

## **Sun Datacenter InfiniBand Switch 36**

Installation Guide for Firmware Version 2.1



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# Using This Documentation

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This installation guide provides detailed procedures that describe the preparation and installation of the Sun Datacenter InfiniBand Switch 36 from Oracle. This document is written for technicians, system administrators, and users who have advanced experience installing and administering InfiniBand fabric hardware.

- “Product Notes” on page vii
- “Related Documentation” on page viii
- “Feedback” on page viii
- “Access to Oracle Support” on page viii

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## Product Notes

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

[http://docs.oracle.com/cd/E36265\\_01](http://docs.oracle.com/cd/E36265_01)

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## Related Documentation

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Documentation	Links
Sun Datacenter InfiniBand Switch 36 Firmware Version 2.1	<a href="http://docs.oracle.com/cd/E36265_01">http://docs.oracle.com/cd/E36265_01</a>
Oracle Integrated Lights Out Manager (ILOM) 3.0	<a href="http://docs.oracle.com/cd/E19860-01">http://docs.oracle.com/cd/E19860-01</a>
All Oracle products	<a href="http://www.oracle.com/documentation">http://www.oracle.com/documentation</a>

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# Understanding the Switch

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These topics describe the purpose and specifications of the switch, and the connectors found on the switch chassis.

- [“Switch Overview”](#) on page 1
- [“Physical Specifications”](#) on page 2
- [“Environmental Requirements”](#) on page 2
- [“Acoustic Noise Emissions”](#) on page 3
- [“Electrical Specifications”](#) on page 3
- [“NET MGT Connector and Pins”](#) on page 4
- [“USB Management Connector and Pins”](#) on page 5
- [“InfiniBand QSFP Connector and Pins”](#) on page 5

## **Related Information**

- [“Understanding Cabling”](#) on page 9
- [“Preparing to Install the Switch”](#) on page 17
- [“Installing the Switch”](#) on page 25

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## Switch Overview

The Sun Datacenter InfiniBand Switch 36 provides InfiniBand fabric switching and management capabilities. The switch utilizes the OFED InfiniBand software stack through an internally configured management controller. The switch has 36 physical InfiniBand QDR ports.

Monitoring the many aspects of the switch is simplified by a web-based Fabric Monitor, allowing point and click polling and verification of settings, parameters, and status.

### Related Information

- [“Understanding Cabling” on page 9](#)
- [“Preparing to Install the Switch” on page 17](#)
- [“Installing the Switch” on page 25](#)

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## Physical Specifications

This table lists the physical dimensions of the switch.

Dimension	Measurements
Width	17.52 in. (445.0 mm)
Depth	24 in. (609.6 mm)
Height	1.75 in. (44.5 mm)
Weight	23.0 lbs (11.4 kg)

### Related Information

- [“Verify Shipping Carton Contents” on page 21](#)
- [“Install the Switch in the Rack” on page 25](#)

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## Environmental Requirements

This table lists the switch operating environment parameters.

Parameter	Operating
Ambient temperature	41°F to 89.6°F (5°C to 32°C)
Relative humidity	5% to 85% noncondensing, 80°F (27°C) maximum wet bulb
Elevation (Sun requirement)	Maximum 9840 feet (3000 meters) at 104°F (40°C)

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# Acoustic Noise Emissions

This table lists the permitted noise emissions of the switch.

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

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# Electrical Specifications

This table lists the electrical requirements of the switch.

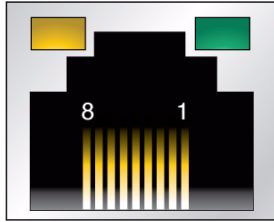
Parameter	AC Version Requirement
Voltage	100 VAC to 240 VAC single phase, 47 to 63 Hz
Current (per input)	5.4 A maximum per input at 100 VAC
Current (total)	5.6 A maximum total for all inputs at 100 VAC
Power	550 Watts (Total input power is approximately equally divided among the operating power supplies)

## Related Information

- [“Power Cord Requirements” on page 9](#)
- [“Attach the Power Cords” on page 34](#)

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# NET MGT Connector and Pins



This table lists the pinout of the NET MGT connector.

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

## Related Information

- [“Management Cable Requirements” on page 10](#)
- [“Attach the Management Cables” on page 31](#)
- [“Access the Management Controller From the NET MGT Port” on page 36](#)

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## USB Management Connector and Pins



This table lists the pinout of the USB management connector.

Pin	Signal
1	+5 VDC
2	- Data
3	+ Data
4	GND

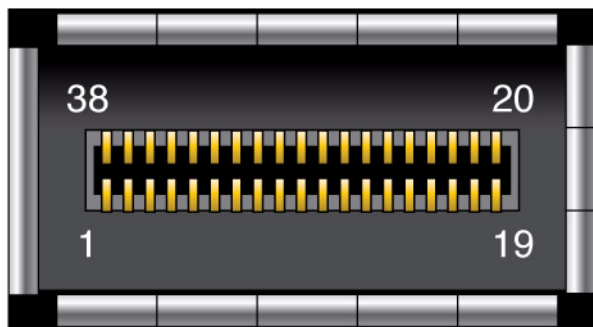
### Related Information

- [“Management Cable Requirements” on page 10](#)
- [“Attach the Management Cables” on page 31](#)
- [“Access the Management Controller From the USB Management Port” on page 38](#)

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## InfiniBand QSFP Connector and Pins

The QSFP connector is a single InfiniBand port connection.



This table lists the pinout for the connector.

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		

This table provides descriptions of the QSFP signals.

Signal	Description
GND	Ground for both signal and power return
SDA	I <sup>2</sup> C interface data
SCL	I <sup>2</sup> C interface clock
ModSelL	Module select on low - enables reception of I <sup>2</sup> C commands
ResetL	Reset on low
LPMode	Low power mode
ModPrsL	Module presence on low - identifies existence of QSFP connector

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Signal	Description
IntL	Interrupt on low - enables fault indication

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### Related Information

- [“InfiniBand Cable Types” on page 14](#)
- [“Connecting InfiniBand cables” on page 44](#)





# Understanding Cabling

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These topics provide information that helps you understand the cabling requirements of the switch.

- [“Routing Service Cables” on page 9](#)
- [“Understanding InfiniBand Cabling” on page 11](#)

## **Related Information**

- [“Understanding the Switch” on page 1](#)
- [“Preparing to Install the Switch” on page 17](#)
- [“Installing the Switch” on page 25](#)

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## Routing Service Cables

These topics describe cable routing requirements:

- [“Power Cord Requirements” on page 9](#)
- [“Management Cable Requirements” on page 10](#)

## **Related Information**

- [“Understanding InfiniBand Cabling” on page 11](#)

## Power Cord Requirements

The power supplies are in a 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. This 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 to federal, state, and local electrical codes.

### Related Information

- [“Electrical Specifications” on page 3](#)
- [“Attach the Power Cords” on page 34](#)

## Management Cable Requirements

Management of the switch is done at the management console, which is either a 10/100 Ethernet connection at the NET ports or a USB-to-serial device attached to the USB port.

Typically, the NET connection (network management) 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 the server can provide an IP address to the management controller upon boot. If a DHCP server is not available, then the USB connection is used.

The advantage of the NET connection over the USB connection is that administration of the switch can happen from anywhere on the network. There is no cable length constraint for the network management route because of the re-amplification, filtering, and processing that happens at each hub or switch within the Ethernet network. No network management cable should be any longer than 100 meters.

The USB connection requires a USB-to-serial adapter. The adapter must be configured to communicate with your serial device management console. The serial device 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 serial management cable cannot be used reliably if it is more than 10 meters long.

The USB-to-serial adapter is not included with your switch. You can purchase such an adapter from computer and electronics stores.

### **Related Information**

- [“NET MGT Connector and Pins” on page 4](#)
- [“USB Management Connector and Pins” on page 5](#)
- [“Attach the Management Cables” on page 31](#)

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## Understanding InfiniBand Cabling

These topics describe InfiniBand cabling:

- [“InfiniBand Cable Cautions” on page 12](#)
- [“InfiniBand Cable Guidelines” on page 13](#)
- [“InfiniBand Cable Types” on page 14](#)
- [“InfiniBand Cable Path Lengths” on page 14](#)
- [“InfiniBand Cable Bundling” on page 15](#)
- [“Floor and Underfloor Delivery of InfiniBand Cables” on page 16](#)
- [“Overhead Delivery of InfiniBand Cables” on page 16](#)

### **Related Information**

- [“Routing Service Cables” on page 9](#)
- [“Connecting InfiniBand cables” on page 44](#)

# InfiniBand Cable Cautions

To prevent InfiniBand cable damage, you *must* follow these cautions:



Do not uncoil the cable, as a kink might occur. Hold the coil closed as you unroll the cable, pausing to allow the cable to relax as it is unrolled.



Do not step on the cable or connectors. Plan cable paths away from foot traffic or rolling loads.



Do not pull the cable out of the shipping box, through any opening, or around any corners. Unroll the cable as you lay it down and move it through turns.



Do not bend the cables to a radius tighter than 85 mm (3.4 inches). Ensure that cable turns are as wide as possible.



Do not twist the cable to open a kink. If it is not severe, open the kink by unlooping the cable.



Do not pack the cable to fit a tight space. Use an alternative cable route.



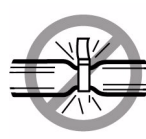
Do not straighten the cable to correct a bend that is too tight. Leave the cable bend as is.



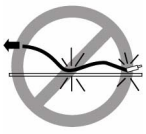
Do not hang the cable for a length more than 2 meters (7 feet). Minimize the hanging weight with intermediate retention points.



Do not drop the cable or connectors from any height. Gently set the cable down, resting the cable connectors on a stable surface.



Do not cinch the cable with hard fasteners or cable ties. Use soft hook-and-loop fastener for bundling and securing cables.



Do not drag the cable or its connectors over any surface. Carry the entire cable to and from the points of connection.



