



Hardware Installation Guide for CQ211L01-48H8FH Switch

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CHAPTER 1

Cisco CQ211L01 Switch Overview

- [Cisco CQ211L01 Switch, on page 1](#)

Cisco CQ211L01 Switch

Table 1: Feature History Table

Hardware Name	Release	Description
Cisco CQ211L01-48H8FH Switch	1.11	These are fixed-port, high-density, 1RU form-factor routers that support 48 ports of 100GE DSFP and 8 ports of 400 GE QSFP-DD, It provides 8Tbps of network bandwidth.

The Cisco CQ211L01 Switch utilizes Cisco's new Router-on-Chip (RoC) model to deliver full routing functionality with a single ASIC per router. The RoC architecture is distinguished from System-on-Chip (SoC) switches by supporting large forwarding tables, deep buffers, more flexible packet operations, and enhanced programmability.

The Cisco CQ211L01 Switch presently comprises:

- Cisco CQ211L01 Switch –The Cisco CQ211L01 switch is a high-performance and high-density switch designed for cloud data center applications. It offers 48 ports of 100GE DSFP and 8 ports of 400 GE QSFP-DD, delivering a total of 8 Tbps of switching capacity.

For more details on the Cisco CQ211L01 Switch, see [Cisco CQ211L01 Data Sheet](#).



CHAPTER 2

Prepare for Installation



Note The images in this chapter are only for representational purposes, unless specified otherwise. The chassis' actual appearance and size may vary.



Warning **Statement 1071**— Warning Definition

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry, and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

- [Safety Guidelines, on page 2](#)
- [Compliance and Safety Information, on page 3](#)
- [Laser Safety, on page 5](#)
- [Energy Hazard, on page 5](#)
- [Installation Guidelines, on page 7](#)
- [Procure Tools and Equipment, on page 7](#)
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Safety Guidelines

Before you perform any procedure in this document, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment. The following guidelines are for your safety and to protect the equipment. Because the guidelines do not include all hazards, be constantly alert.

- Keep the work area clear, smoke and dust-free during and after installation. Do not allow dirt or debris to enter into any laser-based components.
- Do not wear loose clothing, jewelry, or other items that could get caught in the router or other associated components.
- Cisco equipment operates safely when used in accordance with its specifications and product-usage instructions.
- If potentially hazardous conditions exist, do not work alone.
- Take care when connecting multiple units to the supply circuit so that wiring is not overloaded.
- This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain about whether suitable grounding is available.
- When installing or replacing the unit, the ground connection must always be made first and disconnected last.
- To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules (such as power supplies, fans, or cards); these types of handles are not designed to support the weight of the unit.
- Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

Compliance and Safety Information

The Cisco CQ211L01 Switch are designed to meet the regulatory compliance and safety approval requirements. For detailed safety information, see [Regulatory Compliance and Safety Information—Cisco CQ211L01 Switch](#).



Warning **Statement 1089**—Instructed and Skilled Person Definitions

An instructed person is someone who has been instructed and trained by a skilled person and takes the necessary precautions when working with equipment.

A skilled person or qualified personnel is someone who has training or experience in the equipment technology and understands potential hazards when working with equipment.



Warning **Statement 1004**—Installation Instructions

Read the installation instructions before using, installing, or connecting the system to the power source.



Warning **Statement 9001**—Product Disposal

Ultimate disposal of this product should be handled according to all national laws and regulations.



Warning **Statement 1074**—Comply with Local and National Electrical Codes

To reduce risk of electric shock or fire, installation of the equipment must comply with local and national electrical codes.



Warning **Statement 1075**—Power Cable and AC Adapter

When installing the product, use the provided or designated connection cables, power cables, AC adapters, and batteries. Using any other cables or adapters could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the "UL" or "CSA" shown on the cord), not regulated with the subject law by showing "PSE" on the cord, for any other electrical devices than products designated by Cisco.



Warning **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



Warning **Statement 1090**—Installation by Skilled Person

Only a skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of a skilled person.



Warning **Statement 1091**—Installation by an Instructed Person

Only an instructed person or skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of an instructed or skilled person.



Warning **Statement 1029**—Blank Faceplates and Cover Panels

Blank faceplates and cover panels serve three important functions: they reduce the risk of electric shock and fire, they contain electromagnetic interference (EMI) that might disrupt other equipment, and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Laser Safety



Warning **Statement 1051**—Laser Radiation

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.



Warning **Statement 1055**—Class 1/1M Laser

Invisible laser radiation is present. Do not expose to users of telescopic optics. This applies to Class 1/1M laser products.



Warning **Statement 1255**—Laser Compliance Statement

Pluggable optical modules comply with IEC 60825-1 Ed. 3 and 21 CFR 1040.10 and 1040.11 with or without exception for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice No. 56, dated May 8, 2019.

Energy Hazard

The routers can be configured for a DC power source. Do not touch terminals while they are live. Observe the following warning to prevent injury.



Warning **Statement 1086**—Power Terminals

Hazardous voltage or energy may be present on power terminals. Always replace cover when terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place.

Preventing Electrostatic Discharge Damage

Many switch components can be damaged by static electricity. Not exercising the proper electrostatic discharge (ESD) precautions can result in intermittent or complete component failures. To minimize the potential for ESD damage, always use an ESD-preventive antistatic wrist strap (or ankle strap) and ensure that it makes adequate skin contact.



Note Check the resistance value of the ESD-preventive strap periodically. The measurement should be 1–10 megohms.

Before you perform any of the procedures in this guide, attach an ESD-preventive strap to your wrist and connect the leash to the chassis.

Installation Guidelines

Before installing the chassis, ensure that the following guidelines are met:

- Site is properly prepared so that there is sufficient room for installation and maintenance.
- Operating environment is within the ranges that are listed in Environment and Physical specifications. For more details on environmental requirements, see [Cisco CQ211L01 Switch Data Sheet](#).
- Chassis is mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting the chassis in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the chassis in the rack.
- Airflow around the chassis and through the vents is unrestricted.
- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures. Make sure that the cabling is safely away from other devices that might damage the cables.
- Each port must match the wave-length specifications on each end of the cable, and the cable must not exceed the stipulated cable length.



Note Cisco CQ211L01 Switch function in operating temperatures of up to 40°C at sea level. For every 300 meters (1000 ft), the maximum temperature is reduced by 1°C. For more details on environmental requirements, see [Cisco CQ211L01 Switch Data Sheet](#).



Note For fixed-port routers that support port side exhaust fans and power supplies, the maximum temperature is reduced by 5°C (for example, 35°C at sea level or 30°C at 1500 meters).

Procure Tools and Equipment

Obtain these necessary tools and equipment for installing the chassis:

- Number 1 and number 2 Phillips screwdrivers with torque capability to rack-mount the chassis.
- 3/16-inch flat-blade screwdriver.
- Tape measure and level.
- ESD wrist strap or other grounding device.
- Antistatic mat or antistatic foam.
- Two-hole ground lug (1).

- Grounding cable sized according to local and national installation requirements; the required length depends on the proximity of the switch to proper grounding facilities. Cisco provides a 6 AWG lug.
- Crimping tool for lug.
- Wire-stripping tool.
- M4 screws to fix brackets (16).
- M4 screws to fix a ground lug (2).

Switch Accessory Kit

The following table contains the switch accessory kit PIDs. The switch accessory kit contains the rack mount kit and the ground lug kit. The rack mount kit present in the accessory kit contains the screws and brackets required for installation.

Table 2: Switch Accessory Kit

Switch	Accessory Kit	Rack Depth Range
Cisco CQ211L01 Switch	CQ211L01-ACC-KIT	For rack depths between 23.62 in. (600.00 mm) and 32 in. (812.8 mm).

Prepare Your Location

This section illustrates how the building that houses the chassis must be properly grounded to the earth ground.

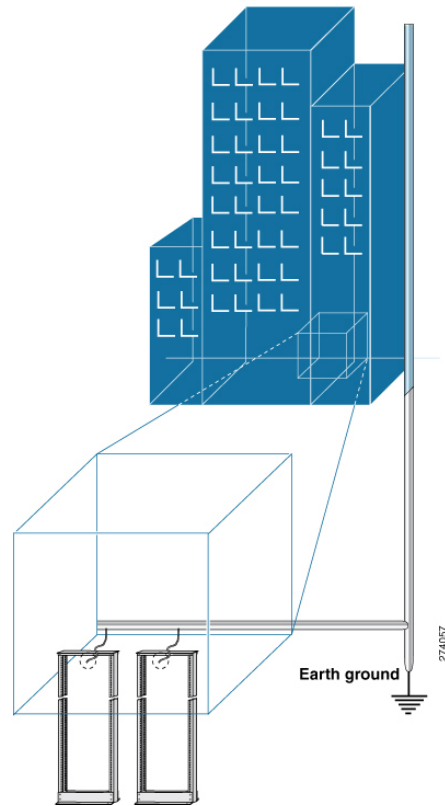


Note Unless specified otherwise, the image is only for representational purposes. The rack's actual appearance and size may vary.



Note This image is only for representational purposes. Your grounding requirement depends on your building.

