



Hardware Installation Guide for Cisco Catalyst 8500L-8S4X Edge Platform

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CHAPTER 1

Overview

The Cisco Catalyst 8500L-8S4X Edge Platform significantly increases services performance, router throughput, and router scale at lower costs. This document covers only hardware installation specific details for Cisco Catalyst 8500-8S4X Edge Platform.

For more information on the features and specifications, refer to the Cisco Catalyst 8500-8S4X Edge Platform datasheet.

This chapter contains the following sections:

- [Chassis Views, on page 1](#)
- [Power Supplies, on page 3](#)
- [Locating Labels on Cisco Catalyst Cisco C8500L-8S4X Edge Platform, on page 4](#)
- [Hardware Features of Cisco Catalyst 8500L-8S4X Edge Platform , on page 6](#)

Chassis Views

This section contains views of the power supply and I/O panels of the Cisco Catalyst 8500L-8S4X Edge Platform, showing the locations of power and signal interfaces, status indicators, and chassis identification labels:

Figure 1: Cisco C8500L-8S4X Chassis - I/O Side

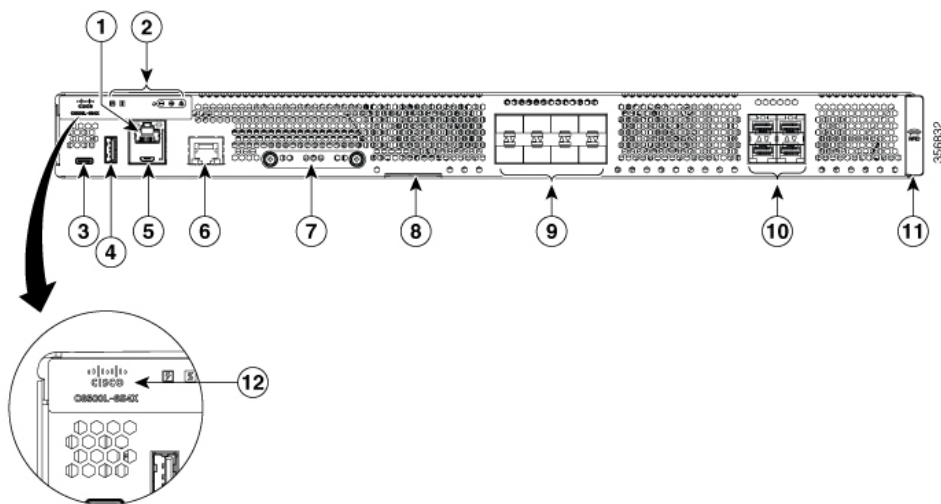


Table 1: I/O Side

1	RJ45 Console Port	2	Status Indicator LEDs
3	USB Type C Slot	4	USB Type A Slot
5	Micro-USB Console	6	Management Ethernet Port GigabitEthernet0
7	M.2 USB/NVMe Card Slot	8	Device Label Tray
9	SFP Ports GigabitEthernet 0/0/0-0/0/7	10	SFP+ Ports TenGigabitEthernet 0/1/0-0/1/3
11	RFID (Provisionable)	11	Backlit Logo

Figure 2: C8500L-8S4X Chassis - PSU/Fan Tray Side

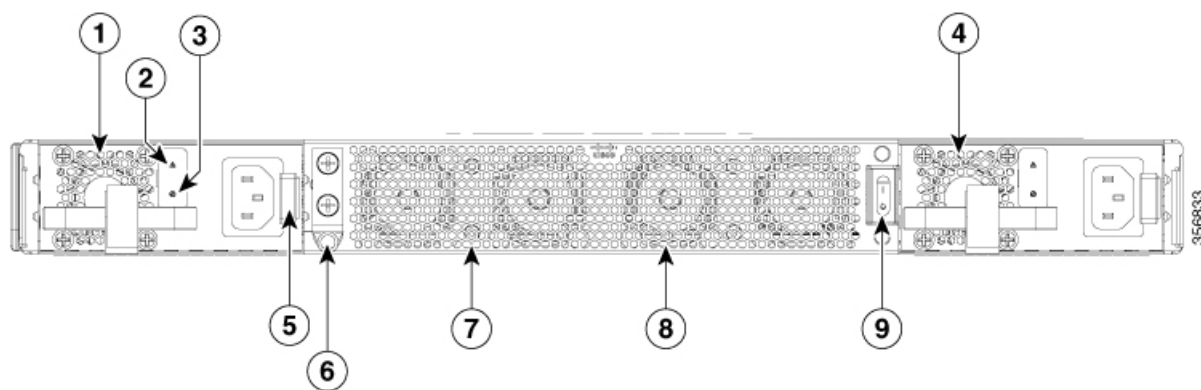


Table 2: PSU/Fan Tray Side

1	Power Supply 1 (PSU1)	2	ALARM Fail LED
---	-----------------------	---	----------------

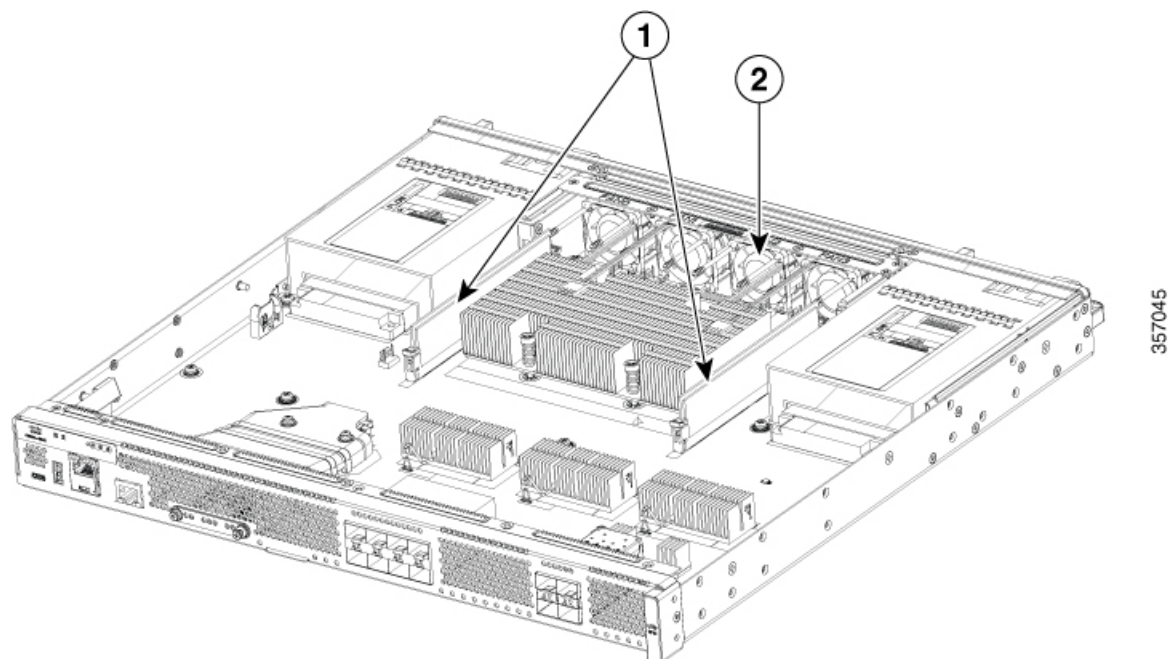
3	Status LED	4	Power Supply 0 (PSU0)
5	PSU Latch	6	Ground Lug
7	Fan Tray Vent	8	Internal Fans
9	Power Switch		

For detailed information on LEDs, see the the section on LED indicators.

Platform Summary

The figure below shows the internal view of with parts and module locations.

Figure 3: Platform Summary of C8500L-8S4X



1	DIMMs
2	Fan Tray

Power Supplies

The Cisco 8500L-8S4X supports dual 400W Power supplies that operate in redundant mode. The 3 different input types are:

- AC
- DC

- HVAC/HVDC

Table 3: Cisco 8500L-8S4X Power Supplies

PID	Input-type	Input
PWR-CH1-400WAC	AC	100 to 240 Vac
PWR-CH1-400WDC	DC	+48 to +60 Vdc -48 to -60 Vdc
PWR-CC1-400WHV	HVAC/HVDC	100 to 277 Vac 240 to 380 Vdc



Note

The Cisco Catalyst 8500L-8S4X Edge Platform can support two AC, DC or High Voltage AC or DC (HVAC/HVDC) power supplies. Do not install mixed AC and DC power supply units in the same chassis.

The following table contains specifications for DC-powered systems for the Cisco Catalyst Catalyst 8500L-8S4X Edge Platforms

Table 4: Cisco Catalyst 8500L-8S4X Edge Platform DC Power Supply System Input Requirements

System Input Rating (Amps)	Circuit Breaker Amps		AWG # Wire
	Minimum	Maximum	
15A	20	30	14

Locating Labels on Cisco Catalyst Cisco C8500L-8S4X Edge Platform

Use the Cisco Product Identification (CPI) tool to find labels on the platform. The tool provides detailed illustrations and descriptions of where labels are located on Cisco products. It includes the following features:

- A search option that allows browsing for models by using a tree-structured product hierarchy
- A search field on the final results page that makes it easier to look up multiple products
- End-of-sale products clearly identified in results lists