Do not force the cable connector into the receptacle by pushing on the cable. Apply connection or disconnection forces at the connector only.

## Related Information

- [“InfiniBand Cable Guidelines” on page 13](#)
- [“InfiniBand Cable Types” on page 14](#)
- [“InfiniBand Cable Path Lengths” on page 14](#)
- [“InfiniBand Cable Bundling” on page 15](#)

- [“Floor and Underfloor Delivery of InfiniBand Cables”](#) on page 16
- [“Overhead Delivery of InfiniBand Cables”](#) on page 16

## InfiniBand Cable Guidelines

Proper InfiniBand cable installation requires the following:

1. Plan the cable routes and cable length needs.  
Identify problematic cable route bends, minimizing the length of continuous vertical runs to no more than 2 meters (7 feet), and specify hardware to support cable routing.  
See [“InfiniBand Cable Path Lengths”](#) on page 14.
2. Carry the entire cable to the points of connection and unroll the cable from the first connection point to the second  
Keep the coil closed and pause to enable the cable to relax as it is unrolled and moved through turns.
3. Ensure that cable route turns are larger than 85 mm (3.4 inches) radius for optical cables and 127 mm (5 inches) radius for copper cables.  
Find alternative routes for turns that are tighter.
4. Secure the cable to hard points and bundle it with soft, hook-and-loop fasteners.  
See [“InfiniBand Cable Bundling”](#) on page 15.
5. Mediate the slack between securing points to maintain minimal cable tension and proper support.  
See [“Floor and Underfloor Delivery of InfiniBand Cables”](#) on page 16 and [“Overhead Delivery of InfiniBand Cables”](#) on page 16.
6. Label the ends of cables to identify their routes.
7. Rest the cable connectors on a stable surface when they are not connected.

### Related Information

- [“Power Cord Requirements”](#) on page 9
- [“Management Cable Requirements”](#) on page 10
- [“InfiniBand Cable Cautions”](#) on page 12
- [“InfiniBand Cable Types”](#) on page 14
- [“InfiniBand Cable Path Lengths”](#) on page 14
- [“InfiniBand Cable Bundling”](#) on page 15

- [“Floor and Underfloor Delivery of InfiniBand Cables”](#) on page 16
- [“Overhead Delivery of InfiniBand Cables”](#) on page 16

## InfiniBand Cable Types

This table lists the InfiniBand cables available for the switch, their length, and data rate.

Cable Characteristics	Lengths	Data Rate
Pass-through, optical core, QSFP - QSFP	10 m	QDR
Pass-through, copper core, QSFP - QSFP	1 m, 2 m, 3 m, 5 m	QDR

### Related Information

- [“InfiniBand QSFP Connector and Pins”](#) on page 5
- [“InfiniBand Cable Cautions”](#) on page 12
- [“InfiniBand Cable Guidelines”](#) on page 13
- [“InfiniBand Cable Path Lengths”](#) on page 14
- [“InfiniBand Cable Bundling”](#) on page 15
- [“Floor and Underfloor Delivery of InfiniBand Cables”](#) on page 16
- [“Overhead Delivery of InfiniBand Cables”](#) on page 16

## InfiniBand Cable Path Lengths

Cable paths should be as short as possible. After calculating the length of a cable path, select the shortest cable to satisfy the length requirement. When specifying a cable, consider the following:

- Bends in the cable path increase the required length of the cable. Rarely does a cable travel in a straight line from connector to connector. Bends in the cable path are necessary, and each bend increases the total length.
- Bundling increases the required length of the cables. Bundling causes one or more cables to follow a common path. However, the bend radius is different in different parts of the bundle. If the bundle is large and unorganized, and there are many bends, one cable might experience only the inner radius of bends, while another cable might experience the outer radius of bends. In this situation, the differences of the required lengths of the cables is quite substantial.

- If you are routing the InfiniBand cable under the floor, consider the height of the raised floor when calculating cable path length.

### **Related Information**

- [“InfiniBand Cable Cautions” on page 12](#)
- [“InfiniBand Cable Guidelines” on page 13](#)
- [“InfiniBand Cable Types” on page 14](#)
- [“InfiniBand Cable Bundling” on page 15](#)
- [“Floor and Underfloor Delivery of InfiniBand Cables” on page 16](#)
- [“Overhead Delivery of InfiniBand Cables” on page 16](#)

## **InfiniBand Cable Bundling**

When bundling InfiniBand cables in groups, use hook and loop straps to keep cables organized. If possible, use color-coordinated straps to help identify cables and their routing. The InfiniBand 4X copper conductor cables are fairly thick and heavy for their length. Consider the retention strength of the hook and loop straps when supporting cables. Bundle as few cables as reasonably possible. If the InfiniBand cables break free of their straps and fall free, the cables might break internally when they strike the floor or are jerked from tension.

You can bundle the cables using many hook and loop straps. Do not bundle more than 12 cables together. A fully configured switch has 36 InfiniBand cables, which is at least three bundles.

Place the hook and loop straps as close together as reasonably possible. For example, every 1 ft (0.3 m). If a cable breaks free from a strap, the cable cannot fall far before it is retained by another strap.

### **Related Information**

- [“Connecting InfiniBand cables” on page 44](#)
- [“InfiniBand Cable Cautions” on page 12](#)
- [“InfiniBand Cable Guidelines” on page 13](#)
- [“InfiniBand Cable Types” on page 14](#)
- [“InfiniBand Cable Path Lengths” on page 14](#)
- [“Floor and Underfloor Delivery of InfiniBand Cables” on page 16](#)
- [“Overhead Delivery of InfiniBand Cables” on page 16](#)

# Floor and Underfloor Delivery of InfiniBand Cables

The switch accepts InfiniBand cables from floor or underfloor delivery. The cable management hardware at the rear of the switch supports the weight of the InfiniBand cables.

Floor and underfloor delivery limits the tension in the InfiniBand cable to the weight of the cable for the rack height of the switch.

## Related Information

- [“Connecting InfiniBand cables” on page 44](#)
- [“InfiniBand Cable Cautions” on page 12](#)
- [“InfiniBand Cable Guidelines” on page 13](#)
- [“InfiniBand Cable Types” on page 14](#)
- [“InfiniBand Cable Path Lengths” on page 14](#)
- [“InfiniBand Cable Bundling” on page 15](#)
- [“Overhead Delivery of InfiniBand Cables” on page 16](#)

# Overhead Delivery of InfiniBand Cables

For overhead delivery, it is suggested that cable shelves and lattices be used to support the InfiniBand cables.

If the overhead delivery has a large drop height, consider using an intermediate support for the InfiniBand cables. Use of the support can limit the tension in the InfiniBand cable to the weight of the cable for the distance between the supports and the switch.

## Related Information

- [“Connecting InfiniBand cables” on page 44](#)
- [“InfiniBand Cable Cautions” on page 12](#)
- [“InfiniBand Cable Guidelines” on page 13](#)
- [“InfiniBand Cable Types” on page 14](#)
- [“InfiniBand Cable Path Lengths” on page 14](#)
- [“InfiniBand Cable Bundling” on page 15](#)
- [“Floor and Underfloor Delivery of InfiniBand Cables” on page 16](#)



# Preparing to Install the Switch

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These topics provide you with information that you need to know to prepare you for the installation process.

- [“Installation Preparation”](#) on page 17
- [“Suggested Tools for Installation”](#) on page 18
- [“Antistatic Precautions for Installation”](#) on page 19
- [“Installation Responsibilities”](#) on page 19
- [“Installation Sequence”](#) on page 20
- [“Verify Shipping Carton Contents”](#) on page 21
- [“Assemble the Optical Fiber InfiniBand Cables”](#) on page 22
- [“Route the InfiniBand Cables”](#) on page 24

## **Related Information**

- [“Understanding the Switch”](#) on page 1
- [“Understanding Cabling”](#) on page 9
- [“Installing the Switch”](#) on page 25

---

## Installation Preparation

Before installing or servicing the switch, you must prepare the following:

- The environment where the switch is to be installed must conform to the requirements found in [“Environmental Requirements”](#) on page 2.
- The rack to receive the switch must have proper power, management, and InfiniBand fabric cabling brought to it.
- The rack must have an available location for the switch.
- There must be a clean, dry, stable work surface.

### **Related Information**

- “Suggested Tools for Installation” on page 18
- “Antistatic Precautions for Installation” on page 19
- “Installation Responsibilities” on page 19
- “Installation Sequence” on page 20
- “Verify Shipping Carton Contents” on page 21
- “Assemble the Optical Fiber InfiniBand Cables” on page 22
- “Route the InfiniBand Cables” on page 24

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## **Suggested Tools for Installation**

These tools are necessary or beneficial for installing the switch:

- Antistatic mat
- Antistatic wrist strap
- No. 2 Phillips screwdriver
- No. 1 Phillips screwdriver
- Flashlight
- Gloves
- Magnifying glass

### **Related Information**

- “Installation Preparation” on page 17
- “Antistatic Precautions for Installation” on page 19
- “Installation Responsibilities” on page 19
- “Installation Sequence” on page 20
- “Verify Shipping Carton Contents” on page 21
- “Assemble the Optical Fiber InfiniBand Cables” on page 22
- “Route the InfiniBand Cables” on page 24

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# Antistatic Precautions for Installation

When installing the switch chassis, 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.

## Related Information

- [“Installation Preparation”](#) on page 17
- [“Suggested Tools for Installation”](#) on page 18
- [“Installation Responsibilities”](#) on page 19
- [“Installation Sequence”](#) on page 20
- [“Verify Shipping Carton Contents”](#) on page 21
- [“Assemble the Optical Fiber InfiniBand Cables”](#) on page 22
- [“Route the InfiniBand Cables”](#) on page 24

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# Installation Responsibilities

The personnel who install the switch must be fully capable of these tasks:

- Rackmount a heavy object
- Perform line voltage verification
- Connect delicate cables in tight spaces
- Configure network hosts and serial terminals
- Perform software tasks of an administrative nature
- Interpret screen output as it pertains to InfiniBand fabrics

## Related Information

- [“Installation Preparation”](#) on page 17
- [“Suggested Tools for Installation”](#) on page 18
- [“Antistatic Precautions for Installation”](#) on page 19
- [“Installation Sequence”](#) on page 20

- [“Verify Shipping Carton Contents” on page 21](#)
- [“Assemble the Optical Fiber InfiniBand Cables” on page 22](#)
- [“Route the InfiniBand Cables” on page 24](#)

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## Installation Sequence

The process of installing the switch has a specific sequence of tasks that must be performed in order. This table describes the switch installation task sequence and provides links to those procedures.

