Sun Network 10GbE Switch 72p

User's Guide

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Using This Documentation

This guide describes how to install and configure the Sun Network 10GbE Switch 72p from Oracle.

These instructions are designed for enterprise system administrators with experience installing network hardware and software.

- "Product Notes" on page vii
- "Related Documentation" on page viii
- "CLI Command Modes" on page viii
- "Feedback" on page ix
- "Support and Accessibility" on page ix

Product Notes

For late-breaking information and known issues about this product, refer to the product notes at:

`http://www.oracle.com/pls/topic/lookup?ctx=SN-10GbE-72p`

Related Documentation

Documentation	Links
All Oracle products	http://oracle.com/documentation
Sun Blade 6000 Ethernet Switched NEM 24p 10GbE	http://www.oracle.com/pls/topic/lookup?ctx=SB6K-24p-10GbE
Sun Network 10GbE Switch 72p	http://www.oracle.com/pls/topic/lookup?ctx=SN-10GbE-72p
Sun Blade 6000 modular system	http://www.oracle.com/pls/topic/lookup?ctx=sb6000
Oracle Integrated Lights Out Manager (Oracle ILOM) 3.0	http://www.oracle.com/pls/topic/lookup?ctx=ilom30

For detailed information about the commands and options described in this document, refer to the *Sun Ethernet Fabric Operating System CLI Base Reference Manual*.

CLI Command Modes

The following table lists the configuration modes used in this document with their access and exit methods.

Command Mode	Access Method	Prompt	Exit Method
User EXEC	Access SEFOS from Oracle ILOM with read-only rights (privilege level 1).	`SEFOS>`	Use the `logout` or `exit` command to return to the Oracle ILOM prompt.
Privileged EXEC	Access SEFOS from Oracle ILOM with full administrative rights (privilege level 15).	`SEFOS#`	Use the `logout` or `exit` command to return to the Oracle ILOM prompt.
Global Configuration	From User EXEC mode, use the `enable` command.	`SEFOS(config)#`	Use the `end` command to return to Privileged EXEC mode.
Interface Configuration	From Global Configuration mode, use the `interface interface-type interface-id` command.	`SEFOS(config-if)#`	Use the `exit` command to return to Global Configuration mode, or use the `end` command to return to Privileged EXEC mode.

Feedback

Provide feedback on this documentation at:

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

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

Understanding the Switch

The switch is a single rack unit standalone multipurpose TOR switch. The switch provides connection to external devices through 16 QSFP connectors with four 10GbE ports each and eight 10GbE SFP+ ports. The switch connects servers and storage devices in a rack environment.

These topics describe the switch:

- "Switch Overview" on page 1
- "Front Panel Components" on page 3
- "Rear Panel Components" on page 4

Related Information

- "Confirming Switch Specifications" on page 5
- "Installing the Switch" on page 9
- "Administering the Switch" on page 37
- "Servicing the Switch" on page 57

Switch Overview

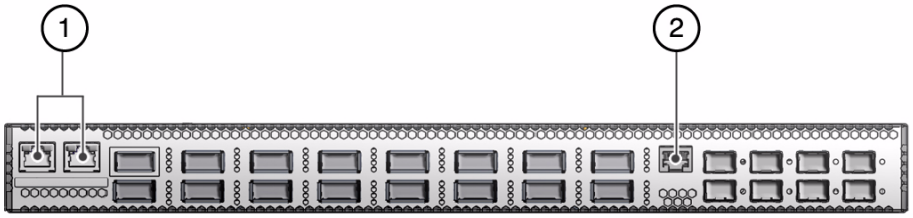
Feature	Specifications
Management	• MPC8547E processor (service processor) • 1 GB DDR2 SDRAM SORDIMM, 512 MB NOR flash memory, and 2 GB NAND Flash memory • Oracle ILOM firmware
Management interfaces	• 10/100BASE-T Ethernet • I^2C

Feature	Specifications
Ports/connectors	• Two NET MGT ports and one SER MGT port (RJ-45). Use NET MGT 0, Port A only. (See "NET MGT Port" on page 17) • Eight SFP+ ports that support the SFP+ SR, LR, and LR-M modules • 16 QSFP connectors on the switch with four 10GbE ports each supporting a total of 64 10 Gbps interfaces
Server interface (per server)	• One XAUI interface to a switch port
Indicators/controls	• SFP+ 10GbE Link Status/Activity (bifunctional) • QSFP 10GbE Link Status/Activity (bifunctional) • Front panel Locate, System Fault/Alarm, System OK LEDs • Rear panel power supply and fan module status LEDs
Health	• Voltage monitoring • Temperature monitoring • Fault detection and reporting
Power supplies	The switch has two redundant power supplies. The switch requires only one functional power supply to operate without errors. **Note -** The System OK LED goes into the off state if one of the power supplies is unplugged or offline. • 3.3 VAUX from switch midplane • 12 V from switch midplane
Cooling	The switch has five fans and requires three fully operational fans to avoid possible thermal errors. Airflow can be established with two different configurations, depending on where you choose to locate the front I/O connectors. • To place the I/O connectors in the **cold** aisle (airflow from front to the rear), use Fan Module 350-1335. • To place the I/O connectors in the **hot** aisle (airflow from rear to the front), use Fan Module 350-1312.

Related Information

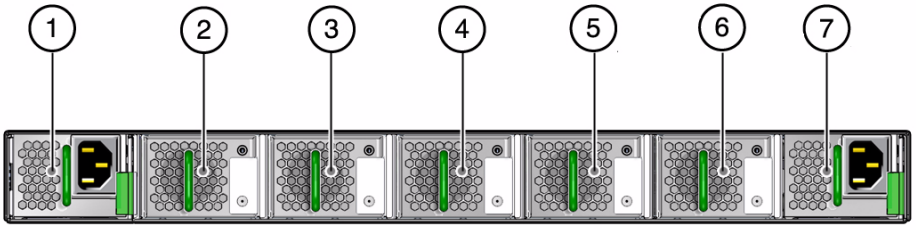
- "Confirming Switch Specifications" on page 5
- "Front Panel Components" on page 3
- "Identifying LEDs" on page 58

Front Panel Components



No.	Description	Links
1	NET MGT 0 (Port A) and NET MGT 1, Port B. (from left to right).	"Connect the NET MGT Cable" on page 18 "Configure Network Management From Web" on page 47 "Log Into Oracle ILOM CLI (SER MGT)" on page 46 "NET MGT Port" on page 17
2	QSFP 10 GbE connectors 1 to 64, four ports each.(from bottom left to right)	"QSFP Cables" on page 25
3	SER MGT serial management port.	"Connect the SER MGT Cable" on page 20 "Configure Network Management From CLI (SER MGT)" on page 40 "Log Into Oracle ILOM CLI (SER MGT)" on page 46 "SER MGT Port" on page 19
4	SFP+ ports 65 to 72. (from bottom left to right)	"SFP+ Cables" on page 26

Rear Panel Components



No.	Description	Links
1	Power supply 0 and 1	"Servicing Power Supplies" on page 65
2	Fan modules 0 to 4 (from left to right)	"Servicing Fans" on page 70

Related Information

- "Power On the Switch" on page 23
- "Connect Ethernet Cables" on page 28

Confirming Switch Specifications

These topics describe the switch specifications.

- "Physical Specifications" on page 5
- "Electrical Specifications" on page 6
- "Environmental Specifications" on page 6

Related Information

- "Power Cord Specifications" on page 22
- "Verify Shipping Kit Contents" on page 10
- "Install the Switch in the Rack" on page 11
- "Install the Switch in the Rack" on page 11
- "Connect the NET MGT Cable" on page 18
- "Connect the SER MGT Cable" on page 20

Physical Specifications

Description	U.S. Metric
Width	17.19 in. (436.6 mm)
Height	1.63 in. (41.3 mm), 1 RU
Depth	24.8 in. (628.7 mm)
Weight	28.6 lbs (13 kg)

Related Information

- "Environmental Specifications" on page 6

- "Acoustic Noise Emissions" on page 7
- "Electrical Specifications" on page 6
- "Install the Switch in the Rack" on page 11

Electrical Specifications

Parameter	AC Version Requirement
Voltage	100 VAC to 240 VAC single phase, 47-63 Hz
Current (available per input)	8.8 A maximum per input

Related Information

- "Physical Specifications" on page 5
- "Environmental Specifications" on page 6
- "Acoustic Noise Emissions" on page 7

Environmental Specifications

Parameter	Operating Limits
Ambient temperature	59°F to 89.6°F (15°C to 32°C) Humidity: 10-90% noncondensing
Relative humidity	20% to 80% noncondensing, 80°F (27°C) maximum wet bulb
Elevation (Sun requirement)	Maximum 10,006 feet (3050 meters) at 77°F (25°C) 2,953 feet (900 meters) at 89.6°F (32°C) Derate maximum ambient 1°C per 300 meters above 900 meters.
Nonoperating Limits	• Humidity: 5-95% noncondensing • Temperature: -40 to 70°C • Altitude: 0-39370 ft (12000 meters)

Related Information

- "Physical Specifications" on page 5
- "Acoustic Noise Emissions" on page 7
- "Electrical Specifications" on page 6

Acoustic Noise Emissions

Parameter	Operating	Idling
Acoustic power LWAd (1B=10dB)	7.1 B	7.2 B
Acoustic pressure LpAm	58.9 dBA	59.0 dBA

Related Information

- "Physical Specifications" on page 5
- "Environmental Specifications" on page 6
- "Electrical Specifications" on page 6

Installing the Switch

The following topics describe the installation of the switch. You must install the switch by performing these tasks in order.

- "Preparing to Install the Switch" on page 9
- "Install the Switch in the Rack" on page 11
- "Connecting Management Cables" on page 15
- "Powering On the Switch" on page 21
- "Connecting Ethernet Cables" on page 25
- "Finish the Switch Installation" on page 36

Related Information

- "Understanding the Switch" on page 1
- "Servicing the Switch" on page 57

Preparing to Install the Switch

These topics describe how to prepare to install the switch.

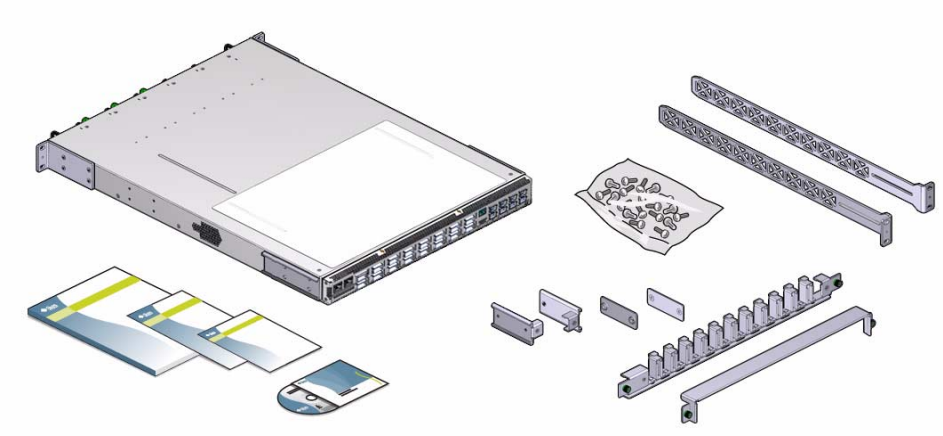
- "Verify Shipping Kit Contents" on page 10
- "Antistatic Precautions" on page 10

Related Information

- "Install the Switch in the Rack" on page 11
- "Connecting Management Cables" on page 15
- "Connecting Ethernet Cables" on page 25
- "Powering On the Switch" on page 21

▼ Verify Shipping Kit Contents

1. **Verify that the shipping kit contains the following items.**
   - Sun Network 10GbE Switch 72p
   - Cable bracket and rackmount kit
     - Cable management bracket and cover
     - Two rackmounting rail assemblies
     - Assortment of screws and captive nuts



2. **Install the switch in the rack.**

   See "Install the Switch in the Rack" on page 11.

Antistatic Precautions

When installing the switch components or servicing the switch, take care to follow antistatic precautions:

- Use an antistatic mat as a work surface.
- Wear an antistatic wrist strap that is attached to either the mat or a metal portion of the switch chassis.

▼ Install the Switch in the Rack

Airflow can be established with two different configurations, depending on where you choose to locate the I/O connectors (front of the switch).

- To place the I/O connectors in the **cold** aisle (airflow from front to the rear), use Fan Module 350-1335.
- To place the I/O connectors in the **hot** aisle (airflow from rear to the front), use Fan Module 350-1312.

1. **Verify that the rack meets the switch specifications.**

   See "Confirming Switch Specifications" on page 5.

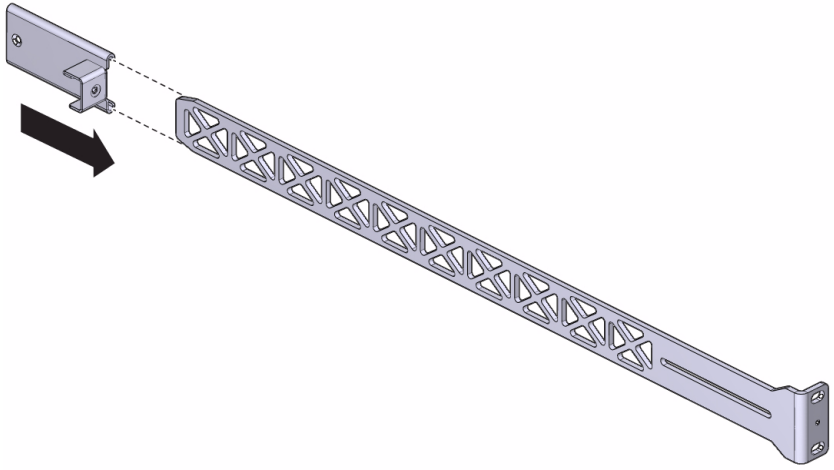
2. **If installed, open the rack doors.**

3. **Assemble the front mounting brackets.**

   Perform Steps a-d for each bracket.

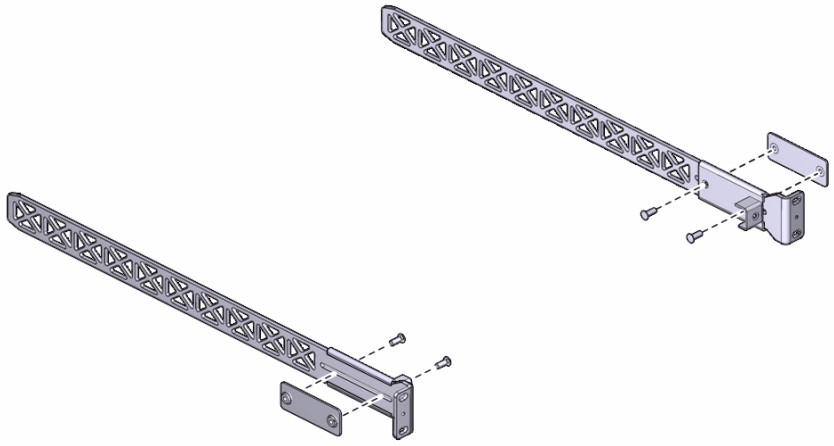
   a. **Slide the attachment bracket over the long rail, so that the tab on the bracket is opposite the flange of the rail.**

      The flat end of the tab is toward the flange, the open end of the tab is toward the rear of the rail.



   b. **Place the attachment plate on the flange side of the long rail, opposite the attachment bracket.**

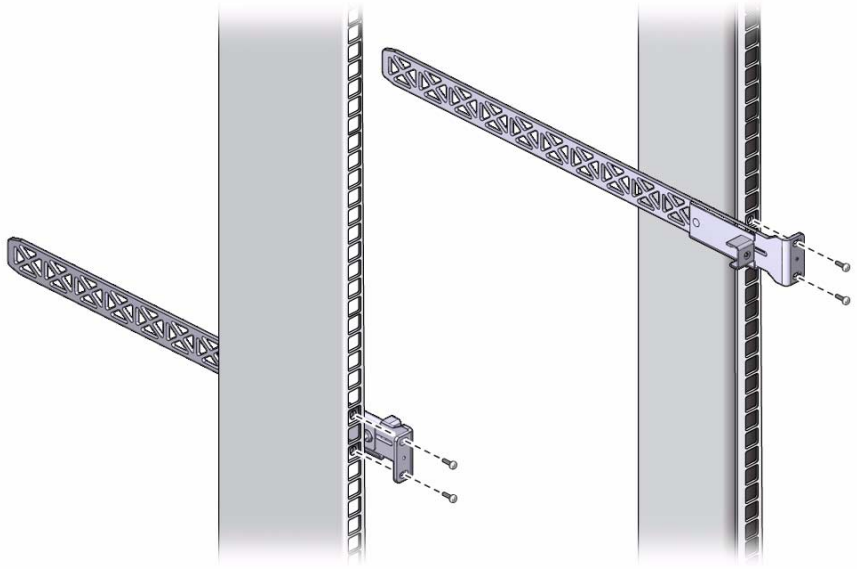
   c. **Use two screws to sandwich the bracket and plate to the rail, in the most forward position.**



d. Using a No. 2 Phillips screwdriver, tighten the two screws.