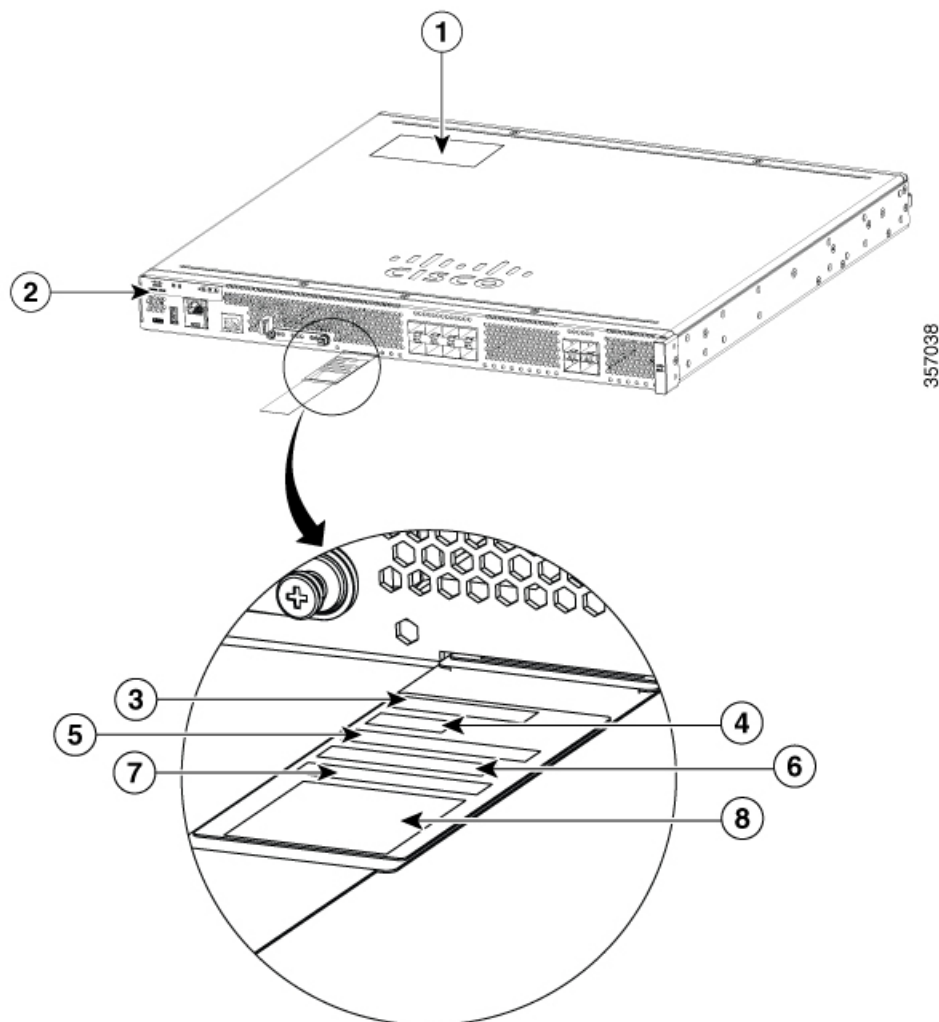
The tool streamlines the process of locating serial number labels and identifying products. Serial number information expedites the entitlement process and is required for access to support services.

Location of labels on Cisco Catalyst 8500L-8S4X Edge Platform

The figure below shows the location of the labels on the Cisco Catalyst 8500L-8S4X Edge Platform. Labels are located at the same location on all the Cisco Catalyst 8500L-8S4X Edge Platform.

The Serial number (SN), Common language equipment identifier (CLEI), Tax deduction and collection account(TAN), Product ID (PID), PID version ID (VID), and Quick response (QR) code are printed on a label on the back of the platform or on a label tray located on the chassis.

Figure 4: Label Location on a C8500L-8S4X



1	Compliance Label	2	PID Label
3	SN	4	CLEI
5	TAN	6	MAC
7	PIDVID	8	QR code

Locate Product Identification Details

Software License

The serial number (SN), product ID (PID), version ID (VID), and Common Language Equipment Identifier (CLEI) are printed on a label on the bottom of the device or on the label tray.

To obtain a software license, you need the unique device identifier (UDI) of the device where the license is to be installed.

The UDI has two main components:

- Product ID (PID)
- Serial number (SN)

The UDI can be viewed using the **show license udi** command in privileged Exec mode in Cisco Internet Operating System (IOS) software.

Hardware Features of Cisco Catalyst 8500L-8S4X Edge Platform

This section describes the hardware features of Cisco Catalyst 8500L-8S4X Edge Platform.

Built-In Interface Ports

The Cisco Catalyst 8500L-8S4X Edge Platform has one RJ-45 Ethernet Management port and multiple Small Form-Factor Pluggable ports.

GE or SFP Ports

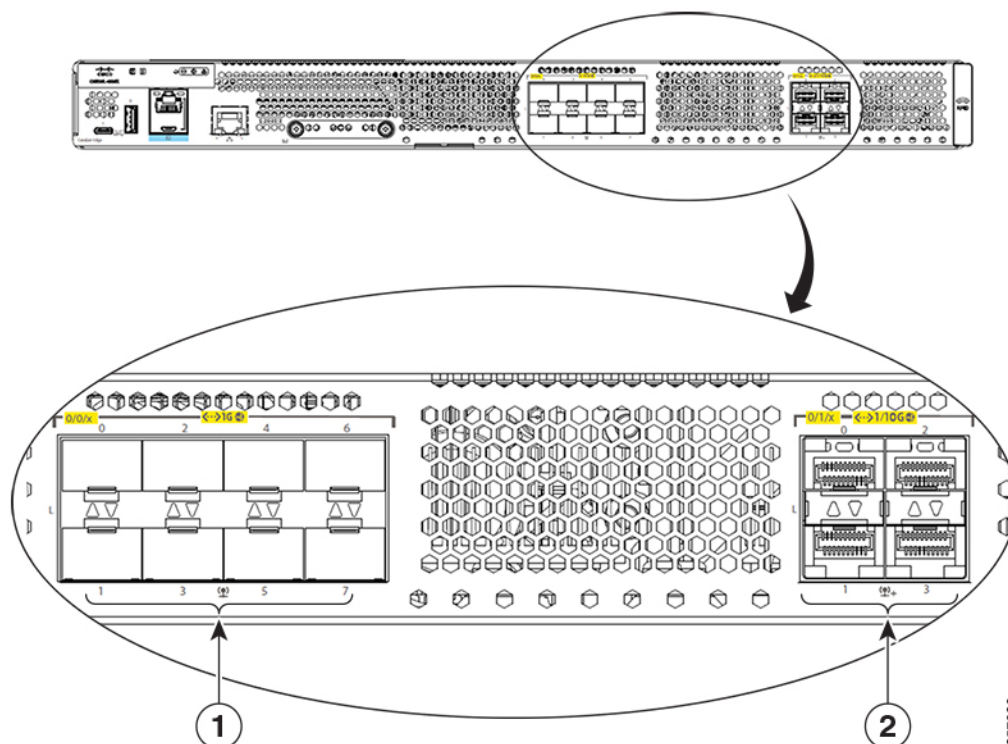
Management Ethernet Port

The Catalyst 8500L-8S4X Edge Platform has one Gigabit Ethernet Management Ethernet interface. The purpose of this interface is to allow users to perform management tasks on the router, often through Telnet and SSH. It is not designed to forward network traffic. The Gigabit Ethernet Management Ethernet interface supports 10/100/1000Mbps speed.

SFP Ports

The small form-factor pluggable (SFP) ports support SFP and SFP+ modules. The Bay 0 (0/0/n) ports support SFP modules with with maximum 1Gbps speed. The Bay 1 (0/1/n) ports support SFP+ modules with 1Gbps & 10Gbps speed.

Figure 5: C8500L-8S4X Chassis - GE and SFP Ports



1	8X 1GE SFP Ports
2	4X 10G SFP+ Ports

Memory

Cisco Catalyst 8500L-8S4X Edge Platform contains DIMMs that store running configuration and routing tables, and are used for packet buffering by the network interfaces.

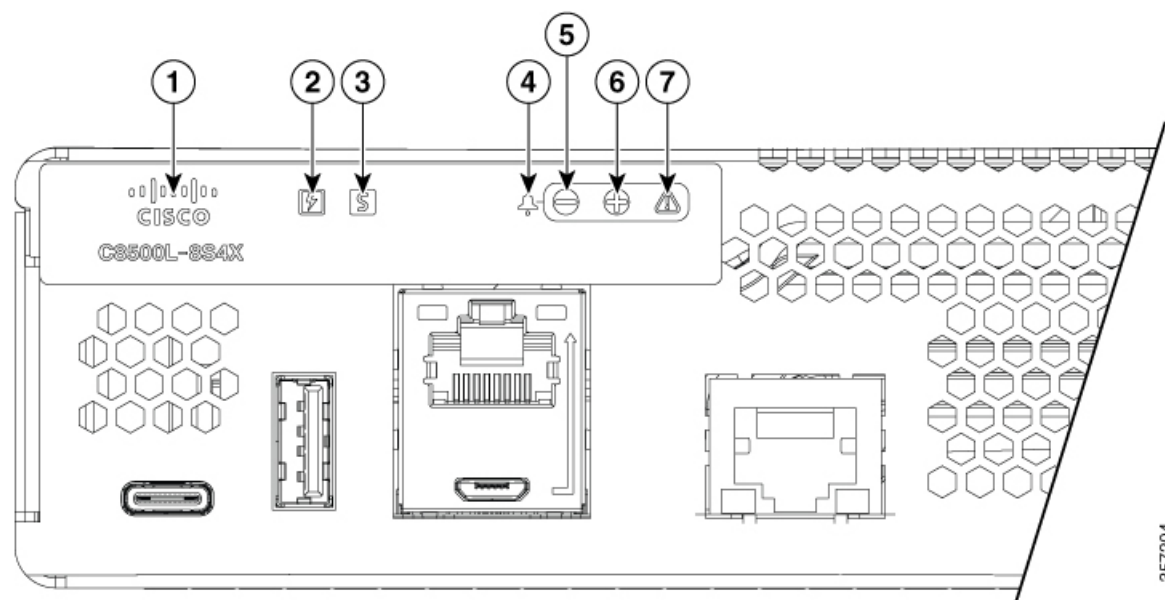
- Boot/NVRAM—Stores the bootstrap program (ROM monitor) and the configuration register. The boot/NVRAM is not serviceable.
- Internal memory—Internal bootflash memory
- Removable slot for M.2 card—Available in 16GB, 32GB M.2 USB and 600GB M.2 NVMe SSD
- DRAM options
 - MEM-C8500L-16GB (default)
 - MEM-C8500L-32GB (upgrade)
 - MEM-C8500L-64GB (upgrade)

Power Supply

The Cisco Catalyst C8500L-8S4X devices include two Field Replaceable Unit (FRU) PSUs that support N+1 redundancy and it can function even if one of the two PSUs fail.

