC T4-2 Server Service Manual*
- Oracle ILOM documentation
- "Front Panel Components" on page 5
- "Rear Panel Components" on page 6

Front Panel Components

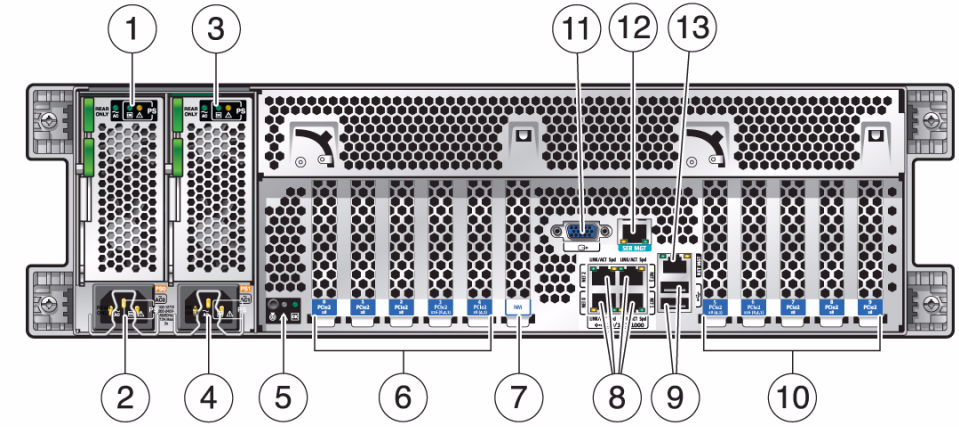


No.	Description	No.	Description
1	Locator LED/Locator button: white	10	DB-15 video connector
2	Service Action Required LED: amber	11	SATA DVD drive (optional)
3	Main Power/OK LED: green	12	Drive 0 (optional)
4	Power button	13	Drive 1 (optional)
5	SP OK/Fault LED: green/amber	14	Drive 2 (optional)
6	Service Action Required LEDs (3) for Fan Module (FAN), Processor (CPU) and Memory: amber	15	Drive 3 (optional)
7	Power Supply (PS) Fault (Service Action Required) LED: amber	16	Drive 4 (optional)
8	Overtemperature Warning LED: amber	17	Drive 5 (optional)
9	USB 2.0 connectors (2)		

Related Information

- "Rear Panel Components" on page 6
- "Power on the System for the First Time" on page 56

Rear Panel Components



No.	Description	No.	Description
1	Power supply unit 0 status indicator LEDs: • Service Action Required: amber • AC OK: green or amber	8	Network 10/100/1000 ports: NET0–NET3
2	Power supply unit 0 AC inlet	9	USB 2.0 connectors (2)
3	Power supply unit 1 status indicator LEDs: • Service Action Required: amber • AC OK: green or amber	10	PCIe card slots 5–9
4	Power supply unit 1 AC inlet	11	DB-15 video connector
5	System status LEDs: • Power/OK: green • Attention: amber • Locate: white	12	SP SER MGT RJ-45 serial port
6	PCIe2 card slots 0–4	13	SP NET MGT RJ-45 network port
7	Network module card slot		

Related Information

- "Front Panel Components" on page 5
- "Connecting Cables" on page 35

Confirming Specifications

Prior to installing the server, review the server specifications and prepare the installation site.

Related Information

Physical Specifications

Note – To permit safe installation and servicing, provide 36 in. (91 cm) clearance in front and rear of the server.

Dimension	Value
Width	17.19 inches / 436.5 mm
Height	5.11 inches / 129.85 mm
Depth	28.82 inches / 732 mm
Weight	80 lbs max, 58 lbs min / 36.28 kg, 26.31 kg min
Minimum service access clearance (front)	36 in. / 91 cm
Minimum service access clearance (rear)	36 in. / 91 cm

Related Information

■ "Installing the Server" on page 17

Electrical Specifications

Use the online power calculator to determine the power consumption of a server with your configuration. Navigate to the SPARC T4-2 server page at:

http://www.oracle.com/goto/powercalculators/

Note – Plan to connect each power supply to a separate circuit if possible. This redundancy enables the server to remain operational if one of the circuits fails. Consult your local electrical codes for any additional requirements.

Parameter	Value
Operating input range (input voltage tolerance +/- 10%)	200 to 240 VAC, 50-60 Hz
Maximum operating input current at 200 VAC (see note)	7.4 A
Maximum operating input power at 200 VAC	1451 W
Maximum heat dissipation	4091 BTU/hr 4316 KJ/hr
Maximum standby power	27.0 W
Maximum server configuration under nominal temperature and voltage conditions: One T4 processor, thirty two 32-GByte DDR3 DIMMs, six HDD, and 10+1 I/O cards.	
Idle AC input power	800 W
Peak AC input power (running SpecJBB)	1199 W
Minimum server configuration under nominal temperature and voltage conditions: One T4 processor, sixteen 4-GByte DIMMs, no HDDs, and no I/O cards.	

Parameter	Value
Idle AC input power	514 W
Peak AC input power (running SpecJBB)	713 W

Note – The maximum operating input current values are based on the forumula P / (V*0.90), where P = maximum operating input power and V = input voltage. For example, 620W / (100V * 0.90) = 6.89A. You can use this formula to calculate the maximum operating current at your input voltage.

Related Information

- "Input Power Information" on page 9
- "Prepare the Power Cords" on page 56
- "Powering On the Server for the First Time" on page 53

Input Power Information

The server provides redundant, hot-swappable power supplies. When each power supply is connected to a separate power source, the server continues to operate under the following fault conditions:

- A power source failure that removes input power from one of the power supplies.
- Failure of one of the power supplies.
- Service actions that require removal of one of the power supplies.

Refer to the *SPARC T4-2 Server Service Manual* for power supply replacement instructions.

Note – Input power cables: To avoid missing initialization messages, do not attach power cables to the power supplies until you have finished connecting the data cables and have connected the server to a serial terminal or a terminal emulator (PC or workstation). The server goes into Standby mode and the Oracle ILOM SP initializes as soon as the input power cables are connected to the power source.

Related Information

- *SPARC T4-2 Server Service Manual*
- "Electrical Specifications" on page 8

■ "Prepare the Power Cords" on page 53

Environmental Requirements

Install and operate the server in a site with an ambient temperature range of 21°C (69.8°F) to 23°C (73.4°F), which is an optimal range for server reliability. At 22°C (71.6°F) it is easy to maintain safe relative humidity levels. Operating in this temperature range provides a buffer if the environmental support systems fail.

Operating the server in a site with ambient relative humidity levels between 45% and 50% prevents corrosion, provides an operating time buffer in the event of environmental control system failure, and helps avoid failures caused by static discharges that occur when relative humidity is too low.

Note – Electrostatic discharge is easily generated and less easily dissipated in areas where the relative humidity is below 35%, and becomes critical when levels drop below 30%.

The server has been tested to meet all functional requirements when operating in the operating environmental limits listed. All values are for a single, non-rackmounted server.

Specification	Operating	Nonoperating
Temperature	5°C to 35°C (41°F to 95°F)	-40°C to 65°C (-40°F to 149°F)
Humidity	10% to 90% relative humidity, 27°C (80.6°F) maximum web bulb, noncondensing	Up to 93% relative humidity, 38°C (100.4°F) maximum web bulb, noncondensing
Altitude	Up to 3000 m (10,000 ft)*, maximum ambient temperature is derated by 2°C for every 1 km (3.6°F per 3,280 ft); IEC 60068-2-13 Test M, and 60068-2-41 Test Z/BM	Up to 12,000 m (40,000 ft); IEC 60068-2-13 Test M
Vibration	0.15 G (vertical), 0.10 G (horizontal), 5 – 500 Hz, swept-sine	0.5 G (vertical), 0.25 G (horizontal), 5 – 500 Hz, swept-sine
Shock	3.0 G, 11 ms, half-sine	• Roll-off: 1-inch roll-off free fall, front to back rolling directions • Threshold: 25 mm threshold height at 0.75 m/s impact velocity

* Except in China markets where regulations may limit installations to a maximum altitude of 2000 m.

Related Information

- "Acoustic Noise Emissions" on page 11
- "Cooling Zones and Airflow Clearance" on page 11

Acoustic Noise Emissions

The declared noise emissions for the server are in accordance with ISO 9296 standards.

Description	Mode	Specification
LwAd (1 B = 10 dB)	Operating acoustic noise	8.9 B
	Idling acoustic noise	8.9 B
LpAm (bystander positions)	Operating acoustic noise	73.6 dB
	Idling acoustic noise	73.6 dB

Related Information

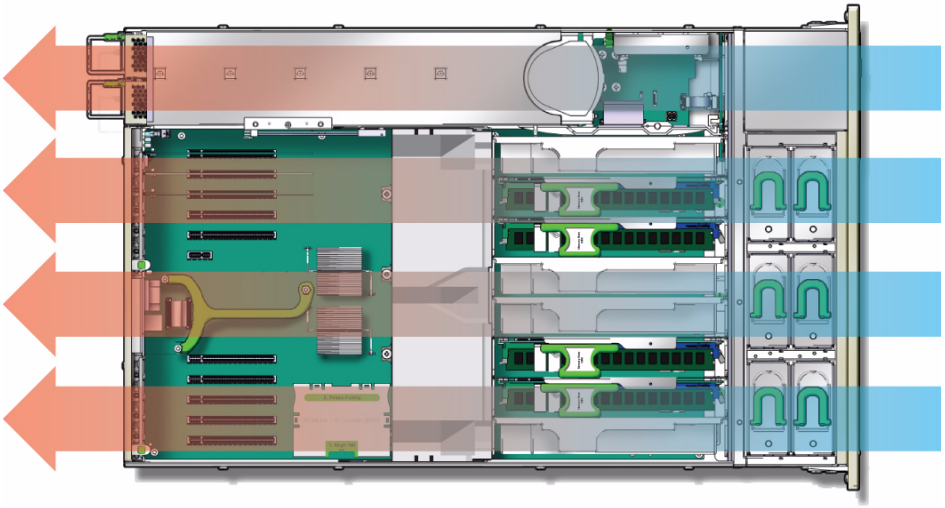
- *SPARC T4-2 Server Safety and Compliance Guide*
- "Environmental Requirements" on page 10
- "Cooling Zones and Airflow Clearance" on page 11

Cooling Zones and Airflow Clearance

Note – Proper airflow into and out of the server is essential for keeping the server's internal temperatures within a safe operating range.

The server contains two pressurized cooling zones: the main cooling zone and the power supply cooling zone. In the main cooling zone, six fans, arranged in two redundant rows, cool the motherboard, memory risers, and I/O cards. In the power supply cooling zone, the rear power supply fans cool the power supplies and the front drive bays. The server must maintain a pressurized plastic dividing wall seal so that the power supply fans can draw air through the front drive bays.

The server draws cool air from the front of the server and expels hot air out the rear.



To avoid overheating the server:

- Ensure that inlet air enters at the front of the server and exits from the back.
- Ensure unobstructed airflow through the server.
- Do not direct warm air toward the front air intake of the server.
- Prevent recirculation of exhaust air within a rack or cabinet.
- Manage cables to minimize interfering with the server exhaust vent.
- Ensure that the server ventilation openings used for intake and outflow of air provide an open area that is at least 60% of the open area perforations across the front and rear of the server.
- Allow a minimum of 5 mm (0.2 in) clearance at the front of the system and 80 mm (3.1 in) at the rear of the server when mounted. These clearance values are based on the preceding inlet and exhaust impedance (available open area) and assume a uniform distribution of the open area across the inlet and exhaust areas. Clearance values greater than these are recommended for improved cooling performance.

Note – Be mindful that the combination of inlet and exhaust restrictions such as cabinet doors and the spacing of the server from the doors can affect the cooling performance of the server.

Related Information

- “Environmental Requirements” on page 10
- “Acoustic Noise Emissions” on page 11

Preparing for Installation

These topics provides background information about the server's installation procedures.