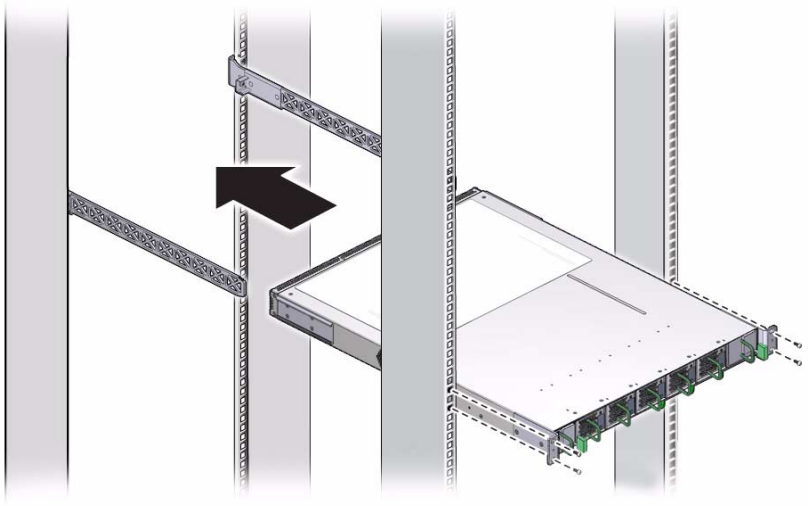
4. **Attach the front mounting brackets to the rack using two captive nuts and two screws for each bracket.**

   Tighten the screws securely.



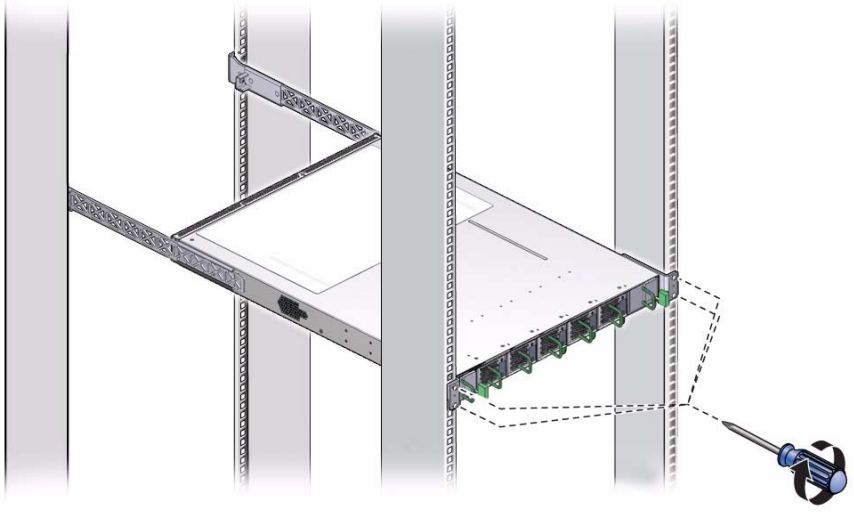
5. **Carefully lift the switch and slide it into the rack, from the rear forward.**

   Ensure that the ends of the long rails slide into the C-shaped brackets at the front of the switch chassis.



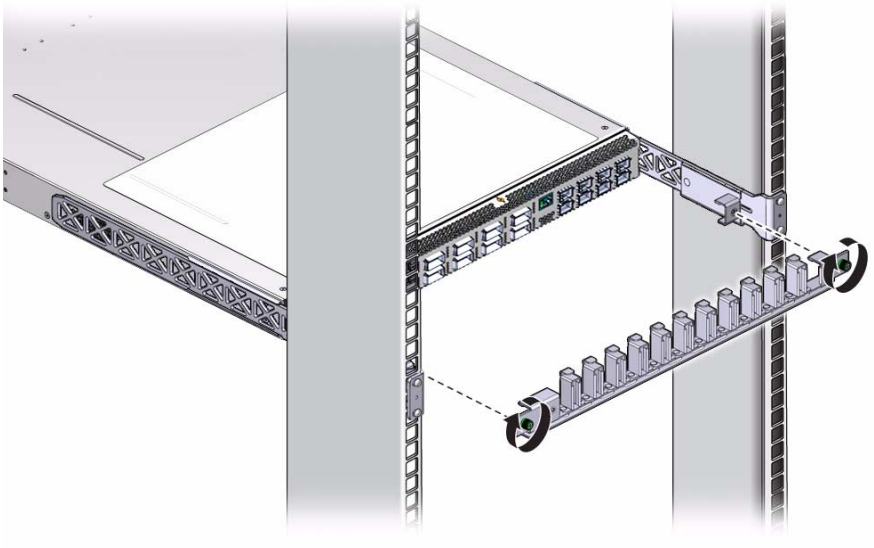
6. **Mount the rear of the switch chassis to the rack posts with two captive nuts and two screws at each side.**

   Tighten the screws securely.

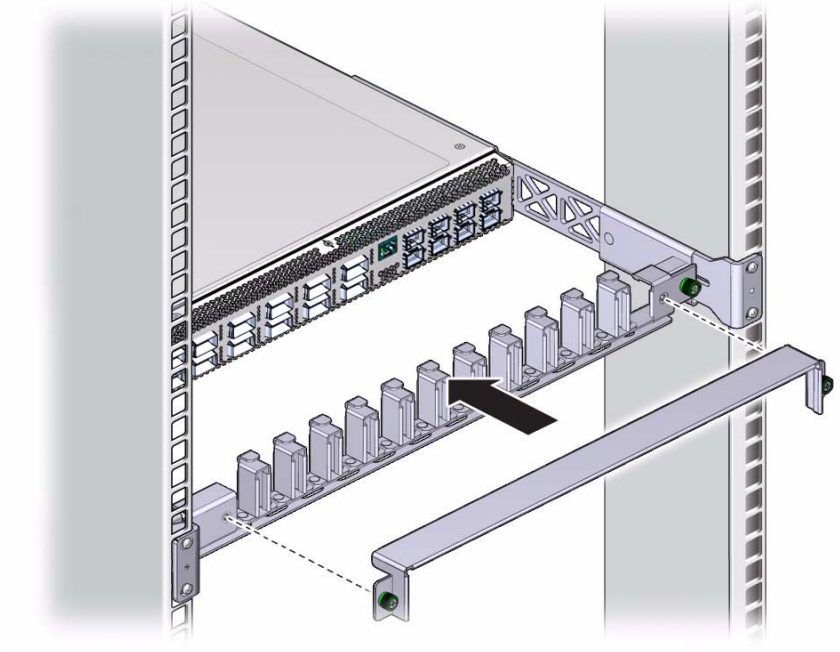


7. **Install the cable management bracket to the tabs of the attachment brackets.**

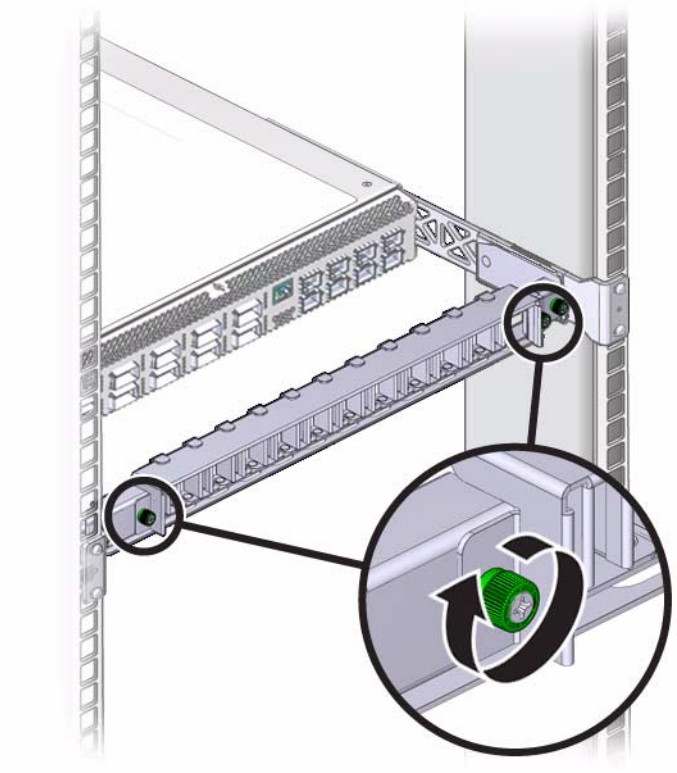
   Tightening the thumbscrews on each side of the cable management bracket.



8. **Install the cable management bracket cover.**



9. **Tighten the thumbscrews on each side of the cover.**



10. **Attach the management cables.**

    See "Connecting Management Cables" on page 15.

Related Information

- "Confirming Switch Specifications" on page 5
- "Preparing to Install the Switch" on page 9
- "Connecting Management Cables" on page 15
- "Powering On the Switch" on page 21

Connecting Management Cables

After verifying the switch operational status, you can begin attaching the Ethernet cables.

- "Management Cable Requirements" on page 16
- "NET MGT Port" on page 17
- "Connect the NET MGT Cable" on page 18
- "SER MGT Port" on page 19
- "Connect the SER MGT Cable" on page 20

Related Information

- "Preparing to Install the Switch" on page 9
- "Powering On the Switch" on page 21
- "Connecting Ethernet Cables" on page 25
- "Finish the Switch Installation" on page 36

Management Cable Requirements

Management of the switch is done at the management console, which is a 10/100 Ethernet connection at the NET MGT connectors. See "Front Panel Components" on page 3.

- NET MGT 0 (Port A)
- NET MGT 1 (Port B)

Typically, the NET MGT connection is the default means of communicating with the management controller. The controller has a DHCP client in operation and requires the Ethernet network to have a DHCP server. The DHCP server must be configured with the MAC address of the management controller, so that the server can provide an IP address to the management controller upon boot.

Note – Do not use NET MGT 1 (Port B). Port B is functional but currently has some limitations and is not supported at this time.

The serial device used to connect to the SER MGT connector can be a serial terminal, a terminal server, or a serial connection running on a system or laptop. Because of the nature of the serial signal, a SER MGT cable cannot be reliably used if it is more than 10 meters long.

Related Information

- "SER MGT Port" on page 19
- "NET MGT Port" on page 17
- "Connect the NET MGT Cable" on page 18

■ "Connect the SER MGT Cable" on page 20

NET MGT Port

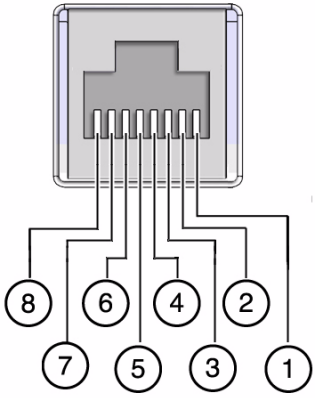
Two RJ-45 network management ports are located on the front left of the switch. See "Front Panel Components" on page 3.

Use NET MGT 0 (Port A) to provide Ethernet CLI and web interface connections to a system console for administering the switch remotely.

The NET MGT connector is a 100 BASE-T Ethernet interface. This connector is preferred because it permits remote management of the switch over the Ethernet network.

Note – Do not use NET MGT 1 (Port B). Port B is functional but currently has some limitations and is not supported at this time.

This figure and table describe the pinouts of the NET MGT connector.



Pin.	Signal
1	TXD+
2	TXD-
3	RXD+
4	Not used
5	Not used
6	RXD-

Pin.	Signal
7	Not used
8	Not used

Related Information

- "SER MGT Port" on page 19
- "Management Cable Requirements" on page 16
- "Connect the NET MGT Cable" on page 18

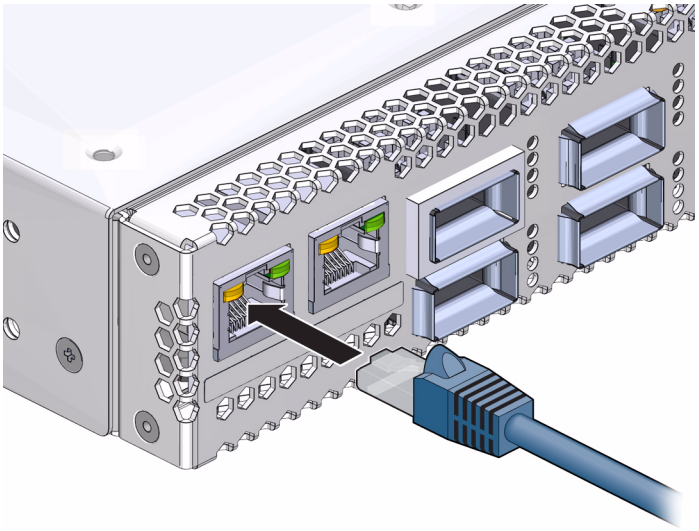
▼ Connect the NET MGT Cable

1. **Install the switch in the rack**

   See "Install the Switch in the Rack" on page 11.

2. **Connect the network management cable from the management console to the connector labeled NET MGT 0 (Port A).**

   See "NET MGT Port" on page 17.



Note – Use NET MGT 0 (Port A) only. Do not use NET MGT 1 (Port B). Port B is functional but currently has some limitations and is not supported at this time.

3. **Configure the DHCP server with the MAC address of the management controller.**

   The MAC address is printed on the (yellow) customer information sheet on the outside of the switch shipping carton.

4. **Route the management cables so that they do not interfere with other cables, with servicing the switch, or with other systems.**

5. **Prepare the management console for communication with the management controller.**

6. **Power on the switch.**

   See "Power On the Switch" on page 23.

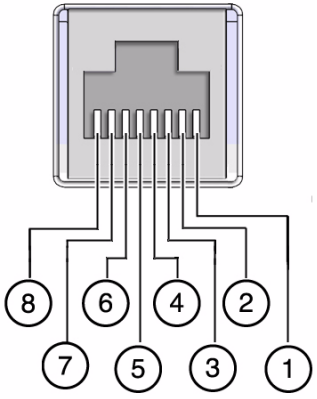
Related Information

- "NET MGT Port" on page 17
- "Management Cable Requirements" on page 16
- "Connect Ethernet Cables" on page 28

SER MGT Port

A single RJ-45 serial management port provides CLI connections to a system console for administering the switch at the physical location.

This figure and table describe the pinouts of the SER MGT connector.



Pin	Signal
1	RTS

Pin	Signal
2	DTR
3	TXD
4	GND
5	GND
6	RXD
7	DSR
8	CTS

Related Information

- "NET MGT Port" on page 17
- "Connect the SER MGT Cable" on page 20

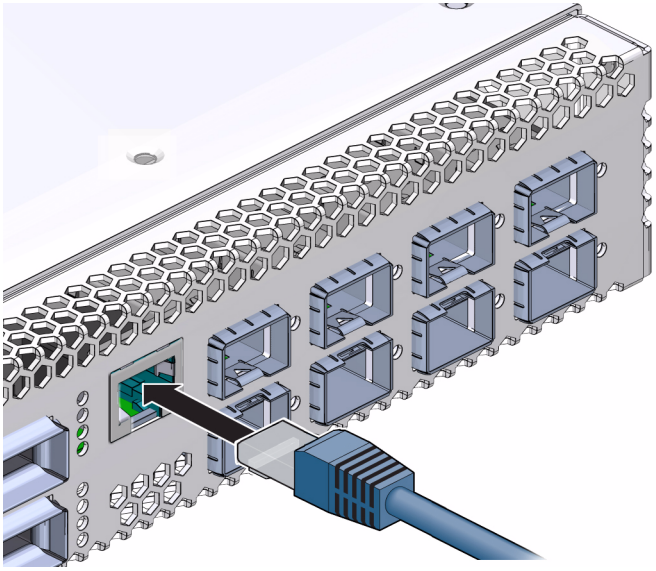
▼ Connect the SER MGT Cable

The SER MGT connector is an 8-pin serial interface. You must use this connector at the physical location of the switch. This connector does not enable remote management.