LEDs for Cisco Catalyst C8500L-8S4X Edge Platform

Figure 6: LEDs for Cisco Catalyst C8500L-8S4X Edge Platform



357204

1	Backlit Logo Label	2	Power
3	Status	4	Alarm icon (not lit)
5	Minor Alarm	6	Major Alarm
7	Critical Alarm		

Table 5: LEDs Indicators

LED	Color	Description
CISCO LOGO	Blue	Cisco Logo LED Off: The system is powered off Blue: The system is powered on

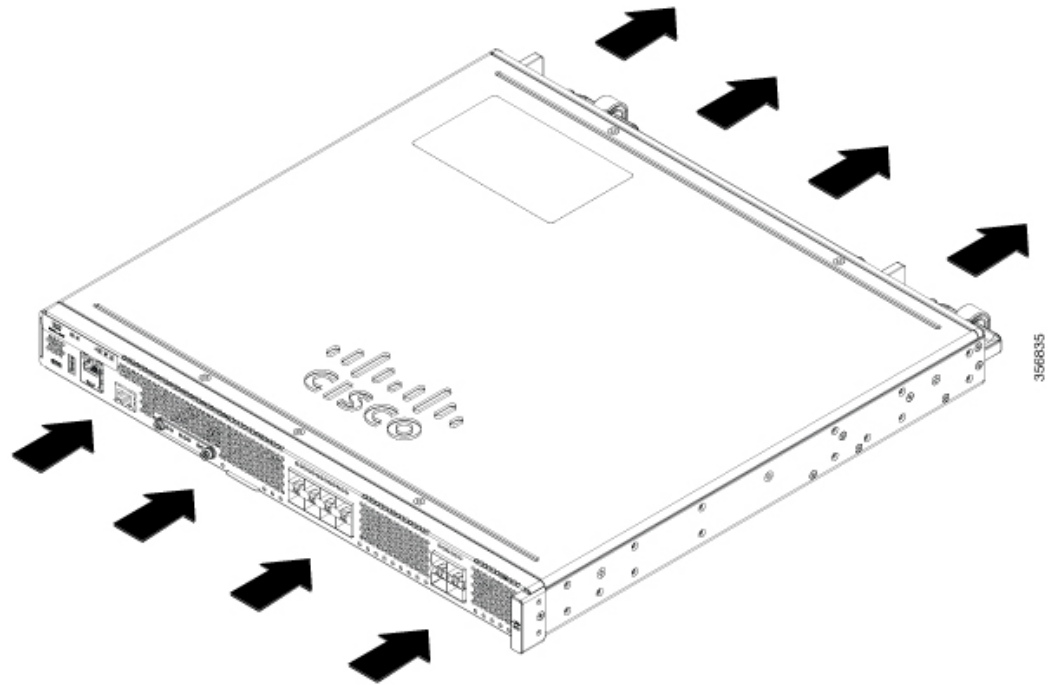
LED	Color	Description
POWER	Green/Amber	Power Supply Status Off: The system is powered off Yellow: A Power Supply in the system is not functioning correctly Green: Both PSUs are installed and operating correctly
STATUS	Green/Amber/Red Blinking	System Status Red: The system is booting Red Blinking Red: The system has failed a hardware integrity error Yellow: Rommon has completed booting and system is at Rommon prompt or booting platform software. Green: Normal System Operation
USB CON	Green	USB Console Active Green indicates that the active console port is USB.
RJ-45 CON	Green/Yellow	Serial Console Active Green indicates that RJ-45 is the active console port.
SFP LINK	Green	SFP port 0/1 Link LED Off: No Link (or not present) Green: Link established Yellow: Loss of Signal

Fans, Ventilation, and Airflow

Chassis Ventilation

The chassis temperature is regulated with internal fans. An onboard temperature sensor and pressure sensor controls the fan speed. The fans are always on when the device is powered on. Under all conditions, the fans operate at the slowest speed possible to conserve power and reduce noise. When necessary, the fans operate at higher speeds under conditions of higher ambient temperature and altitude.

Figure 7: Airflow of Cisco C8500L-8S4X





CHAPTER 2

Prepare for Installation

This chapter provides preinstallation information, such as recommendations and requirements that must be met before installing your platform. Before you begin, inspect all items for shipping damage. If anything appears to be damaged or if you encounter problems installing or configuring your platform, contact customer service.



Note

These routers are designed to boot up in less than 30 minutes, provided the neighboring devices are in fully operational state.

- [Standard Warning Statements, on page 11](#)
- [Safety Recommendations, on page 15](#)
- [General Site Requirements, on page 17](#)
- [Rack Requirements, on page 18](#)
- [Router Environmental Requirements, on page 19](#)
- [Power Guidelines and Requirements, on page 19](#)
- [Network Cabling Specifications, on page 20](#)
- [Required Tools and Equipment for Installation and Maintenance, on page 22](#)

Standard Warning Statements

This section describes the warning definition and then lists core safety warnings grouped by topic.



Warning

Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Read the installation instructions before using, installing or connecting the system to the power source. Use the statement number provided at the end of each warning statement to locate its translation in the translated safety warnings for this device.

Note: SAVE THESE INSTRUCTIONS Statement 1071



Caution

This equipment is suitable for installations utilizing the insert CBN. Equipment Bonding Networks CBN—Statement 7013



Note This equipment is suitable for installation in network telecommunications facilities. Installation Location Network Telecommunications Facilities — Statement 8015



Note This equipment is suitable for installation in locations where the NEC applies. Installation Location Where the National Electric Code (NEC) Applies—Statement 8016



Warning The intrabuilding port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the outside plant (OSP) or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring—Statement 7005

General Safety Warnings



Warning Read the installation instructions before you connect the system to its power source. Statement 1004



Warning Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040



Warning Installation of the equipment must comply with local and national electrical codes. Statement 1074



Warning Power cable and AC adapter - When installing the product, please use the provided or designated connection cables/power cables/AC adaptors. Using any other cables or adapters could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of certified cables (that have the 'UL' shown on the code) for any other electrical devices than products designated by Cisco. The use of cables that are certified by Electrical Appliance and Material Safety Law (that have 'PSE' shown on the code) is not limited to Cisco-designated products. Statement 371



Warning Only trained and qualified personnel should be allowed to install or replace this equipment. Statement 1030

**Warning**

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than 15A for AC/HVAC/HVDC and 20A for DC. Statement 1005

**Warning**

This unit may have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028

**Warning****Restricted Area**

This unit is intended for installation in restricted access areas. A restricted access area can be accessed by skilled, instructed or qualified personnel. Statement 1017

**Warning**

Use copper conductors only. Statement 1025

**Warning**

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. Statement 1024

**Warning**

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing. Statement 1034

**Warning**

Class 1 laser product. Statement 1008

**Warning**

Class 1 LED product. Statement 1027

**Warning**

Class I and Class 1M Laser

Invisible Laser Radiation. Do not expose users of telescopic optics. Class 1/1M Laser Products. Statement 1055

**Warning**

Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Statement 1056

**Warning**

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. Statement 1032

**Warning**

To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 40 degrees C. Statement 1047

**Note**

The Cisco Catalyst 8500L-8S4X Edge Platform can reliably operate up to 55C for temporary durations per NEBS.

**Warning**

To reduce risk of electric shock and fire, a readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022

**Warning**

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. Statement 1029

**Warning**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

**Warning**

Hazardous network voltages are present in WAN ports regardless of whether power to the unit is OFF or ON. To avoid electric shock, use caution when working near WAN ports. When detaching cables, detach the end away from the unit first. Statement 1026

**Warning**

Do not use this product near water; for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool. Statement 1035

**Warning**

No User-Serviceable Parts

No serviceable parts inside. To avoid risk of electric shock, do not open. Statement 1073

**Warning**

Connect the Chassis to Earth Ground

To reduce the risk of electric shock, the chassis of this equipment needs to be connected to permanent earth ground during normal use. Statement 0445

**Warning**

Power Terminals, Replace Cover

Hazardous voltage or energy may be present on power terminals. To reduce the risk of electric shock, always replace cover when terminals are not in service and be sure uninsulated conductors are not accessible when cover is in place. Statement 1086

**Warning**

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

Skilled person/Qualified personnel is someone who have training or experience in the equipment technology and understand potential hazards when working with equipment. Statement 1089

**Warning**

Only skilled person should be allowed to install, replace, or service this equipment. Refer to statement 1089 for description of skilled person. Statement 1090

**Warning**

Only instructed person or skilled person should be allowed to install, replace, or service this equipment. Refer to statement 1089 for description of skilled person. Statement 1091

Safety Recommendations

Follow these guidelines to ensure general safety:

- Never attempt to lift an object that might be too heavy for you to lift by yourself.
- Keep the chassis area clear and dust-free during and after installation.
- If you remove the chassis cover, place it in a safe place.

- Keep tools and chassis components away from walk areas.
- Do not wear loose clothing that may get caught in the chassis. Fasten any tie or scarf and roll up sleeves.
- Wear safety glasses when working under conditions that might be hazardous to your eyes.
- Do not perform any action that may create a hazard to people or makes equipment unsafe.