Step	Links
1.	<a href="#">“Verify Shipping Carton Contents” on page 21</a>
2.	<a href="#">“Assemble the Optical Fiber InfiniBand Cables” on page 22</a>
3.	<a href="#">“Route the InfiniBand Cables” on page 24</a>
4.	<a href="#">“Install the Switch in the Rack” on page 25</a>
5.	<a href="#">“Attach the Management Cables” on page 31</a>
6.	<a href="#">“Attach the Power Cords” on page 34</a>
7.	<a href="#">“Accessing the Management Controller” on page 36</a>
8.	<a href="#">“Verify the Switch Status” on page 39</a>
9.	<a href="#">“Start the Subnet Manager” on page 42</a>
10.	<a href="#">“Attach the InfiniBand Cables” on page 44</a>
11.	<a href="#">“Check Link Status” on page 49</a>
12.	<a href="#">“Discover the InfiniBand Fabric Topology” on page 50</a>
13.	<a href="#">“Perform Diagnostics on the InfiniBand Fabric” on page 51</a>

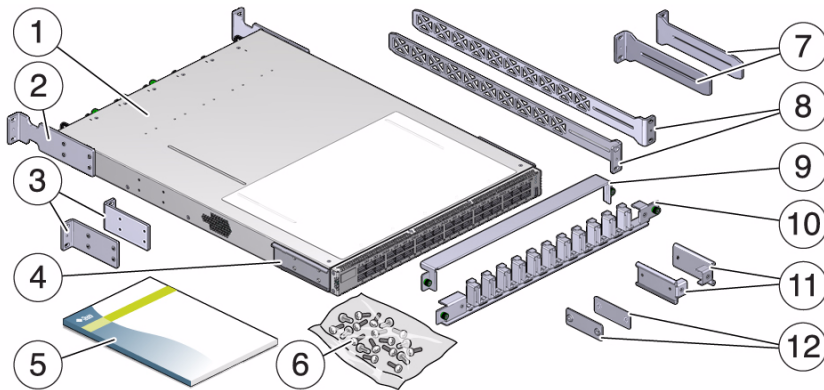
### Related Information

- [“Installation Preparation” on page 17](#)
- [“Suggested Tools for Installation” on page 18](#)
- [“Antistatic Precautions for Installation” on page 19](#)
- [“Installation Responsibilities” on page 19](#)
- [“Verify Shipping Carton Contents” on page 21](#)
- [“Assemble the Optical Fiber InfiniBand Cables” on page 22](#)

- “Route the InfiniBand Cables” on page 24

## ▼ Verify Shipping Carton Contents

1. **Open the switch shipping carton and any additional cartons.**  
Power cords and InfiniBand cables are shipped separately.
2. **Compare the contents to this figure.**



Item	Description
1	Switch
2	Front mounting brackets, long
3	Front mounting brackets, short
4	C-shaped brackets
5	Documentation
6	Hardware
7	Cable management extenders
8	Long side brackets
9	Cable management cover
10	Cable management assembly
11	Attachment brackets
12	Attachment plates

---

Item	Description
	Power cords and InfiniBand cables (not pictured)

---

**3. After verifying the package contents, assemble the optical fiber InfiniBand cables.**

See [“Assemble the Optical Fiber InfiniBand Cables”](#) on page 22.

**Related Information**

- [“Installation Preparation”](#) on page 17
- [“Suggested Tools for Installation”](#) on page 18
- [“Antistatic Precautions for Installation”](#) on page 19
- [“Installation Responsibilities”](#) on page 19
- [“Installation Sequence”](#) on page 20
- [“Assemble the Optical Fiber InfiniBand Cables”](#) on page 22
- [“Route the InfiniBand Cables”](#) on page 24

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## ▼ Assemble the Optical Fiber InfiniBand Cables

If the InfiniBand cables are unassembled, you must assemble the cables before attaching them to the switch.

---

**Note** – The ends of the optical fiber cable and the receptacles of the transceivers must be clean and optically clear before assembly. Do not remove the protective caps from the optical fiber cable or the plugs from the transceivers until instructed to do so.

---

**1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

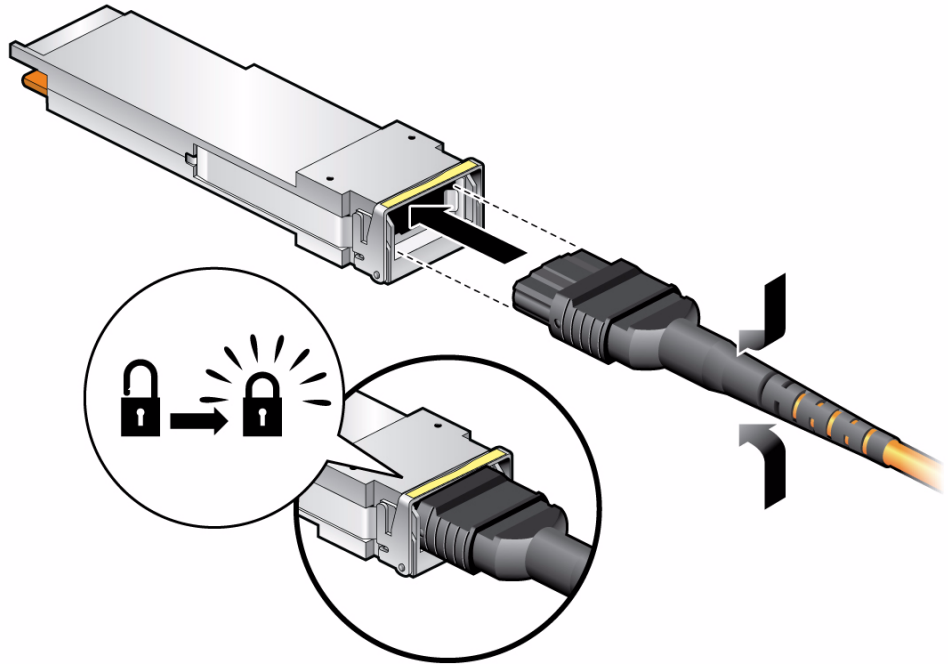
See [“Installation Sequence”](#) on page 20.

**2. Remove the QSFP optical transceivers, SFP+ optical transceivers, and fiber optic cables from their packaging.**

**3. Sort the components into groupings ready for assembly.**

You will need two QSFP optical transceivers and a fiber optic cable.

4. Remove the plug from the QSFP optical transceiver.
5. Remove the cap from the MTP connector of the fiber optic cable.
6. Holding the shaft of the MTP connector, insert the MTP connector into the receptacle of the QSFP optical transceiver.



---

**Note** – The MTP connector and QSFP receptacle are keyed for proper fitting.

---

7. Push the connector into the transceiver until it clicks.
8. Repeat [Step 4](#) to [Step 7](#) for the other end of the cable.
9. Repeat from [Step 3](#) for all InfiniBand cables to be assembled.
10. Route the InfiniBand cables.  
See [“Route the InfiniBand Cables”](#) on page 24.

#### **Related Information**

- [“Understanding InfiniBand Cabling”](#) on page 11
- [“Installation Preparation”](#) on page 17
- [“Suggested Tools for Installation”](#) on page 18

- “Antistatic Precautions for Installation” on page 19
- “Installation Responsibilities” on page 19
- “Installation Sequence” on page 20
- “Verify Shipping Carton Contents” on page 21
- “Route the InfiniBand Cables” on page 24

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## ▼ Route the InfiniBand Cables

1. **Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See “Installation Sequence” on page 20.

2. **At the remote hosts, begin attaching the InfiniBand cables to the appropriate connectors.**
3. **Route and bundle the InfiniBand cables following the cautions and guidelines provided in “Understanding InfiniBand Cabling” on page 11.**
4. **Bring the cables to the location in the rack where the switch will install.**
5. **Install the switch into the rack.**

See “Install the Switch in the Rack” on page 25.

### **Related Information**

- “InfiniBand Cable Guidelines” on page 13
- “Installation Preparation” on page 17
- “Suggested Tools for Installation” on page 18
- “Antistatic Precautions for Installation” on page 19
- “Installation Responsibilities” on page 19
- “Installation Sequence” on page 20
- “Verify Shipping Carton Contents” on page 21
- “Assemble the Optical Fiber InfiniBand Cables” on page 22



# Installing the Switch

---

These topics provide procedures that instruct you how to install the switch.

- [“Install the Switch in the Rack” on page 25](#)
- [“Powering On the Switch” on page 31](#)
- [“Connecting InfiniBand cables” on page 44](#)
- [“Verifying the InfiniBand Fabric” on page 49](#)

## Related Information

- [“Understanding the Switch” on page 1](#)
- [“Understanding Cabling” on page 9](#)
- [“Preparing to Install the Switch” on page 17](#)

---

## ▼ Install the Switch in the Rack



---

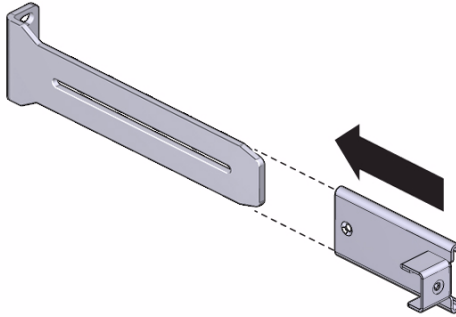
**Caution** – The airflow through the switch is in from the fans, through the chassis, and out at the connector panel. The front of the switch chassis (fan end) intakes from the cold aisle, and the rear of the switch chassis (connector end) exhausts to the hot aisle. This flow direction requires you to install the switch in an orientation that is the opposite of what you might assume.