Step	Description	Links
1.	Confirm that you received all the items you ordered.	"Shipping Kit Inventory List" on page 13
2.	Review safety and ESD precautions	"Handling Precautions" on page 15 "ESD Precautions" on page 15
3.	Make sure you have the required tools.	"Tools Needed for Installation" on page 16

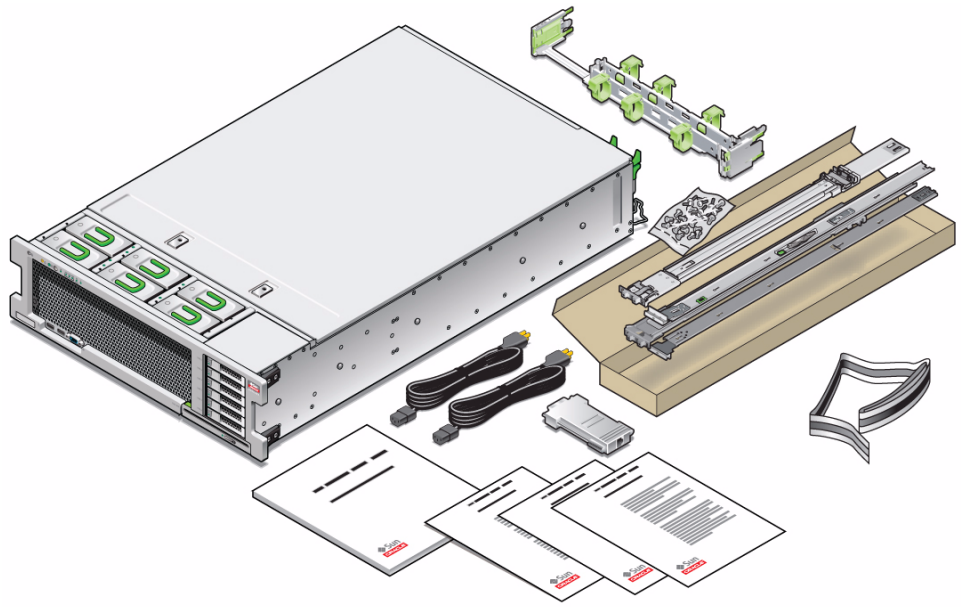
Related Information

- "Installing the Server" on page 17
- "Connecting Cables" on page 35
- "Powering On the Server for the First Time" on page 53

Shipping Kit Inventory List

Note – When you receive your server, place it in the environment where you will install it. Leave it in its shipping crate at its final destination for 24 hours. This resting period prevents thermal shock and condensation.

Verify that you have received all of the components that ship with your server.



- SPARC T4-2 server
- 2 AC power cords
- RJ-45 to DB-9 crossover adapter for the SER MGT port
- Antistatic wrist strap
- Rackmount kit
- Cable management arm
- *SPARC T4-2 Server Getting Started Guide* with license and safety documents
- Optional components (for example, PCIe cards) that are packaged separately from the other items

Related Information

- "Server Overview" on page 2
- "Preparing for Installation" on page 13

Handling Precautions

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

Caution – The server weighs approximately 80 lbs (36.29 kg). Two people are required to lift and mount this 2U server into a rack enclosure when using the procedures in this document.

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

Related Information

- "Physical Specifications" on page 7
- "Installing the Server" on page 17
- *SPARC T4-2 Server Getting Started Guide*

ESD Precautions

Electronic equipment is susceptible to damage by static electricity. Use a grounded antistatic wrist strap, foot strap, or equivalent safety equipment to prevent ESD when you install or service the servers.

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

Related Information

- "Installing the Server" on page 17
- "Connecting Cables" on page 35

Tools Needed for Installation

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

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

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

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

Related Information

- "Install Optional Components" on page 18
- *SPARC T4-2 Server Service Manual*

Installing the Server

These topics describe how to install the server into a rack using the rail assembly in the rackmount kit. Perform these procedures if you purchased the rail assembly.

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

Step	Description	Links
1.	Install optional components.	"Install Optional Components" on page 18
2.	Ensure that your rack is compatible with the server requirements.	"Rack Compatibility" on page 18
3.	Review the cautions for working with racks.	"Rack Cautions" on page 19
4.	Use anti-tilt mechanisms to ensure that the rack does not tip when the server is installed.	"Stabilize the Rack" on page 20
5.	Prepare the slide rails, mounting brackets, and slide rail assemblies for server installation.	"Disassemble Slide Rails" on page 21 "Install Mounting Brackets on Server" on page 22 "Attach Slide Rail Assemblies to Rack" on page 23
6.	Install the server in the rack.	"Install the Server" on page 26
7	(Optional) Install the CMA.	"Installing the CMA (Optional)" on page 28
8	Review cabling requirements and port information. Attach data and management cables to the server.	"Connecting Cables" on page 35
9.	Configure the Oracle ILOM SP, then power on the server for the first time.	"Powering On the Server for the First Time" on page 53

Related Information

- "Preparing for Installation" on page 13
- "Connecting Cables" on page 35

Install Optional Components

The standard components of the server are installed at the factory. However, if you ordered options such as additional memory or PCIe cards, these options will be shipped separately. If possible, install these components prior to installing the server in a rack.

If you ordered any options that are not factory-installed, see the *SPARC T4-2 Server Service Manual* and the component's documentation for installation instructions.

Note – The list of optional components can be updated without notice. Refer to the product web pages for the most current list of components supported in the server.

Related Information

- The optional component documentation
- *SPARC T4-2 Server Service Manual*

Rack Compatibility

Check that your rack is compatible with the slide rail and cable management arm options. The optional slide rails are compatible with a wide range of equipment racks that meet the following standards.

Item	Requirement
Structure	Four-post rack (mounting at both front and rear). Two-post racks are not compatible.
Rack horizontal opening and unit vertical pitch	Conforms to ANSI/EIA 310-D-1992 or IEC 60927 standards.
Rack rail mounting hole sizes	Only 9.5 mm square hole and M6 round mounting holes are supported. All other sizes, including 7.2 mm, M5, or 10-32 mounting holes, are *not* supported.
Distance between front and rear mounting planes	Minimum 622 mm and maximum 895 mm (24.5 inches to 35.25 inches).

Item	Requirement
Clearance depth in front of front mounting plane	Distance to front cabinet door is at least 27 mm (1.06 inch).
Clearance depth behind front mounting plane	Distance to rear cabinet door is at least 900 mm (35.5 inches) with the cable management arm, or 770 mm (30.4 inches) without the cable management arm.
Clearance width between front and rear mounting planes	Distance between structural supports and cable troughs is at least 456 mm (18 inches).
Server dimensions	Depth (not including PSU handle): 732 mm (28.82 inches) Width (not including ears): 436.5 mm (17.19 inches) Height: 129.85 mm (5.11 inches)

Related Information

- "Physical Specifications" on page 7
- "Handling Precautions" on page 15
- "Rack Cautions" on page 19

Rack Cautions

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

Caution – Elevated Operating Ambient Temperature: If the server is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient temperature. Therefore, install the equipment only in an environment compatible with the maximum ambient temperature (Tma) specified for the server.

Caution – Reduced Air Flow: Install the equipment in a rack so that the amount of air flow is adequate for the safe operation of the equipment.

Caution – Mechanical Loading: Mount the equipment in the rack so that the weight is distributed evenly. A hazardous condition can exist with uneven mechanical loading.

Caution – Circuit Overloading: Do not overload the power supply circuits. Before connecting the server to the supply circuit, review the equipment nameplate power ratings and consider the effect that circuit overloading might have on overcurrent protection and supply wiring.

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

Caution – Do not use slide rail mounted equipment as a shelf or a work space.

Related Information

- "Physical Specifications" on page 7
- "Handling Precautions" on page 15
- "Stabilize the Rack" on page 20

▼ Stabilize the Rack

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

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

1. **Open and remove the front and rear doors from the rack.**
2. **To prevent the rack from tipping during the installation, stabilize the rack using all anti-tilt mechanisms provided.**
3. **If there are leveling feet beneath the rack to prevent it from rolling, extend these leveling feet fully downward to the floor.**

4. **Fully extend the rack's anti-tilt legs or anti-tilt bar, which are located at the bottom front of the rack.**

Related Information

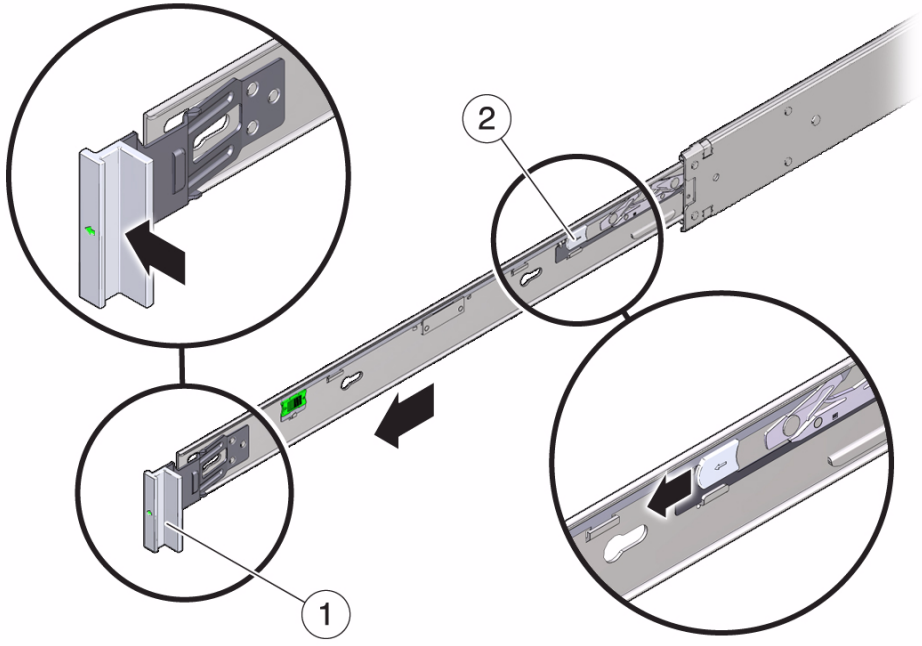
- The rack documentation
- *SPARC T4-2 Server Safety and Compliance Guide*
- "Rack Compatibility" on page 18

"Rack Cautions" on page 19

▼ Disassemble Slide Rails

Complete the following task to remove the mounting brackets from the slide rail assemblies before installation.

1. **Unpack the slide rails.**
2. **Locate the slide rail lock at the front of one of the slide rail assemblies.**



No.	Description
1	Slide rail lock
2	Mounting bracket release button

3. **Press and hold the slide rail lock toward the direction of the arrow while you pull the mounting bracket out of the slide rail assembly until it reaches the stop.**
4. **Push the mounting bracket release button toward the front of the mounting bracket, and simultaneously withdraw the mounting bracket from the slide rail assembly.**
5. **Repeat for the remaining slide rail assembly.**

Related Information

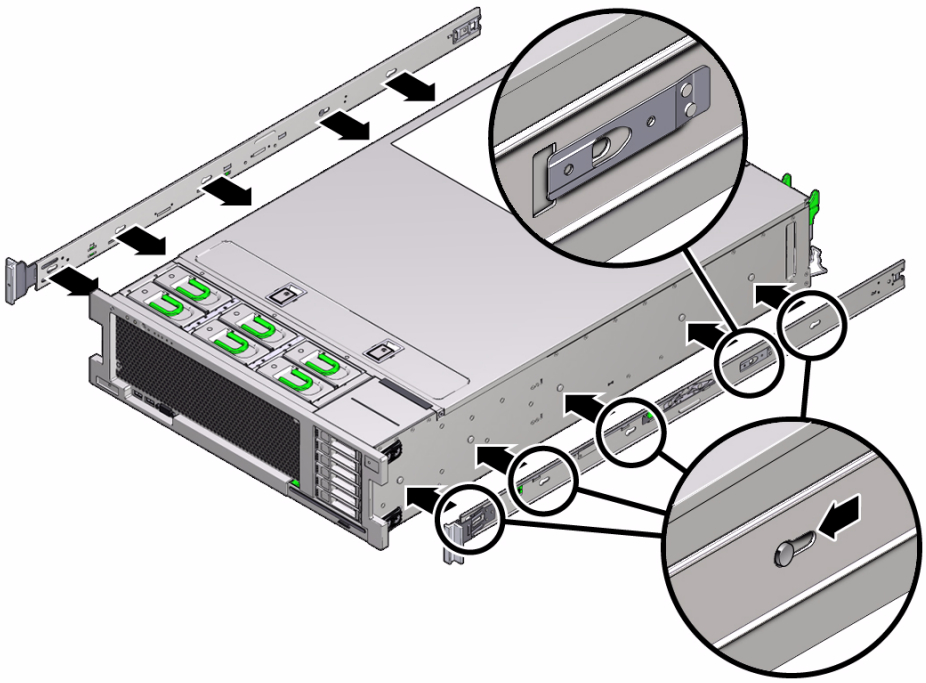
- "Install Mounting Brackets on Server" on page 22
- "Attach Slide Rail Assemblies to Rack" on page 23
- "Install the Server" on page 26

▼ Install Mounting Brackets on Server

You must install the mounting brackets onto the server before you can rackmount the server.