Safety with Electricity



Warning

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028



Warning

Installation Instructions

Read the installation instructions before using, installing or connecting the system to the power source. Statement 1004



Warning

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. Statement 1029

Follow these guidelines when working on equipment powered by electricity:

- Locate the emergency power-off switch in the room in which you are working. If an electrical accident occurs, you can quickly turn off the power.
- Disconnect all power before doing the following:
 - Installing or removing a chassis
 - Working near power supplies
- Look carefully for possible hazards in your work area, such as moist floors, ungrounded power extension cables, frayed power cords, and missing safety grounds.
- Do not work alone if hazardous conditions exist
- Never assume that power is disconnected from a circuit. Always check
- Never open the enclosure of the internal power supply
- If an electrical accident occurs to another person, proceed as follows:
 - Use caution; do not become a victim yourself
 - Turn off power to the device

- If possible, send another person to get medical aid. Otherwise, assess the condition of the victim and then call for help
- Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action

Prevent Electrostatic Discharge Damage

Electrostatic discharge (ESD) can damage equipment and impair electrical circuitry. It can occur if electronic printed circuit cards are improperly handled and can cause complete or intermittent failures. Always follow these ESD prevention procedures when removing and replacing modules:

- Ensure that the router chassis is electrically connected to the ground.
- Wear an ESD-preventive wrist strap, ensuring that it makes good skin contact. Connect the clip to an unpainted surface of the chassis frame to channel unwanted ESD voltages safely to ground. To guard against ESD damage and shocks, the wrist strap and cord must operate effectively.
- If no wrist strap is available, ground yourself by touching a metal part of the chassis.

**Caution**

For the safety of your equipment, periodically check the resistance value of the anti-static strap. It should be between 1 and 10 megohms (Mohm).

General Site Requirements

This section describes the requirements your site must meet for the safe installation and operation of your router. Ensure that the site is properly prepared before beginning installation. If you are experiencing shutdowns or unusually high errors with your existing equipment, the guidelines provided in this section can also help you isolate the cause of failures and prevent future problems.

General Precautions

Observe the following general precautions when using and working with your Cisco Catalyst 8500L-8S4X Edge Platform:

- Keep your system components away from radiators and heat sources, and do not block cooling vents.
- Do not spill food or liquids on your system components, and never operate the product in a wet environment.
- Do not push any objects into the openings of your system components. Doing that can cause fire or electric shock by shorting out interior components.
- Position system cables and power supply cables carefully. Route system cables and the power supply cable and plug so that they cannot be stepped on or tripped over. Be sure that nothing else rests on your system component cables or power cable.
- Do not modify power cables or plugs. Consult a licensed electrician or your power company for electrical modifications at your site. Always follow your local and national wiring rules.

- If you turn off your system, wait at least 30 seconds before turning it on again to avoid system component damage.

Site Selection Guidelines

Cisco Catalyst 8500L-8S4X Edge Platform require specific environmental operating conditions. Temperature, humidity, altitude, and vibration can affect the performance and reliability of the router. The following sections provide specific information to help you plan for the proper operating environment.

Site Environmental Requirements

Environmental monitoring in the router protects the system and components from damage caused by excessive voltage and temperature conditions. To ensure normal operation and avoid unnecessary maintenance, plan and prepare your site configuration before installation. After installation, ensure the site maintains the required environmental characteristics.

Table 6: Router Environmental Tolerances

Environmental Characteristic	Minimum	Maximum
Steady State Operating	0° C	40° C 40° C at 10,000 feet
Short Term (per NEBS GR-63-CORE)	-5° C	55° C at 6,000 feet
Storage	-40° C	+70° C
Humidity operating (noncondensing)	10%	90%
Humidity nonoperating (noncondensing)	5%	95%
Altitude operating: over allowable temperature range (0 to 40° C)	-500 feet	13,000 feet
Altitude, nonoperating: over allowable temperature range	-500 feet	16,000 feet
Thermal shock non-operating.	-40° C	+70° C

Physical Characteristics

Be familiar with the physical characteristics of the Cisco Catalyst 8500L-8S4X Edge Platform to assist you in placing the system in the proper location.

For more information on the physical characteristics of Cisco Catalyst 8500L-8S4X Edge Platform, refer to the datasheet for the Cisco Catalyst 8500L-8S4X Edge Platform.

Rack Requirements

Some Cisco routers include brackets for use with a 19-inch rack or, if specified in your order, optional wider brackets for use with a 23-inch rack.

The following information can help you plan your equipment rack configuration:

- Allow clearance around the rack for maintenance.
- Enclosed racks must have adequate ventilation. Ensure that the rack is not congested, because each router generates heat. An enclosed rack should have louvered sides and a fan to provide cooling air. Heat generated by equipment at the bottom of the rack can be drawn upward into the intake ports of the equipment above it.
- When mounting a chassis in an open rack, ensure that the rack frame does not block the intake or exhaust ports. If the chassis is installed on slides, check the position of the chassis when it is seated in the rack.

Router Environmental Requirements

Cisco Catalyst 8500L-8S4X Edge Platform should be installed in a rack. The location of your router and the layout of your equipment rack or wiring room are extremely important considerations for proper operation. Equipment placed too close together, inadequate ventilation, and inaccessible panels can cause malfunctions and shutdowns, and can make maintenance difficult. Plan for access to both front and rear panels of the router.

When planning your site layout and equipment locations, refer to the General Site Requirements section. If you are currently experiencing shutdowns or an unusually high number of errors with your existing equipment, these precautions and recommendations may help you to isolate the cause of failure and prevent future problems.

- Ensure that the room where your router operates has adequate air circulation. Electrical equipment generates heat. Without adequate air circulation, ambient air temperature may not cool equipment to acceptable operating temperatures.
- Always follow the ESD-prevention procedures to avoid damage to equipment. Damage from static discharge can cause immediate or intermittent equipment failure.
- Ensure that the chassis cover and module rear panels are secure. All empty network module slots, interface card slots, and power supply bays must have filler panels installed. The chassis is designed to allow cooling air to flow within it, through specially designed cooling slots. A chassis with uncovered openings permits air leaks, which may interrupt and reduce the flow of air across internal components.
- Baffles can help to isolate exhaust air from intake air. Baffles also help to draw cooling air through the chassis. The best placement of the baffles depends on the airflow patterns in the rack. You can find the best placement by experimenting with different configurations.
- If equipment installed in a rack (particularly in an enclosed rack) fails, try operating the equipment individually. Power off other equipment in the rack (and in adjacent racks) to allow the router under test maximum cooling air and clean power.

Power Guidelines and Requirements

Check the power at your site to ensure that you are receiving “clean” power (free of spikes and noise). Install a power conditioner if necessary.

The Cisco Catalyst 8500L-8S4X Edge Platform has specific power and electrical wiring requirements. Adhering to these requirements ensures reliable operation of the system. Follow these precautions and recommendations when planning your site for the Cisco Catalyst 8500L-8S4X Edge Platform:

- The Cisco Catalyst 8500L-8S4X Edge Platform is always provided with a second, identical power supply to ensure that power to the chassis continues uninterrupted if one power supply fails or input power on one line fails.
- In systems configured with the redundant power option, each of the two power supplies should be connected to a separate input power source. If you fail to do this, your system might be susceptible to total power failure due to a fault in the external wiring or a tripped circuit breaker
- To prevent a loss of input power, be sure the total maximum load on each circuit supplying the power supplies is within the current ratings of the wiring and breakers
- Provide proper grounding to avoid personal injury and damage to the equipment due to lightning striking power lines or due to power surges. The chassis ground must be attached to a central office or other interior ground system.

For additional information please refer to the Cisco Catalyst 8500L-8S4X Edge Platform datasheet.

Each Cisco Catalyst 8500L-8S4X Edge Platform requires a dedicated electrical circuit. If you equip it with dual-power feeds, you must provide a separate circuit for each power supply to avoid compromising the power redundancy feature.

The Cisco Catalyst 8500L-8S4X Edge Platform can be powered by a DC or AC source. Ensure that equipment grounding is present and observe power-strip ratings. Make sure that the total ampere rating of all the products plugged into the power strip does not exceed 80 percent of the rating.

For more information on the power supply system rating requirements for the Cisco Catalyst 8500L-8S4X Edge Platform, see [Power Supplies, on page 3](#) section.

Network Cabling Specifications

The following sections describe the cables required to install your Cisco Catalyst 8500L-8S4X Edge Platform:

Console Port Considerations

This device includes an asynchronous serial console port. You access to the device locally using a console terminal connected to the console port. This section discusses important cabling information that you must consider before connecting the device to a console terminal.

The Cisco Catalyst 8500L-8S4X Edge Platform provides one console port to connect a terminal or computer for local console access.

The console port has a RJ-45 connector, supports RJ-232 asynchronous data, and has distance recommendations specified in the IEEE RS-232 standard.

EIA/TIA-232

Depending on the cable and the adapter used, this port appears as a DTE or DCE device at the end of the cable.

The default parameters for the console port are 9600 baud, 8 data bits, 1 stop bit, and no parity. The console port does not support hardware flow control.

USB Serial Console

The USB serial console port connects directly to the USB connector of a PC. The console port does use an USB Type A to 5-pin micro USB Type-B throughout cable to control the hardware flow. The USB Console supports full speed (12Mb/s) operation.

**Note**

- Always use shielded USB cables with a properly terminated shield. The USB serial console interface cable must not exceed 3 meters in length.
- Only one console port can be active at a time. When a cable is plugged into the USB console port, the RJ-45 port becomes inactive. Conversely, when the USB cable is removed from the USB port, the RJ-45 port becomes active.
- 4-pin mini USB Type-B connectors are easily confused with 5-pin mini USB Type-B connectors. Only 5-pin mini USB Type-B is supported.

**Note**

Always use shielded USB cables with a properly terminated shield.

The default parameters for the serial console port are 9600 baud, 8 data bits, no parity, and 1 stop bit.

No special drivers are needed for Mac OS X or Linux. At a time, only one console port can be active at a time. When a cable is plugged into the USB console port, the RJ-45 port becomes inactive. Conversely, when the USB cable is removed from the USB port, the RJ-45 port becomes active.

Baud rates for the USB console port are 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 bps.

Minimum Requirements for USB Console OS Compatibility

- The following are the minimum requirements for the USB console OS compatibility:
- Mac OS X version 10.5.4
- Redhat / Fedora Core 10 with kernel 2.6.27.5-117
- Ubuntu 8.10 with kernel 2.6.27-11
- Debian 5.0 with kernel 2.6
- Suse 11.1 with kernel 2.6.27.7-9

**Note**

The Micro-USB type B serial port can be used as an alternative to the RJ-45 console port. For Windows operating systems earlier than Windows 7, you must install a Windows USB device driver before using the USB console port.