---

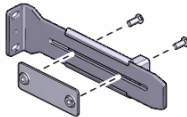
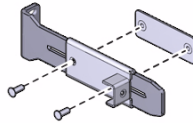
1. **Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**  
See [“Installation Sequence” on page 20](#).
2. **If installed, open the rack doors.**
3. **Assemble the cable management extenders.**

- a. Slide the attachment bracket over the extender, so that the tab on the bracket is opposite the flange on the extender.

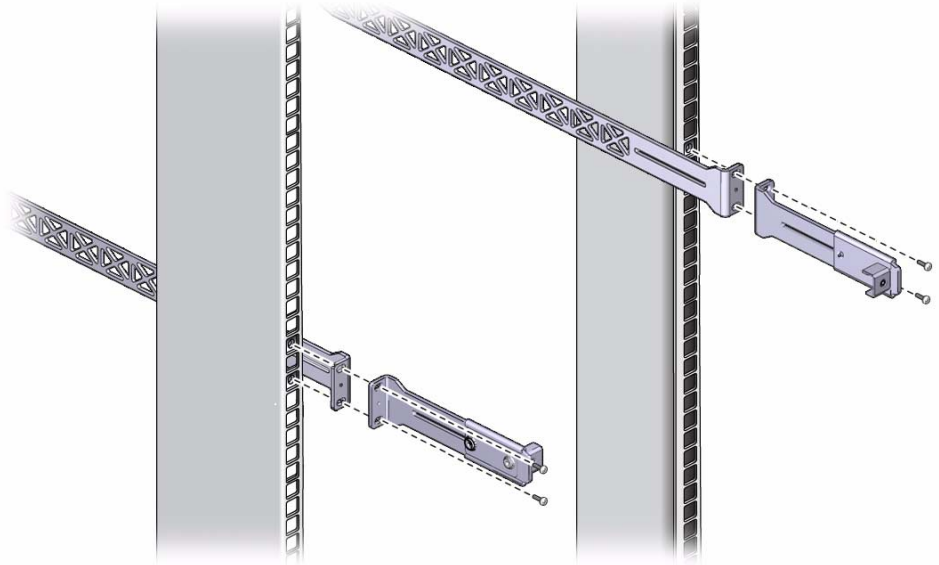
The open end of the tab is toward the flange. The flat end of the tab is toward the rear of the extender.



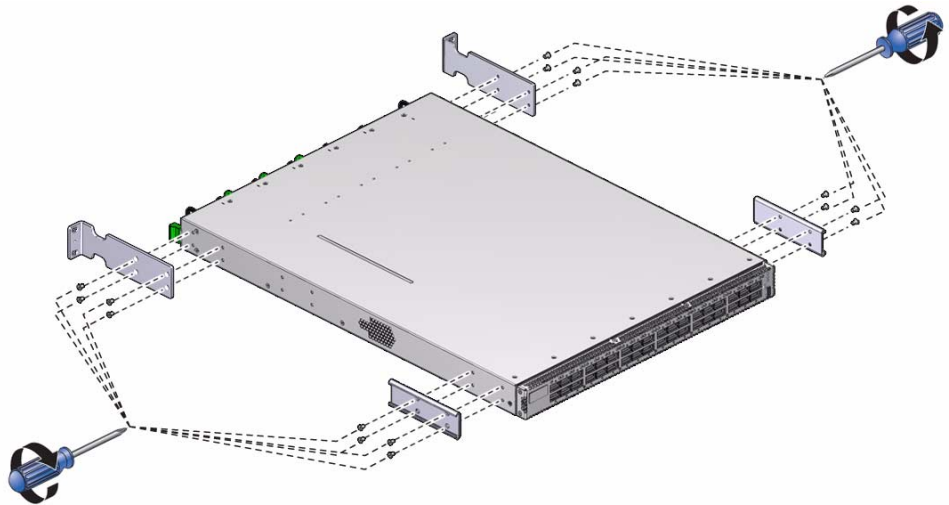
- b. Place the attachment plate on the flange side of the extender, opposite the attachment bracket.
- c. Use two screws to sandwich the attachment bracket and plate to the extender, in the position farthest from the flange.



- d. Using a No. 2 Phillips screwdriver, tighten the two screws.
  - e. Repeat from [Step a](#) for the other cable management extender.
4. Attach the cable management extenders and long rails to the rear of the rack.
    - a. Place the long rail to the mounting location on the post of the rack.
    - b. Butt the flange of the extender to the flange of the long rail.



- c. Secure the assembly to the post with two captive nuts and two screws.
  - d. Repeat from [Step a](#) for the other cable management extender and long rail.
5. Attach the long front brackets (with cutouts) to the front of the switch with four screws on each side.
- The flange of the long front brackets point away from the switch.



**6. Attach the C-shaped brackets to the switch with four screws on each side.**

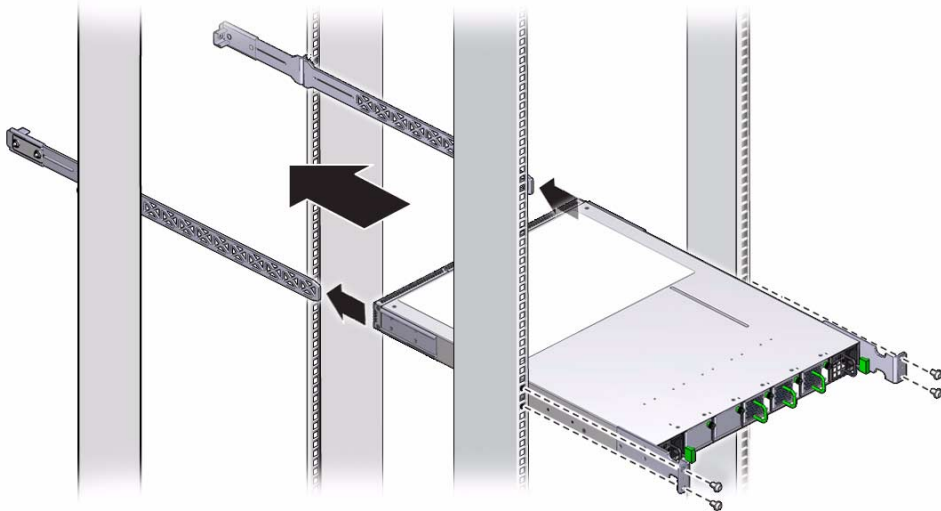
The edge of the C-shaped bracket is flush to the rear of the chassis.

**7. Route the power cords through the rack with the female end at the front of the rack where the switch will install.**

Ensure that there is 24 inches (610 mm) of power cord slack at the front of the rack to provide an adequate service loop when removing the switch from the rack.

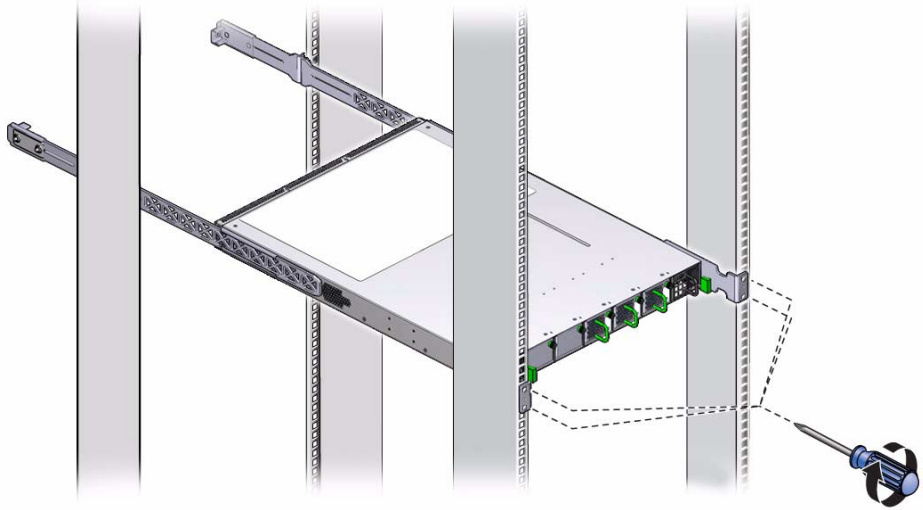
**8. Carefully lift the switch and slide it into the rack, from the front rearward.**

Ensure that the ends of the long rails slide into the C-shaped brackets at the rear of the switch chassis and that the power cords lay into the cut-outs of the long front mounting brackets.