1. **Install the switch in the rack.**

   See "Install the Switch in the Rack" on page 11.

2. **Connect the serial management cable from the management console to the connector labeled SER MGT.**



3. **Configure the DHCP server with the MAC address of the management controller.**

   The MAC address is printed on the (yellow) customer information sheet on the outside of the switch shipping carton.

4. **Route the management cables so that they do not interfere with other cables, with servicing the switch, or with other systems.**

5. **Prepare the management console for communication with the management controller.**

6. **Power on the switch.**

   See "Power On the Switch" on page 23.

Related Information

- "SER MGT Port" on page 19

Powering On the Switch

After installing the components and the switch, enable powering up of the switch.

The switch has two connectors for network communication or serial communication with the management controller.

- “Power Cord Specifications” on page 22
- “Power On the Switch” on page 23

Related Information

- “Confirming Switch Specifications” on page 5
- “Preparing to Install the Switch” on page 9
- “Install the Switch in the Rack” on page 11
- “Connecting Management Cables” on page 15

Power Cord Specifications

The power supplies are in an N+N redundancy. Line power is provided from two sources, A and B.

Your switch country kit should contain two power cords that are specific to your country or application. The following table describes the power cords available.

Cable Part Number	Description
X311L (180-1097)	North America/Asia, IEC 320 C13 to NEMA 5-15P - 15A/125V 2.5M Black, RoHS:Y
X312E (180-1982)	China, IEC 320 C13 to GB 2099/GB 1002 - 10A/250V 2.0M, RoHS:Y
X312F (180-1999)	Argentina, IEC 320 C13 to IRAM 2073 - 10A/250V 2.0M Black, RoHS:Y
X312G (180-1662)	Korea, IEC 320 C13 to KSC 8305 - 15A/250V 2.0M Black, RoHS:Y
X312L (180-1993)	Continental Europe, IEC 320 C13 to CEE 7/7 10A/250V 2.0M Black, RoHS:Y
X314L (180-1994)	Swiss, IEC 320 C13 to SEV 1011 - 10A/250V 2.0M Black, RoHS:Y
X317L (180-1997)	U.K., IEC 320 C13 to BS 1363 - 10A/250V 2.0M Black, RoHS:Y
X332A (180-2121)	Taiwan, IEC 320 C13 to NEMA 5-15P - 10A/125V 2.5M Black, RoHS:Y
X383L (180-1995)	Danish, IEC 320 C13 to Asfnit 107 - 10A/250V 2.0M Black, RoHS:Y
X384L (180-1996)	Italian, IEC 320 C13 to CEI 23-16/VII - 10A/250V 2.0M Black, RoHS:Y
X386L (180-1998)	Australian, IEC 320 C13 to AS 3112 - 10A/250V 2.0M Black, RoHS:Y

Caution – Install and route power cabling only in a manner that complies with federal, state, and local electrical codes.

Related Information

- "Electrical Specifications" on page 6
- "Power On the Switch" on page 23

▼ Power On the Switch

The power cords for the switch ship separately and are specific to the country of installation. See "Power Cord Specifications" on page 22. The facility power receptacles for the power cords should be located such that the power cords are routed out of the way, either to the sides of the rack or under the floor.

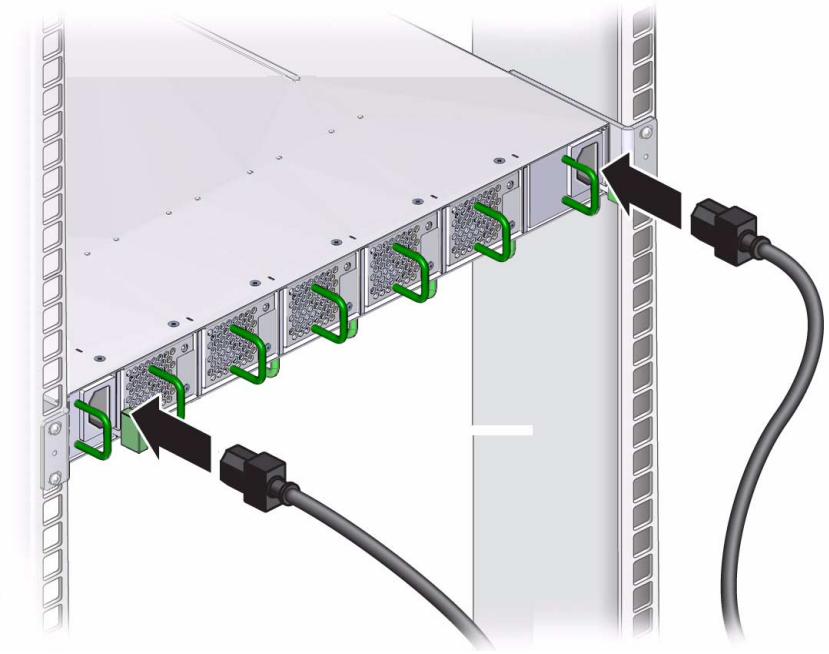
When live power is delivered to the receptacles at the rear of the switch, standby and main power is made available by the power supplies. When standby power is distributed to the switch, the management controller is powered on. The main power is supplied for the switch chip and fans.

1. **Install the switch in the rack and attach the management cables.**

   See:

   - "Install the Switch in the Rack" on page 11
   - "Connecting Management Cables" on page 15

2. **Ensure that the circuit breakers for the power supplies are switched off.**
3. **Plug a power cord into each power receptacle at the rear of the switch.**



4. **Route each power cord to its respective facility power receptacle.**

   Use cable ties or hook and loop fastener straps to bundle and secure the cord.

5. **Plug each power cord into the receptacle.**

6. **Energize the circuit breakers so that the power receptacles are live.**

7. **Verify that the status LEDs for each power supply indicates normal operation.**

   The AC LED lights and in a moment, the OK LED should light. The Attention LED should be unlit. See "Rear Panel LEDs" on page 60.

Note – At this time, power is being supplied to the management controller. The controller is effectively on and booting up. You might see the boot sequence on the management console.

---

8. **Verify that the fans spin up.**

   You should feel air from the fans and the fan Attention LEDs should be unlit. See "Rear Panel LEDs" on page 60.

9. **Verify that the switch System OK LED lights.**

   See "Front Panel LEDs" on page 58.

Related Information

- “Power Cord Specifications” on page 22
- “Electrical Specifications” on page 6
- “Connect Ethernet Cables” on page 28

Connecting Ethernet Cables

This topic describes the QSFP and SFP+ Ethernet cables and how to attach them to the switch.

- “QSFP Cables” on page 25
- “SFP+ Cables” on page 26
- “Splitter Cables” on page 27
- “Ethernet Cable Cautions” on page 27
- “Connect Ethernet Cables” on page 28

Related Information

- “Connect the NET MGT Cable” on page 18
- “Connect the SER MGT Cable” on page 20

QSFP Cables

Each QSFP connector on the switch contains four SFP+ 10GbE ports (64 10GbE ports total).

The QSFP ports support the following types of cables:

- 4x10 Gbyte fiber SR
- 4x10 Gbyte to 4 SFP+ 10 Gbyte fiber SR
- 4x10 Gbyte direct attach copper
- 4x10 Gbyte to 4 SFP+ 10 Gbyte direct attach copper

Before installing a QSFP Ethernet cable, identify the type of QSFP Ethernet cable that you are using for the connection.

The passive copper Ethernet cable is a single-part unit, where the cable and the optical tranceiver (cable connector) are a single combined assembly.

The active fiber QSFP Ethernet cable is a dual-part unit, where the cable and the optical tranceiver are separate parts.

Related Information

- "Install the Switch in the Rack" on page 11
- "Splitter Cables" on page 27
- "SFP+ Cables" on page 26
- "Ethernet Cable Cautions" on page 27

SFP+ Cables

The SFP+ connectors support the following types of cables:

- 10 Gbyte/1 Gbyte dual speed fiber
- 1 Gbyte RJ-45 copper
- 10 Gbps direct attach copper

The active fiber SFP+ Ethernet cable is a dual-part unit, where the cable and the optical tranceiver are separate parts.

The SFP+ Ethernet cables are single-part (cable and transceiver combined) and dual-part (cable and transceiver separate) units.

The active fiber SFP+ Ethernet cable is a dual-part unit, where the cable and the optical tranceiver are separate parts.

The passive copper Ethernet cable is a single-part unit, where the cable and the tranceiver (cable connector) are a single combined assembly.

Related Information

- "Install the Switch in the Rack" on page 11
- "Splitter Cables" on page 27
- "QSFP Cables" on page 25

Splitter Cables

QSFP-SFP+ splitter cables are both single-assembly (cable and tranceiver combined) and dual-assembly (cable and tranceiver separate). The QSFP-SFP+ fiber cable lengths are 1, 2, 3, and 5 meters. Fiber length cables support 10 meters and longer.

Related Information

- "QSFP Cables" on page 25
- "SFP+ Cables" on page 26
- "Ethernet Cable Cautions" on page 27

Ethernet Cable Cautions

Caution – Fiber optic Ethernet cables with laser transceivers *must* be Class I.

Caution – Do not allow any copper core Ethernet cable to bend tighter than a 5 inch (127 mm) radius. Do not allow any optical Ethernet cable to bend tighter than a 3.4 inch (85 mm) radius. Tight bends can damage the cable internally.

Caution – Do not use zip ties to bundle or support Ethernet cables. The sharp edges of the ties can damage the cables internally.

Caution – Do not allow any Ethernet cable to experience extreme tension. Do not pull on an Ethernet cable or allow it to drag. Unroll an Ethernet cable for its length. Pulling on an Ethernet cable can damage the cables internally.

Caution – Do not twist an Ethernet cable more than 1 revolution for its entire length. Twisting an Ethernet cable can damage the cable internally.

Caution – Do not route Ethernet cables where they might be stepped upon or experience rolling loads. Such a crushing effect can damage the cable internally.

Related Information

- “Splitter Cables” on page 27
- “QSFP Cables” on page 25
- “SFP+ Cables” on page 26

▼ Connect Ethernet Cables

Note – When you install the Ethernet cables, connect cables to the lower connectors first, then connect cables to the upper connectors.

---

1. **Install the switch in the rack, attach the management cables, and power on the switch.**

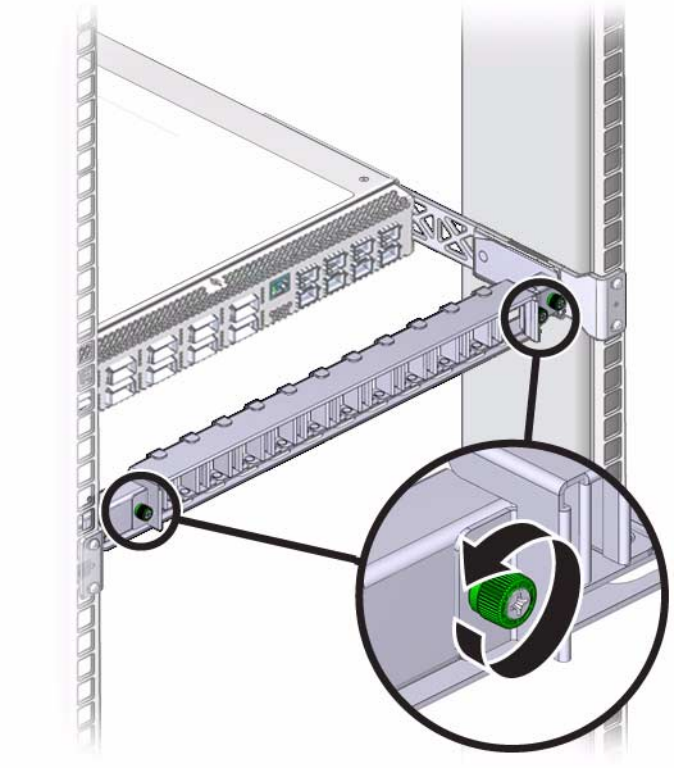
   See:

   - “Install the Switch in the Rack” on page 11
   - “Connecting Management Cables” on page 15
   - “Powering On the Switch” on page 21

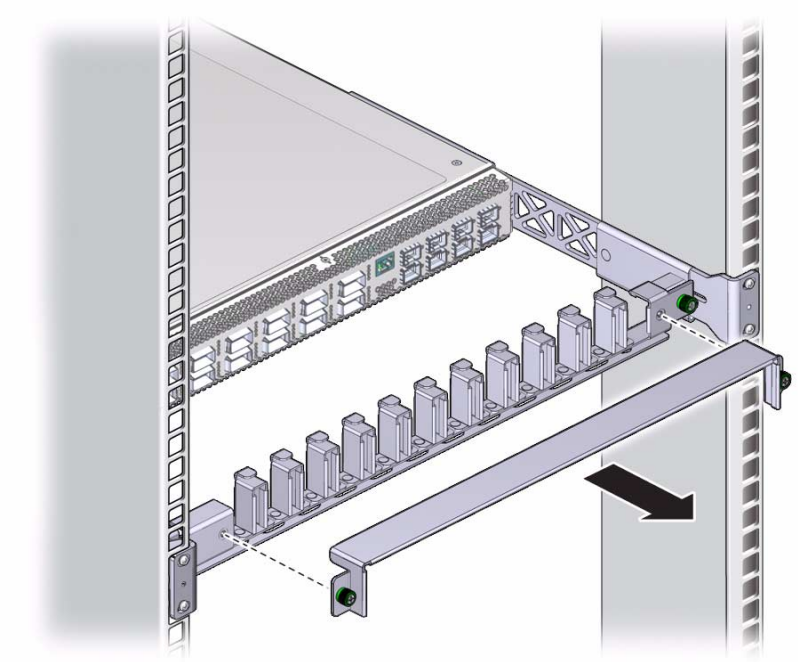
2. **Identify the Ethernet cable that you are going to connect.**

   See “Connecting Ethernet Cables” on page 25.

3. **Loosen the two captive thumbscrews that secure the cover to the cable management bracket.**



4. **Lift the cover off.**



5. **Visually inspect the cable connector.**

   The shell should not be bent and should be parallel to the inner boards. If the connector is bent or damaged, use a different cable.

6. **Ensure that the retraction strap/lever is in the attached position.**

7. **Determine if you are installing a dual-part assembly or a single-part assembly.**

   Some optical transceiver modules are dual-part assemblies, where the module and the cable are two separate pieces, while other optical transceiver modules are single-part assemblies, where the module and the cable are a single combined unit.

   - If you are installing a dual-part module, go to Step 8.
   - If you are installing a single-part module, go to Step 9.

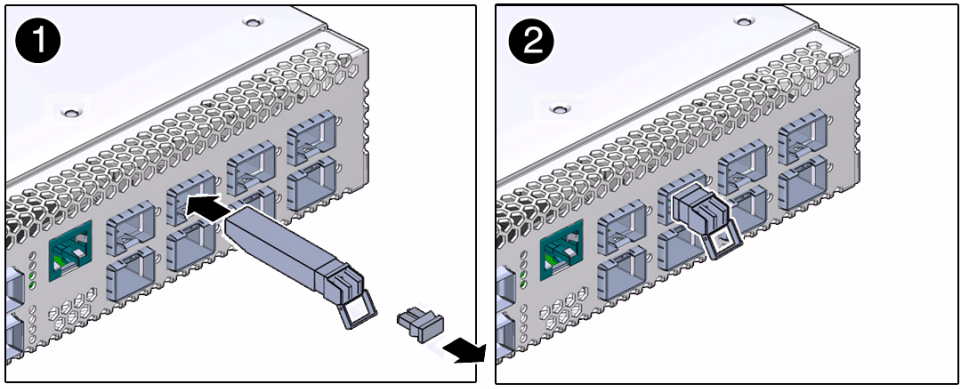
8. **Install the dual-part optical transceiver module.**

   a. **Remove the protective end cap from the module.**

   b. **Pull the locking handle into the full horizontal position until you feel the handle click into position.**

   c. **Verify that you have the transceiver module in the correct alignment before inserting it into the slot.**

      The following figure shows the correct alignment for the transceiver module.