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

Note – The mounting brackets are identical and can be installed on either side of the chassis.



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

Related Information

- "Disassemble Slide Rails" on page 21
- "Attach Slide Rail Assemblies to Rack" on page 23
- "Install the Server" on page 26

▼ Attach Slide Rail Assemblies to Rack

Complete the following procedures to attach the slide rail assemblies to the rack.

Note – The slide rail assemblies support only racks with 9.5-mm square holes and M6 round holes. All other racks, including those racks with 7.2-mm, M5, or 10-32 mounting holes, are *not* supported. Refer to your rack documentation for information about the size of its rail holes.

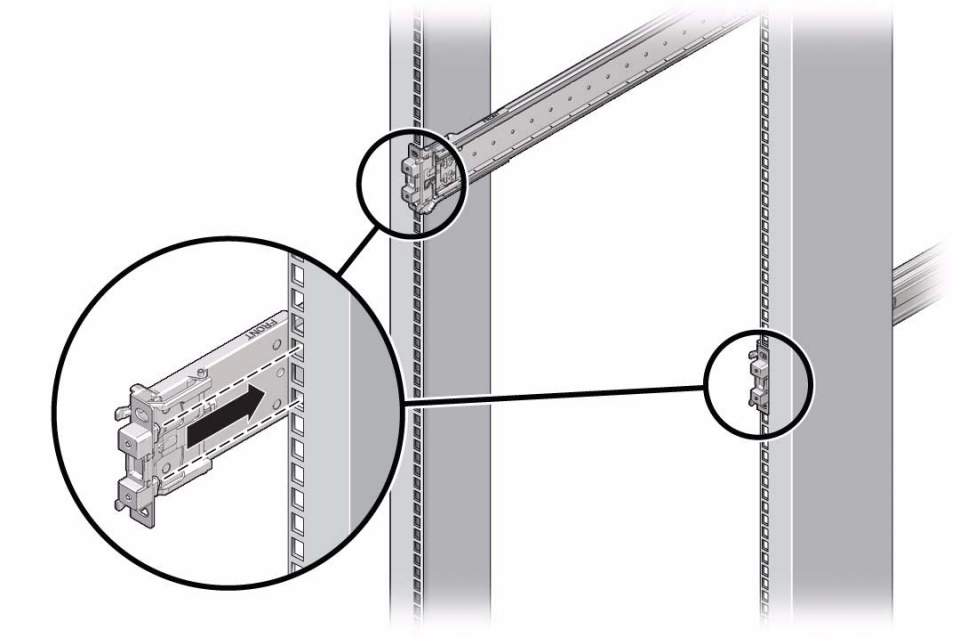
1. **(Optional) If you must move the rack with the server installed, secure the slide rail assemblies to the rack with mounting screws and cage nuts.**

   Insert the cage nuts prior to performing the next steps. Refer to the *Rail Rackmount Kit Overview and Information* card for instructions on inserting these cage nuts. This card is included with the rack kit.

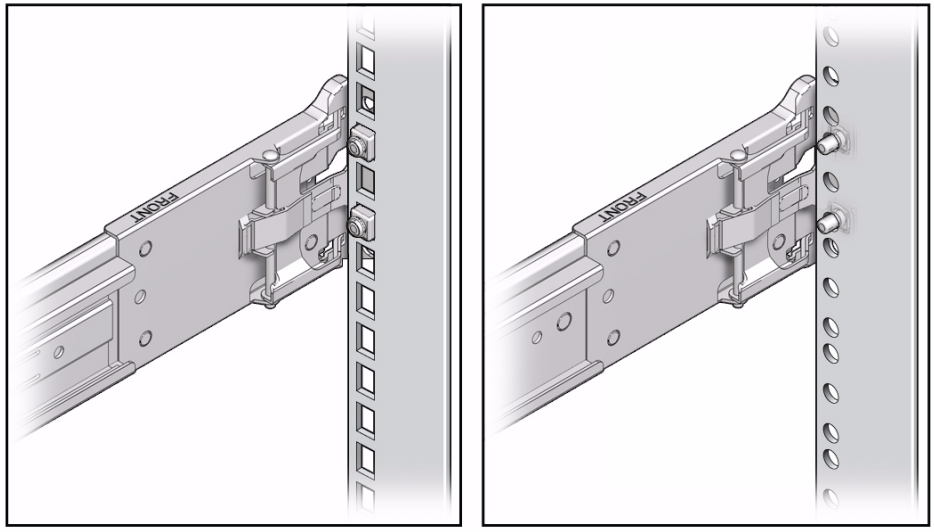
2. **Position a slide rail assembly in your rack so that the slide rail assembly front bracket is on the outside of the front rack post and the slide rail assembly rear bracket is on the inside of the rear rack post.**

3. **Align the slide rail assembly mounting pins with the front and rear rack post mounting holes. Then lock the assembly into place by pushing the assembly toward the rear of the rack until the mounting pins engage the rack.**

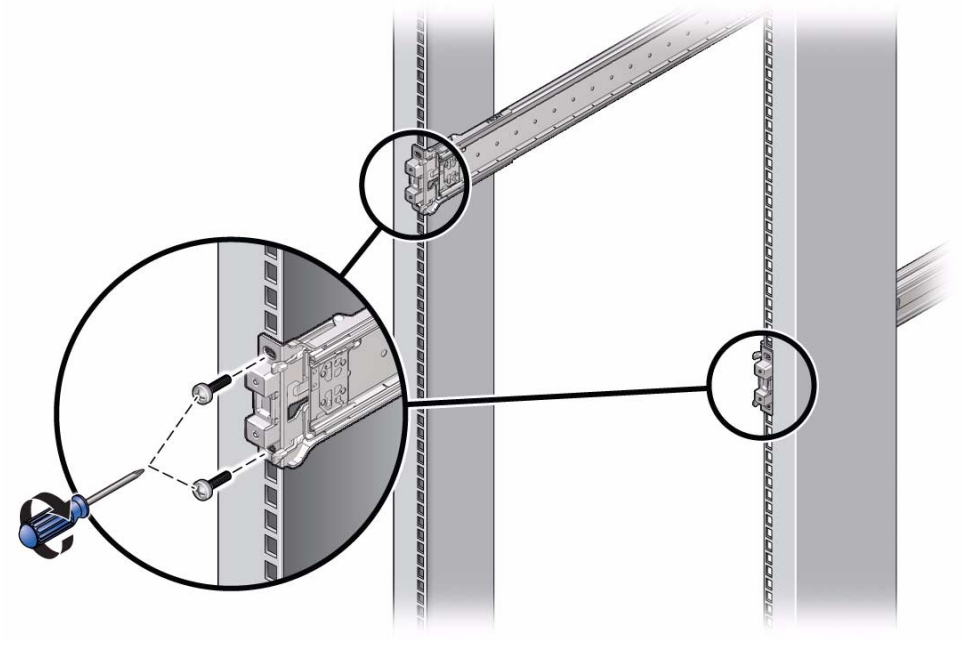
   You will hear an audible click when the mounting pins engage the rack.



   The slide assembly mounting pins accommodate either 9.5 mm square mounting holes or M6 round mounting holes. No other mounting hole sizes are supported.



4. **(Optional) If you chose to secure the slide rail assembly to the rack with screws, insert the M6 mounting screws through both front and rear slide rail brackets and rack posts, and then secure the screws to the rack posts with the caged nuts.**



5. **Repeat** Step 2 **through** Step 4 **for the remaining slide rail assembly.**

Caution – If your rack does not have an anti-tip device, the rack could tip over when installing the server.

6. **If available, extend the anti-tip legs or anti-tip bar at the bottom of the rack.**

   Refer to your rack documentation for instructions. For more information, see "Stabilize the Rack" on page 20.

Related Information

- "Disassemble Slide Rails" on page 21
- "Install Mounting Brackets on Server" on page 22
- "Install the Server" on page 26

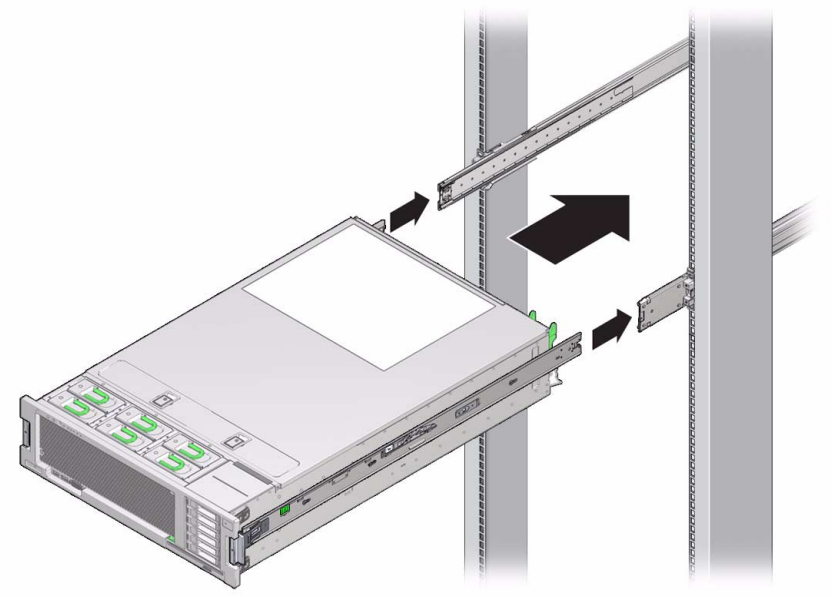
▼ Install the Server

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

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

Caution – Always load equipment into a rack from the bottom up so that the rack will not become top-heavy and tip over. Extend the rack's anti-tip bar or anti-tilt legs to prevent the rack from tipping during equipment installation. See "Stabilize the Rack" on page 20 for more information.

1. **Push the slide rails into the slide rail assemblies in the rack as far as possible.**
2. **Raise the server so that the rear ends of the mounting brackets are aligned with the slide rail assemblies that are mounted in the rack.**

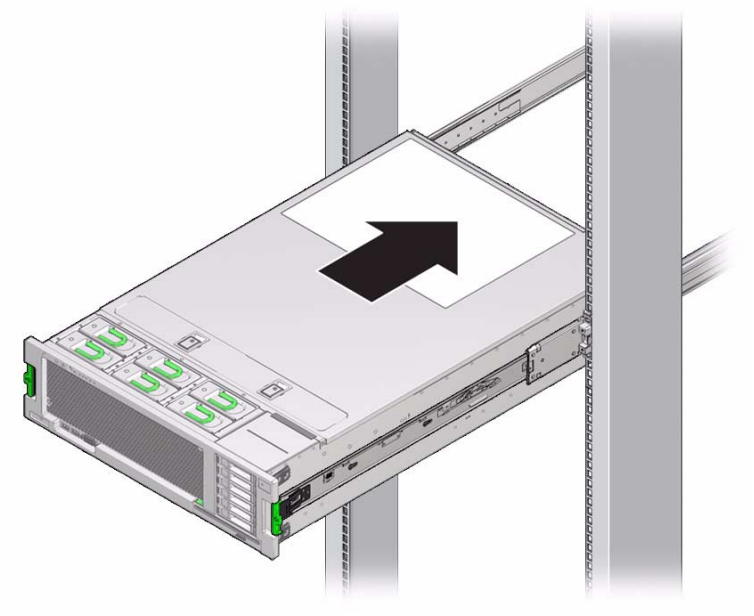


3. **Insert the mounting brackets into the slide rails, and then push the server into the rack until the mounting brackets encounter the slide rail stops (approximately 12 inches, or 30 cm).**

Caution – When inserting the server into the slide rail, ensure that both the top and bottom mounting lips of the mounting brackets are inserted into the slide rail. The server should slide forward and backward easily if correctly installed. If the unit does not slide easily, ensure that each mounting lip is inserted properly. If the mounting brackets are not inserted properly, the unit might fall when it is removed from the rack.

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

   Continue pushing until the slide rail locks (on the front of the mounting brackets) engage the slide rail assemblies. You will hear an audible click.



Caution – Verify that the server is securely mounted in the rack and that the slide rail locks are engaged with the mounting brackets before continuing.

Related Information

- "Disassemble Slide Rails" on page 21
- "Install Mounting Brackets on Server" on page 22
- "Attach Slide Rail Assemblies to Rack" on page 23
- "Install the CMA" on page 29
- "Verify Operation of Slide Rails and CMA" on page 33

Installing the CMA (Optional)

These topics describe how to mount the optional CMA on the server to manage cables.