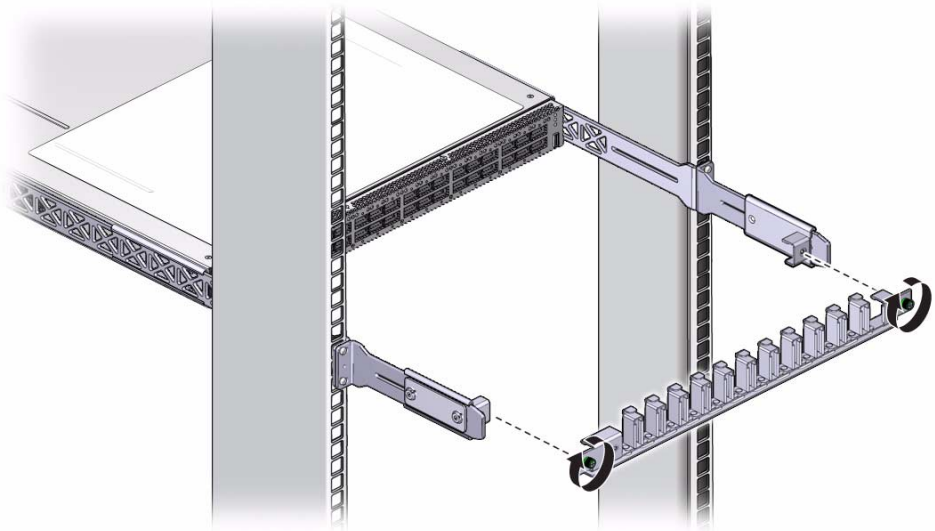


**9. Mount the front of the switch chassis to the front rack posts with two captive nuts and two screws at each side.**

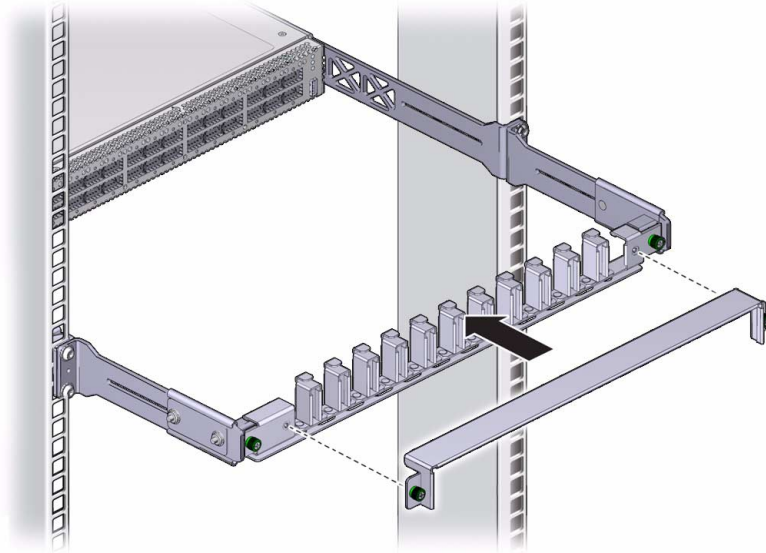
Tighten the screws securely.



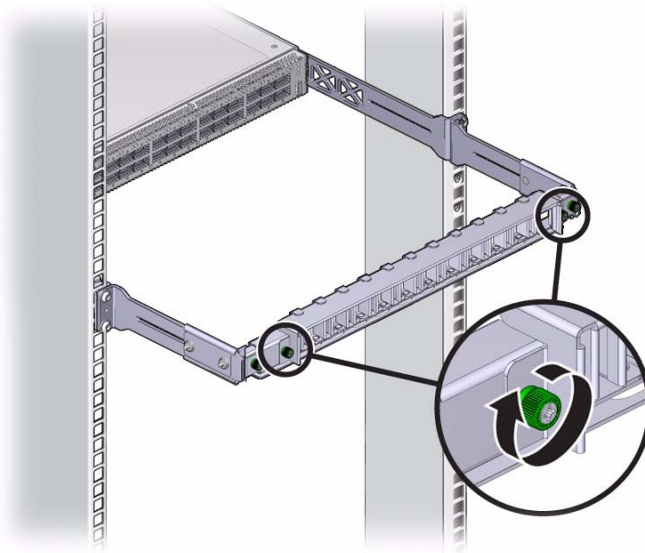
10. Install the cable management bracket to the tabs of the attachment brackets at the rear of the switch, tightening the thumbscrews on each side of the cable management bracket.



11. Install the cable management bracket cover.



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



**13. Attach the management cables.**

See [“Attach the Management Cables”](#) on page 31.

### Related Information

- [“Powering On the Switch” on page 31](#)
- [“Connecting InfiniBand cables” on page 44](#)
- [“Verifying the InfiniBand Fabric” on page 49](#)

---

## Powering On the Switch

After installing the components, enable powering on of the switch by performing these tasks.

- [“Attach the Management Cables” on page 31](#)
- [“Attach the Power Cords” on page 34](#)
- [“Accessing the Management Controller” on page 36](#)
- [“Verify the Switch Status” on page 39](#)
- [“Start the Subnet Manager” on page 42](#)

### Related Information

- [“Electrical Specifications” on page 3](#)
- [“Routing Service Cables” on page 9](#)
- [“Install the Switch in the Rack” on page 25](#)
- [“Connecting InfiniBand cables” on page 44](#)
- [“Verifying the InfiniBand Fabric” on page 49](#)

## ▼ Attach the Management Cables

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

The network management connector, labeled NET, is a 100/1000 BASE-T Ethernet interface. This connector is preferred because it permits remote management of the switch over the Ethernet network.

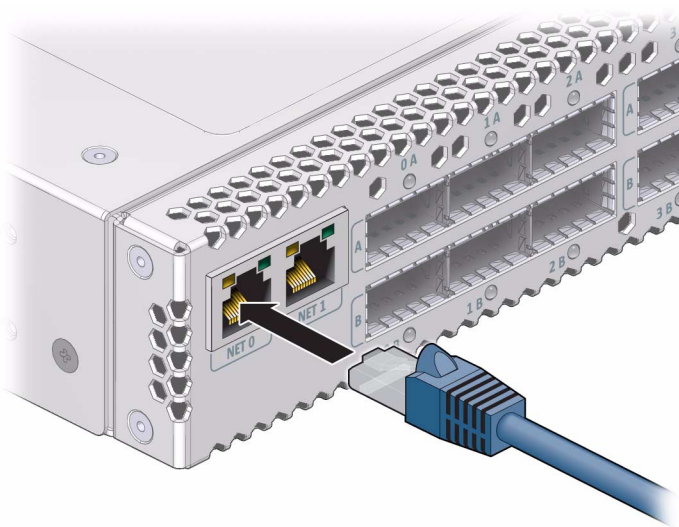
The USB management connector, labeled with the USB symbol, is the second choice for communication with the management controller in the switch. The management console can be a serial terminal, a system running a TTP connection, or other serial

device that communicates with the management controller through a USB-to-serial adapter. The serial parameters for communication with the USB-to-serial adapter is typically 115600, 8, N, 1.

1. **Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See “Installation Sequence” on page 20.

2. **Connect an Ethernet cable between the switch NET0 port and the network that is configured with a DHCP server.**



Connections to the management controller are made through DHCP.

3. **Configure your DHCP server with the MAC address of the management controller and to provide a host name and IP address to the switch.**

The MAC address is printed on the customer information (yellow) sheet on the outside of the switch shipping carton and on the pull-out tab on the left side front of the switch chassis, adjacent to power supply 0.

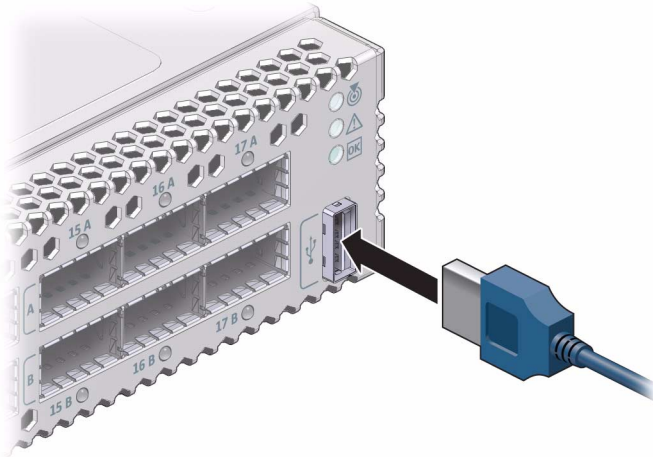
---

**Note** – If a DHCP server is not available, the management controller has a default static IP address of 169.254.0.36 with a subnet mask of 255.255.0.0. Alternatively, you can connect a USB-to-serial adapter cable between the switch’s USB port and a terminal device. This connection provides alternative communication with the management controller. The terminal device must be configured for 115200 baud, 8 bit, no parity, 1 stop bit.

---



4. (Optional) Connect the serial management cables from the management console to the USB-to-serial adapter and from the adapter to the connector labeled with the USB symbol.



5. Route the management cables so that they do not interfere with other cables, with servicing the switch, or with other systems.
6. Prepare the management console for communication with the management controller.
7. Power on the switch.  
See “Attach the Power Cords” on page 34.

#### Related Information

- “NET MGT Connector and Pins” on page 4
- “USB Management Connector and Pins” on page 5
- “Management Cable Requirements” on page 10
- “Attach the Power Cords” on page 34
- “Accessing the Management Controller” on page 36
- “Verify the Switch Status” on page 39
- “Start the Subnet Manager” on page 42
- “Attach the InfiniBand Cables” on page 44

## ▼ Attach the Power Cords

The power cords for the switch ship separately and are specific to the country of installation. See [“Power Cord Requirements” on page 9](#). 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.

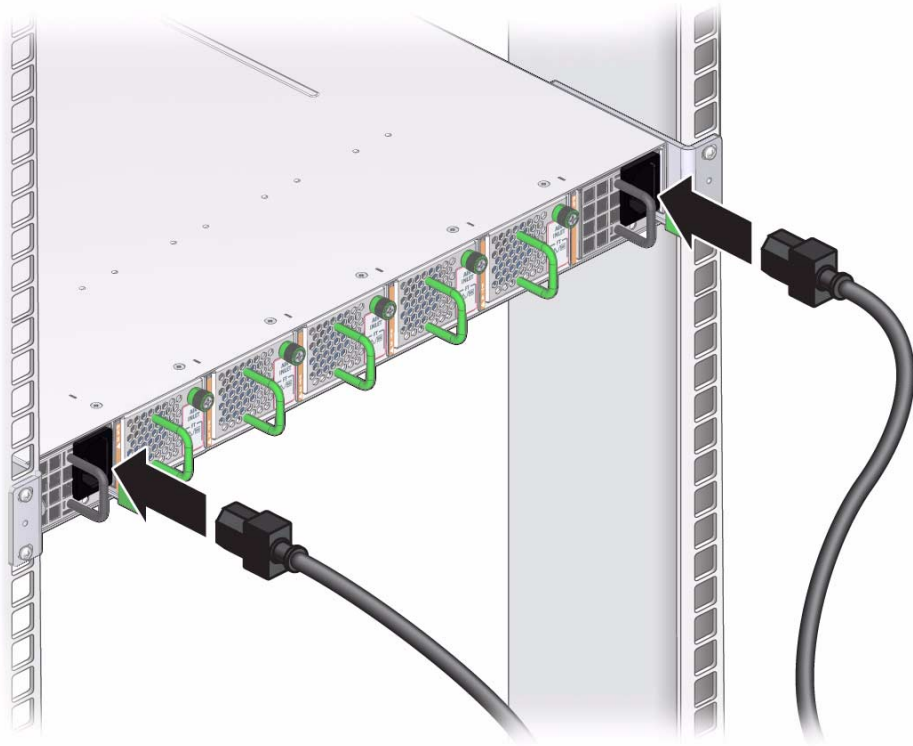
When live power is delivered to the receptacles at the rear of the chassis, standby and main power is made available by the power supplies. When standby power is distributed to the chassis, the management controller is powered on. The main power is supplied for the switch chip and fans.