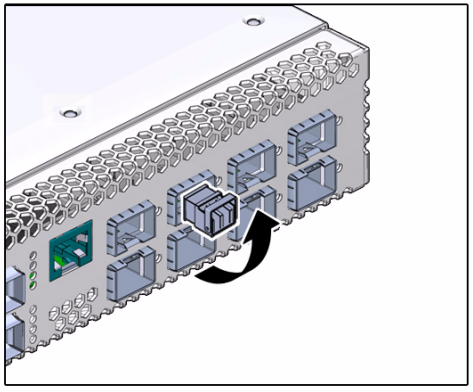


d. Holding the optical transceiver module by the edges, align the optical transceiver module with the slot in the switch and slide it into the opening.

e. Applying even pressure at both corners of the optical transceiver module, push the module until it is firmly seated in the slot.

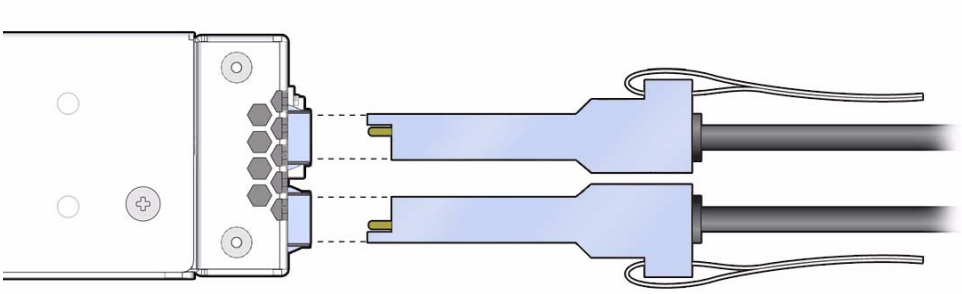
f. Push the handle closed to lock the optical transceiver module in place.

Note – If you pull the locking handle down when the SFP+ or QSFP optical transceiver module is installed, you should remove the optical transceiver module entirely and reinstall it. The handle operates an internal lock. Pulling the handle down can disconnect the module, even though it might appear to be connected.



9. If you are plugging in a single-part cable assembly (tranceiver and cable combined), orient the cable connector horizontally.

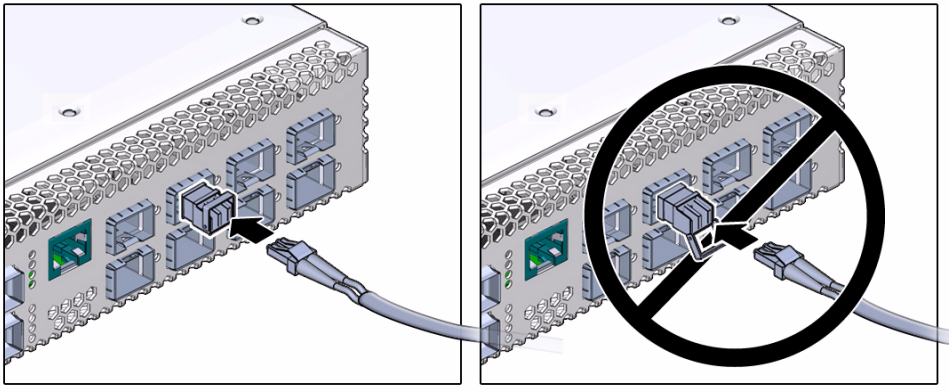
Esure that the L groove is up for the top row of receptacles, or that the L groove is down for the bottom row of receptacles.



10. **Plug the cable into the connector.**

Note – The optical tranceiver handle must be closed before attaching the cable to the tranceiver. The handle locks the tranceiver in place in the switch port.

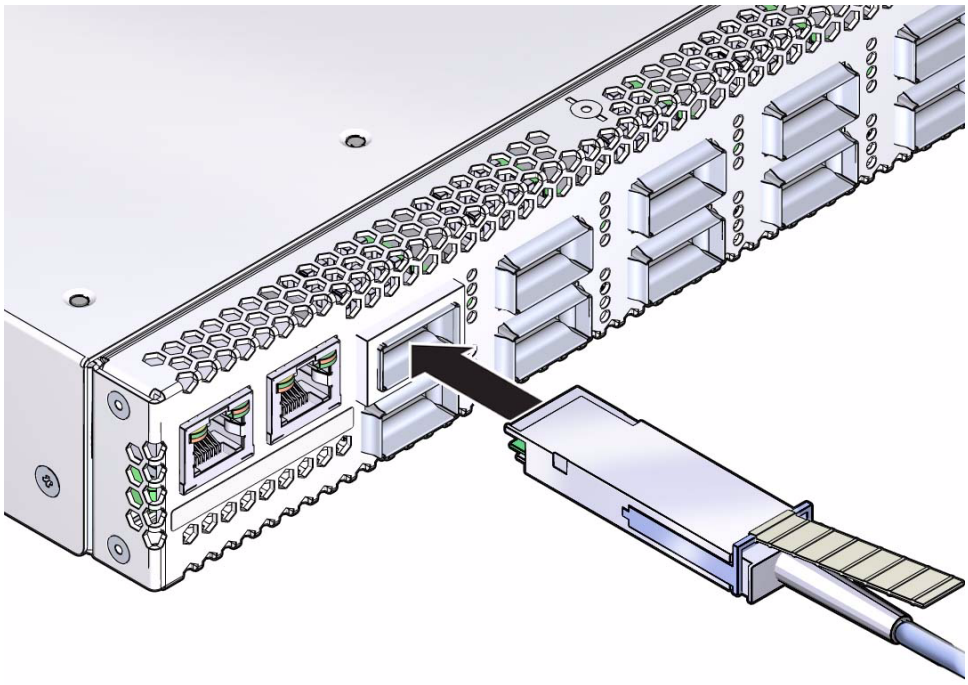
- If you are plugging in a fiber dual-part cable assembly (transceiver and cable separate), verify that the handle is in the locked position and connect the cable to the optical transceiver. If the handle is in the unlocked position, you must push it up into the locked position before attaching the cable.



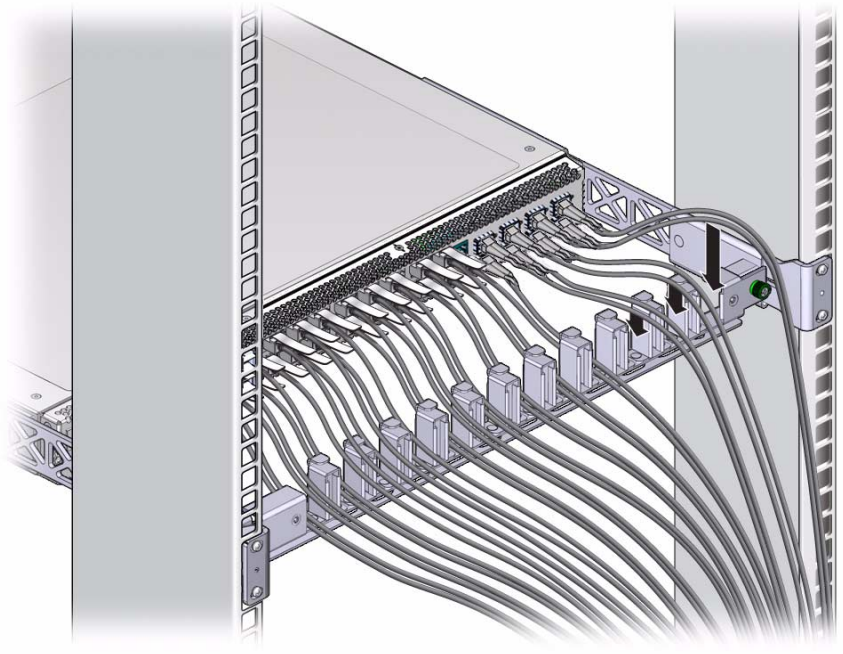
- If you are plugging in a single-part assembly, slowly slide the connector into the receptacle.

  As you slide the connector in, the top of the shell should scrape against the underside of the top of the receptacle.

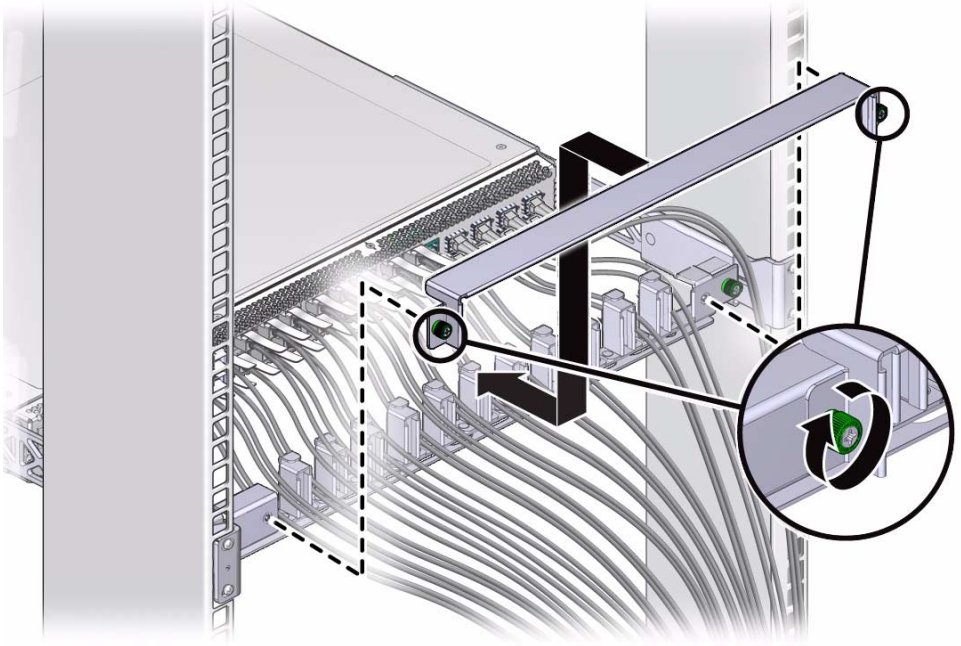
  - If the cable stops or binds after about 1/4 in. (5 mm) travel, back out and repeat.
  - If the connector stops or binds with about 1/8 in. (2 mm) still to go, back out and repeat.



11. **Continue to push the connector in until you feel a detent.**
12. **Place the cable into the open slot on the cable management bracket.**



13. **Repeat steps for all cables to be installed.**
14. **Replace the cover for the cable management bracket and tighten the screws.**



15. **Route the Ethernet cables so that they do not interfere with other cables, with servicing the switch, or with other systems.**

    Use hook and loop fastener straps to bundle and secure the cables.

    See "Ethernet Cable Cautions" on page 27.

Note – Do not use cable zip ties to bundle or secure the cable, because the ties damage the wires inside the cable.

---

16. **Check that the Link LEDs for cabled links are lit green.**

    If the Link LED is off, the link is down. If the Link LED flashes, there are symbol errors. See "Front Panel LEDs" on page 58.

17. **If installed, close the rack doors to maintain EMI compliance.**

18. **Finish the installation.**

    See "Finish the Switch Installation" on page 36.

Related Information

- "Connect the NET MGT Cable" on page 18
- "Power On the Switch" on page 23

▼ Finish the Switch Installation

1. **Connect to Oracle ILOM.**

   See "Administering the Switch" on page 37.

2. **Configure the SEFOS software.**

   Refer to the *Sun Network 10GbE Switch 72p Software Configuration Guide for the Sun Ethernet Fabric Operating System* for instructions on configuring the SEFOS software.

3. **Use the SEFOS to perform any other necessary networking tasks.**

   Refer to the appropriate SEFOS administration guide for those instructions.

Related Information

- "Install the Switch in the Rack" on page 11
- "Administering the Switch" on page 37

Administering the Switch

These topics describe how to use Oracle ILOM with the switch.

- "Connecting to the Service Processor" on page 37
- "Connecting to the Service Processor" on page 37
- "Update the Firmware" on page 53
- "Connecting to SEFOS" on page 54

Related Information

- "Understanding the Switch" on page 1
- "Confirming Switch Specifications" on page 5
- "Installing the Switch" on page 9
- "Servicing the Switch" on page 57

Connecting to the Service Processor

Use the following tasks to connect to the SP.

Description	Links
Communicate with the SP over the web using DHCP.	"Oracle ILOM Overview" on page 38 "Verify the DHCP-Assigned IP Address and Host Name" on page 40 "Log Into Oracle ILOM Web (NET MGT)" on page 44
Communicate with the SP over the CLI using DHCP.	"Oracle ILOM Overview" on page 38 "Verify the DHCP-Assigned IP Address and Host Name" on page 40 "Log Into Oracle ILOM CLI (NET MGT)" on page 45
Communicate with the SP over the web using a static IP address.	"Oracle ILOM Overview" on page 38 "Configure Network Management From CLI (SER MGT)" on page 40 "Log Into Oracle ILOM Web (NET MGT)" on page 44
Communicate with the SP over the CLI using static IP address.	"Oracle ILOM Overview" on page 38 "Configure Network Management From CLI (SER MGT)" on page 40 "Log Into Oracle ILOM CLI (NET MGT)" on page 45
Communicate with the SP over the CLI using the SER MGT port.	"Oracle ILOM Overview" on page 38 "Log Into Oracle ILOM CLI (SER MGT)" on page 46
When you are finished in Oracle ILOM, log out.	"Log Out of ILOM" on page 51

Oracle ILOM Overview

Oracle ILOM enables you to actively manage the switch, providing the same management look and feel found on Oracle servers. Oracle ILOM enables you to:

- Connect to the SEFOS.
- View the current status of sensors and indicators on the system.
- Determine the hardware configuration of your system.
- Receive generated alerts about system events in advance by using IPMI PETs or SNMP traps.
- Manage users.
- Upgrade firmware for all components on the switch through either CLI or web interface.
- Configure standard Oracle ILOM services, such as:
  - Clock/NTP
  - Serial port

- Network
- Syslog
- SNMP
- Web server
- SSH
- IPMI
- CLI

The Oracle ILOM 3.0 documentation library is located at:

http://www.oracle.com/pls/topic/lookup?ctx=ilom30

Oracle ILOM Features Not Supported

Among the Oracle ILOM features supported on other products, Oracle ILOM does not support the following features on the switch.

- Advanced user account management features:
  - Active directory
- Server-oriented features, such as:
  - Power management
  - Storage redirection
  - Remote console

Related Information

- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From Web" on page 47
- "Configure Network Management From CLI (NET MGT)" on page 48
- "Log Out of ILOM" on page 51
- "Update the Firmware" on page 53

▼ Verify the DHCP-Assigned IP Address and Host Name

Note – By default, the switch is configured to use DHCP to automatically obtain an IP address.

Note – You must configure an externally accessible IP address on the switch to use SNMP. Refer to the following documentation for more information on using SNMP with the switch: *Sun Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide* and *Sun Network 10GbE Switch 72p Software Configuration Guide*.

---

1. **Log into the DHCP server and obtain the IP address assigned to the switch.**
2.
3. **Consider your next steps.**
   - Log into Oracle ILOM web.

     See "Log Into Oracle ILOM Web (NET MGT)" on page 44.
   - Log into Oracle ILOM CLI.

     See "Log Into Oracle ILOM CLI (NET MGT)" on page 45.

Related Information

- "Oracle ILOM Overview" on page 38
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From Web" on page 47
- "Configure Network Management From CLI (NET MGT)" on page 48
- "Log Out of ILOM" on page 51

▼ Configure Network Management From CLI (SER MGT)

1. **Log into Oracle ILOM CLI.**

   See "Log Into Oracle ILOM CLI (SER MGT)" on page 46.

2. **Verify that the terminal or terminal emulator has the correct settings.**

   See "SER MGT Port Configuration Parameters" on page 47.

3. **Connect a terminal or terminal emulator to the serial management port on the switch.**

   See "Front Panel Components" on page 3 for the location of the serial management port on the switch.

4. **Press Enter on the terminal device.**

   This action establishes the connection between the terminal device and the switch Oracle ILOM.

   The Oracle ILOM login prompt appears.

```
SUNSPnnnnnnnnnn login:
```

5. **Enter the user name and password when prompted.**

   The default user is `root` and the default password is `changeme`.