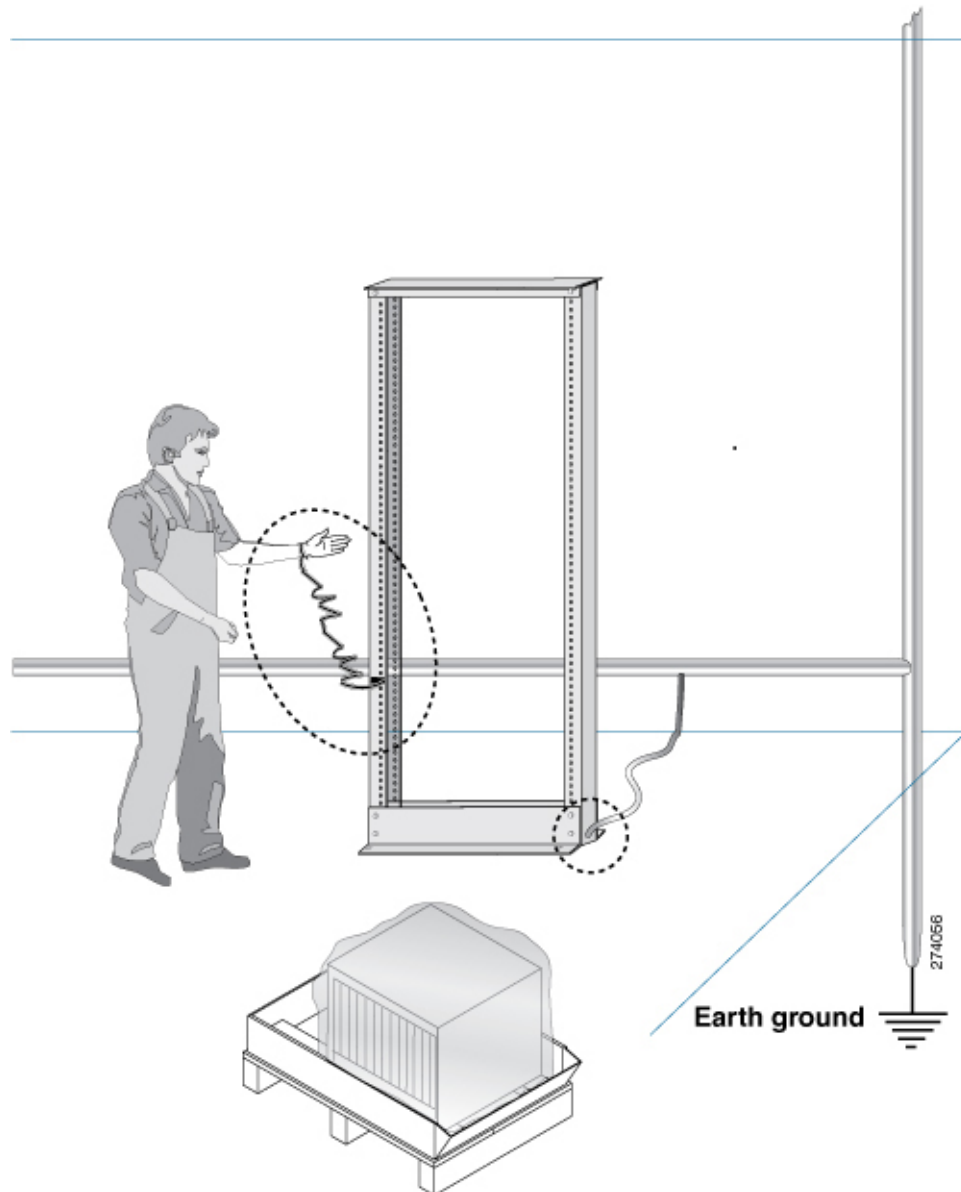
Figure 1: Building with Rack Room Connected to Earth Ground



Prepare Yourself

This section illustrates how to prepare yourself before removing the chassis from the sealed antistatic bag. The figures show how to cuff the ESD strap around the wrist and the ground cord that connects the cuff to the ground. ESD wrist straps are the primary means of controlling static charge on personnel.

Figure 2: Wearing the ESD Strap



Prepare Rack for Chassis Installation

Install the Cisco CQ211L01 Switch on a standard 19 inch, Electronic Industries Alliance (EIA) rack with mounting rails that conform to English universal hole spacing according to Section 1 of the ANSI/EIA-310-D-1992 standard.



Note The Cisco CQ211L01-48H8FH rack mount kit contains the rack mounting brackets for 19-inch rack. To install the chassis in a 23-inch rack or an ETSI rack, you need adapter plates to accommodate the 19-inch rack mount brackets.

The spacing between the posts of the rack must be (EIA-310-D-1992 19-inch rack compatible) wide enough to accommodate the width of the chassis.

Figure 3: Rack Specification EIA (19 and 23 inches)

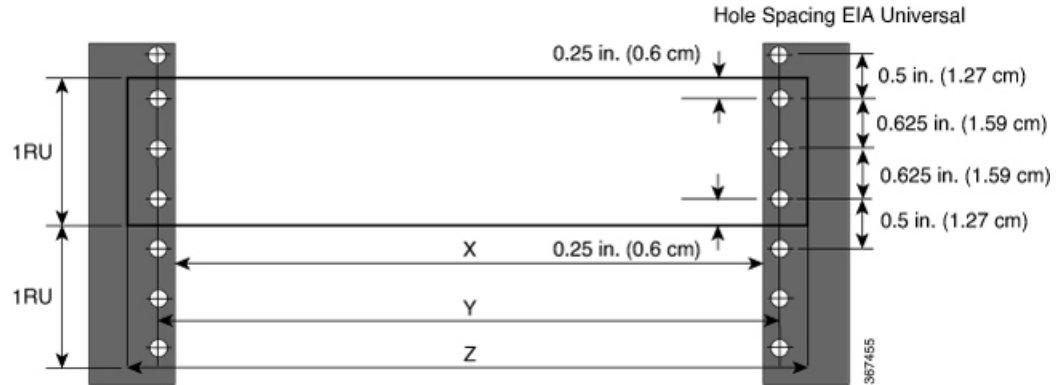


Table 3: Rack Specification EIA (19 and 23 inches)

Post Type	Rack Type	Rack Front Opening (X)	Rack Mounting Hole Center-Center (Y)	Mounting Flange Dimension (Z)
4 Post	19 inches (48.3 centimeters)	450.8mm (17.75")	465mm (18.312")	482.6mm (19")
2 Post				
4 Post	23 inches (58.4 centimeters)	552.45mm (21.75")	566.7mm (22.312")	584.2mm (23")
2 Post				

Before you move the chassis or mount the chassis into the rack, we recommend that you do the following:

Step 1 Place the rack at the location where you plan to install the chassis.

Step 2 (Optional) Secure the rack to the floor.

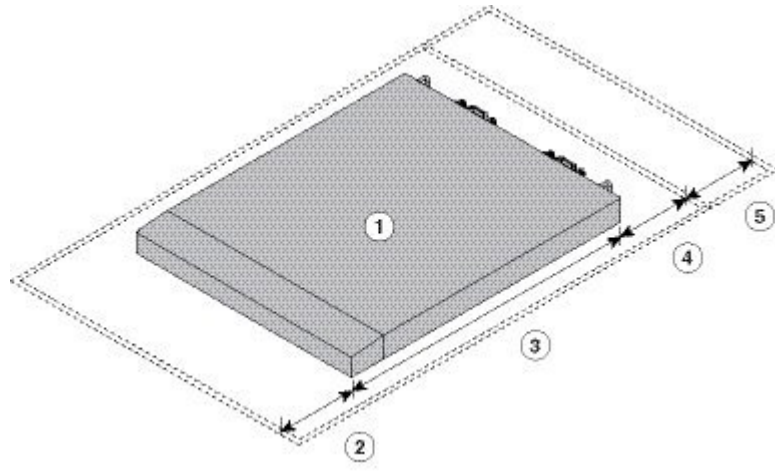
To bolt the rack to the floor, a floor bolt kit (also called an anchor embedment kit) is required. For information on bolting the rack to the floor, consult a company that specializes in floor mounting kits (such as Hilti; see Hilti.com for details). Make sure that floor mounting bolts are accessible, especially if annual retorquing of bolts is required.

Note Ensure that the rack in which the chassis is being installed is grounded to earth ground.

Clearance Requirements

The chassis requires front-to-back airflow. Leave at least 6.0 in. (15.24 cm) front and rear clearance for air intake or exhaust. We recommend that you have at least 6.0 in. (15.24 cm) of space in front of the chassis to provide room to maneuver the cables to make the required connections. Leave an extra 6.0 in. (15.24 cm) rear clearance for removal and installation of power supplies and fan modules.

Figure 4: Clearances Required Around the Chassis



1	Chassis	4	6.0 in. (15.24 cm) rear clearance for air intake/exhaust.
2	6.0 in. (15.24 cm) front clearance for air intake/exhaust.	5	Additional 6.0 in. (15.24 cm) rear clearance for removal and installation of power supplies and fan modules.
3	CQ211L01-48H8FH 23.62 in.(60.00 cm) Chassis depth.		



CHAPTER 3

Installing the Chassis

- [Rack Mount the Chassis, on page 14](#)
- [Ground the Chassis, on page 20](#)
- [Power Supply Unit Input and Output Ranges, on page 22](#)
- [Connect AC Power to the Chassis, on page 23](#)

Rack Mount the Chassis

The chassis can be mounted on a 4-post rack.



Warning **Statement 1032**—Lifting the Chassis

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules, such as power supplies, fans, or cards. These types of handles are not designed to support the weight of the unit.



Warning **Statement 1006**—Chassis Warning for Rack-Mounting and Servicing

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
 - When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
 - If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
-

**Warning Statement 1047**—Overheating Prevention

To reduce the risk of fire or bodily injury, do not operate the unit in an area that exceeds the maximum recommended ambient temperature of:

104⁰F(40⁰ C).

**Warning Statement 1048**—Rack Stabilization

The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before installation or servicing. Failure to stabilize the rack can cause bodily injury.

Rack-Mount the Chassis in a 4-Post Rack

This section describes how to install the switch in a 4-post rack.



Caution If the rack is on wheels, ensure that the brakes are engaged or that the rack is otherwise stabilized.

The following table lists the items that are contained in the rack-mount kit.

Table 4: Rack-Mount Kit

Quantity	Part Description
2	Rack-mount brackets
18	M4 x 6-mm Phillips flat-head screws
2	M4 x 6-mm Phillips pan-head screws
2	Rack-mount guides
2	Rack-mount guide rails, 2 lengths for different 4-post depths
1	Grounding plate (applies to Cisco 8201, Cisco 8201-32FH, and Cisco 8201-24H8FH routers)
1	Grounding lug and screws

Step 1 Install the rack-mount brackets to the switch as follows:

a) Determine which end of the chassis is to be located in the cold aisle as follows:

- If the switch has port-side intake modules (fan modules and power modules with burgundy coloring), position the switch so that the ports are in the cold aisle.
- If the switch has port-side exhaust modules (fan modules and power modules with blue coloring), position the switch so that the fan and power supply modules are in the cold aisle.