**1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See [“Installation Sequence” on page 20](#).

**2. Ensure that the circuit breakers for the facility power are switched off.**

**3. Plug the power cords into the receptacles at the front of the switch chassis.**



**4. Route the end of 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.**

---

**Note** – To provide redundancy, connect each power cord to a separate power source. The switch can operate with only one power source, but there is no redundancy in that case.

---

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

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

The AC LED on each power supply lights green. A moment later, the OK LED lights green. The Attention LED should be unlit. Refer to *Switch Service*, checking power supply status LEDs.

- If the AC LED does not light, there is something wrong with supplied power.
- If the OK LED does not light, there is something wrong with the power supply.
- If the Attention LED on a power supply lights, there is a fault in the power supply.
- If the Attention LED on a fan lights, there is a fault with that fan.

---

**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 going into the fans, and the fan Attention LEDs should be unlit. Refer to *Switch Service*, checking fan status LEDs.

**9. Verify that the chassis status OK LED lights.**

Refer to *Switch Service*, checking chassis status LEDs.

**10. Access the management controller.**

See [“Accessing the Management Controller”](#) on page 36.

**Related Information**

- [“Power Cord Requirements”](#) on page 9
- [“Electrical Specifications”](#) on page 3
- [“Attach the Management Cables”](#) on page 31
- [“Accessing the Management Controller”](#) on page 36
- [“Verify the Switch Status”](#) on page 39
- [“Start the Subnet Manager”](#) on page 42
- [“Attach the InfiniBand Cables”](#) on page 44

# Accessing the Management Controller

With power applied, you can now access the management controller.

- [“Access the Management Controller From the NET MGT Port” on page 36](#)
- [“Access the Management Controller From the USB Management Port” on page 38](#)

## Related Information

- [“NET MGT Connector and Pins” on page 4](#)
- [“USB Management Connector and Pins” on page 5](#)
- [“Management Cable Requirements” on page 10](#)
- [“Attach the Management Cables” on page 31](#)
- [“Attach the Power Cords” on page 34](#)
- [“Verify the Switch Status” on page 39](#)
- [“Start the Subnet Manager” on page 42](#)

## ▼ Access the Management Controller From the NET MGT Port

---

**Note** – The administrator of the switch has the username of `ilom-admin`.

---

**1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See [“Installation Sequence” on page 20](#).

**2. If you have not already done so, configure your DHCP server.**

Use the MAC address of the management controller to provide a host name and IP address for the switch.

See [“Attach the Management Cables” on page 31](#).

**3. Open a SSH session and connect to the management controller by specifying the controller's host name as configured with the DHCP server.**

For example:

```
% ssh -l ilom-admin switch_name
ilom-admin@switch_name's password: password
Last login: Wed Dec 12 03:48:06 2012 from 10.195.1.11
#####
# This user never changed the default password.
# Please change password immediately!
#####
Oracle(R) Integrated Lights Out Manager
Version ILOM 3.0 r47111
Copyright (c) 2012, Oracle and/or its affiliates. All rights reserved.

->
```

where *switch\_name* is the host name of the management controller. Initially, the password is *ilom-admin*.

---

**Note** – You can change the *password* at a later time. Refer to *Switch Remote Management*, changing the user password, for instructions on how to change the *ilom-admin* password.

---

If you do not see this output or prompt, there is a problem with the DHCP configuration, network management communication, or the management controller. Refer to *Switch Service*, network management troubleshooting guidelines.

**4. Enter the restricted shell.**

```
-> show /SYS/Fabric Mgmt
NOTE: show on Fabric_Mgmt will launch a restricted Linux shell.
      User can execute switch diagnosis, SM Configuration and IB
      monitoring commands in the shell. To view the list of commands,
      use "help" at rsh prompt.

      Use exit command at rsh prompt to revert back to
      ILOM shell.

FabMan@switch_name->
```

**5. Verify the switch status.**

See “Verify the Switch Status” on page 39.

## Related Information

- “NET MGT Connector and Pins” on page 4
- “Management Cable Requirements” on page 10
- “Access the Management Controller From the USB Management Port” on page 38

## ▼ Access the Management Controller From the USB Management Port

1. **Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See “Installation Sequence” on page 20.

2. **If you have not already done so, connect a USB-to-serial adapter to the USB port of the switch.**
3. **Connect a serial terminal, terminal server, or workstation with a TIP connection to the USB-to-serial adapter.**

Configure the terminal or terminal emulator with these settings:

- 115200 baud
- 8 bits
- No parity
- 1 Stop bit
- No handshaking

4. **Press the Return or Enter key on the serial device several times to synchronize the connection.**

You might see text similar to this:

```
...
CentOS release 5.2 (Final)
Kernel 2.6.27.13-nm2 on an i686

switch_name login:
```

where *switch\_name* is the host name of the management controller. Even if you do not see the text, go to [Step 5](#).

5. Type `ilom-admin` for the login name followed by the password of `ilom-admin`.

```
switch_name login: ilom-admin
Password: ilom-admin
->
```

The `->` prompt is displayed.

---

**Note** – You can change the *password* at a later time. Refer to *Switch Administration*, changing the administrator password.

---

If you do not see this output or prompt, there is a problem with the serial configuration, the USB-to-serial adapter, or the management controller.

6. Enter the restricted shell.

```
-> show /SYS/Fabric_Mgmt
NOTE: show on Fabric_Mgmt will launch a restricted Linux shell.
      User can execute switch diagnosis, SM Configuration and IB
      monitoring commands in the shell. To view the list of commands,
      use "help" at rsh prompt.

      Use exit command at rsh prompt to revert back to
      ILOM shell.

FabMan@switch_name->
```

7. Verify the switch status.

See [“Verify the Switch Status”](#) on page 39.

#### Related Information

- [“USB Management Connector and Pins”](#) on page 5
- [“Management Cable Requirements”](#) on page 10
- [“Access the Management Controller From the NET MGT Port”](#) on page 36

## ▼ Verify the Switch Status

You can use these commands on the management controller to check the status of the switch.

**1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See “Installation Sequence” on page 20.

**2. Check the overall health of the switch:**

```
FabMan@switch_name-> showunhealthy  
OK - No unhealthy sensors  
FabMan@switch_name->
```

An unfavorable output from the `showunhealthy` command means a hardware fault with that particular component.

**3. Check the status of the power supplies:**

```
FabMan@switch_name-> checkpower  
PSU 0 present OK  
PSU 1 present OK  
All PSUs OK  
FabMan@switch_name->
```

A power supply output that is not OK from the `checkpower` command means that there is a problem with that power supply. Refer to *Switch Service*, checking power supply status LEDs, for assistance.

**4. Check the status of the fans:**

```
FabMan@switch_name-> getfanspeed  
Fan 0 not present  
Fan 1 running at rpm 12099  
Fan 2 running at rpm 11772  
Fan 3 running at rpm 11772  
Fan 4 not present  
FabMan@switch_name->
```

- A stopped or low speed in the output of the `getfanspeed` command means there is a problem with that particular fan.
- If `not present` is in the output of the `getfanspeed` command, yet a fan is installed at that particular slot, there is a problem with that fan.

For either condition, check the fan. Refer to *Switch Service*, servicing fans.



## 5. Check the status of the switch chip:

```
FabMan@switch_name->checkboot
Switch OK
All Internal ibdevices OK
FabMan@switch_name->
```

If in the output of the `checkboot` command a component is *not* OK, there is a problem with that component. Try resetting the component. Refer to *Switch Administration*, resetting the switch chip.

## 6. Alternatively, you can use the `env_test` command to perform the preceding checks and more:

```
FabMan@switch_name->env_test
Environment test started:
Starting Environment Daemon test:
Environment daemon running
Environment Daemon test returned OK
Starting Voltage test:
Voltage ECB OK
Measured 3.3V Main = 3.28 V
Measured 3.3V Standby = 3.37 V
Measured 12V = 12.06 V
Measured 5V = 5.03 V
Measured VBAT = 3.25 V
Measured 2.5V = 2.49 V
Measured 1.8V = 1.78 V
Measured I4 1.2V = 1.22 V
Voltage test returned OK
Starting PSU test:
PSU 0 present
PSU 1 present
PSU test returned OK
Starting Temperature test:
Back temperature 28
Front temperature 28
SP temperature 42
Switch temperature 32, maxtemperature 32
Temperature test returned OK
Starting FAN test:
Fan 0 not present
Fan 1 running at rpm 11881
Fan 2 running at rpm 11663
Fan 3 running at rpm 11881
Fan 4 not present
FAN test returned OK
Starting Connector test:
```

```
Connector test returned OK
Starting Onboard ibdevice test:
Switch OK
All Internal ibdevices OK
Onboard ibdevice test returned OK
Starting SSD test:
SSD test returned OK
Environment test PASSED
FabMan@switch_name->
```

---

**Note** – If in the output of the `env_test` command a voltage deviates more than 10% from the provided specification, there is a problem with the respective component.