Prepare for Network Connections

When setting up your device, consider distance limitations and potential electromagnetic interference (EMI) as defined by the applicable local and international regulations.

Network connection considerations are provided for:

See the following document for information about network connections and interfaces:

- [Cisco Modular Access Device Cable Specifications](#)



Danger

To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. LAN ports contain SELV circuits, and WAN ports contain TNV circuits. Some LAN and WAN ports both use RJ-45 connectors. Statement 1021

Ethernet Connections

The IEEE has established the Ethernet IEEE 802.3 Standards. The routers support the following Ethernet implementations:

- 1000BASE-T—1000 Mb/s full-duplex transmission over a Category 5 or better unshielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).
- 100BASE-T—100 Mb/s full-duplex transmission over a Category 5 or better unshielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).
- 10BASE-T—10 Mb/s full-duplex transmission over a Category 5 or better unshielded twisted-pair (UTP) cable. Supports the Ethernet maximum length of 328 feet (100 meters).

Required Tools and Equipment for Installation and Maintenance



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030



Warning

Instructed and Skilled Person Definitions

Instructed person is someone who has been instructed and trained by a skilled person and takes the necessary precautions when working with equipment. Skilled person/Qualified person is someone who has training or experience in the equipment technology and understand potential hazards when working with equipment. Statement 1089

**Warning****Instructed and Skilled Person Definitions**

Instructed person is someone who has been instructed and trained by a skilled person and takes the necessary precautions when working with equipment. Skilled person/Qualified personnel is someone who has training or experience in the equipment technology and understand potential hazards when working with equipment. Statement 1090

**Warning****Instructed and Skilled Person Definitions**

Instructed person is someone who has been instructed and trained by a skilled person and takes the necessary precautions when working with equipment. Skilled person/Qualified personnel is someone who has training or experience in the equipment technology and understand potential hazards when working with equipment. Statement 1091

You need the following tools and equipment to install and upgrade the router and its components:

- ESD-preventive cord and wrist strap
- Number 2 Phillips screwdriver
- Phillips screwdrivers: small, 3/16-in. (4 to 5 mm) and medium, 1/4-in. (6 to 7 mm)
 - To install or remove modules
 - To remove the cover, if you are upgrading memory or other components
- Screws that fit your rack
- Wire crimper
- Wire for connecting the chassis to an earth ground:
 - AWG 6 (13 mm²) wire for NEBS-compliant chassis grounding
 - AWG 14 (2 mm²) or larger wire for NEC-compliant chassis grounding
 - AWG 18 (1 mm²) or larger wire for EN/IEC 60950-compliant chassis grounding
- For NEC-compliant grounding, an appropriate user-supplied ring terminal, with an inner diameter of 1/4 in. (5 to 7 mm)

In addition, depending on the type of modules you plan to use, you might need the following equipment to connect a port to an external network:

- Cables for connection to the WAN and LAN ports (dependent on configuration)

**Note**

For more information on cable specifications, see the

[Cisco Modular Access Router Cable Specifications](#)

document at cisco.com.

- Ethernet hub or PC with a network interface card for connection to an Ethernet (LAN) port.
- Console terminal (an ASCII terminal or a PC running HyperTerminal or similar terminal emulation software) configured for 9600 baud, 8 data bits, 1 stop bit, no flow control, and no parity.
- Modem for connection to the auxiliary port for remote administrative access (optional).
- Data service unit (DSU) or channel service unit/data service unit (CSU/DSU) as appropriate for serial interfaces.
- External CSU for any CT1/PRI modules without a built-in CSU.



CHAPTER 3

Install and Connect

This chapter provides procedures for installing the Cisco Catalyst 8500L-8S4X Edge Platform in an equipment rack.

- Two-post rack, either 19 inch or 23 inch. Inner clearance (the width between the innersides of the two posts or rails) must be at least 19 inches (48.26 cm) or 23 inches (58.42 cm). Airflow through the chassis is from front to back (I/O-side to PSU-side).
- Four-post, 19-inch equipment rack. Inner clearance (the width between the inner sides of the two posts or rails) must be at least 19 inches (48.26 cm). Airflow through the chassis is from front to back.

The following sections provide the technical details:

- [Before You Begin, on page 25](#)
- [What You Need to Know, on page 25](#)
- [Safety Warnings, on page 26](#)
- [Unpack the Device, on page 26](#)
- [Install the C8500L-8S4X Edge Platform, on page 26](#)
- [Safety Considerations Before Connecting Power to the Device, on page 40](#)
- [Connect to a Console Terminal or Modem, on page 41](#)

Before You Begin

Before installing and connecting a Cisco Catalyst 8500L-8S4X Edge Platform, read the safety warnings and gather the following tools and equipment. For more information about the required tools and equipments, see the tools and equipment section.

What You Need to Know

CLI Console Access

Use the USB or RJ-45 console port on the router to access the Cisco Internet Operating System (IOS-XE) and XE SD-WAN command line interface (CLI) on the router and perform configuration tasks. A terminal emulation program is required to establish communication between the router and a PC. See the [Connect to a Console Terminal or Modem](#) section in this document for instructions.

**Note**

A Microsoft Windows USB driver must be installed before you establish physical connectivity between the router and the PC.

Software Licenses

To use all the features on the router, you must purchase a software package. For more information on software licenses, see the “Smart Licensing” section of the Software Configuration Guide for the Cisco Catalyst C8500L-8S4X Edge Platform.

Safety Warnings

**Warning**

To comply with Class A emissions requirements- shielded management Ethernet, CON, and AUX cables on the router must be used.

Unpack the Device

Do not unpack the device until you are ready to install it. If the final installation site will not be ready for some time, keep the chassis in its shipping container to prevent accidental damage. When you are ready to install the chassis, proceed with unpacking it.

The chassis, accessory kit, publications, and any optional equipment you ordered may be shipped in more than one container. When you unpack the containers, check the packing list to ensure that you received all of the items on the list.

Install the C8500L-8S4X Edge Platform

If you need to install Field-Replaceable Units (FRUs), you can install them either before or after you install the device. Ideally, you install the modules when you have access to the I/O side of the device. Internal modules (memory cards and fan trays) should be installed before rack-mounting. Internal modules (memory cards and fan trays) should be installed before rack-mounting.

The 8500L-8S4X is designed to be rack-mounted.

**Warning**

Before working on a system that has an on/off switch, turn OFF the power and unplug the power cord that is in the chassis. Statement 1

**Caution**

To prevent damage to the chassis, do not attempt to lift or tilt the chassis by holding it by the plastic panel on the front. Always hold the chassis by the sides of the metal body.

Rack-Mount the Chassis



Warning Supply Circuit

To reduce risk of electric shock and fire, take care when connecting units to the supply circuit so that wiring is not overloaded. Statement 1018



Warning

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. Statement 1024



Warning

To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 40C degrees on a continuous basis. Statement 1047

C8500L-8S4X can be installed in a 19-inch (48.26-cm) EIA and a 23-inch (58.42-cm) Southwestern Bell Corporation (SBC) racks. The C8500L-8S4X can also be mounted in a 600-mm ETSI rack. Use the standard brackets shipped with the router for mounting the chassis in a 19-inch EIA rack; you can order optional larger brackets for mounting the chassis in a 23-inch SBC rack.

You can mount the devices in the following ways:

- PS mounting—Brackets are attached at the PS side of the chassis with the the PSUs facing forward.
- I/O mounting—Brackets are attached at the I/O side of the chassis with the I/O side facing forward.

Attach the Rack-Mounting Brackets



Caution

Do not over-torque the screws. The recommended torque is 15 to 18 inch-lbs (1.7 to 2.0 N-m).



Caution

Your chassis installation must allow unrestricted airflow for chassis cooling.

Attach the mounting brackets to the chassis as shown in the below figure using the screws provided. Use a #2 Philips screwdriver.

To attach the rack-mounting brackets to the C8500L-8S4X device, perform these steps:

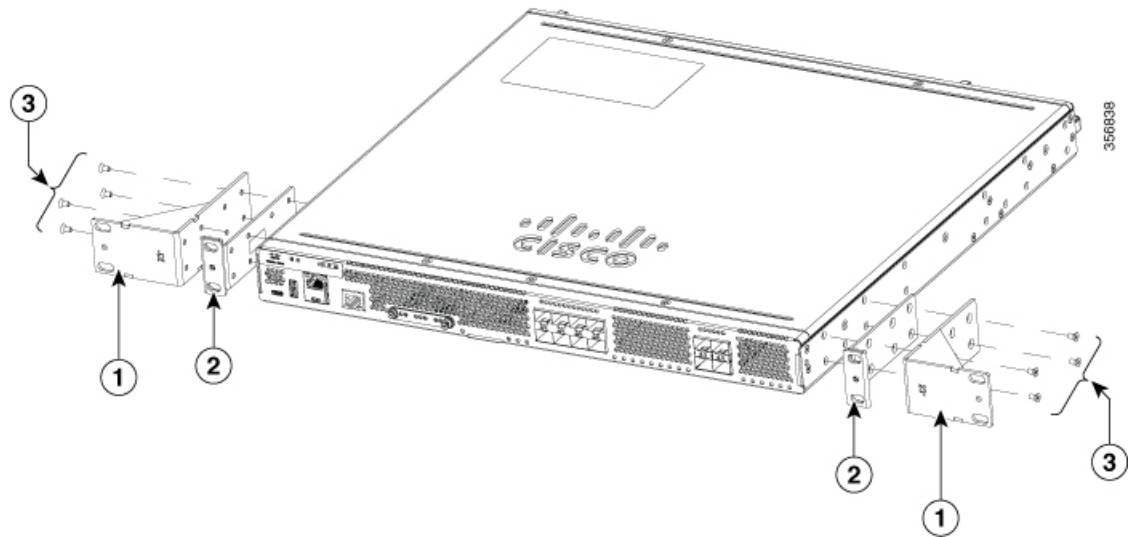
Step1. Select the depth location for the router in the equipment rack. I/O side flush; I/O side recessed for the RFID badge or power supply side flush.