- "Install the CMA" on page 29
- "Verify Operation of Slide Rails and CMA" on page 33

▼ Install the CMA

The CMA is an optional assembly that you can use to route the server cables in the rack.

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

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

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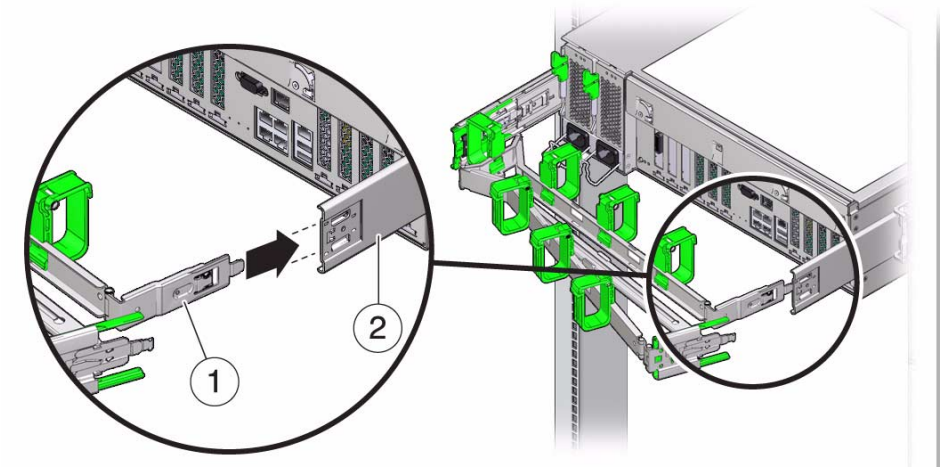
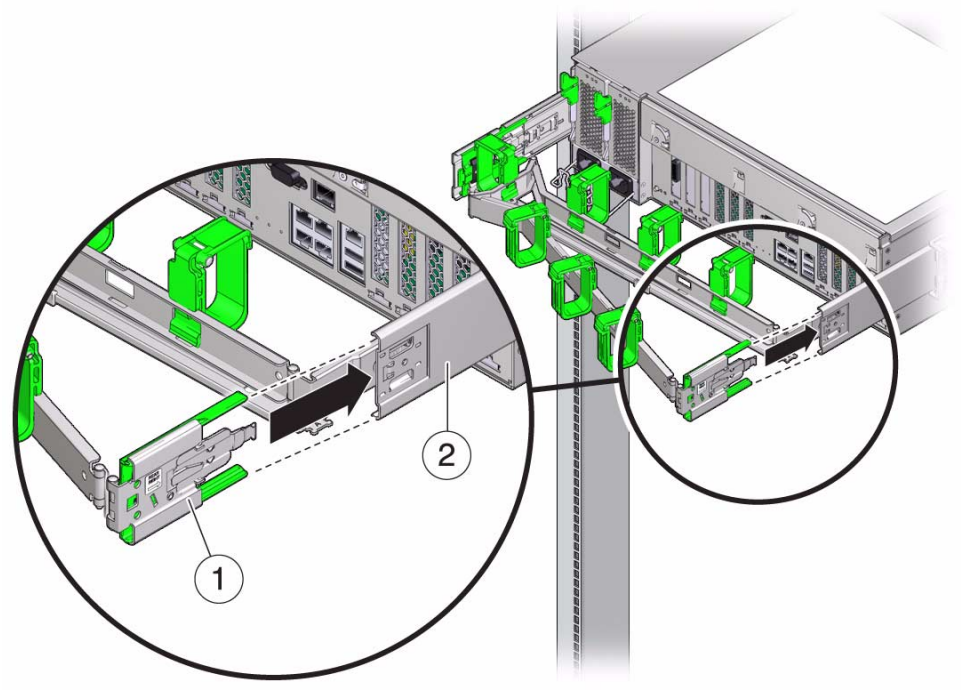
3. **Remove tape to separate the parts of the CMA.**
4. **Insert the CMA mounting bracket connector into the right slide rail until the connector locks into place with an audible click.**



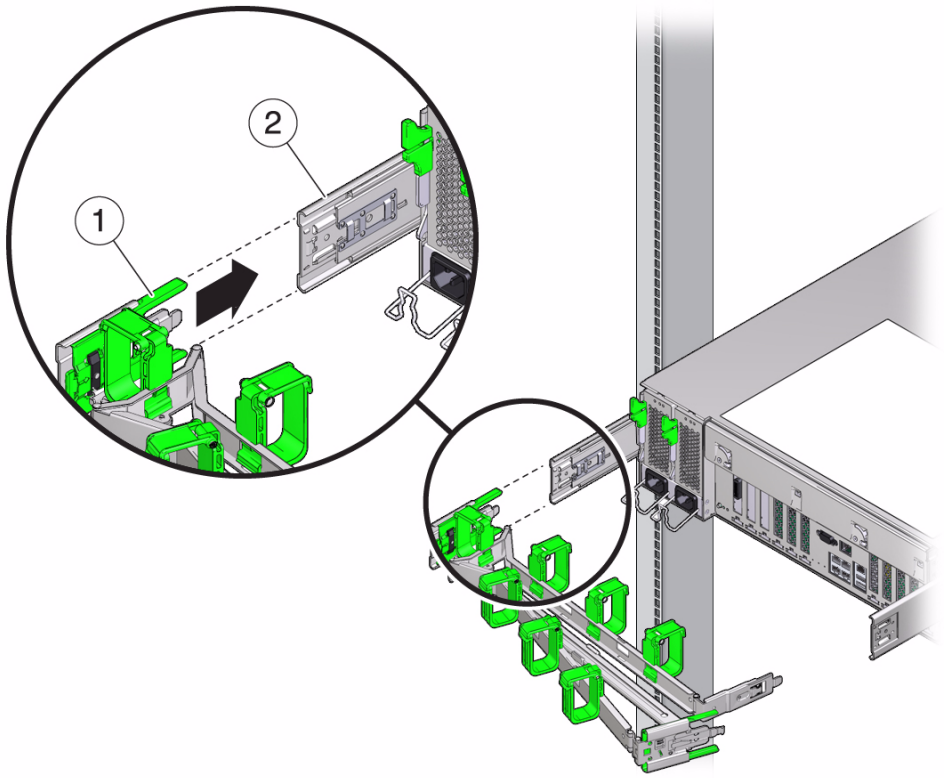
No.	Description
1	CMA mounting bracket
2	Right slide rail

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



No.	Description
1	CMA slide rail connector
2	Right slide rail

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



No.	Description
1	CMA slide rail connector
2	Left slide rail

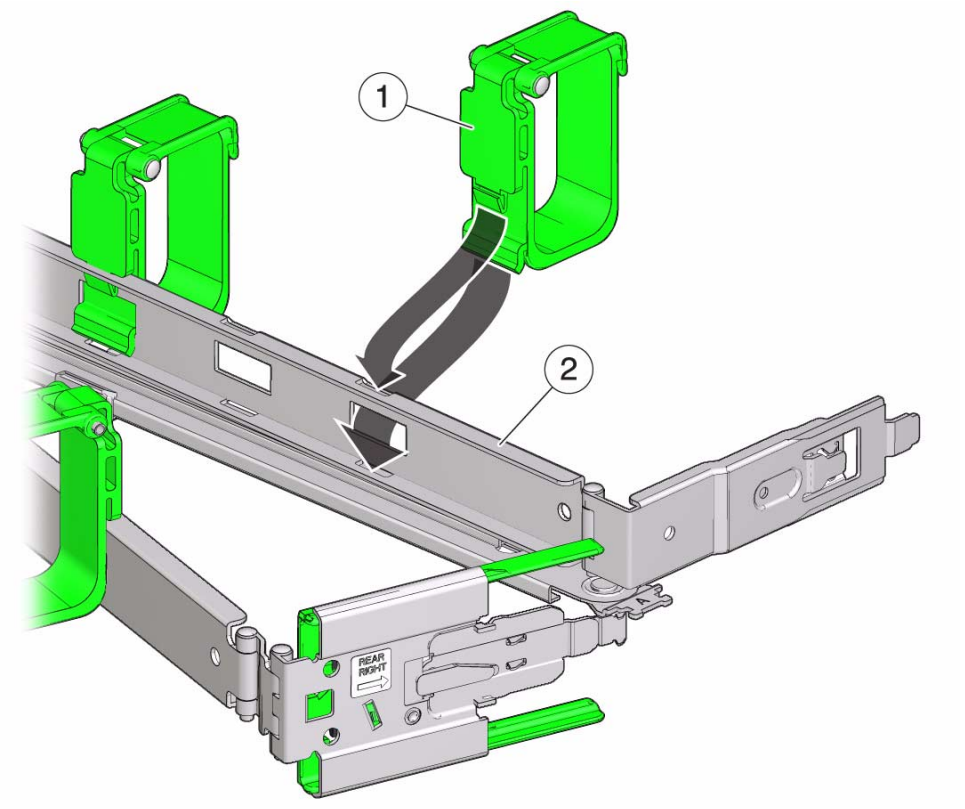
7. **Install and route cables to your server, as required.**

Note – Instructions for installing the server cables are provided in "Connecting Cables" on page 35.

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

Note – Cable hooks and loop straps are preinstalled on the CMA. Perform the procedure in this step if you need to reinstall cable hooks and straps on the CMA.

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



No.	Description
1	CMA cable strap
2	CMA arm

Related Information

- "Verify Operation of Slide Rails and CMA" on page 33
- "Secure Cables to CMA (Optional)" on page 52

▼ Verify Operation of Slide Rails and CMA

Note – Two people are recommended for this procedure: one to move the server in and out of the rack, and one to observe the cables and CMA.

1. **Slowly pull the server out of the rack until the slide rails reach their stops.**
2. **Inspect the attached cables for any binding or kinks.**
3. **Verify that the CMA extends fully from the slide rails.**
4. **Push the server back into the rack.**

   When the server is fully extended, you must release two sets of slide rail stops to return the server to the rack.

   a. **The first set of stops are levers, located on the inside of each slide rail, just behind the rear panel of the server. Push in both green levers simultaneously and slide the server toward the rack.**

      The server will slide in approximately 18 inches (46 cm) and stop.

      Verify that the cables and the CMA retract without binding before you continue.

   b. **The second set of stops are the slide rail release buttons, located near the front of each mounting bracket. Simultaneously push both of the green slide rail release buttons, and push the server completely into the rack until both slide rail locks engage.**

5. **Adjust the cable straps and CMA, as required.**

Related Information

- "Install the CMA" on page 29
- "Secure Cables to CMA (Optional)" on page 52

Connecting Cables

Connect and configure the network and serial ports before you attempt to boot the server.

Step	Description	Links
1.	Review the cabling requirements.	"Cabling Requirements" on page 35
2.	Review the front and rear panel connectors and ports.	"Front Panel Components" on page 5 "Rear Panel Connector Locations" on page 37 "Identifying Ports" on page 36
3.	Connect the management and data cables.	"Connecting Data and Management Cables" on page 45
4.	Secure the cables to the CMA.	"Secure Cables to CMA (Optional)" on page 52 "Verify Operation of Slide Rails and CMA" on page 33

Related Information

- "Verify Operation of Slide Rails and CMA" on page 33
- "Rear Panel Components" on page 6

Cabling Requirements

Prior to cabling and powering-on the server, gather the following network information:

- Netmask
- IP address for the SP
- Gateway IP address

At a minimum, you must connect cables to these ports before powering-on the server for the first time:

- SP SER MGT port

- SP NET MGT port
- At least one system on-board Ethernet network port
- Power cables to the power supply inlet ports

Related Information

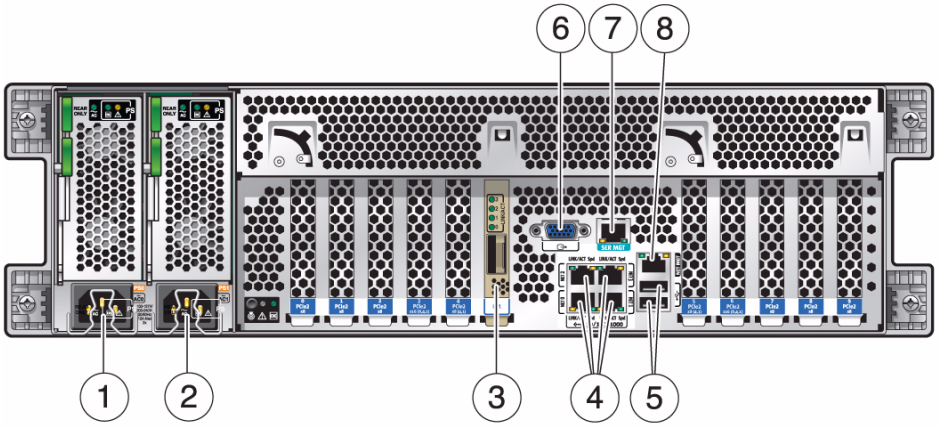
- "Connect the SER MGT Cable" on page 45
- "Connect the NET MGT Cable" on page 46
- "Connect Ethernet Network Cables" on page 47
- "Prepare the Power Cords" on page 53
- "Power on the System for the First Time" on page 56

Identifying Ports

These topics describe the locations of connectors and the details on functions of each portion of a connector.