---

## 7. Once the switch has an operational status, you can start the Subnet Manager.

See [“Start the Subnet Manager”](#) on page 42.

### Related Information

- [Switch Reference](#), `showunhealthy` command
- [Switch Reference](#), `getfanspeed` command
- [Switch Reference](#), `checkboot` command
- [Switch Reference](#), `env_test` command
- [“Attach the Management Cables”](#) on page 31
- [“Attach the Power Cords”](#) on page 34
- [“Accessing the Management Controller”](#) on page 36
- [“Start the Subnet Manager”](#) on page 42

## ▼ Start the Subnet Manager

---

**Note** – If you do not need either a primary or secondary Subnet Manager running on the switch, you can skip this procedure and attach the InfiniBand cables. See [“Attach the InfiniBand Cables”](#) on page 44.

---

Your InfiniBand fabric requires only one primary (or master) Subnet Manager, and it has the highest priority. If any other Subnet Managers exist, they are secondary (or standby) Subnet Managers, and *must* have a lower priority. You must determine which switch, gateway, or InfiniBand device hosts the primary Subnet Manager, and if there are secondary Subnet Managers. If you have only one switch in your InfiniBand fabric, and there are no Subnet Managers other than the one within the management controller, you do not need to set the Subnet Manager priority.

1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.

See “Installation Sequence” on page 20.

2. Enable the Subnet Manager:

```
FabMan@switch_name-> enablesm
Starting IB Subnet Manager.           [ OK ]
Starting partitiond daemon.           [ OK ]
FabMan@switch_name->
```

3. (Optional) Configure the priority of the Subnet Manager within the management controller.

- a. Set the priority of the Subnet Manager:

```
FabMan@switch_name-> setsmpriority priority
```

where *priority* is 0 (lowest) to 13 (highest). For example, to set the Subnet Manager to priority 13:

```
FabMan@switch_name-> setsmpriority 13
Current SM settings:
smpriority 13
controlled_handover FALSE
subnet_prefix 0xfe80000000000000
M_Key None
Routing engine FatTree
FabMan@switch_name->
```

- b. Restart the Subnet Manager:

```
FabMan@switch_name-> disablesm
Stopping partitiond daemon.           [ OK ]
Stopping IB Subnet Manager..          [ OK ]
FabMan@switch_name-> enablesm
Starting IB Subnet Manager.           [ OK ]
Starting partitiond daemon.           [ OK ]
FabMan@switch_name->
```

4. Attach the InfiniBand cables.

See “Attach the InfiniBand Cables” on page 44.

## Related Information

- *Switch Reference*, `setsmpriority` command

- *Switch Reference*, enablesm command
- “Attach the Management Cables” on page 31
- “Attach the Power Cords” on page 34
- “Accessing the Management Controller” on page 36
- “Verify the Switch Status” on page 39

---

## Connecting InfiniBand cables

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

- “Attach the InfiniBand Cables” on page 44
- “Check Link Status” on page 49

### Related Information

- “Understanding InfiniBand Cabling” on page 11
- “Install the Switch in the Rack” on page 25
- “Powering On the Switch” on page 31
- “Verifying the InfiniBand Fabric” on page 49

## ▼ Attach the InfiniBand Cables



---

**Caution** – InfiniBand cables must never turn tighter than a 5-inch (127 mm) radius. A tighter radius damages the wires and fibers inside the cable.

---

---

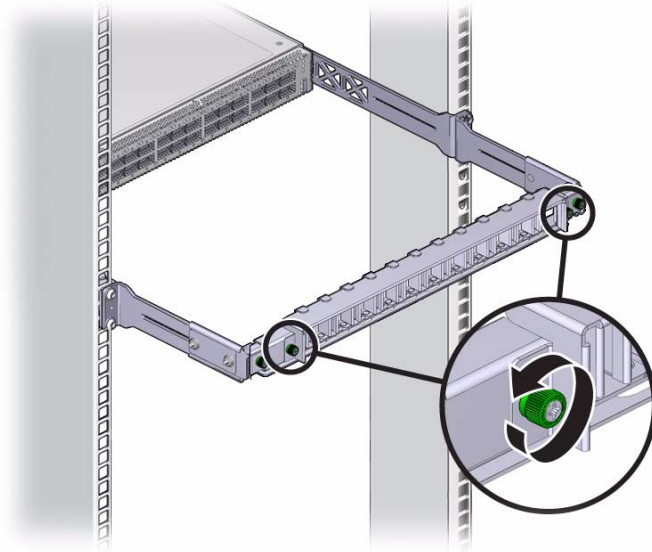
**Note** – When you install the InfiniBand cables, connect cables to the lower connectors first, then connect cables to the upper connectors.

---

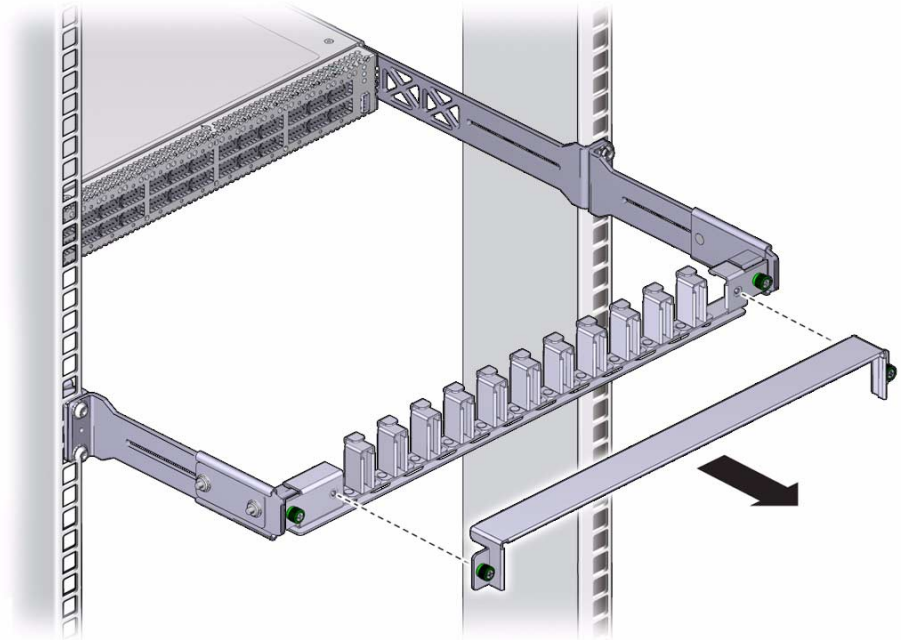
**1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See “Installation Sequence” on page 20.

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



3. Lift the cover off.

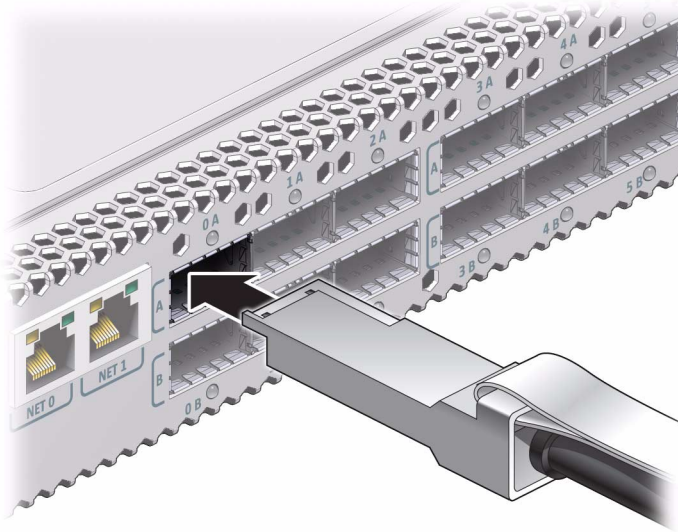


4. Remove the protective cap from the connector or transceiver and visually inspect the cable connector.

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.

5. Ensure that the retraction strap is folded back against the cable.
6. Orient the cable connector to the QSFP receptacle squarely and horizontally.

Ensure 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.



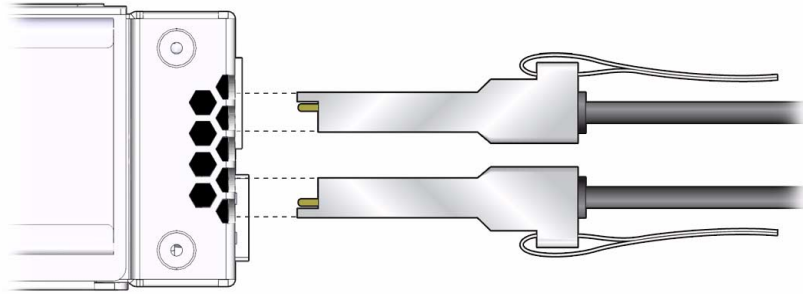
---

**Note** – On some QSFP cable connectors, there is a retraction strap. Both the retraction strap and L groove indicate the reference surface for the connector. When installing QSFP cables in the top row of receptacles (0A, 1A, 2A, and so on), ensure that the L groove and retraction strap are up. When installing QSFP cables in the bottom row of receptacles (0B, 1B, 2B, and so on) ensure that the L groove and retraction strap are down. Refer to *Switch Service*, identifying the InfiniBand cable.