Step2. Align the rack mount bracket with the mounting holes in the side of the router.

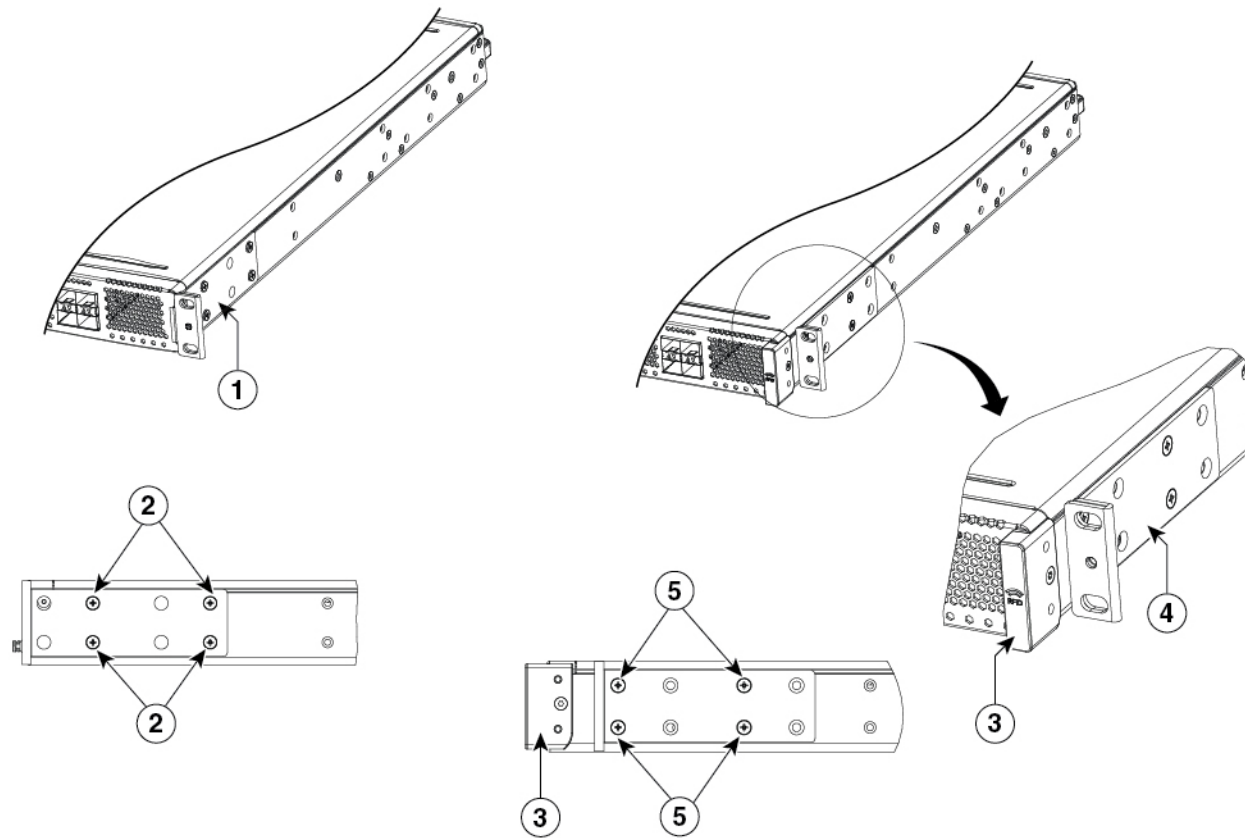
Step3. Insert the #6-32 FHM screws. Use only the screws that are provided in the rack mount bracket kit.

Step4. Tighten the screws to a torque value of 15 to 18 inch-lb. (1.7 to 2.0 N-m).

Figure 8: Installation of 19" or 23" brackets (I/O side shown)

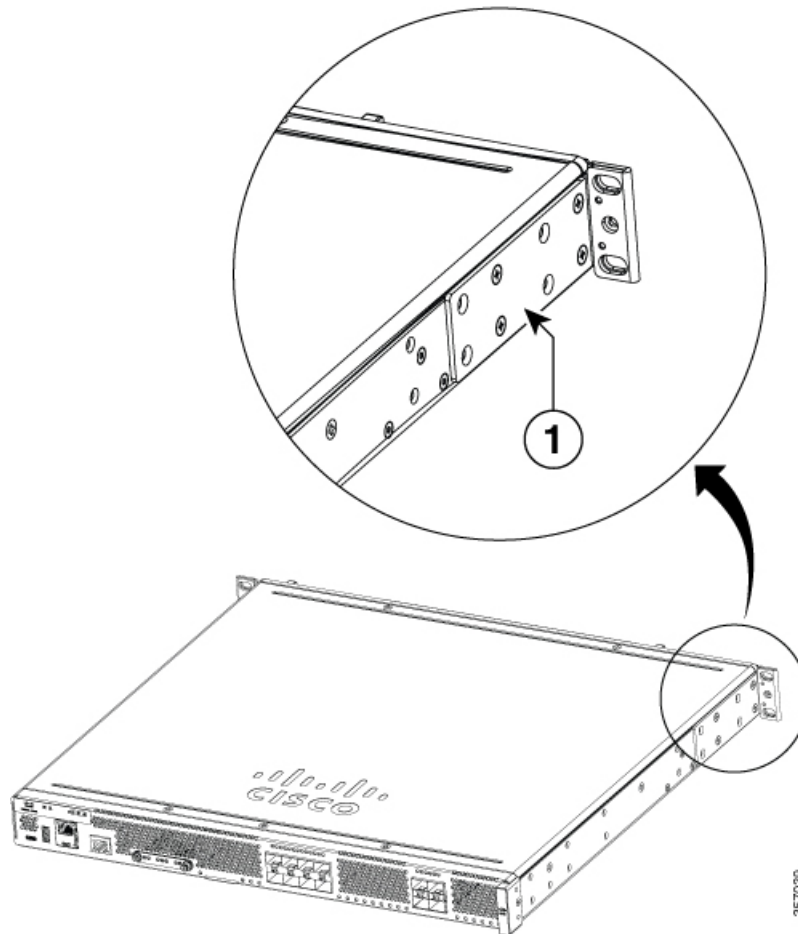


1	23-inch brackets	2	19-inch EIA brackets
3	Screws (#6-32 FHMS)		

Figure 9: Rack Mount Bracket Positions (I/O Side)

1	19-inch brackets; I/O-side flush (no RFID)	2	Screw locations for I/O-side flush (no RFID)
3	RFID	4	19-inch brackets; I/O-side recessed (with RFID)
5	Screw locations for I/O-side recessed (with RFID)		

Figure 10: Install Brackets for PS Mounting (C8500L-8S4X)



1	19-inch brackets
---	---------------------

Mount the Chassis on a Rack

After you attach the rack-mount brackets to the chassis, use screws to install the chassis onto the rack.



Tip For both the 19-inch EIA brackets and the 23-inch brackets, start the lower pair of screws first, and rest the brackets on the lower screws while you insert the upper pair of screws.



Tip The screw slots in the brackets are spaced to line up with every *second* pair of screw holes in the rack. When the correct screw holes are used, the small threaded holes in the brackets line up with unused screw holes in the rack. If the small holes do not line up with the rack holes, you must raise or lower the brackets to the next rack hole.

**Warning**

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. Statement 1006.

**Warning**

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. Statement 1032

Figures below shows a typical rack mounting of a chassis in a rack.

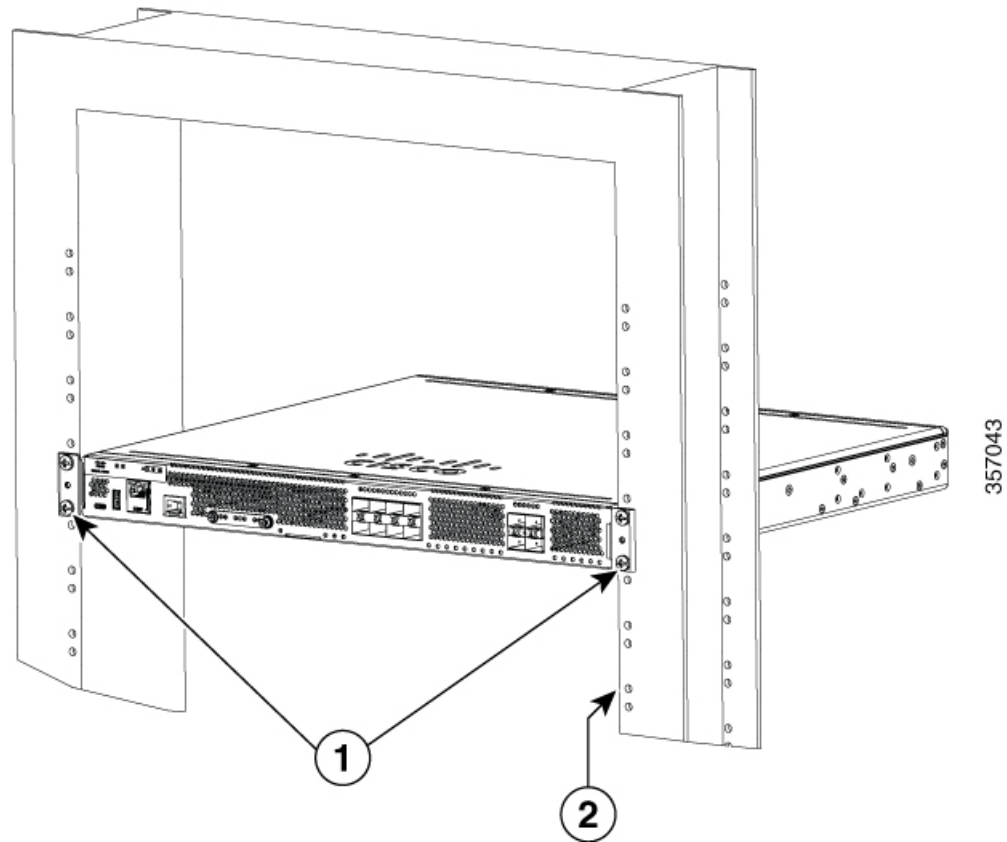
Step1. Locate the desired position in the equipment rack.