- "Rear Panel Connector Locations" on page 37
- "USB Ports" on page 38
- "SER MGT Port" on page 39
- "NET MGT Port" on page 39
- "Gigabit Ethernet Ports" on page 40
- "Video Ports" on page 41
- "SAS Connectors" on page 42
- "QSFP Port" on page 43

Rear Panel Connector Locations



No.	Cable Port or Expansion Slot	Description
1	Power supply 0 AC inlet	Use the supplied or supported AC power cords.
2	Power supply 1 AC inlet	**Note -** Do not attach power cords to the power supplies until you have finished connecting the data cables and have connected the server to a serial terminal or a terminal emulator (PC or workstation).
3	SPARC T4-2 Server 10 Gb Network Module QSFP port	The SPARC T4-2 Server 10 Gb Network Module card's QSFP port provides four 10 Gb connections when using a supported transceiver and cable.
4	Network 10/100/1000 ports (NET0, NET1, NET2, and NET3)	The four Gigabit Ethernet ports enable you to connect the system to the network. **Note -** Using the Oracle ILOM sideband management feature, you can access the SP using one of these ports. Refer to the *SPARC T4 Series Servers Administration Guide* for instructions.
5	USB ports (USB 0, USB 1)	The two USB ports support hot-plugging. You can connect and disconnect USB cables and peripheral devices while the server is running, without affecting system operations. **Note -** You can connect up to 126 devices to each of the four USB controllers (two ports in front, two ports in back), for a total of 504 USB devices per server.

No.	Cable Port or Expansion Slot	Description
6	DB-15 video port	Use a DB-15 video cable to connect to a video device.
7	SP NET MGT Ethernet port	The NET MGT port is the optional connection to the Oracle ILOM SP. The SP NET MGT port uses an RJ-45 cable for a 10/100BASE-T connection. If your network does not use DHCP, this port will not be available until you have configured network settings through the SP SER MGT port. **Note -** This port does not support connections to Gigabit networks.
8	SP SER MGT port	The SER MGT port uses an RJ-45 cable and is always available. This port is the default connection to the Oracle ILOM system controller.

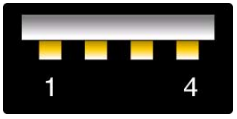
Related Information

- "Cabling Requirements" on page 35
- "Secure Cables to CMA (Optional)" on page 52

USB Ports

Two USB ports can be accessed from the front of the server and two from the back of the server.

Each Each USB port supplies 5V output at 500 mA.



No.	Description
1	+5V supply
2	Data –
3	Data +
4	Ground

Related Information

- "Rear Panel Connector Locations" on page 37

SER MGT Port

The SER MGT RJ-45 port, located on the rear panel, provides the default connection to the system console.

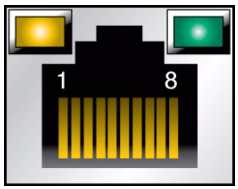
No.	Description
1	Clear to Send
2	Data Carrier Detect
3	Transmit Data
4	Ground
5	Ground
6	Receive Data
7	Data Terminal Ready
8	Ready to Send

Related Information

- “Rear Panel Connector Locations” on page 37
- “Connect the SER MGT Cable” on page 45
- “Connect a Terminal or Emulator to the SER MGT Port” on page 54

NET MGT Port

The NET MGT RJ-45 port, located on the rear panel, provides an optional Ethernet connection to the SP.



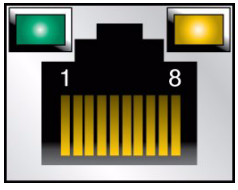
No.	Description
1	Transmit Data +
2	Transmit Data –
3	Receive Data +
4	No Connect
5	No Connect
6	Receive Data –
7	No Connect
8	No Connect

Related Information

- "Rear Panel Connector Locations" on page 37
- "Connect the NET MGT Cable" on page 46
- "Assign a Static IP Address to the NET MGT Port" on page 67

Gigabit Ethernet Ports

Four RJ-45 Gigabit-Ethernet connectors (NET0, NET1, NET2, NET3) can be accessed from the rear panel. The Ethernet interfaces operate at 10 Mbit/sec, 100 Mbit/sec, and 1000 Mbit/sec.



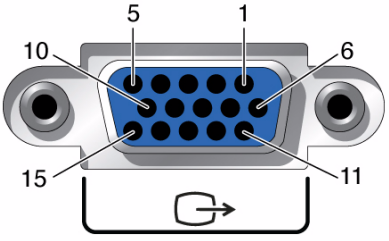
No.	Description
1	Transmit/Receive Data 0 +
2	Transmit/Receive Data 0 –
3	Transmit/Receive Data 1 +
4	Transmit/Receive Data 2 +
5	Transmit/Receive Data 2 –
6	Transmit/Receive Data 1 –
7	Transmit/Receive Data 3 +
8	Transmit/Receive Data 3 –

Related Information

- “Rear Panel Connector Locations” on page 37
- “Connect Ethernet Network Cables” on page 47

Video Ports

The server has two 15-pin VGA video ports, one port on the front and one on the back of the server. Maximum supported resolution is 1024 x 768.



No.	Description
1	Red Video
2	Green Video
3	Blue Video
4	Monitor ID - Bit 2 (Ground)
5	Ground

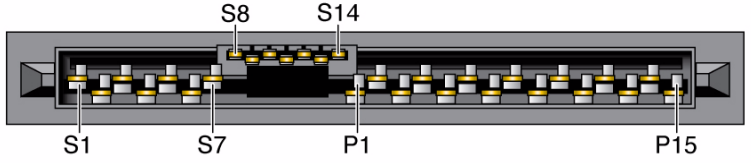
No.	Description
6	Red Ground
7	Green Ground
8	Blue Ground
9	+5V
10	Sync Ground
11	Monitor ID - Bit 0 (Ground)
12	VGA 12C Serial Data
13	Horizontal Sync
14	Vertical Sync
15	VGA 12C Serial Clock

Related Information

- "Rear Panel Connector Locations" on page 37

SAS Connectors

The six SAS connectors are located on the drive backplane inside the server.



The following table lists the pinouts for the SAS connector.

Signal Segment	S1	Gnd	Second mate
	S2	TX+	Transmit from PHY to hard drive
	S3	TX-	
	S4	Gnd	Second mate
	S5	RX-	Receive from hard drive to PHY
	S6	RX+	
	S7	Gnd	Second mate

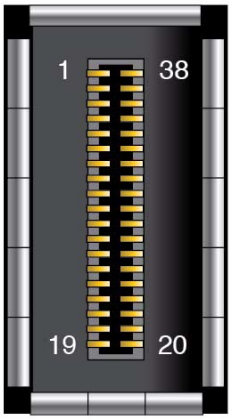
Back-side Signal	S8	Gnd	Second mate
	S9		
	S10		
	S11	Gnd	Second mate
	S12		
	S13		
	S14	Gnd	Second mate
Power Segment	P1	3.3V	Not Supported
	P2	3.3V	Not Supported
	P3	3.3V	Not Supported
	P4	Gnd	First mate
	P5	Gnd	Second mate
	P6	Gnd	Second mate
	P7	5.0V	Pre-charge, second mate
	P8	5.0V	
	P9	5.0V	
	P10	Gnd	Second mate
	P11	Reserved	Should be grounded
	P12	Gnd	First mate
	P13	12.0V	Pre-charge, second mate
	P14	12.0V	
	P15	12.0V	

Related Information

- *SPARC T4-2 Server Service Manual*

QSFP Port

Oracle's SPARC T4-2 Server 10 Gb Network Module card contains one QSFP port.



The following table lists the pinout for each connection.

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	GND	11	SCL	21	RX2n	31	Reserved
2	TX2n	12	SDA	22	RX2p	32	GND
3	TX2p	13	GND	23	GND	33	TX3p
4	GND	14	RX3p	24	RX4n	34	TX3n
5	TX4n	15	RX3n	25	RX4p	35	GND
6	TX4p	16	GND	26	GND	36	TX1p
7	GND	17	RX1p	27	ModPrsL	37	TX1n
8	ModSelL	18	RX1n	28	IntL	38	GND
9	LPMode_Reset	19	GND	29	VccTx		
10	VccRx	20	GND	30	Vcc1		

The following table provides the QSFP signal descriptions.

Signal	Description
GND	Ground for both signal and power return
IntL	Interrupt on low - Enables fault indication.
LPMode	Low power mode
ModPrsL	Module presence on low - Identifies existence of QSFP connector.
ModSelL	Module select on low - Enables reception of I^2C commands.

Signal	Description
ResetL	Reset on low
SCL	I^2C interface clock
SDA	I^2C interface data

Related Information

- "Rear Panel Connector Locations" on page 37
- "Connect Network Module Cables" on page 48

Connecting Data and Management Cables

These topics describe how to connect cables. You can use these procedures to connect cables before or after the server is first connected to power.

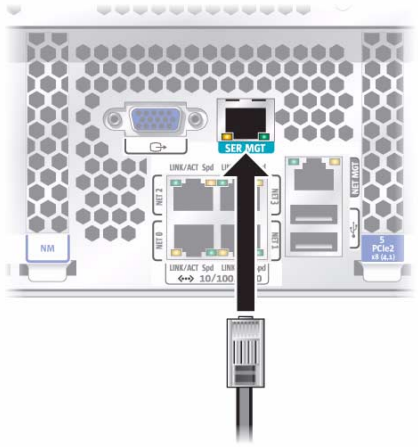
▼ Connect the SER MGT Cable

The SP serial management port is labeled SER MGT. Use the SP SER MGT port *only* for server management. This port is the default connection between the SP and a terminal or a computer. Use this port for server management.

Caution – Do not attach a modem to this port.

- **Connect a Category 5 (or better) cable from the SER MGT to a terminal device.**

  When connecting a DB-9 cable, use an adapter to perform the crossovers given for each connector.



Related Information

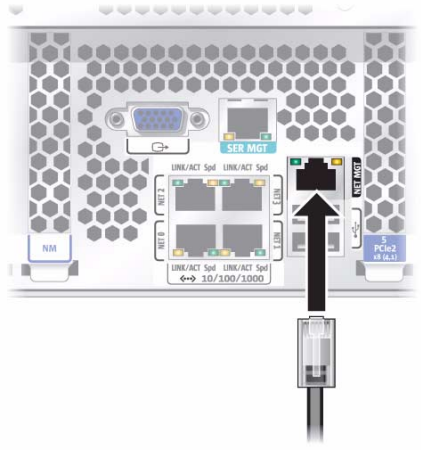
- "SER MGT Port" on page 39
- "Connect the NET MGT Cable" on page 46
- "Connect a Terminal or Emulator to the SER MGT Port" on page 54

▼ Connect the NET MGT Cable

The SP network management port is labeled NET MGT. After the initial server configuration, you can connect to the SP over an Ethernet network using this NET MGT port.

If your network uses a DHCP server to assign IP addresses, the DHCP server will assign an IP address to this NET MGT port. With this IP address, you can connect to the SP using an SSH connection. If your network does not use DHCP, this NET MGT port will not be accessible until you configure the network settings through the SER MGT port. For instructions, see "Assign a Static IP Address to the NET MGT Port" on page 67.

- **Connect a Category 5 (or better) cable from the NET MGT port to your network switch or hub.**



Related Information

- "NET MGT Port" on page 39
- "Connect Ethernet Network Cables" on page 47
- "Assign a Static IP Address to the NET MGT Port" on page 67

▼ Connect Ethernet Network Cables

The server has four Gigabit Ethernet network connectors, marked NET0, NET1, NET2, and NET3. Use these ports to connect the server to the network.

Note – The Oracle ILOM sideband management feature enables you to access the SP using one of these Ethernet ports. Refer to the *SPARC T4 Series Servers Administration Guide* for instructions.