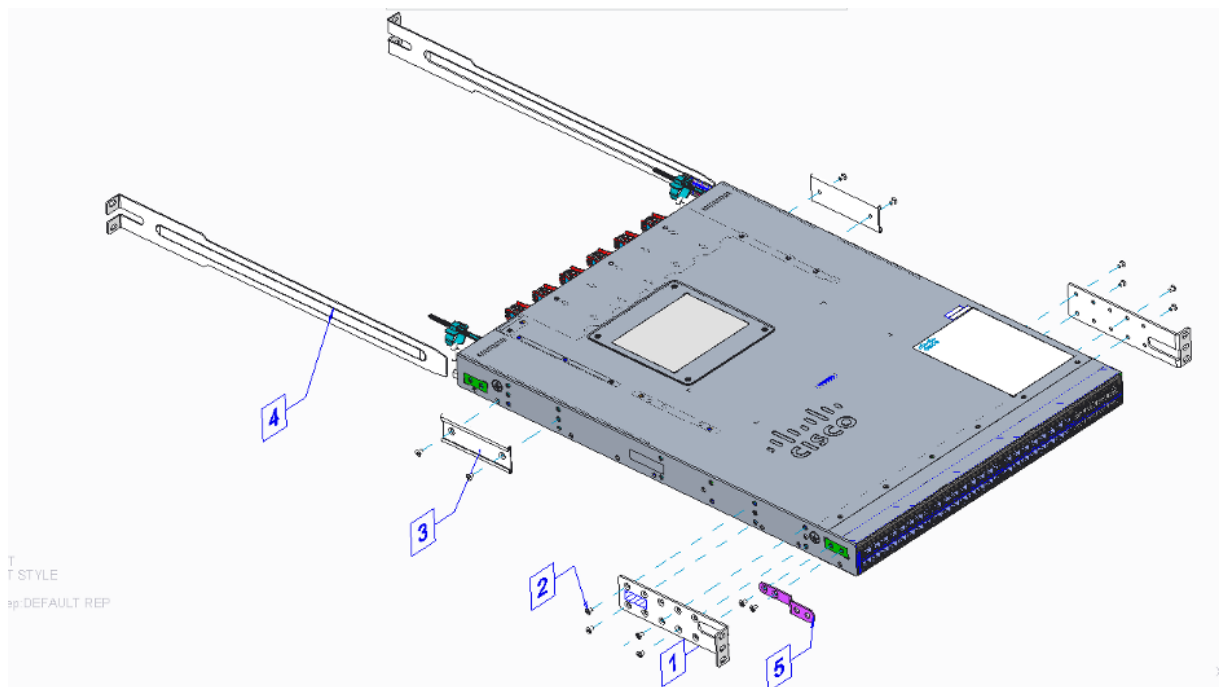
- b) CQ211L01-48H8FH Attach the grounding plate to the chassis. Use two M4 flat-head screws with 13.25 in-lbs (1.5 N-m) torque value to attach the grounding plate to the chassis.

Note The Cisco CQ211L01-48H8FH chassis has a grounding cover label that must be removed before attaching the grounding plate to the chassis.

- c) Position a rack-mount bracket on the side of the chassis with its four holes that are aligned to four of the screw holes on the side of the chassis, and then use four M4 flat-head screws with 13.25 in-lbs (1.5 N-m) torque value to attach the bracket to the chassis.

Note You can align four holes in the rack-mount bracket to four screw holes on the front side of chassis or four screw holes on the rear side of the chassis. The holes that you use depend on which end of your chassis is located in the cold aisle.

Figure 5: Rack-Mount Brackets on Cisco CQ211L01-48H8FH—Port-Side Intake



1	Rack-mount brackets	4	Rack-mount guide rails
2	M4 x 6mm Phillips flat-head screws	5	Grounding plate
3	Rack-mount guide		

- d) Repeat Step 1b with the other rack-mount bracket on the other side of the switch.

Step 2

Install the two rack-mount guides on the chassis:

- a) Position a rack-mount guides on the side of the chassis with its two holes aligned to the two screw holes on the side of the chassis, and use two M4 flat-head screws to attach the guides to the chassis. Tighten the screws to a torque of 13.25 in-lb (1.5 N-m).
- b) Repeat with the other rack-mount guides on the other side of the switch.

Step 3

Install the guide rails to the rack:

- a) Position the guide rails at the desired levels on the back side of the rack and use four 12-24 screws or four 10-32 screws, depending on the rack thread type, to attach the rails to the rack.

Note For racks with square holes, you may need to position a 12-24 or 10-32 cage nut behind each mounting hole in a guide rail before using a 12-24 or 10-32 screw.

- b) Repeat with the other guide rail on the other side of the rack.
- c) Use a tape measure and level to verify that the rails are at the same height and horizontal.

Step 4

Insert the router into the rack and attach:

- a) Holding the switch with both hands, position the back of the switch between the front posts of the rack.
- b) Align the two rack-mount guides on either side of the switch with the guide rails installed in the rack. Slide the rack-mount guides onto the guide rails, and then gently slide the switch all the way into the rack.

Note If the switch does not slide easily, try realigning the rack-mount guides on the guide rails.

- c) Holding the chassis level, insert two screws (12-24 or 10-32, depending on the rack type) through the holes in each of the rack-mount brackets and into the cage nuts or threaded holes in the rack-mounting rail.
 - d) Tighten the 10-32 screws to 20 in-lb (2.26 N.m) or tighten the 12-24 screws to 30 in-lb (3.39 N.m).
-

Rack-Mount the Chassis in a 2-Post Rack

This section describes how to install the Cisco CQ211L01-48H8FH switch into a cabinet or 2-post rack.



Caution If the rack is on wheels, ensure that the brakes are engaged or that the rack is otherwise stabilized.

The following table lists the items contained in the rack-mount kit that is provided with the routers.

Table 5: Rack-Mount Kit

Quantity	Part Description
2	Rack-mount brackets
8	M4 x 0.7 x 6-mm Phillips flat-head screws

Step 1 Install two rack-mount brackets to the switch:

- a) Determine which end of the chassis is to be located in the cold aisle:
 - If the switch has port-side intake modules (fan modules and power modules with burgundy coloring), position the router so that its optical ports are in the cold aisle, and fans and power modules will be in the hot aisle.
 - If the switch has port-side exhaust modules (fan modules and power modules with blue coloring), position the router so that its fan and power supply modules are in the cold aisle and optical ports will be in the hot aisle.
- b) Cisco CQ211L01-48H8FH switch Attach the grounding plate to the chassis. Use two M4 flat-head screws with 13.25 in-lbs (1.5 N-m) torque value to attach the grounding plate to the chassis.

Note The Cisco CQ211L01 chassis has a grounding cover label that must be removed before attaching the grounding plate to the chassis.
- c) With the bracket ears facing toward the center of the chassis, position a front rack-mount bracket on the side of the chassis so that the four holes are aligned to four of the screw holes on the side of the chassis.
- d) Use four M4 flat-head screws with 13.25 in-lbs (1.5 N-m) torque value to attach the bracket to the chassis.

Figure 6: Rack-Mount Brackets on Cisco CQ211L01 switch —Port-Side Intake

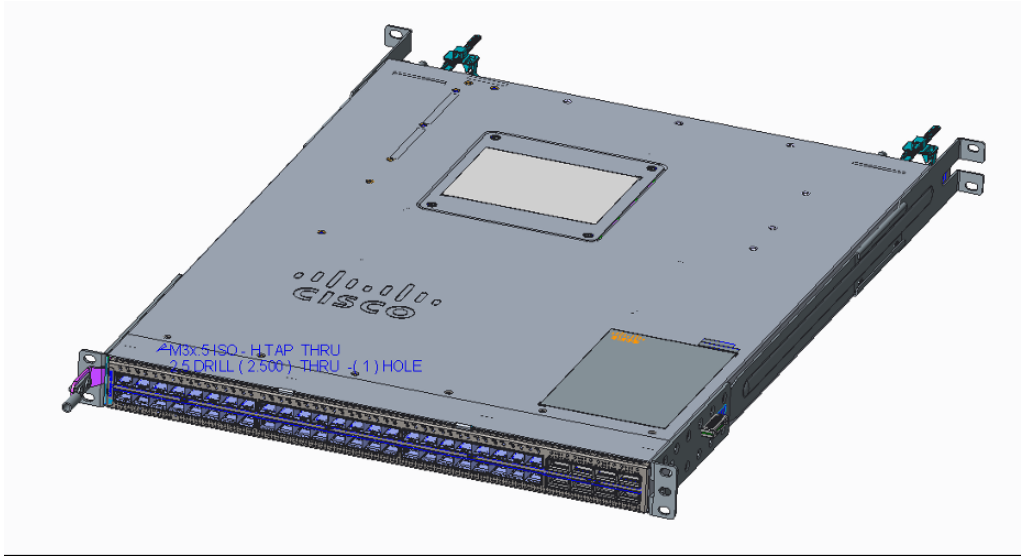
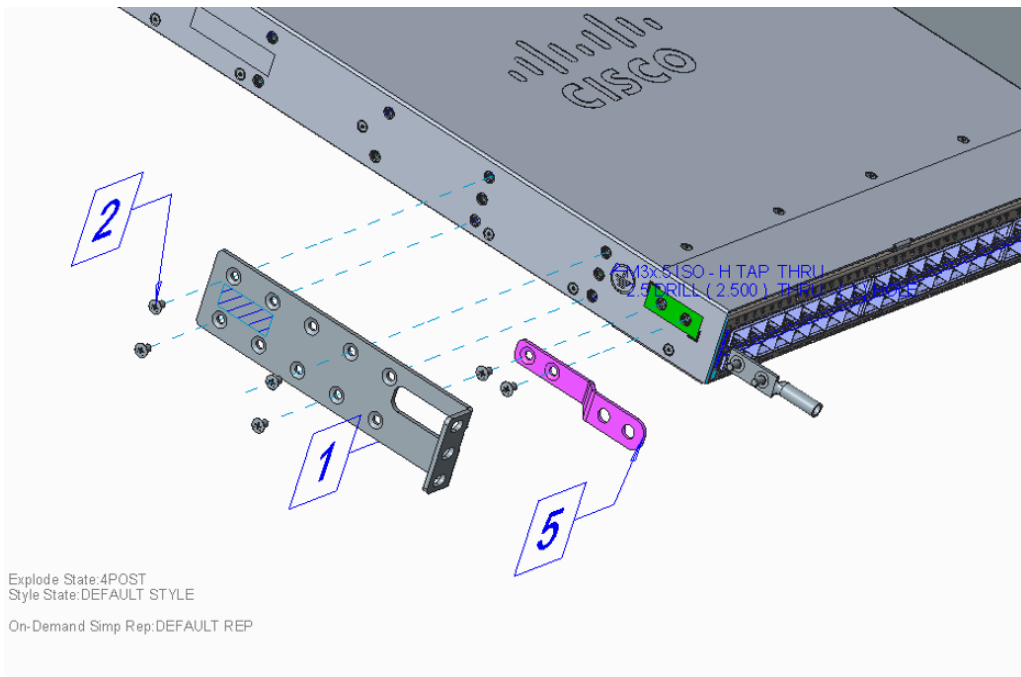


Figure 7: Rack-Mount Brackets on Cisco CQ211L01 switch —Port-Side Intake



1	Rack-mount brackets
2	M4 x 6-mm Phillips flat-head screws
5	Grounding plate

Ground the Chassis



Warning **Statement 1252**—Equipment Grounding

This equipment must be grounded. To reduce the risk of electric shock, the power cord, plug, or combination must be connected to a properly grounded electrode, outlet, or terminal.