Step2. Align the holes in the rack mount brackets with the mounting holes in the equipment frame.

Step3. Secure the device using mounting screws appropriate for your equipment frame. The rack mount brackets have been designed #12-24 PHM screws.

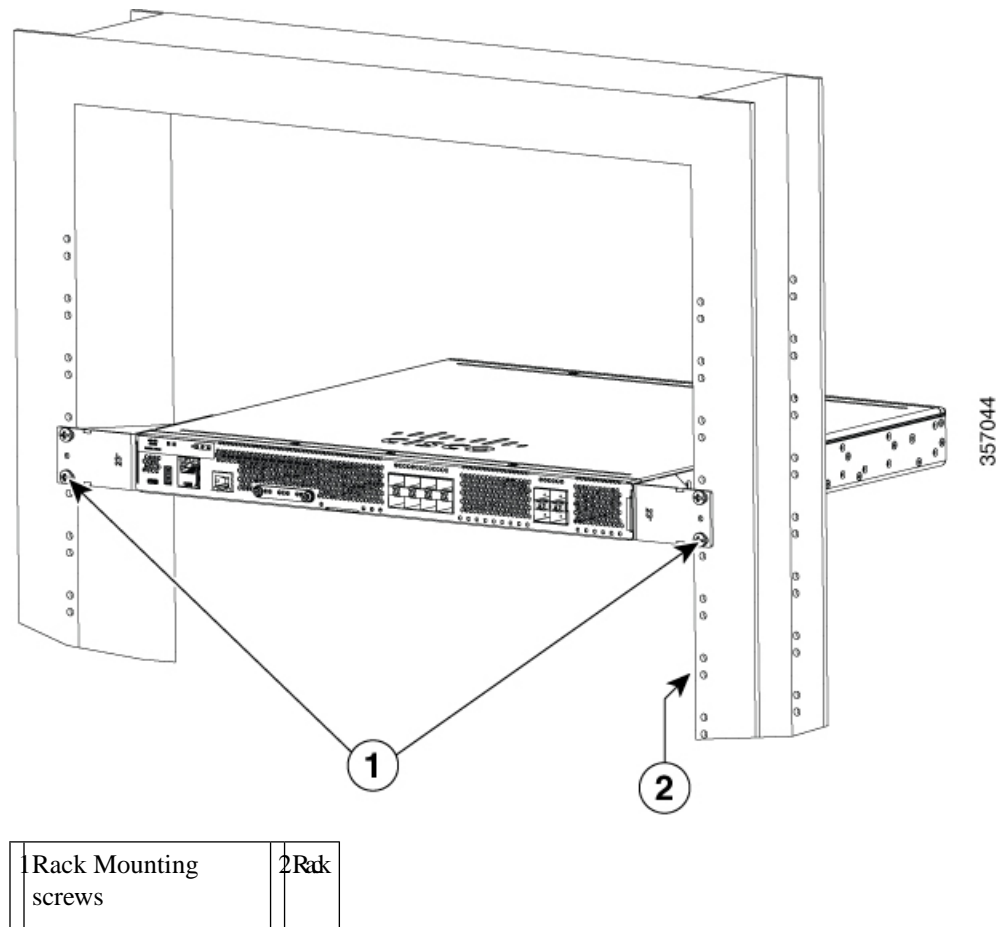
Step4. Tighten the screws to the appropriate torque value for your equipment

Figure 11: I/O Flush Mount in 19-inch Rack without RFID (8500L-8S4X)



1 Rack Mounting screws	2 Rack
------------------------	--------

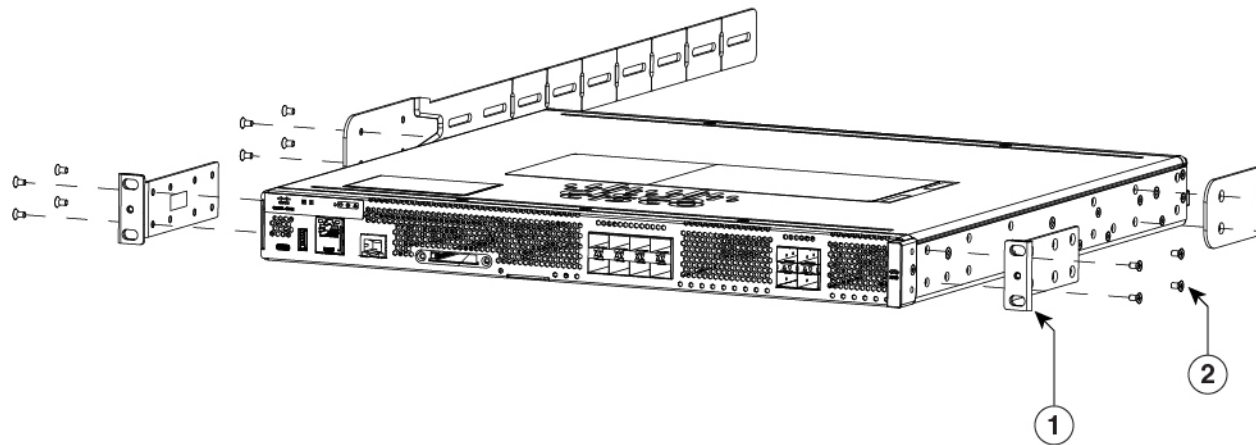
Figure 12: I/O Flush Mount in 23-inch Rack without RFID (8500L-8S4X)



Four-Post Rack Mounting

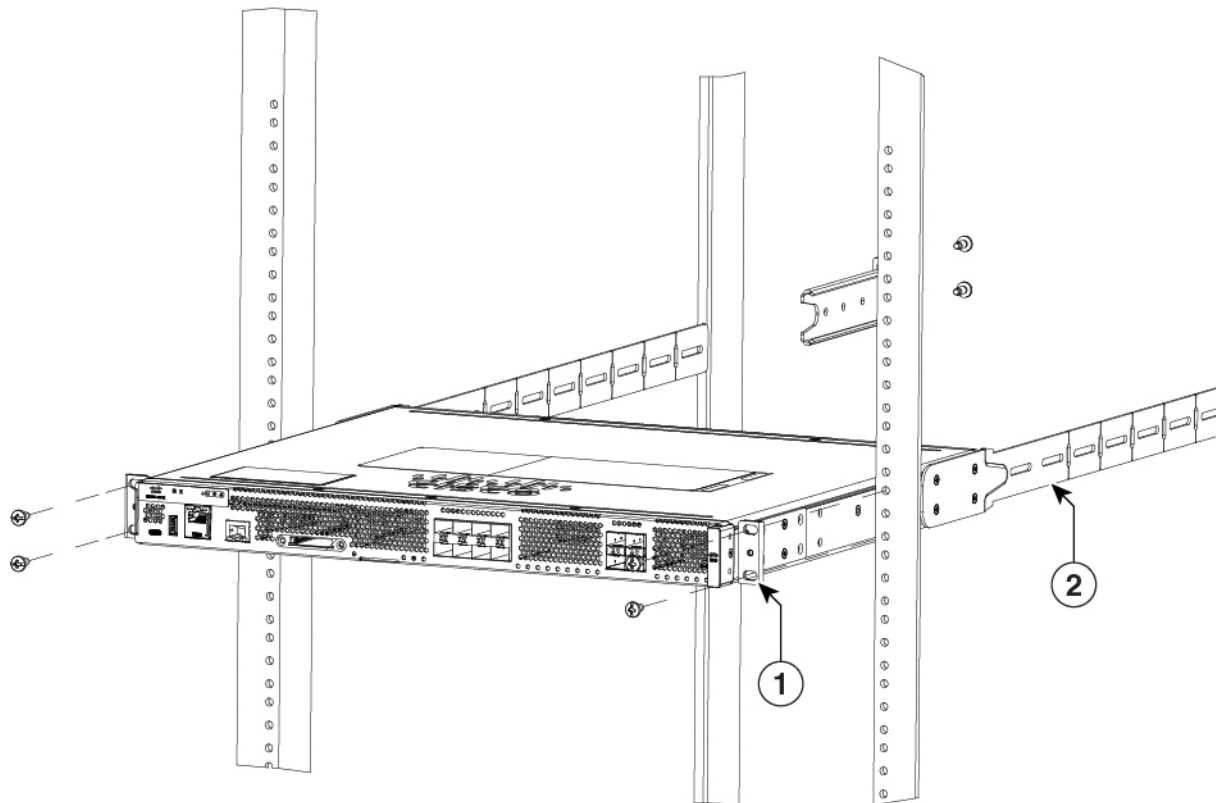
The four-post rack mounting is only supported on 19-inch equipment racks. The four-post mounting kit includes two standard 19-inch rack mount brackets and two rear support brackets. This kit does not include screws to secure the brackets to the frame.

1. Assemble the two standard 19-inch rack mounting brackets in the desired location. For more details, see *Rack mount the chassis* section.
2. Assemble the rear mount chassis brackets on the opposite ends of the router.