   The Oracle ILOM prompt appears.

```
->
```

6. **Change to the `network` directory.**

```
-> cd SP/network
```

Note – By default, the switch uses DHCP as the IP discovery mode. To use `static` as the IP discovery mode, use the following command.

```
-> set ipdiscovery = static
```

7. **Configure an externally accessible IP address on the switch.**

   a. **Set the pending IP address.**

```
-> set pendingipaddress=n.n.n.n
Set 'pendingipaddress' to 'n.n.n.n'
```

   For example:

```
-> set pendingipaddress=10.7.59.97
Set 'pendingipaddress' to '10.7.59.97'
```

b. Set the pending IP gateway.

```
-> set pendingipgateway=n.n.n.n
Set 'pendingipgateway' to 'n.n.n.n'
```

For example:

```
-> set pendingipgateway=10.7.59.254
Set 'pendingipgateway' to '10.7.59.254'
```

c. Set the pending IP netmask.

```
-> set pendingipnetmask=n.n.n.n
Set 'pendingipnetmask' to 'n.n.n.n'
```

For example:

```
-> set pendingipnetmask=255.255.255.0
Set 'pendingipnetmask' to '255.255.255.0'
```

d. Commit the changes.

```
-> set commitpending=true
Set 'commitpending' to 'true'
```

e. Set the state to enabled.

```
-> set state=enabled
Set 'state' to 'enabled'
```

8. Verify the configuration information that you entered.

```
-> show
```

The CLI displays information about the switch, including its IP address.

For example:

```
-> show

 /SP/network
    Targets:

    Properties:
```

```
          type = Network Configuration
          commitpending = (Cannot show property)
          ipaddress = 10.7.59.97
          ipdiscovery = static
          ipgateway = 10.7.59.254
          ipnetmask = 255.255.255.0
          macaddress = 00:14:4f:6C:5D:E8
          pendingipaddress = 10.7.59.97
          pendingipdiscovery = static
          pendingipgateway = 10.7.59.254
          pendingipnetmask = 255.255.255.0
          state = enabled

     Commands:
          cd
          set
          show

->
```

9. **When you are done, exit the switch Oracle ILOM.**

```
-> exit
```

10. **Consider your next steps.**
    - Log into Oracle ILOM web.
      See "Log Into Oracle ILOM Web (NET MGT)" on page 44.
    - Log into Oracle ILOM CLI.
      See "Log Into Oracle ILOM CLI (NET MGT)" on page 45.

Related Information

- "Oracle ILOM Overview" on page 38
- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From Web" on page 47
- "Configure Network Management From CLI (NET MGT)" on page 48
- "Log Out of ILOM" on page 51

▼ Log Into Oracle ILOM Web (NET MGT)

1. **Obtain the IP address or host name of your SP.**

   See:

   - "Verify the DHCP-Assigned IP Address and Host Name" on page 40
   - "Configure Network Management From CLI (SER MGT)" on page 40

2. **Configure an externally accessible IP address on the switch.**

   Perform the appropriate task described in "Connecting to the Service Processor" on page 37.

3. **Type the IP address of the switch into your web browser.**

   The login screen appears.

4. **Type your user name and password.**

   When you first try to access the web interface, it prompts you to type the default user name and password. The default user name and password are:

   - Default user name: `root`
   - Default password: `changeme`

     The default user name and password are in lowercase characters.

5. **Click Log In.**

   The web interface appears.

6. **Access SEFOS.**

Related Information

- "Oracle ILOM Overview" on page 38
- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From Web" on page 47
- "Configure Network Management From CLI (NET MGT)" on page 48
- "Log Out of ILOM" on page 51

▼ Log Into Oracle ILOM CLI (NET MGT)

1. **Obtain the IP address or host name of your SP.**

   See:

   - "Verify the DHCP-Assigned IP Address and Host Name" on page 40
   - "Configure Network Management From CLI (SER MGT)" on page 40

2. **Configure an externally accessible IP address on the switch.**

   Perform the appropriate task described in "Connecting to the Service Processor" on page 37.

3. **Start your SSH client.**

4. **Log in to the switch Oracle ILOM.**

```
$ ssh ipaddress -l root
```

   where *ipaddress* is the IP address of the switch.

5. **Type your password when prompted.**

   The default is `changeme`.

   The CLI command prompt appears.

```
->
```

6. **Access SEFOS.**

   See "Connect to SEFOS" on page 54.

Related Information

- "Oracle ILOM Overview" on page 38
- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From Web" on page 47
- "Configure Network Management From CLI (NET MGT)" on page 48
- "Log Out of ILOM" on page 51

▼ Log Into Oracle ILOM CLI (SER MGT)

1. **Verify that the terminal or terminal emulator has the correct settings.**
2. **Connect a terminal or terminal emulator to the serial management port on the switch.**

   See "Front Panel Components" on page 3 for the location of the serial management port on the switch.
3. **Press Enter on the terminal device.**

   This action establishes the connection between the terminal device and Oracle ILOM.

   The Oracle ILOM login prompt appears.

```
SUNSPnnnnnnnnnn login:
```

4. **Enter the user name and password when prompted.**

   The default user is `root` and the default password is `changeme`.

   Once you have successfully logged in, Oracle ILOM displays the default command prompt.

```
->
```

5. **Access the** SEFOS**.**

   See "Connect to SEFOS" on page 54.

Related Information

- "Oracle ILOM Overview" on page 38
- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Configure Network Management From Web" on page 47
- "Configure Network Management From CLI (NET MGT)" on page 48
- "Log Out of ILOM" on page 51

SER MGT Port Configuration Parameters

The terminal device can be an actual terminal, a laptop running a terminal emulator, or a terminal server. The terminal device must be set to the following:

- 8N1: eight data bits, no parity, one stop bit
- 9600 baud (default, can be set to any standard rate up to 57600)
- Disable software flow control (XON/XOFF)

The cable requires the following pin assignments.

Pin	Signal Description
1	Request To Send (RTS)
2	Data Terminal Ready (DTR)
3	Transmit Data (TXD)
4	Ground
5	Ground
6	Receive Data (RXD)
7	Data Set Ready (DSR)
8	Clear To Send (CTS)

▼ Configure Network Management From Web

1. **Log into the Oracle ILOM web.**

   See "Log Into Oracle ILOM Web (NET MGT)" on page 44

2. **In a web browser, type the IP address of the switch in the location bar.**

   The switch Oracle ILOM login screen appears. The default user name is `root`. The default password is `changeme`. The following System Information Versions screen appears upon login.

3. **Select Configuration from the first row of tabs.**

4. **Select Network from the second row of tabs.**

   The Network Settings page for the switch appears.

5. **Configure the network settings for the switch:**

   - In the State field, select Enabled.
   - In the IP Discovery Mode field, select Static.

- Enter the IP address, netmask, and gateway information in the appropriate fields.

6. **Click on the Save button.**
7. **Log into Oracle ILOM web.**

   See "Log Into Oracle ILOM Web (NET MGT)" on page 44.

Related Information

- "Oracle ILOM Overview" on page 38
- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From CLI (NET MGT)" on page 48
- "Log Out of ILOM" on page 51

▼ Configure Network Management From CLI (NET MGT)

1. **Log into Oracle ILOM CLI.**

   See "Log Into Oracle ILOM CLI (NET MGT)" on page 45.

2. **Connect a terminal or terminal emulator to the network management port on the switch.**

   See "Front Panel Components" on page 3 for the location of the network management port on the switch.

3. **Press Enter on the terminal device.**

   This action establishes the connection between the terminal device and the switch Oracle ILOM.

   The Oracle ILOM login prompt appears.

```
SUNSPnnnnnnnnnn login:
```

4. **Enter the user name and password when prompted.**

   The default user is `root` and the default password is `changeme`.

   The Oracle ILOM prompt appears.

```
->
```

5. **Change to the `network` directory.**

```
-> cd SP/network
```

Note – By default, the switch uses DHCP as the IP discovery mode. To use `static` as the IP discovery mode, use the following command.

```
-> set ipdiscovery = static
```

6. **Configure an externally accessible IP address on the switch.**

   a. **Set the pending IP address.**

```
-> set pendingipaddress=n.n.n.n
Set 'pendingipaddress' to 'n.n.n.n'
```

   For example:

```
-> set pendingipaddress=10.7.59.97
Set 'pendingipaddress' to '10.7.59.97'
```

   b. **Set the pending IP gateway.**

```
-> set pendingipgateway=n.n.n.n
Set 'pendingipgateway' to 'n.n.n.n'
```

   For example:

```
-> set pendingipgateway=10.7.59.254
Set 'pendingipgateway' to '10.7.59.254'
```

c. Set the pending IP netmask.

```
-> set pendingipnetmask=n.n.n.n
Set 'pendingipnetmask' to 'n.n.n.n'
```

For example:

```
-> set pendingipnetmask=255.255.255.0
Set 'pendingipnetmask' to '255.255.255.0'
```

d. Commit the changes.

```
-> set commitpending=true
Set 'commitpending' to 'true'
```

e. Set the state to enabled.

```
-> set state=enabled
Set 'state' to 'enabled'
```

7. Verify the configuration information that you entered.

```
-> show
```

The CLI displays information about the switch, including its IP address.

For example:

```
-> show

 /SP/network
    Targets:

    Properties:
        type = Network Configuration
        commitpending = (Cannot show property)
        ipaddress = 10.7.59.97
        ipdiscovery = static
        ipgateway = 10.7.59.254
        ipnetmask = 255.255.255.0
        macaddress = 00:14:4f:6C:5D:E8
        pendingipaddress = 10.7.59.97
        pendingipdiscovery = static
        pendingipgateway = 10.7.59.254
        pendingipnetmask = 255.255.255.0
```

```
          state = enabled

     Commands:
          cd
          set
          show

->
```

8. **When you are done, exit the switch Oracle ILOM.**

```
-> exit
```

Related Information

- "Oracle ILOM Overview" on page 38
- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From Web" on page 47
- "Log Out of ILOM" on page 51

▼ Log Out of ILOM

- **When you are finished with Oracle ILOM, exit the Oracle ILOM CLI.**

```
-> exit
```

Related Information

- "Oracle ILOM Overview" on page 38
- "Verify the DHCP-Assigned IP Address and Host Name" on page 40
- "Configure Network Management From CLI (SER MGT)" on page 40
- "Log Into Oracle ILOM Web (NET MGT)" on page 44
- "Log Into Oracle ILOM CLI (NET MGT)" on page 45
- "Log Into Oracle ILOM CLI (SER MGT)" on page 46
- "Configure Network Management From Web" on page 47
- "Configure Network Management From CLI (NET MGT)" on page 48

Configuring SEFOS User Privileges

From Oracle ILOM, use the following tasks:

- "Create a SEFOS User" on page 52
- "Change a SEFOS User Privilege Level" on page 53

▼ Create a SEFOS User

1. **Connect to the Oracle ILOM CLI.**

   See "Log Into Oracle ILOM CLI (SER MGT)" on page 46.

2. **Create a user and set the user `fs_privilege` attribute upon creation.**

```
-> create user15 fs_privilege=15
Creating user...
Enter new password: ********
Enter new password again: ********
Created /SP/users/user15

-> ls user2

 /SP/users/user15
   Targets:
     ssh
   Properties:
     role = o
     password = *****
     fs_privilege = 15

   Commands:
     cd
     set
     show

->
```

Related Information

- "Log Into Oracle ILOM CLI (SER MGT)" on page 46

▼ Change a SEFOS User Privilege Level

- **Change a user privilege level for an exiting user.**

```
-> set fs_privilege=15
Set 'fs_privilege' to '15'

-> ls

 /SP/users/user2
   Targets:
        ssh

   Properties:
        role = o
        password = *****
        fs_privilege = 15

    Commands:
        cd
        set
        show

->
```

▼ Update the Firmware

- **Refer to the following web site for Oracle ILOM updates that you can download for the switch:**

  https://support.oracle.com/

  This site contains updates for firmware and drivers, as well as CD-ROM `.iso` images.

Related Information

- "Oracle ILOM Overview" on page 38
- "Connecting to the Service Processor" on page 37

Connecting to SEFOS

These topics describe how to use the SEFOS to connect to the switch and how to configure SEFOS CLI user privileges.

- "SEFOS Overview" on page 54
- "Connect to SEFOS" on page 54
- "Create a SEFOS User" on page 52
- "Disconnect From SEFOS" on page 55

SEFOS Overview

SEFOS is a full-featured fabric and switch management software package for configuring and monitoring the switch's network infrastructure.

When creating Oracle ILOM user accounts, an Oracle ILOM user with user management privileges can select which fabric/switch privilege level to give that user account. The `fs_privilege` attribute determines which administrative tasks that user can perform from the SEFOS CLI. The privilege levels are currently 1 and 15. Level 1 allows read-only and level 15 allows full administrative rights.

You can explicitly declare the `fs_privilege` attribute when you create a user account, or a root user can change the attribute at any time. By default, a new Oracle ILOM user account is given an `fs_privilege` level of 1.

Note – The `fs_privilege` attribute is configurable from the SEFOS CLI only. This attribute is viewable from the web interface.

Related Information

- "Connect to SEFOS" on page 54
- "Create a SEFOS User" on page 52

▼ Connect to SEFOS

1. **Connect to the Oracle ILOM CLI.**

   See "Log Into Oracle ILOM CLI (SER MGT)" on page 46.

2. **Access the SEFOS prompt.**

   The `SEFOS#` prompt appears. For example:

```
-> cd /SYS/fs_cli/
cd: Connecting to Fabric Switch CLI as user root

SEFOS#
```

   You can now configure SEFOS. Refer to the *Sun Network 10GbE Switch 72p Software Configuration Guide for the Sun Ethernet Fabric Operating System* for those instructions.

▼ Disconnect From SEFOS

- **When you are finished using SEFOS, type `exit` to return to the Oracle ILOM prompt.**

  For example:

```
SEFOS# exit
Connection closed by foreign host.
cd: The session with /SYS/fs_cli has ended.

->
```

Servicing the Switch

Once a failed part is identified, you can replace it. These topics help you service switch chassis components.

- "Troubleshooting the Switch" on page 57
- "Understanding Service Procedures" on page 63
- "Servicing Power Supplies" on page 65
- "Servicing Fans" on page 70
- "Servicing Ethernet Cables" on page 74
- "Servicing the Battery" on page 78

Related Information

- "Installing the Switch" on page 9
- "Understanding the Switch" on page 1

Troubleshooting the Switch

Use these topics to troubleshoot the switch

- "Identifying LEDs" on page 58
- "Sensors Overview" on page 61
- "Check Switch Status (LEDs)" on page 61
- "Check Switch Status (Oracle ILOM)" on page 61
- "Component Sensor Targets" on page 62
- "Motherboard Sensor Targets" on page 63

Identifying LEDs

Status LEDs are used on many components in the switch as a means of indicating the component's state. Locate, System Fault/Alarm, System OK, and all port LEDs are located on the front of the switch. Power supply and fan LEDs are located on the rear of the switch. Use the following sections to check the state of the LEDs:

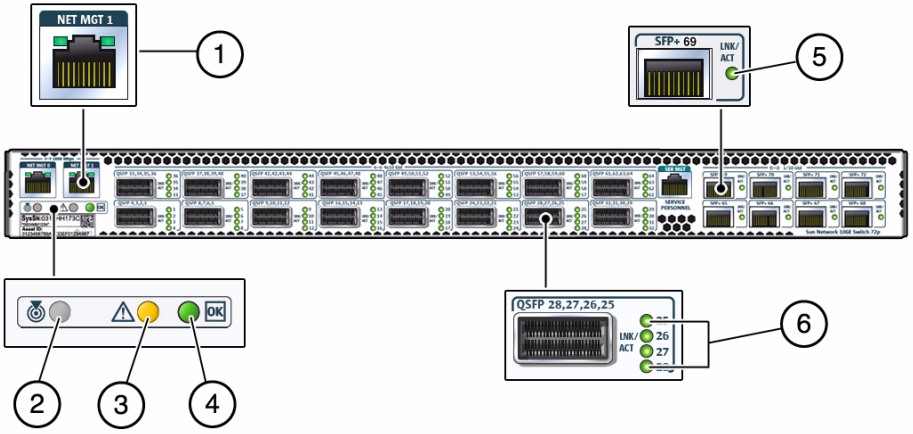
- "Front Panel LEDs" on page 58
- "Rear Panel LEDs" on page 60

Related Information

- "Front Panel Components" on page 3

Front Panel LEDs

The network management status LEDs, link status LEDs, and switch status LEDs are located on the front of the switch chassis.