Warning **Statement 414**—Connected To Grounded Outlet

In the Scandinavian countries (Denmark, Finland, Iceland, Norway, and Sweden) the appliance must be connected to a grounded outlet.



Warning **Statement 1024**

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available.



Warning **Statement 1046**

When installing or replacing the unit, the ground connection must always be made first and disconnected last.



Warning **Statement 1025**

Use copper conductors only.



Caution

Grounding the chassis is required, even if the rack is already grounded. A grounding pad with two threaded holes is provided on the chassis for attaching either a grounding lug or grounding plate. The ground lug must be NRTL-listed. In addition, a copper conductor (wires) must be used and the copper conductor must comply with NEC code for ampacity.



Caution

When terminating the frame ground, do not use soldering lug connectors, screwless (push-in) connectors, quick connect connectors, or other friction-fit connectors.

-
- Step 1** Use a wire-stripping tool to remove approximately 0.75 inches (19 mm) of the covering from the end of the #6 AWG grounding cable.
- Step 2** Insert the stripped end of the grounding cable into the open end of the grounding lug.
- Step 3** Use the crimping tool to secure the grounding cable in the grounding lug.
- Step 4** Attach the ground cable:
- Attach one end of the shelf ground cable (#6 AWG cable) to the grounding plate using the specified dual-hole lug connector.

Figure 8: Cisco CQ211L01-48H8FH Switch Ground Lug

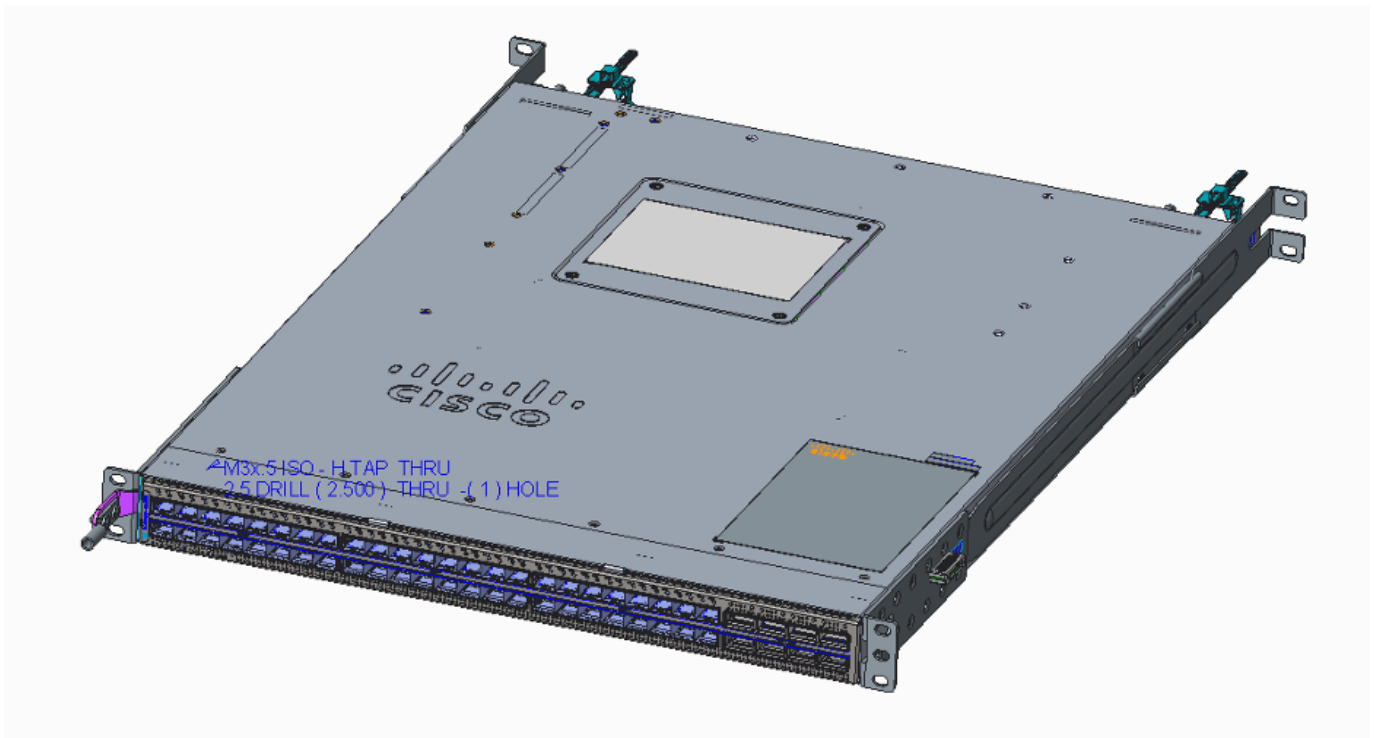
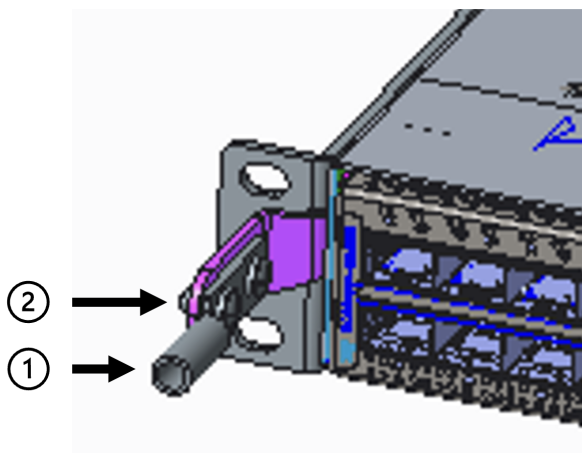


Figure 9: Cisco CQ211L01-48H8FH Ground Lug



1	Grounding lug	2	M4 x 6mm pan-head screws
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Power Supply Unit Input and Output Ranges

Power Supply Restrictions and Considerations



Warning **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



Warning **Statement 1090**—Installation by Skilled Person

Only a skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of a skilled person.



Warning **Statement 1091**—Installation by an Instructed Person

Only an instructed person or skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of an instructed or skilled person.



Warning **Statement 1073**—No User-Serviceable Parts

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

Observe the following guidelines and limitations:

- Use one type of power supply in a .
- The power supply type that is used in the router depends on the type and configuration of the transceivers installed in it.
- Do not install a mix of AC and DC power supplies in a .
- The airflow direction must be the same for all power supply and fan modules in the router.
- The AC-input power supplies support low-line voltage of 120V (Nominal) and high-line voltage of 220V (Nominal). If you need to change voltage type after installation, disconnect the feed from the power supply before switching the input voltage level.

This table summarizes the list of power supplies' input and output power ranges for different input applications:

Table 6: Input and Output Power Ranges at Low Line, High Line, Low Voltage, and High Voltage Applications

Power Supply Unit PIDs	Supported Routers	Input Voltage	Input Current (Max)	Output Power
	Cisco	100V - V AC	13A	1 00W

Connect AC Power to the Chassis

**Caution**

The chassis relies on the protective devices in the building installation to protect against short circuit, overcurrent, and ground faults. Ensure that the protective devices comply with local and national electrical codes.

**Note**

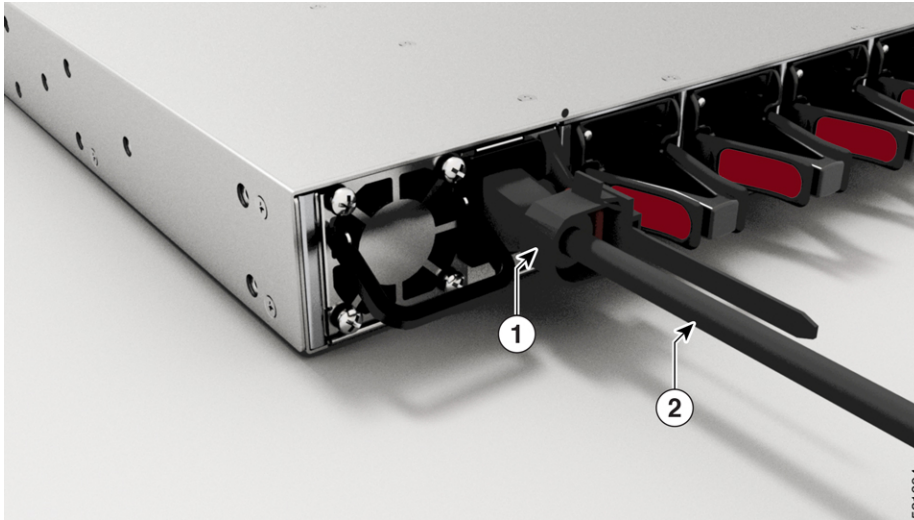
We recommend that you occupy both the power supply slots of the fixed port routers with power supplies. In case a power module fails, it is recommended to retain the failed power module in its slot until it is replaced with a new power module. This recommendation ensures that the system airflow is not impacted adversely, which may then result in the overheating of the router and its components.