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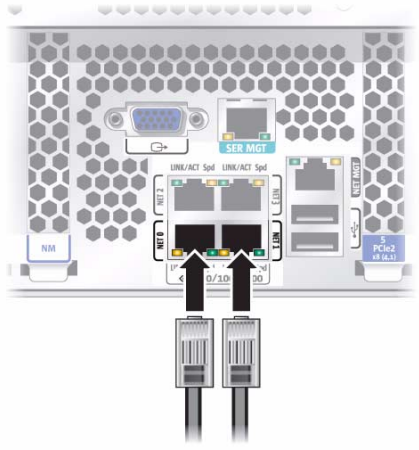
1. **Connect a Category 5 (or better) cable from your network switch or hub to Ethernet Port 0 (NET0) on the rear of the chassis.**



2. **Connect Category 5 (or better) cables from your network switch or hub to the remaining Ethernet ports (NET1, NET2, NET3), as needed.**

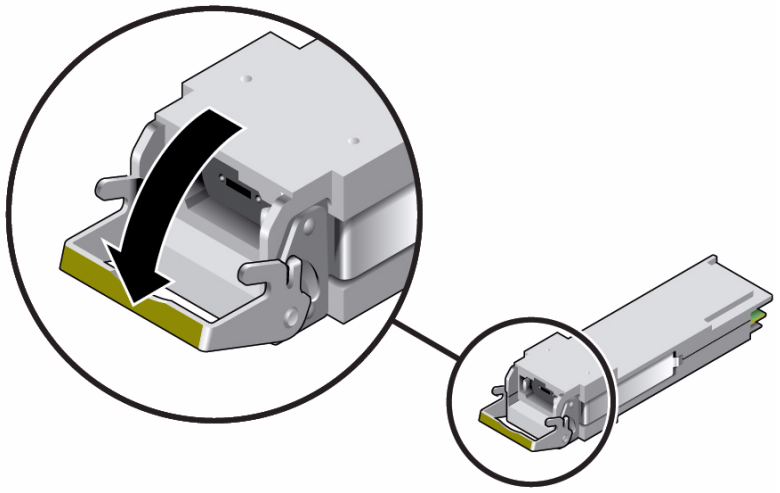
Related Information

- *SPARC T4 Series Server Administration Guide*
- "Gigabit Ethernet Ports" on page 40
- "Powering On the Server for the First Time" on page 53

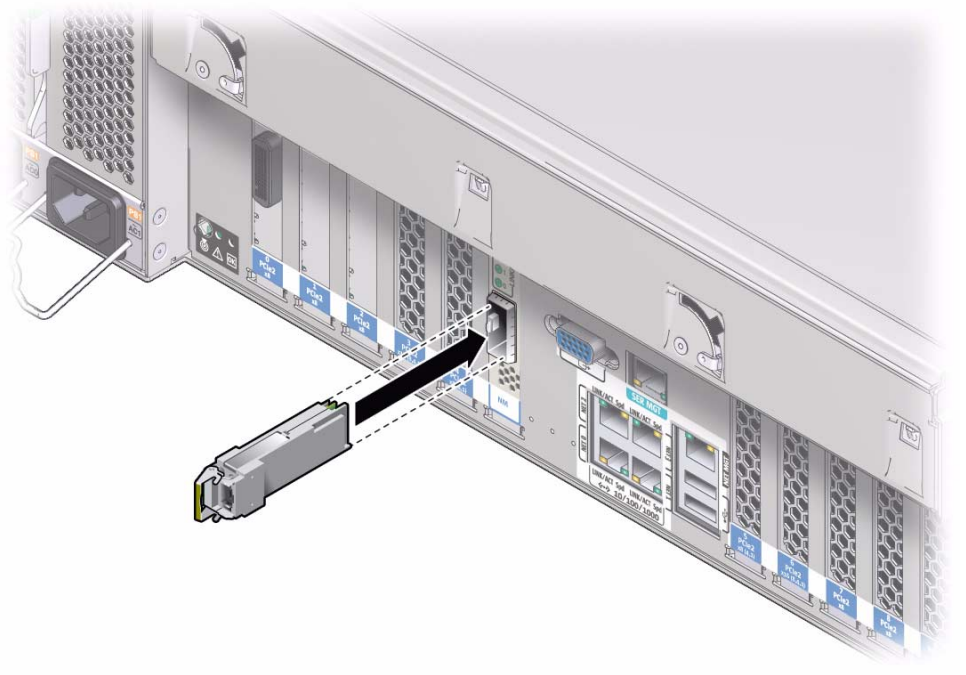
▼ Connect Network Module Cables

The optional SPARC T4-2 Server 10 Gb Network Module card provides four 10 GbE network connections when using a supported QSFP transceiver module.

1. **Remove the transceiver module from its packaging and place it on an antistatic mat.**
2. **Remove the protective end cap from the transceiver module.**
3. **Open the locking handle on the transceiver module until you feel the handle click into position.**



4. **Align the transceiver module to the QSFP slot as shown in the following figure.**

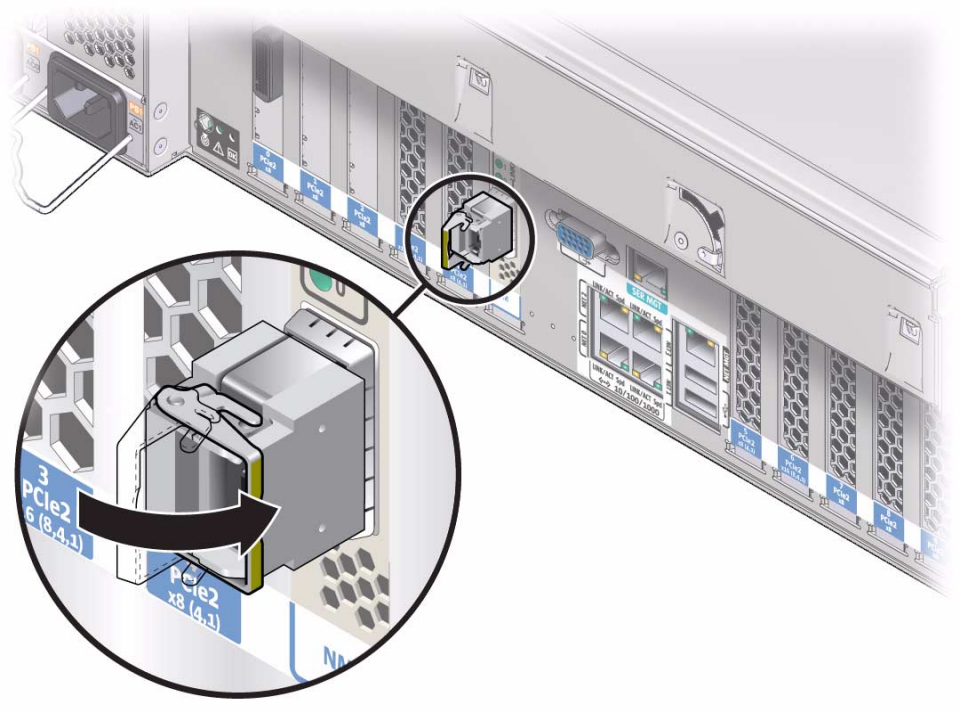


5. **Holding the transceiver module by its edges, carefully slide the module into the QSFP slot.**

6. **Applying even pressure to the top and bottom of the transceiver module, push the module until it is firmly seated in the slot.**

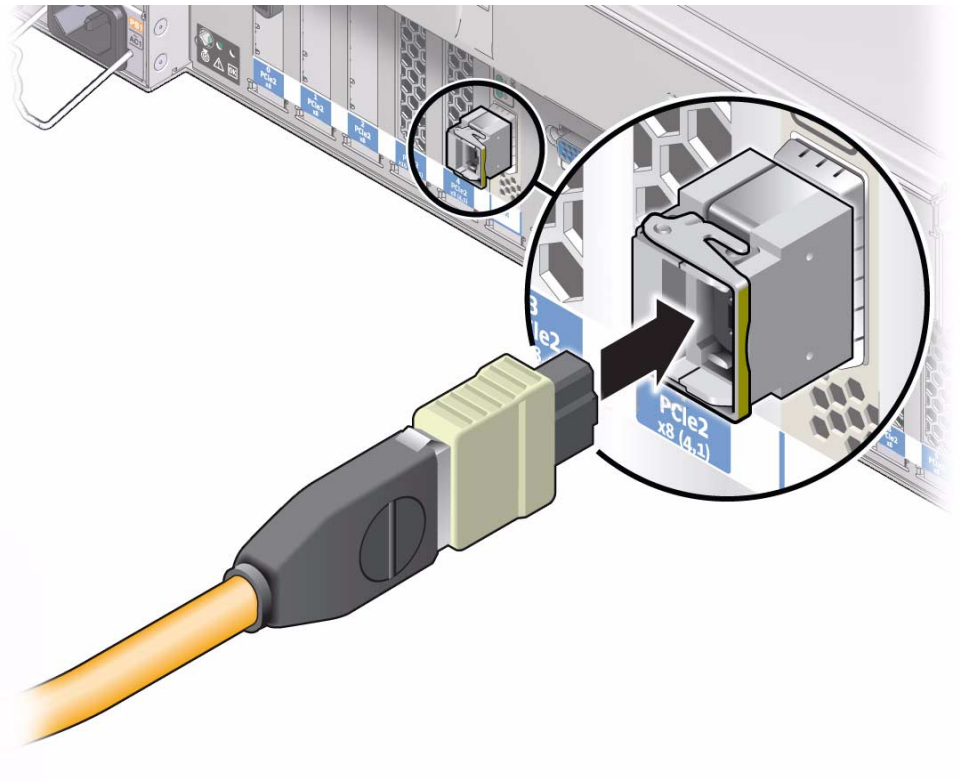
7. **Push the handle closed to lock the transceiver module in place.**

Note – If you open the locking handle when the transceiver module is installed, remove the transceiver module completely and reinstall it. The handle operates an internal lock. Opening the handle can disconnect the transceiver module, even though it might appear to be connected.



8. **Plug the cable into the connector.**

   Verify that the handle is in the locked position, and then connect the cable to the transceiver module.



Related Information

- The network equipment documentation
- "QSFP Port" on page 43

▼ Connect Other Data Cables

- **If your server configuration includes optional PCIe cards, connect the appropriate I/O cables to their connectors.**

  Refer to the PCIe card documentation for specific instructions.

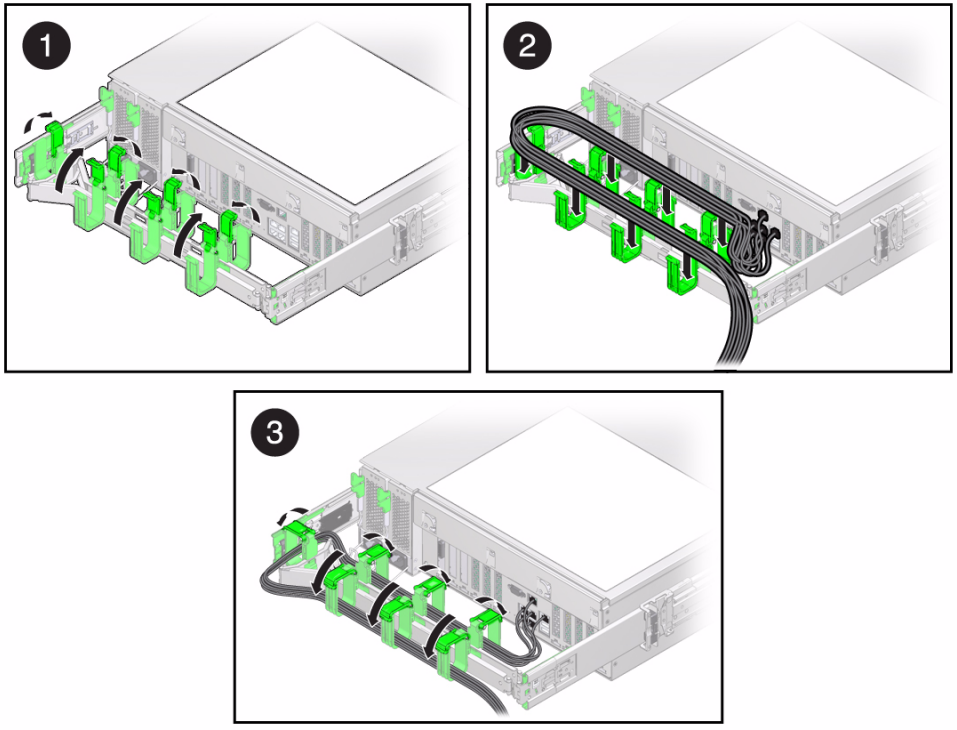
Related Information

- The PCIe card documentation
- *SPARC T4-2 Server Service Manual*

▼ Secure Cables to CMA (Optional)

After connecting the server cables, secure them to the cable management arm.