Note – The System Fault/Alarm (Yellow) and System OK (Green) LEDs cannot be on at the same time.

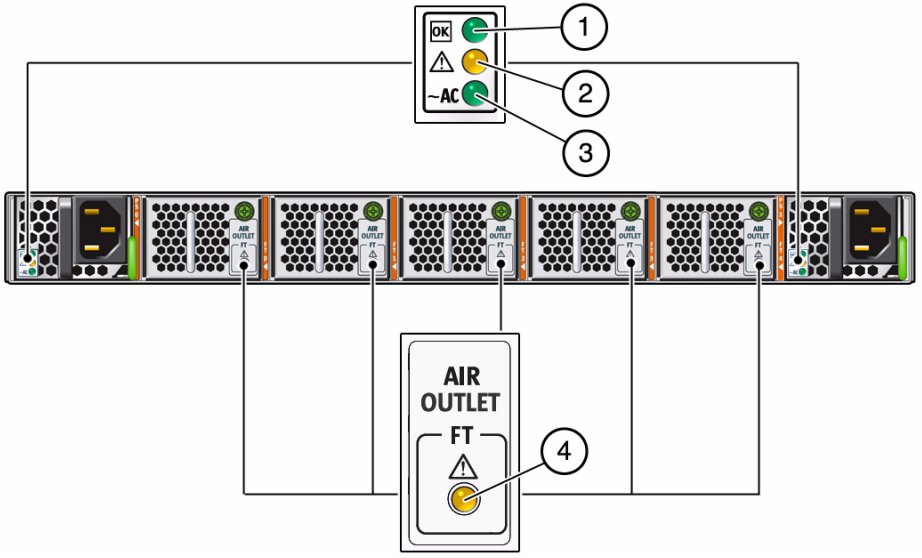
No.	Name	Color	Description
1	Network Management Link and Activity	Green	Link (left): • On – 10 or 100BASE-T link. • Off – No link or link down. Activity (right): • Off – No activity. • Flashing – Packet activity.
2	Locate	White	Helps locate the switch: • Off – No locate command invoked. • Fast blink – Occurs one second after the locate command is invoked.
3	System Fault/Alarm	Yellow	Has two states: • Off – No fault. • On solid – A fault in the system is present and service action is required.
4	System OK	Green	Has three states: • Slow blink – During startup and shutdown sequences. • On solid – System normal and operational. • Off – Power interruption or system fault. Note: The off state could be triggered by one power supply being unplugged. The switch is still fully operational with only one power supply, but this LED is changed to the off state when one power supply is unplugged or not functioning correctly.
5	SFP+ port Ethenet Link Status/Activity for 10GbE connection	Green	Has three states: • Off – No link or activity on the SFP+ or QSFP port. • On – A link has been established on the SFP+ or QSFP port. • Blinking – There is activity on the SFP+ or QSFP port.
6	QSFP four-port connector Ethenet Link Status/Activity for each 10GbE connection	Green	Has three states: • Off – No link or activity on the SFP+ or QSFP port. • On – A link has been established on the SFP+ or QSFP port. • Blinking – There is activity on the SFP+ or QSFP port.

Related Information

- "Rear Panel LEDs" on page 60

Rear Panel LEDs

The power supply status LEDs and fan status LEDs are located on the rear of the switch.



No.	Name	Color	State and Meaning
1	Power Supply OK	Green	On – Power supply is functional without fault. Off – Power supply is off or initializing.
2	Power Supply Attention	Yellow	On – Fault detected, 12 VDC shut down. Off – No faults detected.
3	Power Supply AC	Green	On – AC is functional without fault. Off – AC is off or initializing.
4	Fan Fault	Yellow	On – Fan has a fault. Off – No fault detected.

Related Information

- "Front Panel LEDs" on page 58

Sensors Overview

The switch uses several configurable sensors and indicators to monitor switch power, voltage, and temperature. The switch includes replaceable component sensors that generate entries in the SEL when the sensor crosses a threshold. Many of these readings are used to adjust the fan speeds and perform other actions, such as illuminating LEDs and powering off the switch.

You can also configure these sensors to generate IPMI PET and SNMP traps, as described in the *Sun Integrated Lights Out Manager (ILOM) CLI Procedures Guide*.

Caution – Do not use any interface other than the Oracle ILOM CLI or web interface to alter the state or configuration of any sensor or LED. Doing so could void your warranty.

You can view the system monitoring sensors and indicator parameters from the Oracle ILOM CLI or web interface.

- "Sensors Overview" on page 61
- "Identifying LEDs" on page 58

Related Information

- *Sun Integrated Lights Out Manager (ILOM) Concepts Guide*
- *Sun Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide*

▼ Check Switch Status (LEDs)

- **Check the LEDs to verify the switch status.**

  See "Identifying LEDs" on page 58.

▼ Check Switch Status (Oracle ILOM)

1. **Log into Oracle ILOM.**

   See "Connecting to the Service Processor" on page 37.

2. Display the status of parameters of chassis components or the motherboard.

```
-> show target
```

where target is the Oracle ILOM target name of the component or motherboard sensor in "Component Sensor Targets" on page 62 or "Motherboard Sensor Targets" on page 63.

For example, to display the speed of Fan 0, type.

```
-> show /SYS/FM0/SERVICE
 /SYS/FM0/SERVICE
 Targets:

 Properties:
     type = Indicator
     ipmi_name = FM0/SERVICE
     value = Off
```

Component Sensor Targets

Use the targets from this table to check the switch status. See "Check Switch Status (Oracle ILOM)" on page 61.

Component Sensor	Target	Comment
Chassis fault	/SYS/SERVICE	
Chassis locator	/SYS/LOCATE	
Chassis OK	/SYS/OK	
Fan fault	/SYS/FM*x*/SERVICE	where *x* is 0-4
Fan presence	/SYS/FM*x*/PRSNT	where *x* is 0-4
Fan speed	/SYS/FM*x*/TACH	where *x* is 0-4
Power supply fault	/SYS/PS*y*/SERVICE	where *y* is 0 or 1
Power supply presence	/SYS/PS*y*/PRSNT	where *y* is 0 or 1
Power supply speed	/SYS/PS*y*/OK	where *y* is 0 or 1

Motherboard Sensor Targets

Use the targets from this table to check the switch status. See "Check Switch Status (Oracle ILOM)" on page 61.

Motherboard Sensor	Target	Comment
CPU temperature	/SYS/MB/T_CPU	
I4 temperature	/SYS/MB/T_SWITCH/z	where z is 0-8
12V input	/SYS/MB/V_+12V	
5V output	/SYS/MB/V_+5V	
1.25V for switch chips 1, 2, & 3	/SYS/MB/V_1V25_SW123	
1.25V for switch chips 4, 5, & 6	/SYS/MB/V_1V25_SW456	
1.25V for switch chips 7, 8, & 9	/SYS/MB/V_1V25_SW789	
1.5V output	/SYS/MB/V_1V5	
2.5V output	/SYS/MB/V_2V5	
3.3V input	/SYS/MB/V_3V3	
Battery output	/SYS/MB/V_BAT	
Core voltage	/SYS/MB/V_CORE	
DDR memory	/SYS/MB/V_DDR	

Understanding Service Procedures

Servicing the switch means a component addition, replacement, or subtraction.

A component addition means the installation of a component to increase the functionality of the switch. Component replacement means a failed component is removed and a functional one is installed. Component subtraction means removing a component to limit resources.

These topics provide information to prepare for service procedures.

- "Tools Needed for Service" on page 64
- "Replaceable Components" on page 64

Related Information

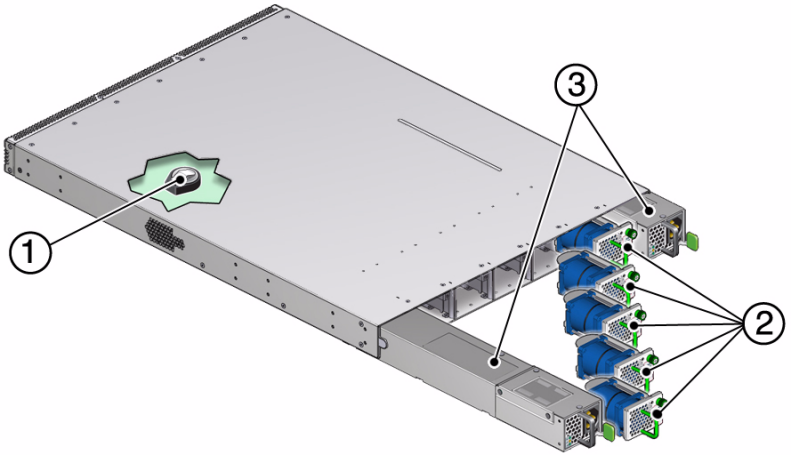
- "Servicing Power Supplies" on page 65
- "Servicing Fans" on page 70
- "Servicing Ethernet Cables" on page 74
- "Servicing the Battery" on page 78

Tools Needed for Service

Proper servicing of the switch requires the following tools:

- No. 2 Phillips screwdriver
- No. 1 Phillips screwdriver
- Flashlight
- Magnifying glass

Replaceable Components



	Description	Links
1	Battery	"Servicing the Battery" on page 78
2	Fan modules (five)	"Servicing Fans" on page 70
3	Power supplies (two)	"Servicing Power Supplies" on page 65

Related Information

- "Servicing Power Supplies" on page 65
- "Servicing Fans" on page 70
- "Servicing the Battery" on page 78

Servicing Power Supplies

The following table links to tasks for servicing power supplies.

Description	Links
Add a power supply.	"Install a Power Supply" on page 68 "Power On a Power Supply" on page 69
Replace a power supply.	"Power Off a Power Supply" on page 65 "Remove a Power Supply" on page 66 "Install a Power Supply" on page 68 "Power On a Power Supply" on page 69
Subtract a power supply.	"Power Off a Power Supply" on page 65 "Remove a Power Supply" on page 66

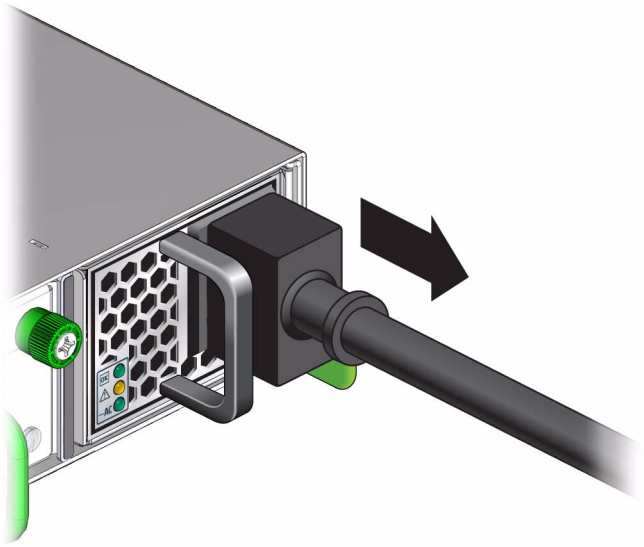
Related Information

- "Understanding Service Procedures" on page 63
- "Servicing Fans" on page 70
- "Servicing the Battery" on page 78

▼ Power Off a Power Supply

Note – Powering off both power supplies powers off the switch.

1. **Determine which power supply is to be removed.**
2. **At the rear of the switch chassis, remove the power cord from the respective power supply.**



The power supply is completely powered off.

3. **Remove the power supply.**

   See "Remove a Power Supply" on page 66.

Related Information

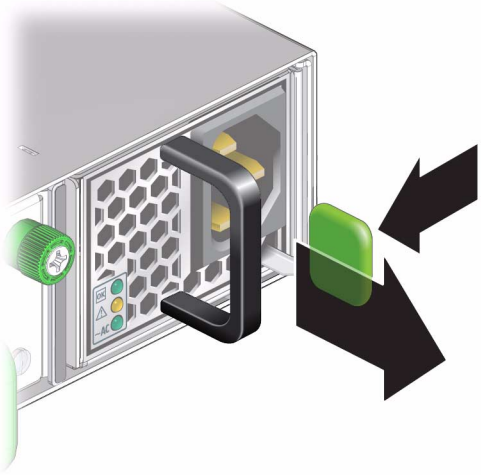
- "Remove a Power Supply" on page 66
- "Install a Power Supply" on page 68
- "Power On a Power Supply" on page 69

▼ Remove a Power Supply

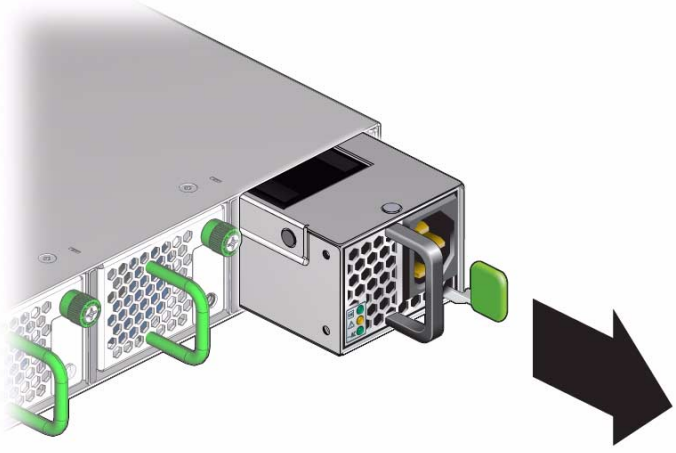
1. **Identify which power supply to remove and power off the power supply.**

   See "Power Off a Power Supply" on page 65.

2. **Press and hold the release tab to the left and pull on the handle of the power supply.**



3. **Continue to pull the power supply handle to remove it from the switch.**



4. **Set the power supply aside.**
5. **Install a replacement power supply.**

   See "Install a Power Supply" on page 68.

Related Information

- "Install a Power Supply" on page 68
- "Power On a Power Supply" on page 69

▼ Install a Power Supply

1. **Power off and remove the power supply to be replaced.**

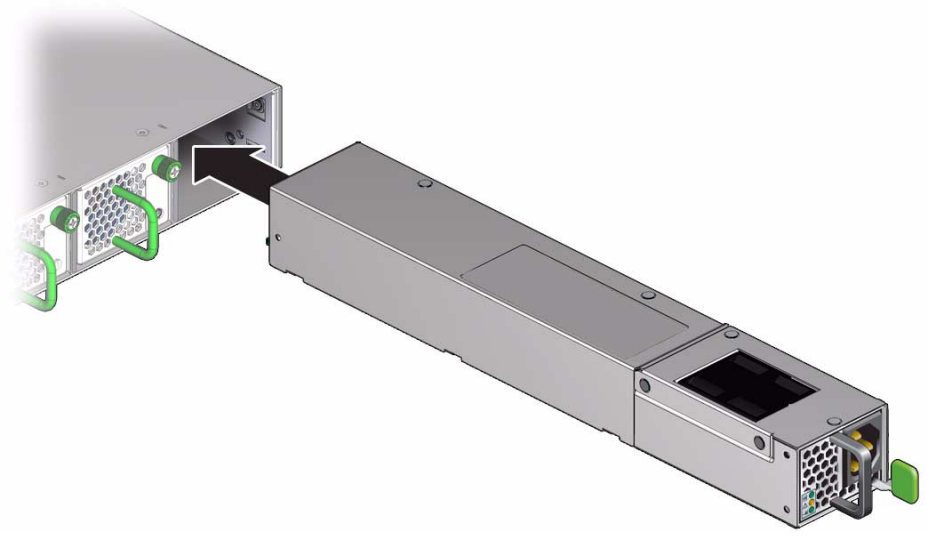
   See:

   - "Power Off a Power Supply" on page 65
   - "Remove a Power Supply" on page 66

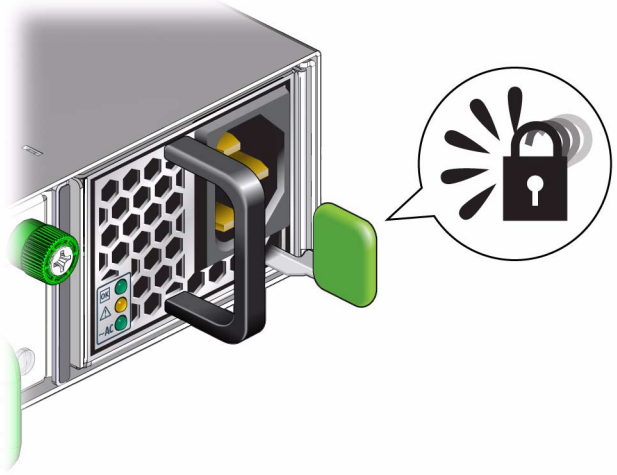
2. **Verify that the slot where you are installing the power supply is clean and free of debris.**

3. **Orient the power supply with the status LEDs on the left and the release tab on the right.**

4. **Slide the power supply into the open slot, pushing at the handle.**



5. **When the power supply seats, push firmly so that the release tab clicks to secure the power supply into the switch.**



6. **Power on the power supply.**

   See "Power On a Power Supply" on page 69.