**Note**

A dual pole breaker is needed for installation. For determining the recommended breaker size, please adhere to local and national rules and regulations. The breaker size is based on the specifications of the product for the current drawn and the specified voltage level.

-
- Step 1** Verify that the AC cable is installed in the correct AC source and outlet type.
 - Step 2** Attach the AC power cable to the cable connector in the AC power module.
 - Step 3** Place the cable through the opening in the cable clamp.
 - Step 4** Slide the cable clamp toward the plug.
 - Step 5** Close the cable clamp on the shoulder of the power cable to secure the power cable.

Figure 10: Connecting AC Power



1	Cable clamp	2	AC power cable
---	-------------	---	----------------

AC-Input Power Cord Options

This table summarises the input and output power ranges for PSU high line applications:

Table 7: AC-Input Power Cord Options for Cisco CQ211L01 Series Switch

Locale	Part Number	Length	Power Cord Rating
Argentina	CAB-TA-AR	14 ft (4.26 m)	10A, 250 VAC
Australia	CAB-TA-AP	14 ft (4.26 m)	10A, 250 VAC
China	CAB-TA-CN	14 ft (4.26 m)	10A, 250 VAC
Europe	CAB-TA-EU	14 ft (4.26 m)	10A, 250 VAC
India	CAB-TA-IN	14 ft (4.26 m)	10A, 250 VAC
Israel	CAB-TA-IS	14 ft (4.26 m)	10A, 250 VAC
Italy	CAB-TA-IT	14 ft (4.26 m)	10A, 250 VAC

Locale	Part Number	Length	Power Cord Rating
Japan	CAB-TA-250V-JP	14 ft (4.26 m)	15A, 250 VAC
Japan Cabinet Jumper Power Cord	CAB-C15-CBN-JP	14 ft (4.26 m)	12A, 250 VAC
Switzerland	CAB-TA-SW	14 ft (4.26 m)	10A, 250 VAC
UK	CAB-TA-UK	14 ft (4.26 m)	10A, 250 VAC



CHAPTER 4

Connect Switch to the Network

- [Port Connection Guidelines](#) , on page 26
- [Interfaces and Port Description](#), on page 27
- [Connecting a Console to the Router](#), on page 29
- [Create the Initial Switch Configuration](#), on page 30
- [Connect the Management Interface](#), on page 32
- [Install and Remove Transceiver Modules](#), on page 33
- [Connect Interface Ports](#), on page 35
- [Maintain Transceivers and Optical Cables](#), on page 36
- [Verify Chassis Installation](#), on page 36

Port Connection Guidelines

Depending on the chassis , you can use optical modules and RJ-45 connectors to connect the ports to other network devices.

To prevent damage to the fiber-optic cables, we recommend that you keep the transceivers disconnected from their fiber-optic cables when installing the transceiver in the line card. Before removing a transceiver from the router, remove the cable from the transceiver.

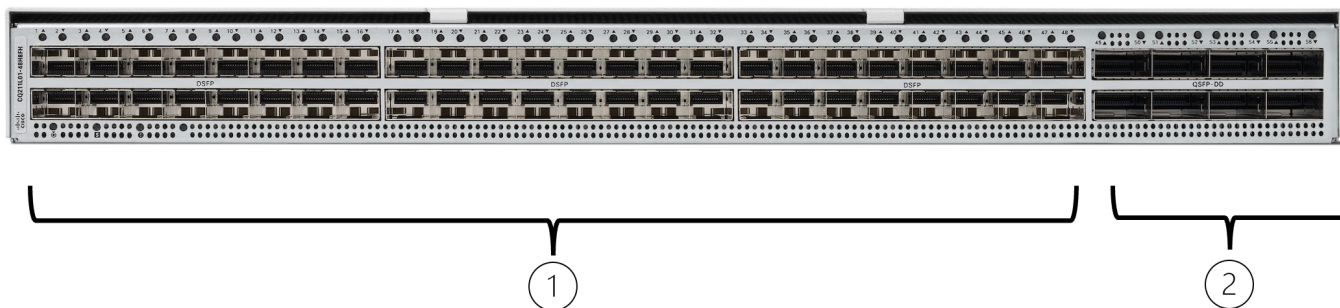
To maximize the effectiveness and life of your transceivers and optical cables, ensure the following:

- Wear an ESD-preventative wrist strap that is connected to an earth ground whenever you handle transceivers.
- Do not remove and insert a transceiver more often than is necessary. Repeated removals and insertions can shorten its useful life.
- Keep the transceivers and fiber-optic cables clean and dust free to maintain high signal accuracy and to prevent damage to the connectors. Attenuation (loss of light) is increased by contamination. Connector loss should be kept below 0.35 dB.
 - Clean these parts before installation to prevent dust from scratching the fiber-optic cable ends.
 - Clean the connectors regularly; the required frequency of cleaning depends upon the environment. In addition, clean connectors when they are exposed to dust or accidentally touched. Both wet and dry cleaning techniques can be effective; refer to your site's fiber-optic connection cleaning procedures.

- Do not touch the ends of connectors. Touching the ends can leave fingerprints and cause other contamination.
- Inspect routinely for dust and damage. If you suspect damage, clean and then inspect fiber ends under a microscope to determine if damage has occurred.

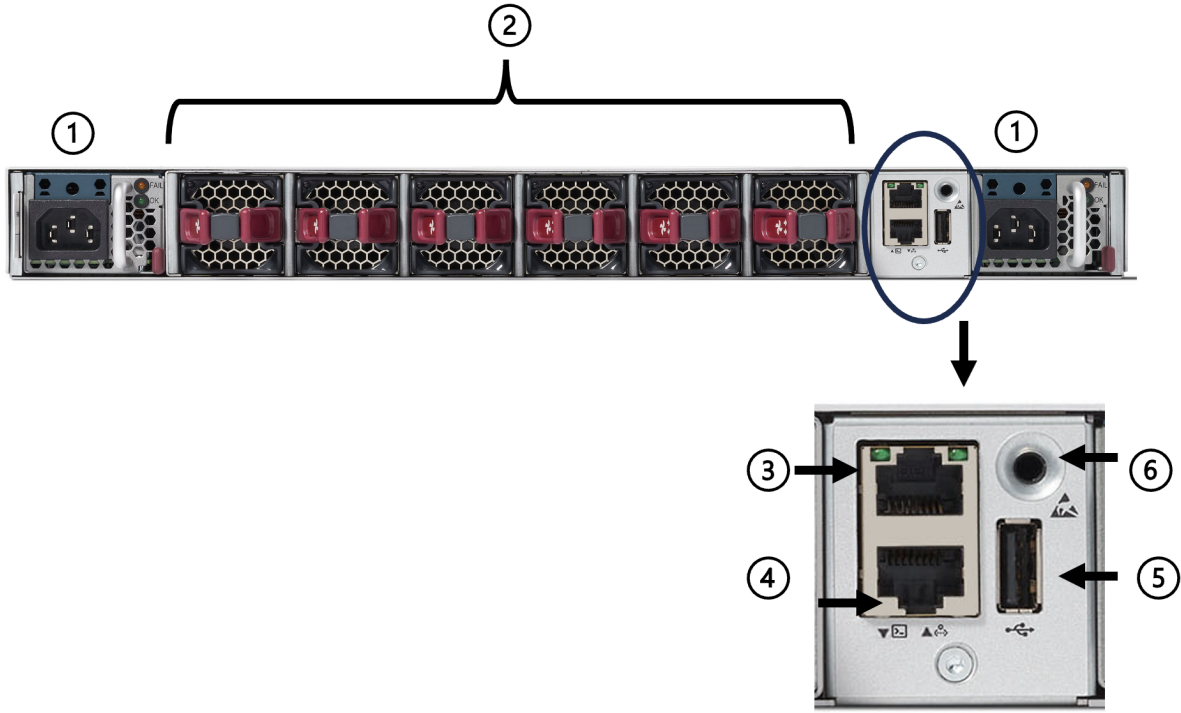
Interfaces and Port Description

Figure 11: Cisco CQ211L01 Fixed Port Router - Front View



1	100G Ports (Port 1 to Port 48). 100G port DSFP
2	400G QSFP-DD ports (Port 49 to Port 56) support 400G and 100G. All 400G port support breakout operation.

Figure 12: Cisco CQ211L01 Fixed Port Router - Rear View



1		4	
2		5	USB Port Type-A
3		6	

Connecting a Console to the Switch

Before you create a network management connection for the router or connect the router to the network, you must create a local management connection through a console terminal and configure an IP address for the router. The router can be accessed using remote management protocols, such as SSH and Telnet. By default, SSH is included in the software image. But telnet is not part of the software image. You must manually install the telnet optional package to use it.

You also can use the console to perform the following functions, each of which can be performed through the management interface after you make that connection:

- configure the router using the command-line interface (CLI)
- monitor network statistics and errors
- configure Simple Network Management Protocol (SNMP) agent parameters
- initiate software download updates via console

You make this local management connection between the asynchronous serial port on a console device capable of asynchronous transmission. Typically, you can use a computer terminal as the console device.



Note Before you can connect the console port to a computer terminal, make sure that the computer terminal supports VT100 terminal emulation. The terminal emulation software makes communication between the router and computer possible during setup and configuration.

Before you begin

- The router must be fully installed in its rack. The router must be connected to a power source and grounded.
- The necessary cabling for the console, management, and network connections must be available.
 - An RJ45 rollover cable and a DB9F/RJ45 adapter.
 - Network cabling should already be routed to the location of the installed router.

Step 1 Configure the console device to match the following default port characteristics:

- 115200 baud
- 8 data bits
- 1 stop bit
- No parity

Step 2 Connect an RJ45 rollover cable to a terminal, PC terminal emulator, or terminal server.

The RJ45 rollover cable is not part of the accessory kit.

Step 3 Route the RJ45 rollover cable as appropriate and connect the cable to the console port on the chassis.

If the console or modem cannot use an RJ45 connection, use the DB9F/RJ45F PC terminal adapter. Alternatively, you can use an RJ45/DSUB F/F or RJ45/DSUB R/P adapter, but you must provide those adapters.