1. **Open the cable hooks and loop straps on the CMA.**



2. **Route the server cables through the CMA cable hooks and straps.**
3. **Secure the cables to the CMA by closing the hooks and tightening the straps.**
4. **Verify the operation of the slide rails and CMA.**

See "Verify Operation of Slide Rails and CMA" on page 33.

Related Information

- "Install the CMA" on page 29
- "Verify Operation of Slide Rails and CMA" on page 33
- "Rear Panel Connector Locations" on page 37

Powering On the Server for the First Time

These topics include instructions for powering on the server for the first time and configuring the Oracle Solaris OS.

Step	Description	Links
1.	Prepare the power cords.	"Prepare the Power Cords" on page 53
2.	Connect a serial terminal device or terminal server to the SER MGT port.	"Connect a Terminal or Emulator to the SER MGT Port" on page 54
3.	Power on the server and start the Oracle ILOM system console.	"Power on the System for the First Time" on page 56 or "Configure the Preinstalled OS" on page 58
4.	Configure the preinstalled OS, or install a fresh OS.	"Configure the Preinstalled OS" on page 58 or "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61
5.	Set the configuration parameters for the Oracle Solaris OS.	"Oracle Solaris OS Configuration Parameters" on page 63
6. (Optional)	Configure the NET MGT port to use a static IP address.	"Assign a Static IP Address to the NET MGT Port" on page 67

Related Information

- "Confirming Server and Site Specifications" on page 1
- "Installing the Server" on page 17
- "Connecting Data and Management Cables" on page 56

▼ Prepare the Power Cords

Prepare the power cords by routing them from the AC power source to the server.

Caution – Use only the power cords provided with the server.

Caution – Do not attach power cables to the power supplies until you have connected the server to a serial terminal or a terminal emulator (PC or workstation). The server goes into Standby mode and the Oracle ILOM SP initializes as soon as a power cable connects a power supply to an external power source. System messages might be lost after 60 seconds if a terminal or terminal emulator is not connected to the SER MGT port before power is applied.

Note – Oracle ILOM will signal a fault if both power supplies are not cabled at the same time, since it will be a nonredundant condition. Do not be concerned with this fault in this situation.

- **Route the power cords from the AC power source to the rear of the server.**

  Do not attach the power cords to the power supplies at this time.

Related Information

- "Rear Panel Components" on page 6
- "Powering On the Server for the First Time" on page 53

▼ Connect a Terminal or Emulator to the SER MGT Port

Prior to powering on the server for the first time, make a serial connection to the SP from a terminal or terminal emulator. After making this serial connection, you will be able to view the system messages when you connect the power cords.

1. **Confirm that you have completed the following tasks:**

   a. **Completed the preparation for installation.**

      See "Preparing for Installation" on page 13.

   b. **Completed the installation of the server in a rack.**

      See "Installing the Server" on page 17.

c. **Connected the necessary cables.**

   See "Connecting Cables" on page 35

2. **Connect a terminal or a terminal emulator (PC or workstation) to the server SER MGT port.**

3. **Configure a terminal or terminal emulator with these settings:**
   - 9600 baud
   - 8 bits
   - No parity
   - 1 Stop bit
   - No handshake

   A null modem configuration is needed, meaning the transmit and receive signals are reversed (crossed over) for DTE to DTE communications. You can use the supplied RJ-45 crossover adapters with a standard RJ-45 cable to achieve the null modem configuration.

Note – If you power on the server for the first time and do not have a terminal or terminal emulator (PC or workstation) connected to the SER MGT port, you will not see system messages.

---

4. **(Optional) Connect an Ethernet cable between the server's NET MGT port and the network to which future connections to the SP and host will be made.**

   Configure the system for the first time through the SER MGT port. After the initial configuration, you can set up communication between the SP and host through this Ethernet interface.

5. **Connect an Ethernet cable between one of the server's NET ports and the network to which the server will communicate.**

6. **Connect the power cords to the power supplies and to separate power sources.**

   When the power cords are connected, the SP initializes and the power supply LEDs illuminate. After a few minutes, the SP login prompt is displayed on the terminal device. At this time, the host is not initialized or powered on.

7. **Continue with the installation by powering on the server for the first time.**

   See "Power on the System for the First Time" on page 56.

Related Information

- "Connect the SER MGT Cable" on page 57
- "Configure the Preinstalled OS" on page 58
- "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59

■ "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61

▼ Power on the System for the First Time

1. At the terminal device, log in to the SP as `root` with a password of `changeme`.

```
XXXXXXXXXXXXXXXX login: root
Password: changeme
. . .
->
```

After a brief delay, the Oracle ILOM prompt is displayed (`->`).

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

For more information about the administration tasks such as changing passwords, adding accounts, and setting account privileges, refer to the Oracle ILOM documentation.

Note – By default, the SP is configured to use DHCP to obtain an IP address. If you plan to assign a static IP address to the SP, see"Assign a Static IP Address to the NET MGT Port" on page 67 for more instructions.

---

2. Power on the server using one of the following methods:

- Press the power button.
- At the Oracle ILOM prompt, type:

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

The server initialization might take several minutes to complete.

To cancel the initialization, press the #. (Hash+Dot) keys to return to the Oracle ILOM prompt. Then type: `stop /System`

Note – In Oracle ILOM 3.1, the name space for `/SYS was` replaced with `/System`. You can use the legacy name in a command at any time, but to expose the legacy name in the output, you must enable it with `-> set /SP/cli legacy_targets=enabled`. For more information, see the Oracle ILOM 3.1 documentation.

3. **(Optional) Redirect the host output to display on the serial terminal device.**

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

4. **(Optional) You can execute other Oracle ILOM commands while the server initializes.**

   a. **To display the Oracle ILOM prompt, press the #. (Hash+Dot) keys.**

   b. **To see information about available Oracle ILOM commands, type: `help`**

      To see information about a specific command, type **`help`** *command-name*

   c. **To return to displaying host output from the server initialization, type:**

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

5. **Continue with the installation by installing the OS.**

   See "Configure the Preinstalled OS" on page 58.

Related Information

- "Connect the SER MGT Cable" on page 57
- "Oracle ILOM System Console" on page 57
- "Configure the Preinstalled OS" on page 58
- "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59
- "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61

Oracle ILOM System Console

When power is first applied to the system, the boot process begins under the control of the Oracle ILOM system console. The system console displays status and error messages generated by firmware-based tests that are run during system startup.

Note – To see these status and error messages, connect a terminal or terminal emulator to the SER MGT before applying power to the server.

After the system console finishes its low-level system diagnostics, the SP initializes and runs a suite of higher level diagnostics. When you access the SP using a device connected to the SER MGT port, you see the output of the Oracle ILOM diagnostics.

By default, the SP configures the NET MGT port automatically, retrieving network configuration settings using DHCP and allowing connections using SSH.

For a more detailed discussion on configuring the system console and connecting terminals, refer to the administration guide for your server.

Related Information

- Servers Administration
- Oracle ILOM documentation
- "Configure the Preinstalled OS" on page 58
- "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59
- "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61
- "Assign a Static IP Address to the NET MGT Port" on page 67

Installing the OS

Use these topics to either configure the preinstalled OS or use an alternative OS.

- "Configure the Preinstalled OS" on page 58
- "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59
- "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61

Related Information

- "Oracle Solaris OS Configuration Parameters" on page 63

▼ Configure the Preinstalled OS

1. Determine which OS you will use.

- If you plan to use the preinstalled OS, proceed to step 2.
- If you do not plan to use the preinstalled OS, go to "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59.

2. **When prompted, follow the onscreen instructions for configuring the Oracle Solaris OS on your host.**

   You will be prompted to confirm the configuration several times, enabling confirmation and changes. If you are not sure how to respond to a particular value, you can accept the default, and make future changes when the Oracle Solaris OS is running. See "Oracle Solaris OS Configuration Parameters" on page 63 for a description of the Oracle Solaris OS parameters you must provide during initial configuration.

3. **Log in to the server.**

   You can now enter Oracle Solaris OS commands at the prompt. For more details, refer to the Oracle Solaris 11 or 10 OS man pages and documentation at:

   `http://www.oracle.com/goto/Solaris11/docs`

   `http://www.oracle.com/goto/Solaris10/docs`

Related Information

- "Prepare the Power Cords" on page 53
- "Connect a Terminal or Emulator to the SER MGT Port" on page 54
- "Power on the System for the First Time" on page 56
- "Oracle Solaris OS Configuration Parameters" on page 63

▼ Reach a State to Install a Fresh OS (Oracle ILOM CLI)

If you do not plan to use the preinstalled OS use this procedure to prevent the server from booting from the preinstalled OS.

1. **Prepare the appropriate boot media according to your installation method.**

   There are many methods by which you can install the OS. For example, you can boot and install the OS from DVD media or from another server on the network.

   For more information about the methods, refer to these Oracle Solaris document sections:

   - *Installing Oracle Solaris 11 Systems*, comparing installation options at:

     `http://www.oracle.com/goto/Solaris11/docs`

   - *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

http://www.oracle.com/goto/Solaris10/docs

2. **From Oracle ILOM, set the OpenBoot** `auto-boot?` **parameter to** `false`**.**

```
-> set /HOST/bootmode script="setenv auto-boot? false"
```

This setting prevents the server from booting from the preinstalled OS. When you use `bootmode`, the change applies only to a single boot and expires in 10 minutes if the power on the host is not reset.

3. **When you are ready to initiate the OS installation, reset the host.**

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

Note – In Oracle ILOM 3.1, the name space for `/SYS` was replaced with `/System`. You can use the legacy name in command at any time, but to expose the legacy name in the output, you must enable it with `-> set /SP/cli legacy_targets= enabled`. For more information, see the Oracle ILOM 3.1 documentation.

---

4. **Switch communication to the server host.**

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

The server might take several minutes to complete POST, and then the OpenBoot prompt (`ok`) is displayed.

5. **Boot from the appropriate boot media for your installation method.**

For more information, refer to the Oracle Solaris installation guide that corresponds to your desired release and installation method.

- *Installing Oracle Solaris 11 Systems*, comparing installation options at:

  http://www.oracle.com/goto/Solaris11/docs

- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

http://www.oracle.com/goto/Solaris10/docs

For a list of valid boot commands, type:

```
{0} ok help boot
boot <specifier>  ( -- )    boot kernel ( default ) or other file
  Examples:
    boot                     - boot kernel from default device.
                                Factory default is to boot
                           from DISK if present, otherwise from NET.
    boot net                 - boot kernel from network
    boot cdrom               - boot kernel from CD-ROM
    boot disk1:h             - boot from disk1 partition h
    boot tape                - boot default file from tape
   boot disk myunix -as    - boot myunix from disk with flags "-as"
dload <filename>  ( addr -- )     debug load of file over network
at address
  Examples:
     4000 dload /export/root/foo/test
     ?go         - if executable program, execute it
                   or if Forth program, compile it
```

Related Information

- "Configure the Preinstalled OS" on page 58
- "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59
- "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61
- "Assign a Static IP Address to the NET MGT Port" on page 67

▼ Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)

If you do not plan to use the preinstalled OS, use this procedure to prevent the server from booting from the preinstalled OS.

1. **Prepare the appropriate boot media according to your installation method.**

   There are many methods by which you can install the OS. For example, you can boot and install the OS from DVD media or from another server on the network.

   For more information about the methods, refer to these Oracle Solaris document sections:

   - *Installing Oracle Solaris 11 Systems*, comparing installation options at:

     http://www.oracle.com/goto/Solaris11/docs

- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

  `http://www.oracle.com/goto/Solaris10/docs`

2. **If you have not done so, perform these tasks to access the Oracle ILOM web interface on the server:**

   a. **In a browser on the same network as the system, type the IP address of the SP.**

   b. **Log in to Oracle ILOM by typing your user name and password.**

3. **In the Oracle ILOM web interface, in the left navigation pane, choose Host Management > Host Boot Mode.**

   The Host Boot Mode page is displayed.

4. **Apply these changes to the Host Boot Mode Settings:**

   a. **For State, select: Reset NVRAM**

      This setting applies a one-time NVRAM (OpenBoot) change based on the script setting, then resets the NVRAM to default settings on the next host reset.

   b. **For Script, type: `setenv auto-boot? false`**

      This setting configures the host to stop at the `ok` prompt instead of automatically booting the preinstalled OS.

   c. **Click Save.**

Note – You have 10 minutes to perform the next step. After 10 minutes, the state is automatically returned to normal.