Related Information

- "Power Off a Power Supply" on page 65
- "Remove a Power Supply" on page 66
- "Power On a Power Supply" on page 69

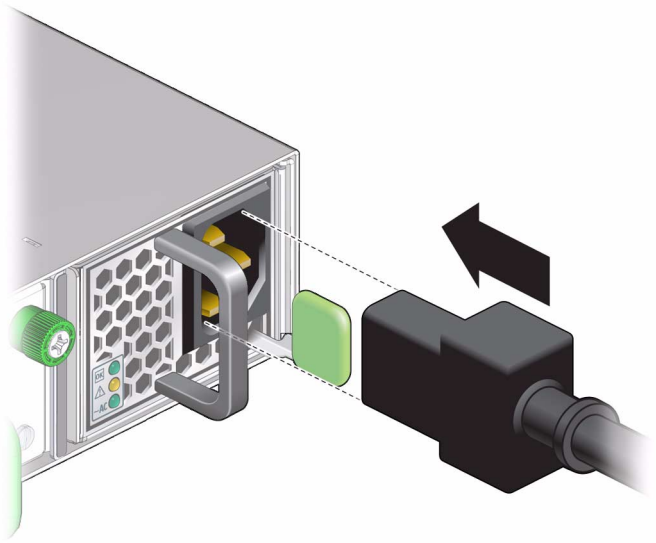
▼ Power On a Power Supply

1. **Remove a power supply and install a new one.**

   See:

   - "Remove a Power Supply" on page 66
   - "Install a Power Supply" on page 68

2. **Reconnect the power cord to the power supply.**



The AC LED lights green to indicate the power supply is connected to facility power. A moment later, the OK LED lights green to indicate the power supply is at full power.

3. **Verify the power supply's operation.**

Related Information

- "Power Off a Power Supply" on page 65
- "Remove a Power Supply" on page 66
- "Install a Power Supply" on page 68

Servicing Fans

The following table provides links to tasks for servicing fans.

Description	Links
Add a fan.	"Install a Fan" on page 72
Replace a fan.	"Remove a Fan" on page 71 "Install a Fan" on page 72

Description	Links
Subtract a fan.	"Remove a Fan" on page 71

Related Information

- "Understanding Service Procedures" on page 63
- "Servicing Power Supplies" on page 65
- "Servicing Ethernet Cables" on page 74
- "Servicing the Battery" on page 78

▼ Remove a Fan

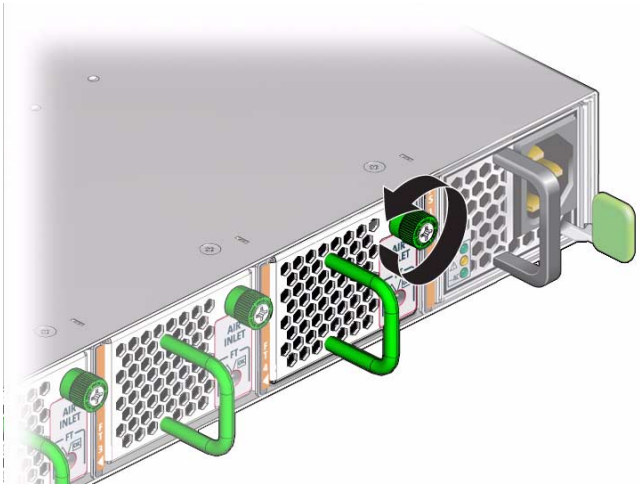
Note – Fans are hot-swappable and do not require powering off.

Caution – The switch can continue to run safely with one failed fan. If a fan fails, replace it as soon as possible. The system might overheat if more than one fan fails.

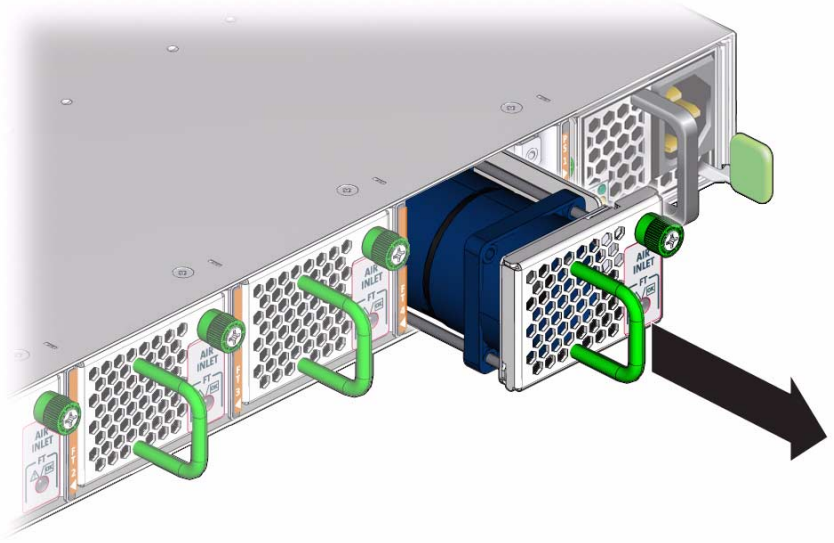
1. **Determine which fan is to be removed.**

   If a fan has failed, its Attention LED lights.

2. **Loosen the captive thumbscrew at the right side of the fan.**



3. **Grasp the handle and pull the fan straight out.**



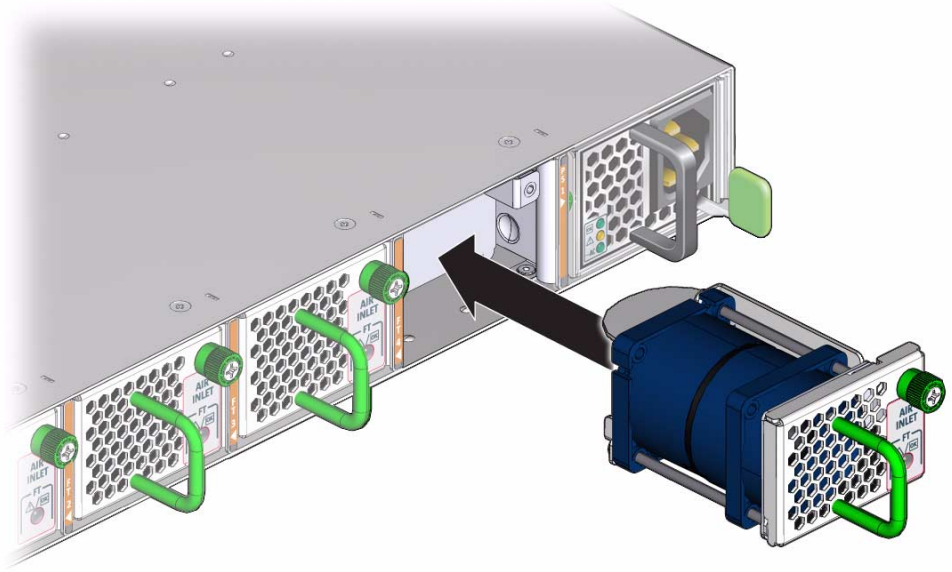
4. **Set the fan aside.**
5. **Consider your next step:**
   - If you are removing the fan for replacement, install a new fan.
     See "Install a Fan" on page 72.
   - If you are removing the fan as a subtractive action, you are finished.

Related Information

- "Remove a Power Supply" on page 66
- "Install a Fan" on page 72

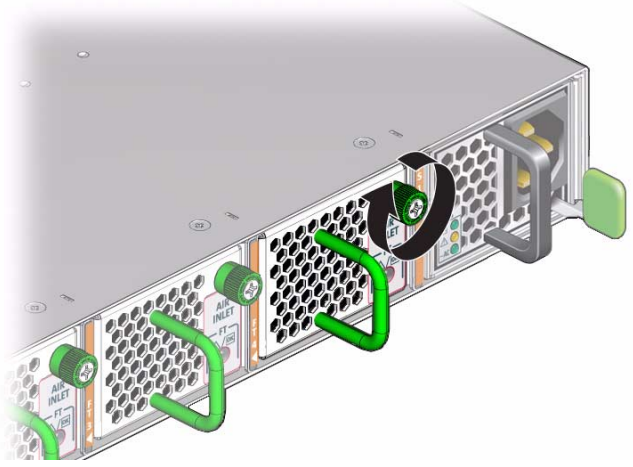
▼ Install a Fan

1. **Remove a fan.**
   See "Remove a Fan" on page 71.
2. **Verify that the slot where the fan installs is clean and free of debris.**
3. **Orient the fan over the opening in the switch chassis with the thumbscrew on the right.**
4. **Firmly slide the fan into the switch until the fan stops.**



The fan might immediately power on.

5. **Tighten the captive thumbscrew to secure the fan in the switch chassis.**



6. **Verify that the fan Attention LED is no longer illuminated.**
7. **Verify the fan operation.**

Related Information

- "Remove a Fan" on page 71

- "Install a Power Supply" on page 68
- "Install an Ethernet Cable" on page 77
- "Install the Battery" on page 81

Servicing Ethernet Cables

The following table provides links to tasks for servicing Ethernet cables.

Description	Links
Add an Ethernet cable.	"Connect Ethernet Cables" on page 28
Replace an Ethernet cable.	"Remove an Ethernet Cable" on page 74 "Connect Ethernet Cables" on page 28
Subtract an Ethernet cable.	"Remove an Ethernet Cable" on page 74

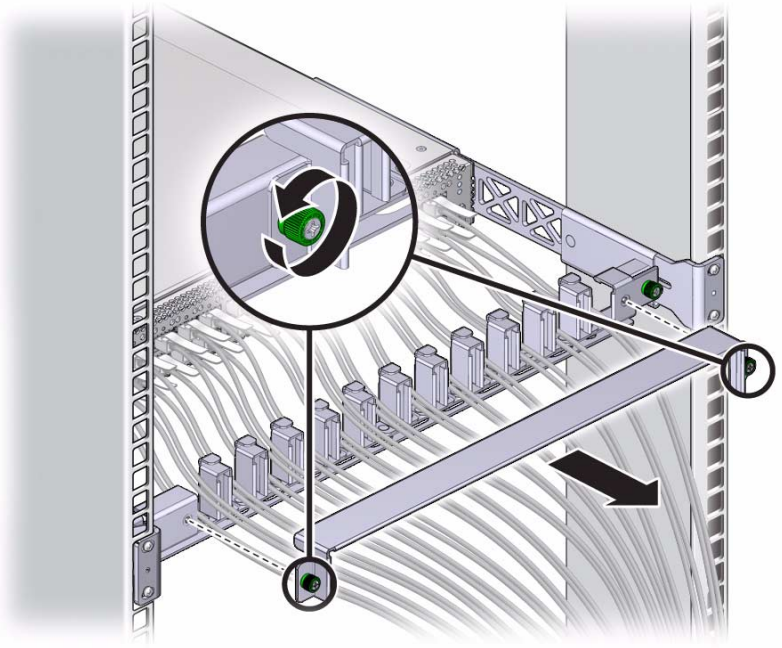
Related Information

- "Understanding Service Procedures" on page 63
- "Servicing Power Supplies" on page 65
- "Servicing Fans" on page 70
- "Servicing Ethernet Cables" on page 74
- "Servicing the Battery" on page 78

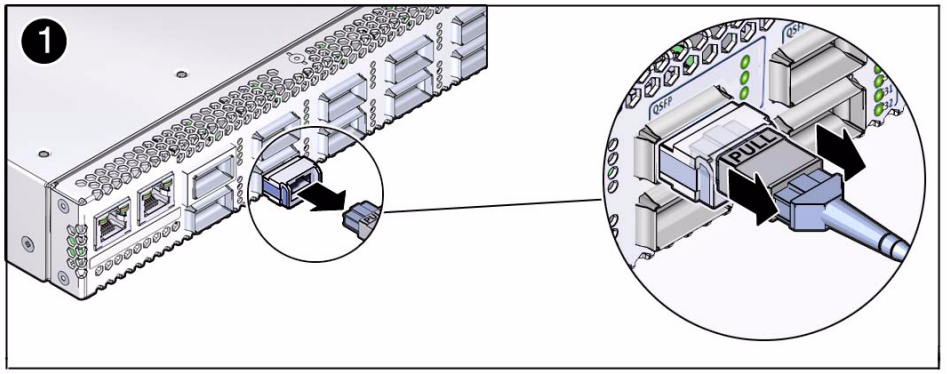
▼ Remove an Ethernet Cable

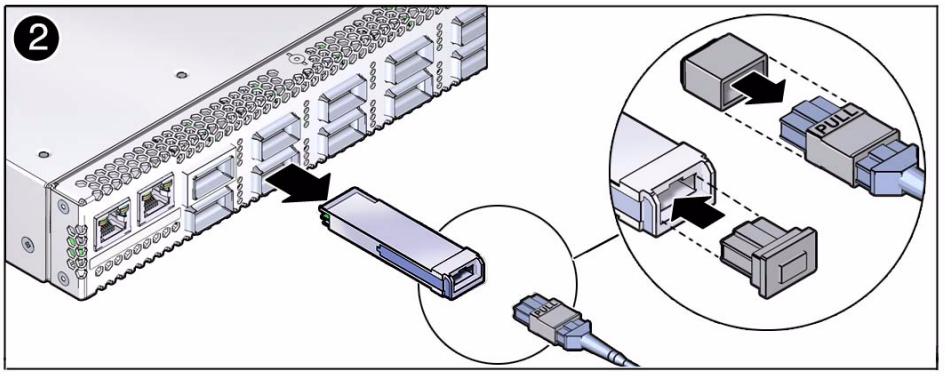
This procedure describes how to remove the cables from the switch chassis, so that a cable can be replaced. If you are removing all cables for switch replacement, start removing the cables from the left side of the switch, working your way to the right.

1. **Locate the cable to be removed.**
2. **Loosen the thumbscrews and remove the cover for the cable management bracket.**



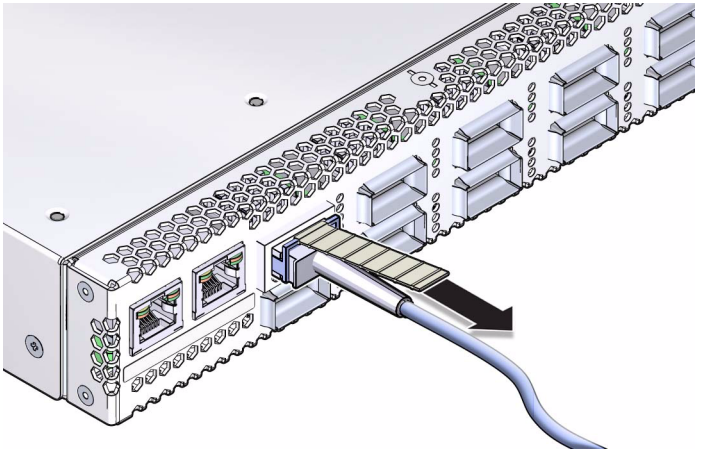
3. **Grasp the cable connector to support its weight and apply the removal force.**
4. **Disconnect the cable from the connector.**
   - For a dual-part QSFP or SFP+ cable assembly, pull the optical cable connector retraction handle and gently pull out the optical cable.





- For a single-part passive copper QSFP cable, pull on the retractor strap while simultaneously pulling on the cable connector.

  The cable connector comes free.



5. Carefully move the cable out of the cable management hardware.

6. **Gently lower the cable to the floor.**

Caution – Do not allow the cable to drop or strike the floor. Jerking, bending, pulling on, or dropping the cable can damage the cable.