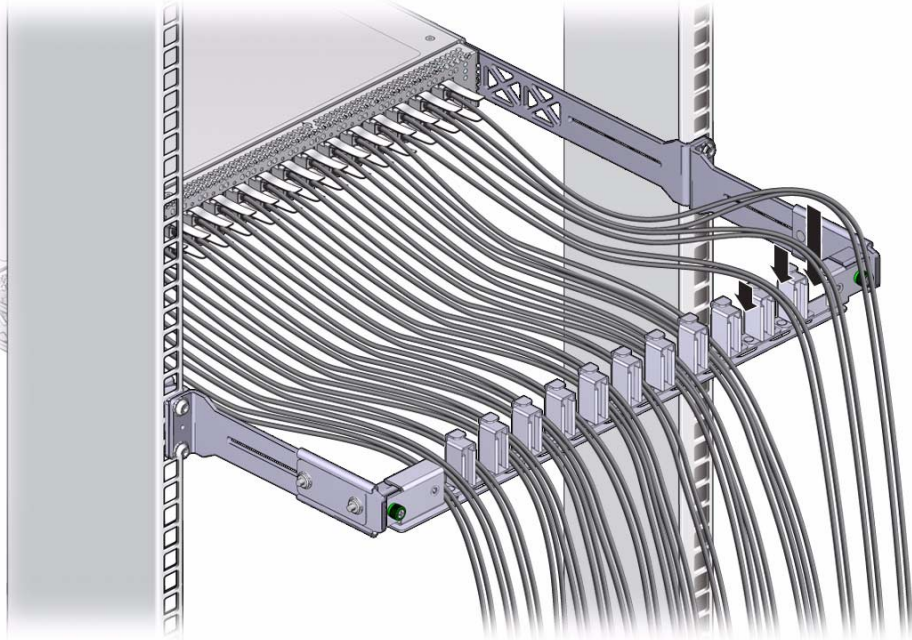
---

7. Slowly move the connector in.

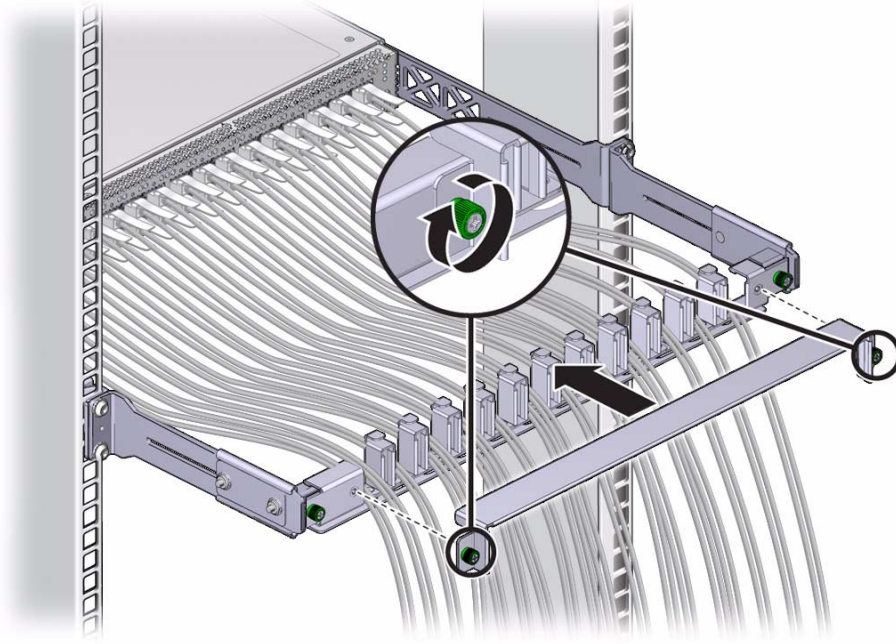
As you slide the connector in, the shell should be in the center of the QSFP receptacle.



- If the connector stops or binds after about 1/4 in. (5 mm) travel, back out and repeat from [Step 6](#).
  - If the connector stops or binds with about 1/8 in. (2 mm) still to go, back out and repeat [Step 7](#).
8. Continue to push the connector in until you feel a detent.
  9. Place the cable into the open slot on the cable management bracket.



10. Repeat [Step 4](#) through [Step 9](#) for all cables to be installed.
11. Replace the cover for the cable management bracket and tighten the thumbscrews.



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

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

---

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

---

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

If the Link LED is unlit, the link is down. If the Link LED flashes, there are symbol errors. Refer to *Switch Service*, checking the link status LEDs.

14. **If possible, close the rack doors to maintain EMI compliance.**

15. **Check the link status.**

See “[Check Link Status](#)” on page 49.

#### **Related Information**

- “[Understanding InfiniBand Cabling](#)” on page 11
- “[Attach the Management Cables](#)” on page 31
- “[Attach the Power Cords](#)” on page 34
- “[Check Link Status](#)” on page 49



## ▼ Check Link Status

1. **Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.**

See “Installation Sequence” on page 20.

2. **On the management controller, determine the state of the links:**

```
FabMan@switch_name-> listlinkup link peer
```

- If the link for a connector is reported as `Not present`, there is no cable attached, or the link at either end of the cable is down.
- If a port is `down`, use the `enableswitchport` command to bring the port up. Refer to *Switch Administration*, enabling a switch chip port.

3. **Verify the InfiniBand fabric.**

See “Discover the InfiniBand Fabric Topology” on page 50.

### Related Information

- *Switch Reference*, `listlinkup` command
- *Switch Reference*, `enableswitchport` command
- “Verify the Switch Status” on page 39
- “InfiniBand Cable Cautions” on page 12
- “InfiniBand Cable Guidelines” on page 13
- “Attach the InfiniBand Cables” on page 44

---

## Verifying the InfiniBand Fabric

Use the `ibnetdiscover` and `ibdiagnet` commands to initially determine the operational status of your Sun Datacenter InfiniBand Switch 36 from Oracle in the InfiniBand fabric.

- “InfiniBand Node Description” on page 50
- “Discover the InfiniBand Fabric Topology” on page 50
- “Perform Diagnostics on the InfiniBand Fabric” on page 51

### Related Information

- “Install the Switch in the Rack” on page 25

- [“Powering On the Switch” on page 31](#)
- [“Connecting InfiniBand cables” on page 44](#)

## InfiniBand Node Description

In the output of some hardware and InfiniBand commands, the switch is identified by its node description. The node description is of this format:

```
SUN IB QDR 36p switch hostname
```

where *hostname* is the host name of the management controller. An example node description might be:

```
SUN IB QDR 36p switch mnm34-97
```

### Related Information

- [“Discover the InfiniBand Fabric Topology” on page 50](#)
- [“Perform Diagnostics on the InfiniBand Fabric” on page 51](#)

## ▼ Discover the InfiniBand Fabric Topology

The `ibnetdiscover` command enables you to see the InfiniBand fabric topology.

### 1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.

See [“Installation Sequence” on page 20](#).

### 2. On the management controller, type:

```
FabMan@switch_name->ibnetdiscover
#
# Topology file: generated on Thu Dec 13 03:41:36 2012
#
# Max of 1 hops discovered
# Initiated from node 0021283a8389a0a0 port 0021283a8389a0a0
vendid=0x2c9
devid=0xbd36
sysimgguid=0x21283a8389a0a3
switchguid=0x21283a8389a0a0 (21283a8389a0a0)
Switch 36 "S-0021283a8389a0a0" # "Sun DCS 36 QDR switch localhost" enhanced port
0 lid 15 lmc 0
[23]      "H-0003ba000100e388" [2] (3ba000100e38a) # "mnm33-43 HCA-1" lid 14 4xQDR
```

```
vendid=0x2c9
devid=0x673c
sysimgguid=0x3ba000100e38b
caguid=0x3ba000100e388
Ca      2 "H-0003ba000100e388" # "mnm33-43 HCA-1"
[2] (3ba000100e38a) "S-0021283a8389a0a0"[23] # lid 14 lmc 0 "Sun DCS 36 QDR
switch localhost" lid 15 4xQDR
FabMan@switch_name->
```

---

**Note** – The output for your InfiniBand fabric will differ from that in the example.

---

### 3. Perform InfiniBand fabric diagnostics.

See “Perform Diagnostics on the InfiniBand Fabric” on page 51.

#### Related Information

- *Switch Reference*, `ibnetdiscover` command
- “InfiniBand Node Description” on page 50
- “Perform Diagnostics on the InfiniBand Fabric” on page 51

## ▼ Perform Diagnostics on the InfiniBand Fabric

The `ibdiagnet` command performs a collection of tests on the InfiniBand fabric and generates several files that contain parameters and aspects of the InfiniBand fabric.

### 1. Identify the prerequisite and subsequent installation tasks that you must perform in conjunction with this procedure.

See “Installation Sequence” on page 20.

### 2. On the management controller, type:

```
FabMan@switch_name-> ibdiagnet
```

In this example, the `ibdiagnet` command is minimized to determine which links are underperforming:

```
FabMan@switch_name-> ibdiagnet -lw 4x -ls 10 -skip all
Loading IBDIAGNET from: /usr/lib/ibdiagnet1.2
-W- Topology file is not specified.
   Reports regarding cluster links will use direct routes.
Loading IBDM from: /usr/lib/ibdml.2
-I- Using port 0 as the local port.
```

```

-I- Discovering ... 2 nodes (1 Switches & 1 CA-s) discovered.
.
.
.
-I- Links With links width != 4x (as set by -lw option)
-I-----
-I- No unmatched Links (with width != 4x) were found
-I-----
-I- Links With links speed != 10 (as set by -ls option)
-I-----
-I- No unmatched Links (with speed != 10) were found
.
.
.
-I- Stages Status Report:
      STAGE                               Errors Warnings
Bad GUIDs/LIDs Check                      0         0
Link State Active Check                   0         0
Performance Counters Report               0         0
Specific Link Width Check                 0         0
Specific Link Speed Check                 0         0
Partitions Check                          0         0
IPoIB Subnets Check                      0         0
Please see /tmp/ibdiagnet.log for complete log
-----
-I- Done. Run time was 1 seconds.
FabMan@switch_name->

```

---

**Note** – The output for your InfiniBand fabric will differ from that in the example.

---

**3. The switch is installed, however full functionality is not attained until the switch is configured.**

Refer to *Switch Administration*, configuration overview.

**4. After configuration, create an Oracle ILOM backup, for restoration at a later time, if needed.**

Refer to *Switch Remote Management*, backing up the configuration.

**Related Information**

- *Switch Reference*, ibdiagnet command
- [“InfiniBand Node Description” on page 50](#)
- [“Discover the InfiniBand Fabric Topology” on page 50](#)

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