---

5. **In the left navigation panel, click on Host Management > Power Control.**

6. **Select Reset from the pull-down menu, and click Save.**

7. **In the left navigation panel, click on Remote Control > Redirection.**

8. **Select Use Serial Redirection, and click Launch Remote Console.**

   As the host resets, messages are displayed in the serial console. The reset activity takes a few minutes to complete. When the `ok` prompt is displayed, continue to the next step.

9. **At the `ok` prompt, boot from the appropriate boot media for your installation method.**

   For more information, refer to the Oracle Solaris installation guide that corresponds to your desired release and installation method.

   - *Installing Oracle Solaris 11 Systems*, comparing installation options at:

http://www.oracle.com/goto/Solaris11/docs

- *Oracle Solaris 10 Installation Guide: Planning for Installation and Upgrade*, choosing an Oracle Solaris installation method at:

  http://www.oracle.com/goto/Solaris10/docs

For a list of valid boot commands that you can enter at the OpenBoot prompt, type:

```
{0} ok help boot
boot <specifier>  ( -- )    boot kernel ( default ) or other file
  Examples:
    boot                    - boot kernel from default device.
                              Factory default is to boot
                              from DISK if present, otherwise from NET.
    boot net                - boot kernel from network
    boot cdrom              - boot kernel from CD-ROM
    boot disk1:h            - boot from disk1 partition h
    boot tape               - boot default file from tape
    boot disk myunix -as    - boot myunix from disk with flags "-as"
dload <filename>  ( addr -- )     debug load of file over network at address
  Examples:
     4000 dload /export/root/foo/test
     ?go        - if executable program, execute it
                  or if Forth program, compile it
```

Related Information

- "Configure the Preinstalled OS" on page 58
- "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59
- "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61
- "Assign a Static IP Address to the NET MGT Port" on page 67

Oracle Solaris OS Configuration Parameters

This topic describes configuration parameters you must provide during initial Oracle Solaris OS configuration.

Parameter	Description
Language	Select a number from the displayed language list.
Locale	Select a number from the displayed locale list.
Terminal Type	Select a terminal type that corresponds with your terminal device.
Network?	Select Yes.
Multiple Network Interfaces	Select the network interfaces that you plan to configure. If you are not sure, select the first one in the list.
DHCP?	Select Yes or No according to your network environment.
Host Name	Type the host name for the server.
IP Address	Type the IP address for this Ethernet interface.
Subnet?	Select Yes or No according to your network environment.
Subnet Netmask	(If subnet was Yes) Type the netmask for the subnet for your network environment.
IPv6?	Specify whether or not to use IPv6. If you are not sure, select No to configure the Ethernet interface for IPv4.
Security Policy	Select either standard UNIX security (No) or Kerberos Security (Yes). If you are not sure, select No.
Confirm	Review the onscreen information and change it if needed. Otherwise, continue.
Name Service	Select the name service according to your network environment. If you select a name service other than None, you will be prompted for additional name service configuration information.
NFSv4 Domain Name	Select the type of domain name configuration according to your environment. If you are not sure, select `Use the NFSv4 domain derived by the system`.
Time Zone (Continent)	Select your continent.
Time Zone (Country or Region)	Select your country or region.
Time Zone	Select the time zone.
Date and Time	Accept the default date and time or change the values.
root Password	Type the `root` password twice. This password is for the superuser account for the Oracle Solaris OS on this server. This password is not the SP password.

Related Information

- Oracle Solaris OS documentation
- "Configure the Preinstalled OS" on page 58

- "Reach a State to Install a Fresh OS (Oracle ILOM CLI)" on page 59
- "Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)" on page 61

Assigning a Static IP Address to the SP

If your network does *not* use DHCP, the NET MGT port is not operational until you configure network settings for the SP.

Note – If you are unable to use DHCP on your network, you must connect to the ILOM SP using the SER MGT port to configure the NET MGT port for your network. See "Assign a Static IP Address to the NET MGT Port" on page 67.

- "Log In to the SP (SER MGT Port)" on page 65

Related Information

- "Oracle ILOM System Console" on page 57
- "Oracle Solaris OS Configuration Parameters" on page 63
- "Log In to the SP (SER MGT Port)" on page 65
- "Assign a Static IP Address to the NET MGT Port" on page 67

▼ Log In to the SP (SER MGT Port)

After the SP boots, access the ILOM CLI to configure and manage the server. The ILOM CLI prompt (`->`) is displayed the first time the SP is booted. The default configuration provides an ILOM CLI `root` user account. The default `root` password is *changeme*. Change the password using the SP ILOM CLI password command.

1. **If this is the first time the server has been powered on, use the `password` command to change the `root` password.**

```
hostname login: root
Password:
Last login: Mon Feb 18 16:53:14 GMT 2013 on ttyS0
Detecting screen size; please wait...done

Oracle(R) Integrated Lights Out Manager
```

```
Version 3.2.1.2 rxxxxx

Copyright (c) 2013, Oracle and/or its affiliates. All rights
reserved.
Warning: password is set to factory default.

-> set /SP/users/root password
Enter new password: ********
Enter new password again: ********

->
```

Note – After the `root` password has been set, on subsequent reboots, the ILOM CLI login prompt is displayed.

---

2. Type `root` for the login name, followed by your password.

```
...
hostname login: root
Password: password (nothing displayed)

Oracle(R) Integrated Lights Out Manager

Version 3.2.1.2

Copyright (c) 2013 Oracle and/or its affiliates. All rights
reserved.
->
```

Related Information

- Servers Administration
- "Rear Panel Components" on page 6
- "Identifying Ports" on page 36
- Oracle ILOM documentation

▼ Assign a Static IP Address to the NET MGT Port

If you plan to connect to the SP through its NET MGT port, the SP must have a valid IP address.

By default, the server is configured to obtain an IP address from DHCP services in your network. If the network your server is connected to does not support DHCP for IP addressing, perform this procedure.

Note – To configure the server to support DHCP, refer to the Oracle ILOM documentation.

---

1. **Set the SP to accept a static IP address.**

```
-> set /SP/network pendingipdiscovery=static
Set 'pendingipdiscovery' to 'static'
```

2. **Set the IP address for the SP.**

   Oracle ILOM is shipped with IPv4 DHCP and IPv6 Stateless default network settings.

   a. **To change the default IPv4 DHCP property and set property values for a static IPv4 address, type** *IPv4_address.*

   b. **To change the default IPv6 DHCP property and set property values for a static IPv6 address, type** *IPv6_address***.**

      This setting configures the host to stop at the `ok` prompt instead of automatically booting the preinstalled OS.

```
-> set /SP/network pendingipaddress=service-processor-IPaddr
Set 'pendingipaddress' to 'service-processor-IPaddr'
```

   For more information about the administration tasks such as modifying default network connectivity settings, refer to the Oracle ILOM documentation.

3. **Set the IP address for the SP gateway.**

```
-> set /SP/network pendingipgateway=gateway-IPaddr
Set 'pendingipgateway' to 'gateway-IPaddr'
```

4. **Set the netmask for the SP.**

```
-> set /SP/network pendingipnetmask=255.255.255.0
Set 'pendingipnetmask' to '255.255.255.0'
```

This example uses `255.255.255.0` to set the netmask. Your network environment subnet might require a different netmask. Use a netmask number most appropriate to your environment.

5. **Verify that the pending parameters are set correctly.**

```
-> show /SP/network
  /SP/network
     Targets:
     Properties:
        commitpending = (Cannot show property)
        dhcp_clientid = xxx.xxx.xxx.xxx
        dhcp_server_ip = xxx.xxx.xxx.xxx
        ipaddress = xxx.xxx.xxx.xxx
        ipdiscovery = dhcp
        ipgateway = xxx.xxx.xxx.xxx
        ipnetmask = 255.255.255.0
        macaddress = xx:xx:xx:xx:xx:xx
        managementport = MGMT
        outofbandmacaddress = xx:xx:xx:xx:xx:xx
        pendingipaddress = service-processor-IPaddr
        pendingipdiscovery = static
        pendingipgateway = gateway-IPaddr
        pendingipnetmask = 255.255.255.0
        pendingmanagementport = MGMT
        sidebandmacaddress = xx:xx:xx:xx:xx:xx
        state = enabled
```

6. **Set the changes to the SP network parameters.**

```
-> set /SP/network commitpending=true
Set 'commitpending' to 'true'
```

Note – You can type the `show /SP/network` command again to verify that the parameters have been updated.

---

7. **Set the static IP address when you configure the Oracle Solaris OS.**

See "Configure the Preinstalled OS" on page 58.

Related Information

- Servers Administration
- “Configure the Preinstalled OS” on page 58
- “Reach a State to Install a Fresh OS (Oracle ILOM CLI)” on page 59
- “Reach a State to Install a Fresh OS (Oracle ILOM Web Interface)” on page 61
- “Oracle Solaris OS Configuration Parameters” on page 63
- Oracle ILOM documentation

Glossary

A

ANSI SIS American National Standards Institute Status Indicator Standard.

ASR Automatic system recovery.

B

blade Generic term for server modules and storage modules. *See server module and storage module*.

blade server Server module. See *server module*.

BMC Baseboard management controller.

BOB Memory buffer on board.

C

chassis For servers, refers to the server enclosure. For server modules, refers to the modular system enclosure.

CMA Cable management arm.

CMM Chassis monitoring module. The CMM is the service processor in the modular system. Oracle ILOM runs on the CMM, providing lights out management of the components in the modular system chassis. *See Modular system and Oracle ILOM*.

CMM Oracle ILOM Oracle ILOM that runs on the CMM. *See Oracle ILOM*.

D

DHCP Dynamic Host Configuration Protocol.

disk module or disk blade Interchangeable terms for storage module. *See storage module*.

DTE Data terminal equipment.

E

ESD Electrostatic discharge.

F

FEM Fabric expansion module. FEMs enable server modules to use the 10GbE connections provided by certain NEMs. *See NEM*.

FRU Field-replaceable unit.

H

HBA Host bus adapter.

host The part of the server or server module with the CPU and other hardware that runs the Oracle Solaris OS and other applications. The term *host* is used to distinguish the primary computer from the SP. *See SP*.

I

ID PROM Chip that contains system information for the server or server module.

IP Internet Protocol.

K

KVM Keyboard, video, mouse. Refers to using a switch to enable sharing of one keyboard, one display, and one mouse with more than one computer.

M

MAC or MAC address Media access controller address.

Modular system The rackmountable chassis that holds server modules, storage modules, NEMs, and PCI EMs. The modular system provides Oracle ILOM through its CMM.

MSGID Message identifier.

N

name space Top-level Oracle ILOM CMM target.

NEM Network express module. NEMs provide 10/100/1000 Mbps Ethernet, 10GbE Ethernet ports, and SAS connectivity to storage modules.

NET MGT Network management port. An Ethernet port on the server SP, the server module SP, and the CMM.

NIC Network interface card or controller.

NMI Nonmaskable interrupt.

O

OBP OpenBoot PROM.

Oracle ILOM Oracle Integrated Lights Out Manager. Oracle ILOM firmware is preinstalled on a variety of Oracle systems. Oracle ILOM enables you to remotely manage your Oracle servers regardless of the state of the host system.

Oracle Solaris OS Oracle Solaris operating system.

P

PCI Peripheral component interconnect.

PCI EM PCIe ExpressModule. Modular components that are based on the PCI Express industry-standard form factor and offer I/O features such as Gigabit Ethernet and Fibre Channel.

POST Power-on self-test.

PROM Programmable read-only memory.

PSH Predictive self healing.

Q

QSFP Quad small form-factor pluggable.

R

REM RAID expansion module. Sometimes referred to as an HBA *See HBA*. Supports the creation of RAID volumes on drives.

S

SAS Serial attached SCSI.

SCC System configuration chip.

SER MGT Serial management port. A serial port on the server SP, the server module SP, and the CMM.

server module Modular component that provides the main compute resources (CPU and memory) in a modular system. Server modules might also have onboard storage and connectors that hold REMs and FEMs.

SP Service processor. In the server or server module, the SP is a card with its own OS. The SP processes Oracle ILOM commands providing lights out management control of the host. *See host*.

SSD Solid-state drive.

SSH Secure shell.

storage module Modular component that provides computing storage to the server modules.

U

UCP Universal connector port.

UI User interface.

UTC Coordinated Universal Time.

UUID Universal unique identifier.

W

WWN World-wide number. A unique number that identifies a SAS target.

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