7. **For a dual-part QSFP or SFP+ module assembly, remove the optical transceiver module from the slot.**
   a. **Pull down the SFP+ or QSFP optical transceiver module latch into the open position.**
   b. **Slide out the optical transceiver module.**
   c. **Replace the protective end cap if you plan to store the module.**
8. **Consider your next step:**
   - If you are removing a single cable for replacement, install the new cable.
     See "Install an Ethernet Cable" on page 77.
   - If you are disconnecting all cables for switch replacement, repeat from Step 1 for all cables.

Related Information

- "Remove a Power Supply" on page 66
- "Remove a Fan" on page 71

▼ Install an Ethernet Cable

1. **Remove an Ethernet cable.**
   See "Remove an Ethernet Cable" on page 74.
2. **Bring the replacement cable to the switch.**
3. **Feed the cable through the cable management hardware.**
4. **Attach an Ethernet cable.**
   See "Connect Ethernet Cables" on page 28.

Related Information

- "Install a Power Supply" on page 68
- "Install a Fan" on page 72
- "Remove the Battery" on page 78

Servicing the Battery

The switch has a battery on the main board that supports the management controller. You can only replace the battery, because the management controller is dependent upon the battery. You cannot add or subtract the battery. Perform these tasks in order to replace the battery.

- "Remove the Battery" on page 78
- "Install the Battery" on page 81

Related Information

- "Understanding Service Procedures" on page 63
- "Servicing Power Supplies" on page 65
- "Servicing Fans" on page 70
- "Servicing Ethernet Cables" on page 74

▼ Remove the Battery

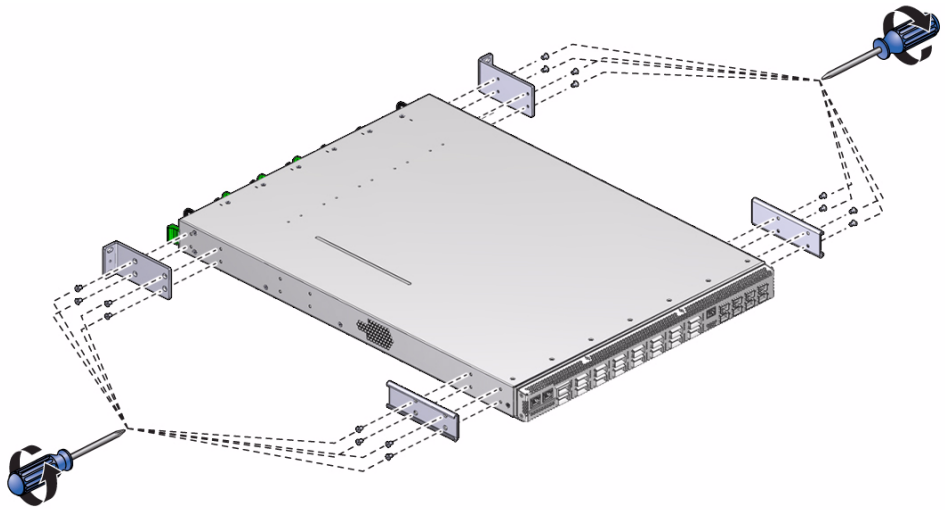
Note – This procedure assumes that you have removed all Ethernet cables from the switch and have powered down both power supplies by removing both power cords.

1. **Remove all Ethernet cables and power down both power supplies.**

   See:

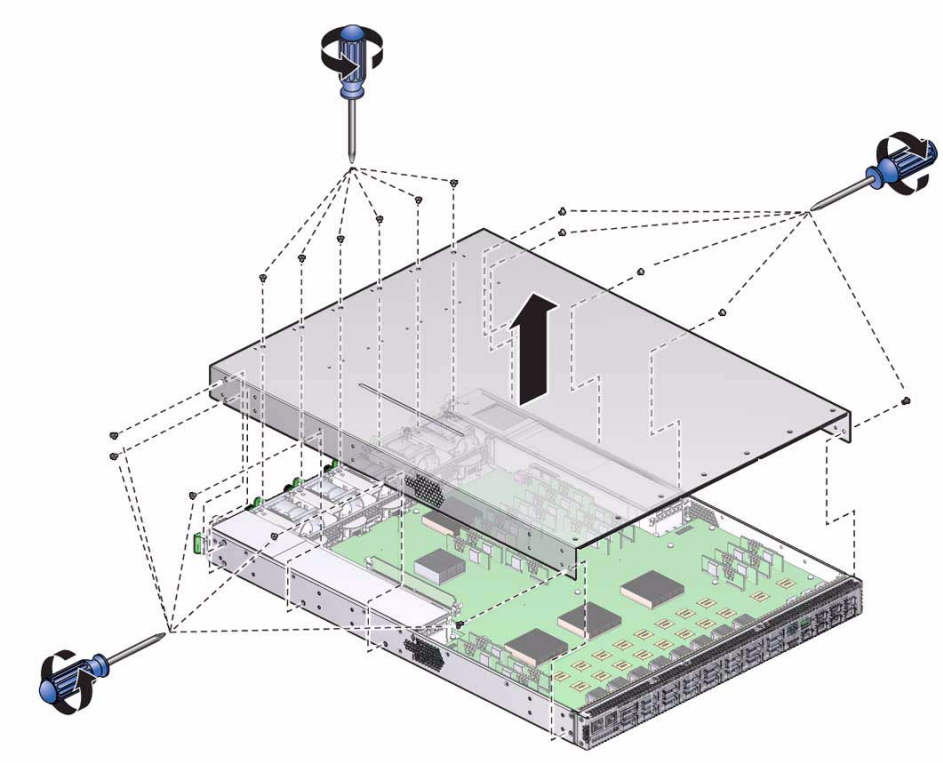
   - "Remove an Ethernet Cable" on page 74
   - "Power Off a Power Supply" on page 65

2. **Disconnect the management cables.**
3. **Use a No. 2 Phillips screwdriver to remove the four screws that secure the rear of the switch into the rack.**
4. **Slide the switch out of the rear of the rack.**
5. **Set the switch chassis onto a stable work surface.**
6. **Use a No. 1 Phillips screwdriver to remove the eight screws that secure the rail brackets at the front sides of the switch chassis.**

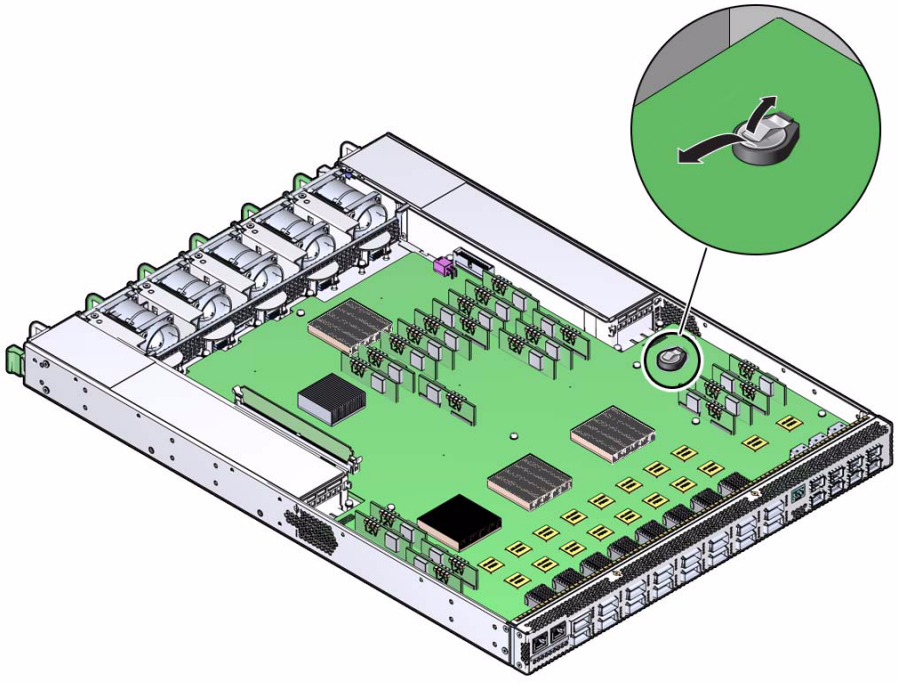


7. **Remove the eight screws that secure the post brackets at the rear sides of the switch chassis.**
8. **Remove the 16 screws that secure the top cover to the switch chassis.**

   There are five screws on each side and six screws across the top rear of the cover.



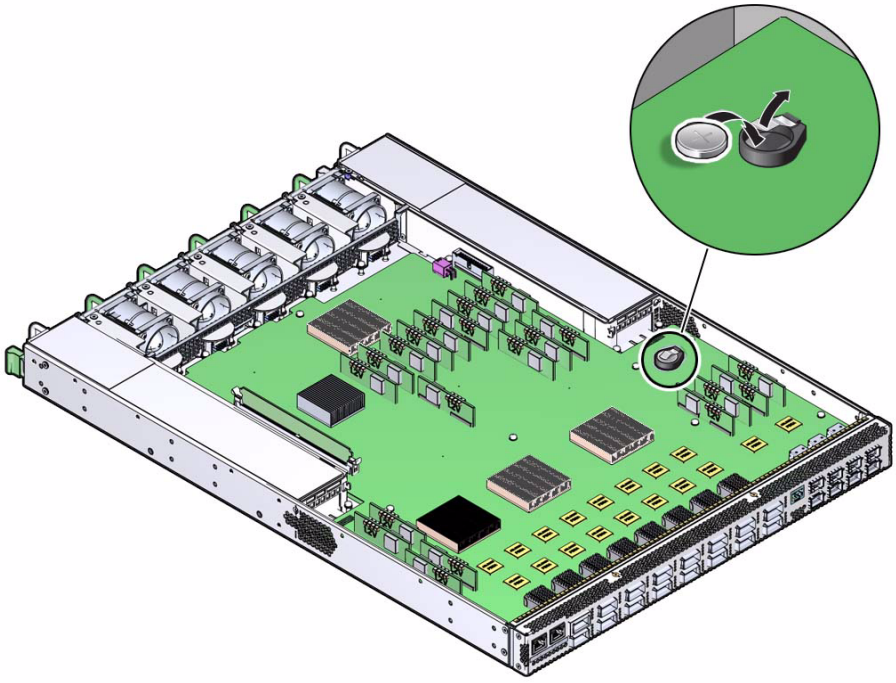
9. **Slide the cover rearward and lift it off.**
10. **Depress the clip that retains the battery and release the battery from the main board.**



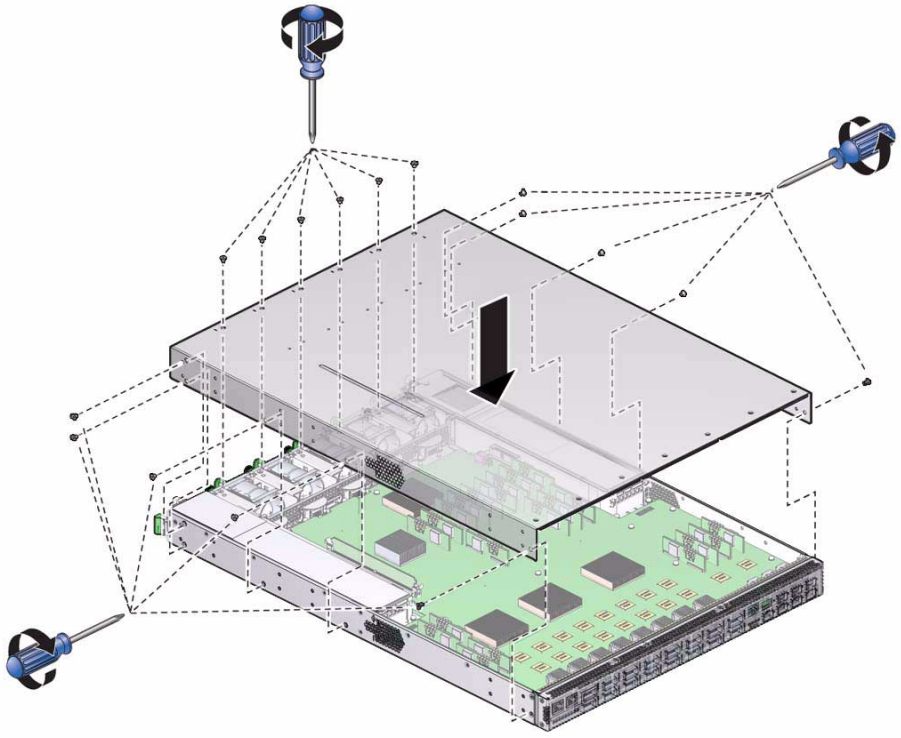
11. **Properly dispose of the old battery.**
12. **Install a new battery.**
    See "Install the Battery" on page 81.

▼ Install the Battery

1. **Remove the battery.**
   See "Remove the Battery" on page 78.
2. **Unwrap the replacement battery from its antistatic packaging.**
3. **Install the replacement battery into the main board with the + side up.**

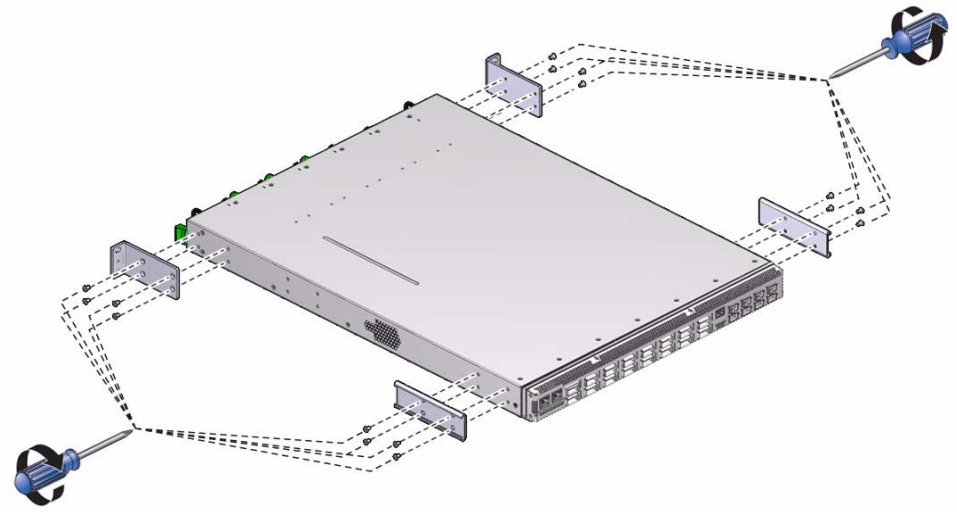


4. **Orient the cover over the switch and lower it in place.**
5. **Slide the cover forward so that it engages at the front panel.**
   Ensure that the screw holes in the cover align with the holes in the switch.



6. **Use a No. 1 Phillips screwdriver to install the 16 screws that secure the cover to the switch.**

7. **Use eight screws to attach the two post brackets to the rear sides of the switch chassis.**



8. **Use eight screws to attach the two rail brackets to the front sides of the switch chassis.**
9. **Install the switch into the rack.**

   See "Installing the Switch" on page 9.

Glossary

10

10GbE 10 Gigabit Ethernet.

L

LR Long-range. A long-range SFP+ optical tranceiver module.

LR-M Long-range multi-mode. A long range multi-mode SFP+ optical tranceiver module.

O

Oracle ILOM Oracle Integrated Lights Out Manager. ILOM provides advanced server processor hardware and software to manage and monitor servers.

Q

QSFP Quad small form-factor, pluggable. A transceiver specification for 4x 10GE modules.

S

SEFOS Sun Ethernet Fabric Operating System. A full-featured fabric and switch management software package for configuring and monitoring the switches network infrastructure.

SEL System event log. The switch includes a number of replaceable component sensors that generate entries in the SEL when the sensor crosses a threshold. Many of these readings are used to adjust the fan speeds and perform other actions, such as illuminatiing LEDs and powering off the switch.

SFP+ Small form-factor, pluggable. A transceiver module specification for several physical layer technologies. In this document, SFP+ refers to Gigabit Ethernet, or 10GbE, modules.

SR Short range. A short range SFP+ optical tranceiver module.

switch Sun Network 10GbE Switch 72p

T

TOR Top of Rack. The Sun Network 10GbE Switch 72p is a standalone Top of Rack switch.

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