What to do next

You are ready to create the initial router configuration.

Create the Initial Switch Configuration

Assign an IP address to the router management interface to connect the router to the network.

When you initially power up the router, it boots up and displays a series of configuration-related questions. You can use the default choices for each configuration except for the IP address, which you must provide.



Note These routers are designed to boot up in less than 30 mins, provided the neighboring devices are in full-operational state.

Before you begin

- A console device must be connected with the router.
- The router must be connected to a power source.
- Determine the IP address and netmask that is needed for the Management interfaces: `eth0`

Step 1 Power up the switch.

The LEDs on each power supply light up (green) when the power supply units are sending power to the switch, and the software asks you to specify a password to use with the switch.

Step 2 When the system boots up for the first time, the system prompts you to create a new username and password. The following prompt appears:

```
Linux 5.10.0-8-2-amd64 #1 SMP Debian 5.10.46-4 (2021-08-03) x86_64
```

```
You are on
```

```

  ____  ____  _  _  _  _  _
 / ___| / _ \| | | | ( ) / ___|
 \___ \| | | | | | | \ | | | |
  ___) | | | | | \ | | | | ___
 |___/ \___/|_| \_|_| \___|

```

```
-- Software for Open Networking in the Cloud --
```

```
Unauthorized access and/or use are prohibited.
```

```
All access and/or use are subject to monitoring.
```

```
Help:   https://sonic-net.github.io/SONiC/
```

```
Last login: Wed Oct 25 10:31:03 2023 from 10.79.98.98
```

```
Enter a new password to use for this switch. The default username is admin, and the default password is cisco123.
```

```
Please use ZTP to initial the system. or please change the password ASAP.
```

Step 3 Enter the configuration mode.

Step 4 Enter the IP address prefix length for the management interface.

Example:

```

CQ211L01# sonic-cli
CQ211L01# configure terminal
CQ211L01(config)# interface Management 0
CQ211L01(conf-if-eth0)# ip address 10.1.1.10/24 gwaddr 10.1.1.1
CQ211L01(conf-if-eth0)# ipv6 address 2001:10:1:1::10/64
CQ211L01(conf-if-eth0)#

```

Step 8 The software asks whether you want to edit the configuration. Enter **'no'** to decline.

Connect the Management Interface

The management port (MGMT ETH) provides out-of-band management, which lets you to use the command-line interface (CLI) to manage the router by its IP address. This port uses a 10/100/1000 Ethernet connection with an RJ-45 interface.



Caution To prevent an IP address conflict, do not connect the MGMT 100/1000 Ethernet port until the initial configuration is complete.

Before you begin

You must have completed the initial router configuration.

Step 1 Connect a modular, RJ-45, UTP cable to the MGMT ETH port.

Step 2 Route the cable through the central slot in the cable management system.

Step 3 Connect the other end of the cable to a 100/1000 Ethernet port on a network device.

What to do next

You are ready to connect the interface ports to the network.

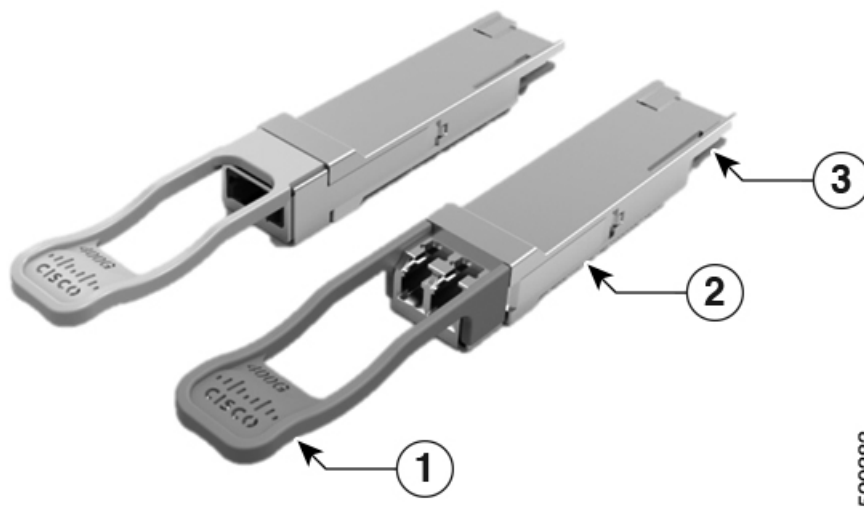
Install and Remove Transceiver Modules

Install and Remove QSFP Transceiver Modules

This section provides the installation, cabling, and removal instructions for the Quad Small Form-Factor Pluggable transceiver modules. Refer to the [Cisco Optical Transceiver Handling Guide](#) for additional details on optical transceivers.

The following figure shows a 400-Gigabit QSFP-DD optical transceiver.

Figure 13: 400-Gigabit QSFP-DD Transceiver Module



1	Pull-tab	2	QSFP-DD transceiver body
3	Electrical connection to the module circuitry		



Warning Statement 1079—Hot Surface

This icon is a hot surface warning. Use precaution when working near the hot surface.



Required Tools and Equipment

You need these tools to install the transceiver modules:

- Wrist strap or other personal grounding device to prevent ESD occurrences.
- Antistatic mat or antistatic foam to set the transceiver on.

- Fiber-optic end-face cleaning tools and inspection equipment.

Installing the Transceiver Module



Warning **Statement 1079—Hot Surface**

This icon is a hot surface warning. Use precaution when working near the hot surface.



Caution The transceiver module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling transceiver modules or coming into contact with system modules.



Caution Protect the transceiver ports by inserting clean dust caps (8000-QSFP-DCAP) into any ports not in use and do not have optical modules plugged in. If optical modules are plugged in but not in use, the dust caps that were supplied with the optical modules, should be used to protect the TX and RX surfaces of the optical module.

Be sure to clean the optic surfaces of the fiber cables before you plug them back into the optical ports of another module.

The router ships with dust caps plugged in. We highly recommend you to keep the dust caps plugged in until you are ready to plug an optic.

The dust caps protect the ports from possible EMI interference and also avoid contamination due to dust collection. To meet the EMI interference requirements, you must use the metal dust caps when the ports are not in use by optical modules.

Removing the Transceiver Module

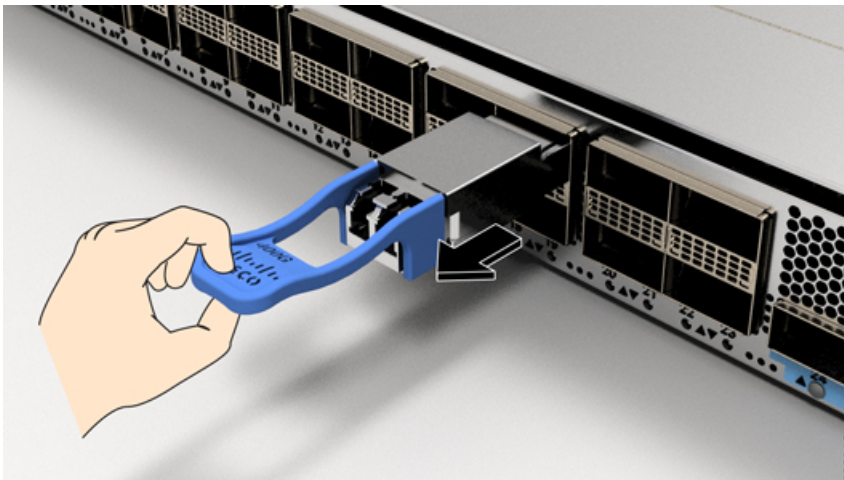


Caution The transceiver module is a static-sensitive device. Always use an ESD wrist strap or similar individual grounding device when handling transceiver modules or coming into contact with modules.

To remove a transceiver module, follow these steps:

- Step 1** Disconnect the network interface cable from the transceiver connector.
- Step 2** Install the dust plug immediately into the transceiver's optical bore.
- Step 3** Grasp the pull-tab and gently pull to release the transceiver from the socket.

Figure 14: Removing the QSFP Transceiver Module



Connect Interface Ports

You can connect optical interface ports with other devices for network connectivity.

Connect a Fiber-Optic Port to the Network

100G, or 400G transceivers are supported on Cisco CQ211L01 Switch. Some transceivers work with fiber-optic cables that you attach to the transceivers and other transceivers work with pre-attached copper cables. You must install a transceiver in the port before installing the fiber-optic cable in the transceiver.



Caution Removing and installing a transceiver can shorten its useful life. Do not remove and insert transceivers any more than is absolutely necessary. We recommend that you disconnect cables before installing or removing transceivers to prevent damage to the cable or transceiver.

Disconnect Optical Ports from the Network

When you need to remove fiber-optic transceivers, you must first remove the fiber-optic cables from the transceiver before you remove the transceiver from the port.

Maintain Transceivers and Optical Cables

Refer to [Inspection and Cleaning Procedures for Fiber-Optic Connections](#) document for inspection and cleaning processes for fiber optic connections.

Verify Chassis Installation

After installing the chassis, use the following **show** commands to verify the installation and configuration in the EXEC mode. If you detect any issues, take corrective action before making further configurations.

Command	Description
show system	Displays the operational status of the node.
show platform environment	Displays all the environment-related switch information.



CHAPTER 5

Replace Chassis Components

- [Replace the Latched Fan Modules, on page 37](#)
- [Replace Fan Modules for Cisco CQ211L01 Switch, on page 37](#)
- [Replace AC Power Supply, on page 41](#)

Replace the Latched Fan Modules



Warning **Statement 1030**—Equipment Installation

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.



Warning **Statement 1090**—Installation by Skilled Person

Only a skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of a skilled person.



Warning **Statement 1091**—Installation by an Instructed Person

Only an instructed person or skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of an instructed or skilled person.



Warning **Statement 1073**—No User-Serviceable Parts

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

The fan module is designed to be removed and replaced while the system is operating without presenting an electrical hazard or damage to the system. Please keep the replacement fan modules ready prior to attempting this task.

This procedure is applicable for

Table 8: Supported Fan Modules

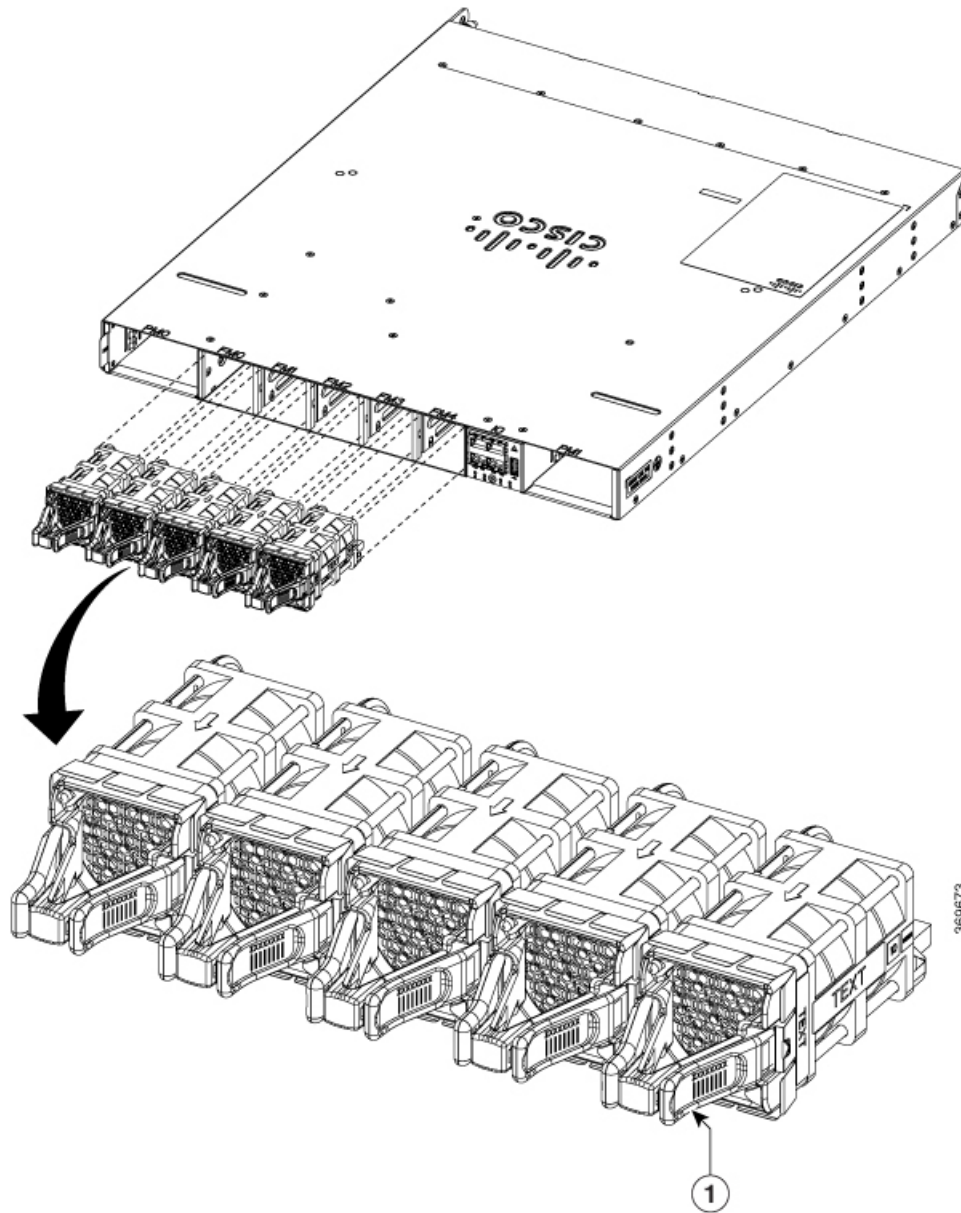
Switch	Fan Module	PID
	Port-side intake airflow	FAN-1RU-PI-V2

Step 1

To remove a fan module, follow these steps:

- a) Press two latches on the fan module and grasp the handle of fan module.

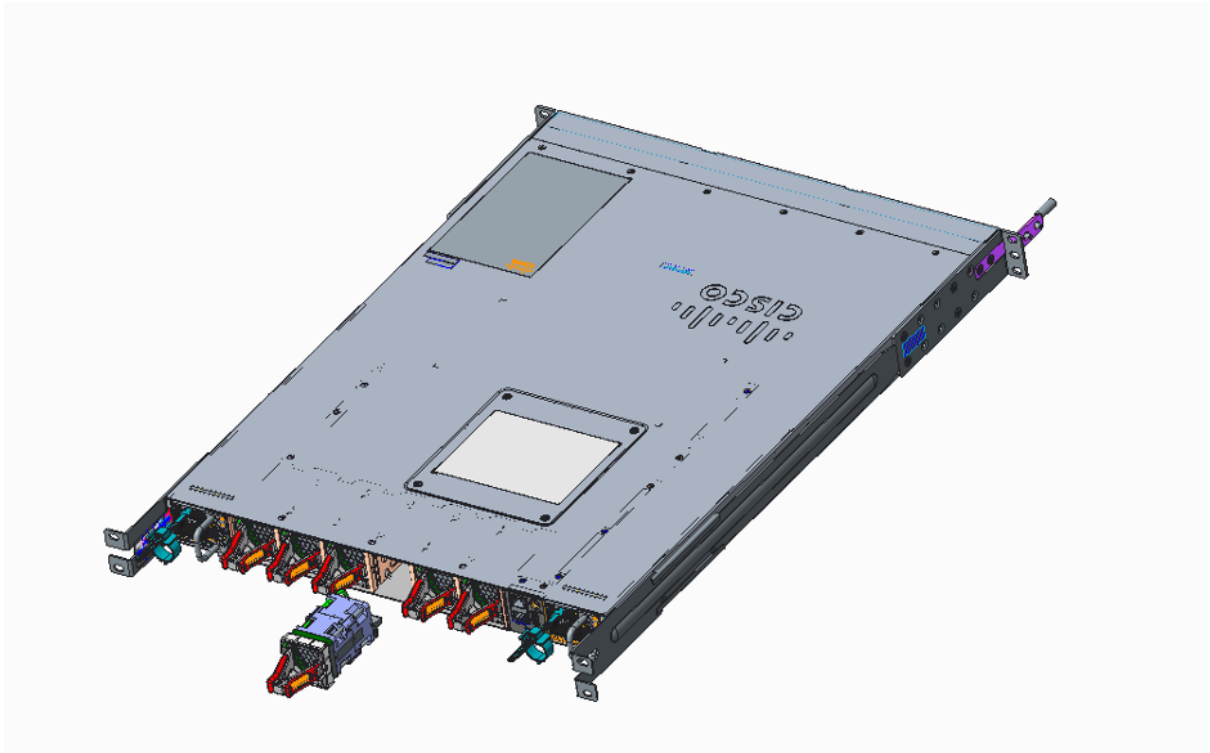
Figure 15: Cisco CQ211L01 Switch— Remove Fans



369673

1	Latched fan module
---	--------------------

Figure 16: Cisco CQ211L01 Switch — Remove Fans



1	Latched fan module
---	--------------------

- b) As you simultaneously press the latches pull the fan module fully out of the chassis.

Step 2

To install a fan module, follow these steps:

- a) Hold the fan module with the LED at the top.
- b) Align the fan module to the open fan tray slot in the chassis, and press the module all the way into the slot until the left and right latches click and are locked on the chassis.

Note If the fan module does not go all the way into the slot, do not force it. Remove the fan module and verify that it is the correct type for your router and in the correct orientation. To verify the status of fans and the speed, use the **show environment fan** command.

- c) If the chassis is powered on, listen for the sound of the fans in operation. You should immediately hear them in operation. If you do not hear them, ensure that the fan module is inserted completely in the chassis.

Note During the fan module replacement, the other fans adjust their speed to allow for proper initialization of the new module. When you insert a new fan module, the fans may run at lower or higher speeds for a few minutes.

- d) Verify that the fan module LED is green. If the LED is not green, one or more fans are faulty. If this situation occurs, contact your customer service representative for replacement parts.

Replace AC Power Supply

This procedure below applies to the following power supply units (PSUs):

-



Note

We recommend that you occupy both the power supply slots of the fixed port routers with power supplies. In case a power module fails, it is recommended to retain the failed power module in its slot until it is replaced with a new power module. This recommendation ensures that the system airflow is not impacted adversely, which may then result in the overheating of the router and its components. Duration to replace the PSU at ambient room temperature (23-degree C to 27-degree C) is within 5 minutes.

To replace a single PSU (for example, due to PSU failure), follow the procedure below.

To replace both PSUs (for example, to change type or output of PSU), disconnect power from both PSUs and follow the procedure below.

Step 1 Disconnect the power cord of the PSU that must be replaced. If you use the Saf-D-Grid power cord, then press the latch before pulling the power cord out from the power supply.

Note In case of an AC PSU, remove the cord retention from the AC PSU before disconnecting the AC power cord.

Step 2 Press the tab inward to unlatch the PSU, and pull the handle to remove the PSU.

Step 3 Insert the new PSU.

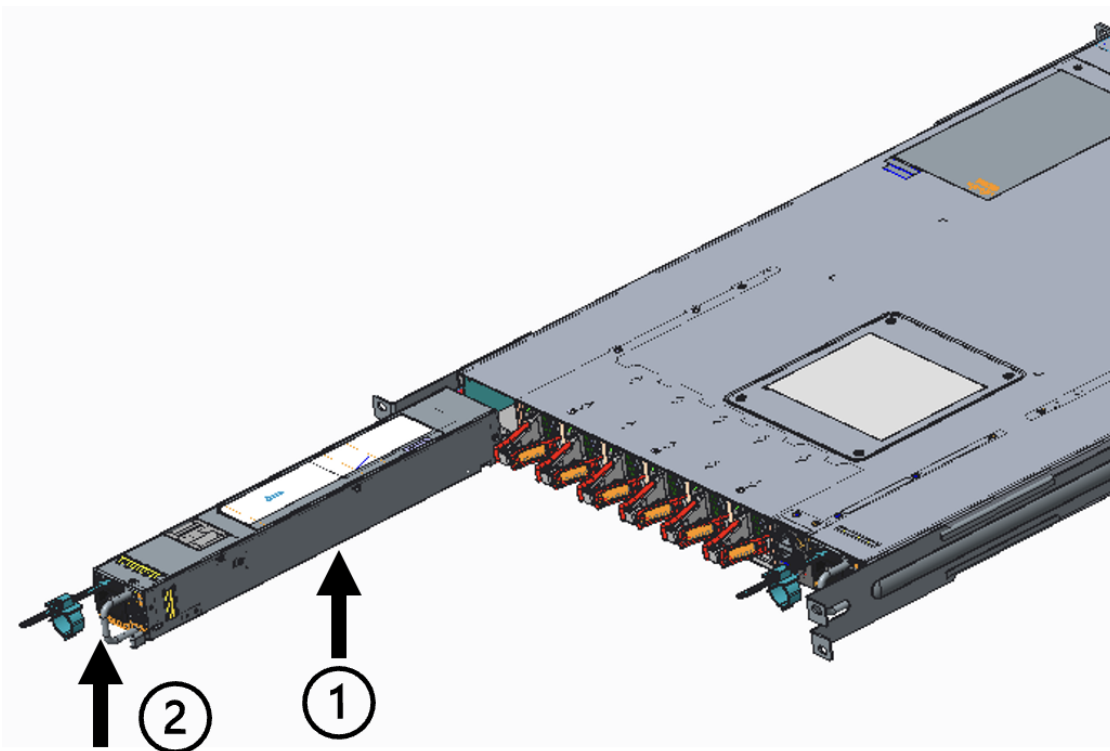
Note If the PSU does not go all the way into the slot, do not force it. Remove the PSU and verify that it is the correct type for your router and in the correct orientation.

Step 4 Connect the power cord to the PSU. Ensure that the connector is completely fixed.

Step 5 Turn on the power at source.

Step 6 Wait till the PSU LED color turns green. Verify the power using the **show environment power** command after the router boots up.

Figure 17: Cisco CQ211L01 Switch— Remove Power Supply



1	PSU
2	Tab



CHAPTER 6

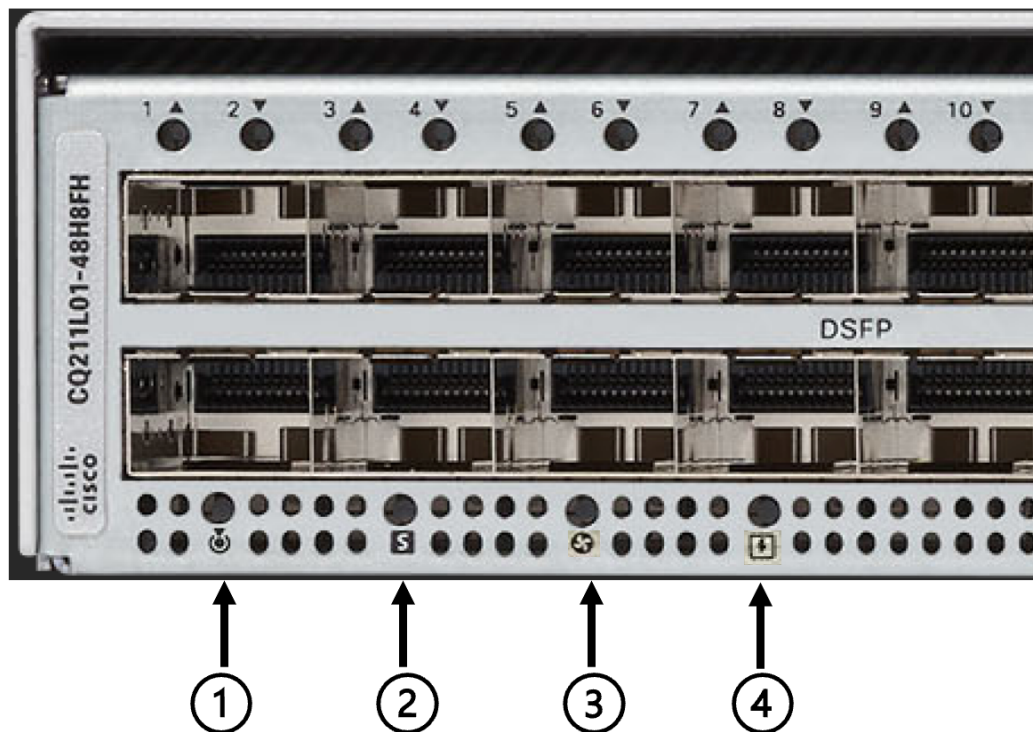
LEDs

- Chassis LEDs, on page 43
- Fan Tray LED, on page 45
- Power Supply LEDs, on page 46
- Port Status LEDs, on page 47

Chassis LEDs





Attention, Status, Synchronization, and GPS LEDs are located both at the far left of the front of the chassis and also on the back of the chassis:

Figure 18: Chassis LEDs - Front View of CQ211L01 Switch



1	Attention
2	Status
3	FAN
4	Power

Table 9: Chassis LED Descriptions

LED	Color	Status
Attention 	Flashing blue	The operator has activated this LED to identify this chassis.
	Off	This chassis is not being identified.
Status 	Green	The module is operational and has no active major or critical alarms.
	Flashing Green	The auto or manual FPD upgrade is in progress.
	Amber	The module is in one of the following states: <ul style="list-style-type: none"> • Power cycle • Reload or reimage • Shutdown
	Flashing Amber	The module has minor alarm.
	Red	Power-up failure which prevents the CPU from booting.
	Flashing Red	The module has active major or critical alarms.
FAN 	Green	Fan speed is normal
	Amber	Fan speed is high
	Off	
Power 	Green	Power Supply is normal
	Off	

Fan Tray LED

Fan tray modules are located on the back of the chassis. Each fan tray module has a Status LED.

Figure 19: Fan Tray LED - Cisco CQ211L01 Chassis



1	Fan Status LED
---	----------------

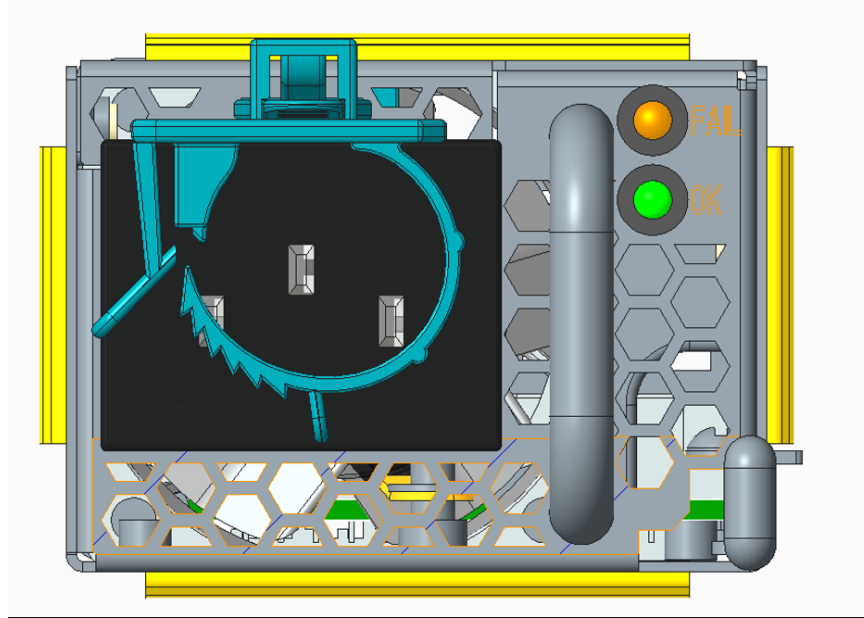
Table 10: Fan Tray LED Descriptions

LED	Color	Status
STATUS	Green	Fan is operating normally.
	Amber	Fan tray is inserted and pending to come online.
	Flashing Amber	Fan has failed.
	Off	Fan is not receiving power.

Power Supply LEDs

Power modules are located on the back side of the chassis. Each power module has a Status LED.

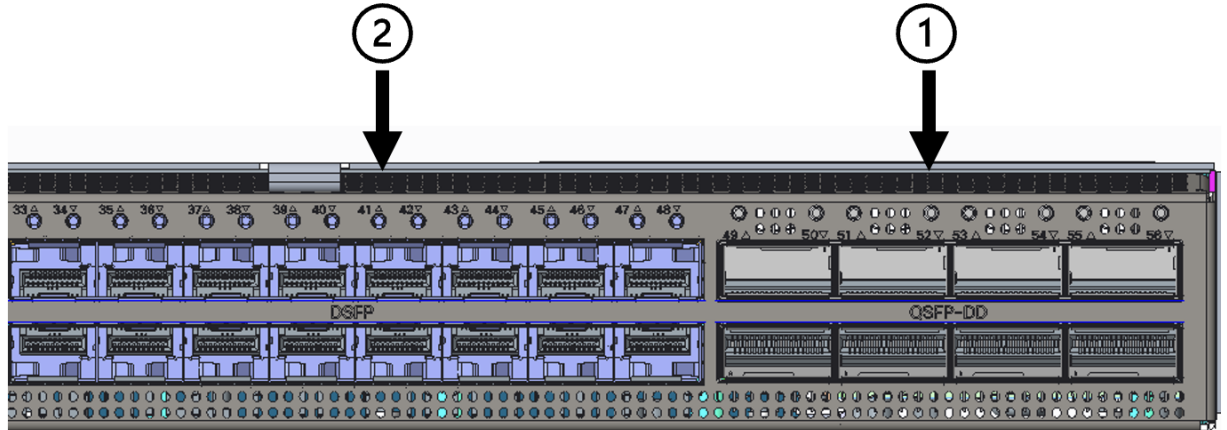
Figure 20 Power Supply LED - 1100W



1	Status LED
2	Attention LED

Port Status LEDs

Each port has an LED. The following table describes port status LEDs.



1	400G Port Status LED	2	100G Port Status LED
---	----------------------	---	----------------------

Table 16: Port Status LEDs (one per port)

LED Color	Description
Off	Port is administratively shut down.
Amber	Port is administratively enabled and the link is down.
Green	Port is administratively enabled and the link is up.