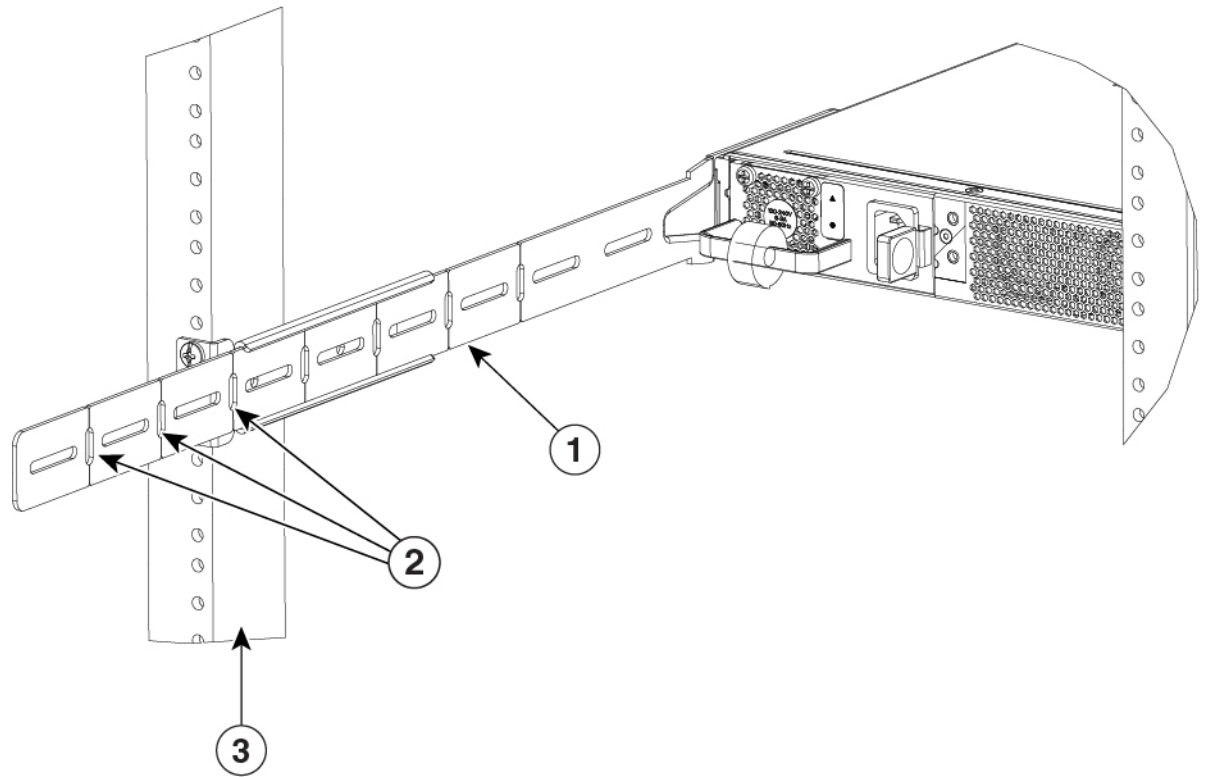
1	19-inch mounting brackets	2	Screws (16 in total)
3	Rear mount chassis bracket		

3. Secure the router in the rack with the 19-inch rack mounting brackets.
4. Slide the four-post mount rack brackets on to the rear mount brackets until they make contact with the rear frame. Finger tighten the screws securing the four-post mount rack brackets to the rear frame to verify the correct mounting location.



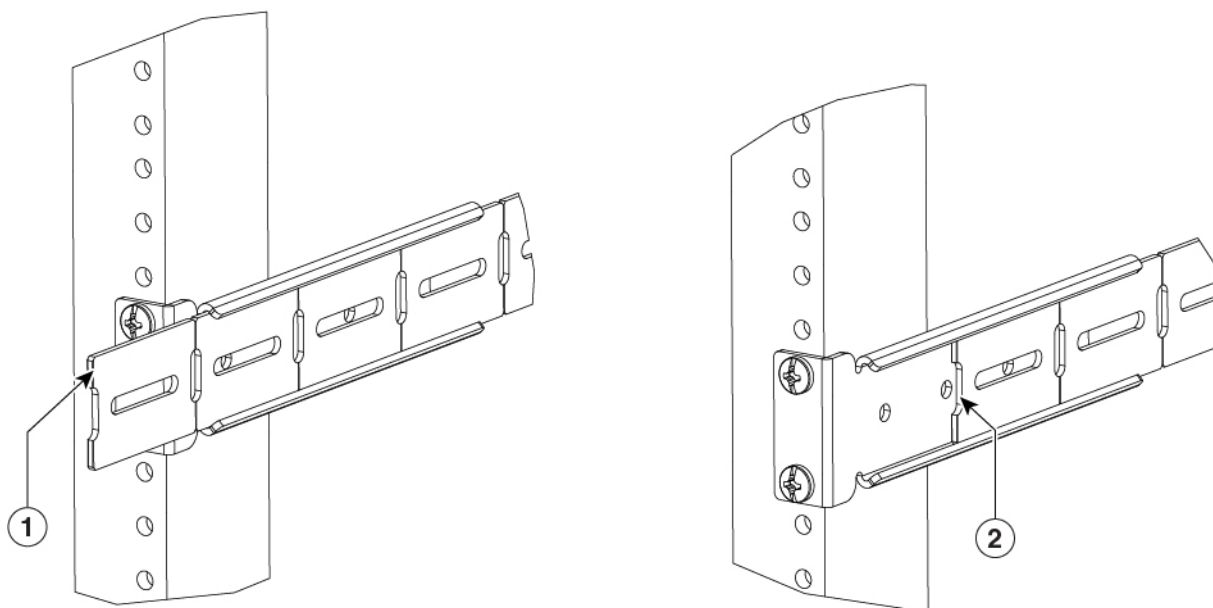
1	19-inch mounting brackets	2	Rear mount chassis bracket
3	Four-post mount rack bracket	4	Screws (8 in number, not included in the kit)
5	Rear frame		

- The rear mount chassis bracket may extend beyond the rear frame. The bracket can be shortened by breaking off a length of the bracket at one of the vertical score lines. It is recommended that the bracket be shortened so that it does not protrude beyond the back rails and become a safety hazard. To shorten the bracket, mark the appropriate score line, remove the 4-point mount rack bracket, break the bracket at the designated score line, then re-assemble the four-post mount rack bracket.



3574 13

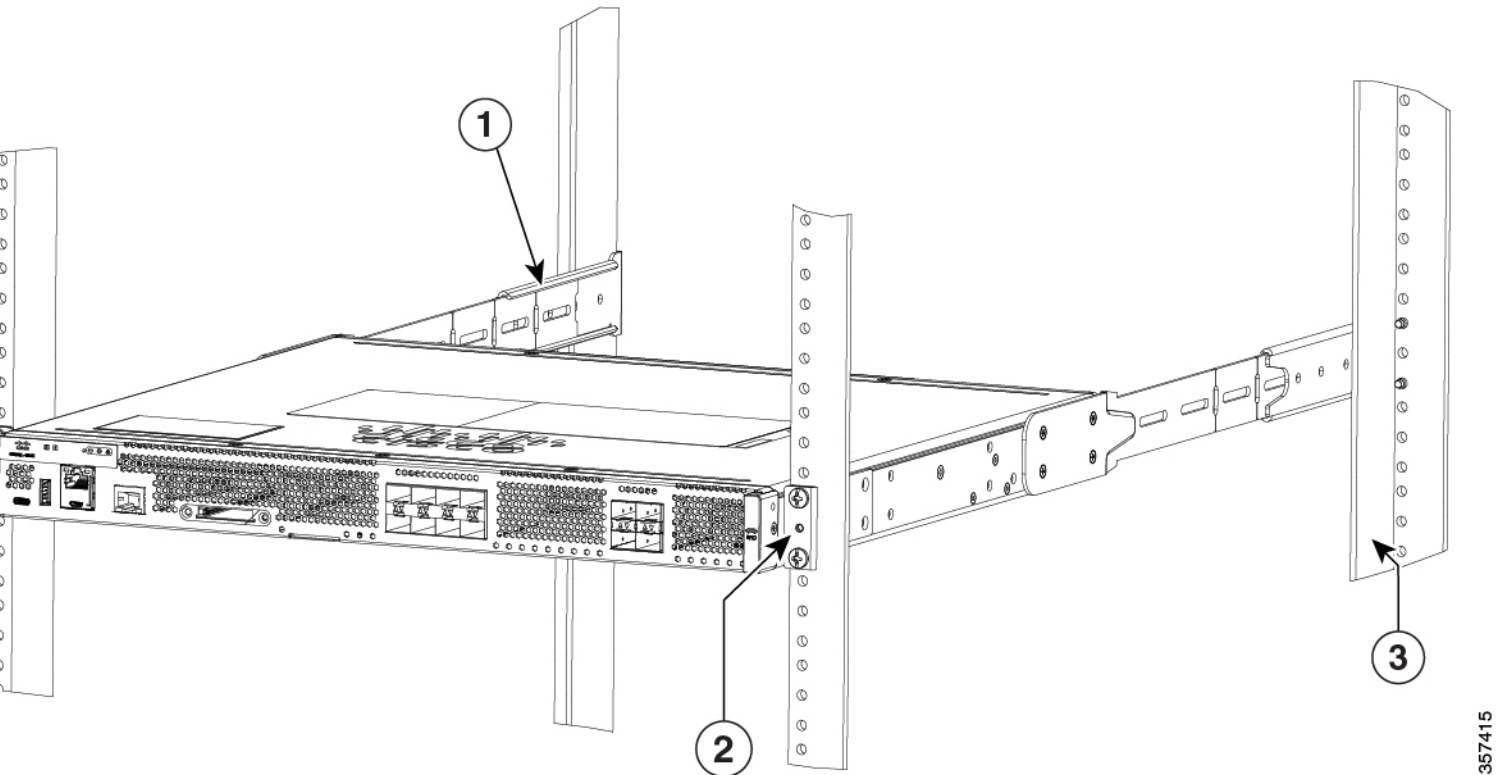
1	Rear mount chassis bracket in c-channel of four-post mount rack bracket	2	Vertical score lines
3	Rear frame		



1 Rear mount chassis bracket protruding just beyond the rear post

2 Rear mount chassis bracket recessed within the rear post (intruding)

6. Once everything is adjusted, tighten all the rack-mount screws starting at the front 19-inch mounting brackets, then securing the rear four-post



1	Rear mount chassis bracket in C-channel of four-post mount bracket shortened to be recessed within the four-post mount rack bracket	2	19-inch mounting brackets
3	Rear frame		

Ground the Chassis

After the device is installed, you must connect the chassis to a reliable earth ground.

Chassis Grounding



Warning

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. Statement 1024



Warning

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, you could shock yourself. Statement 94

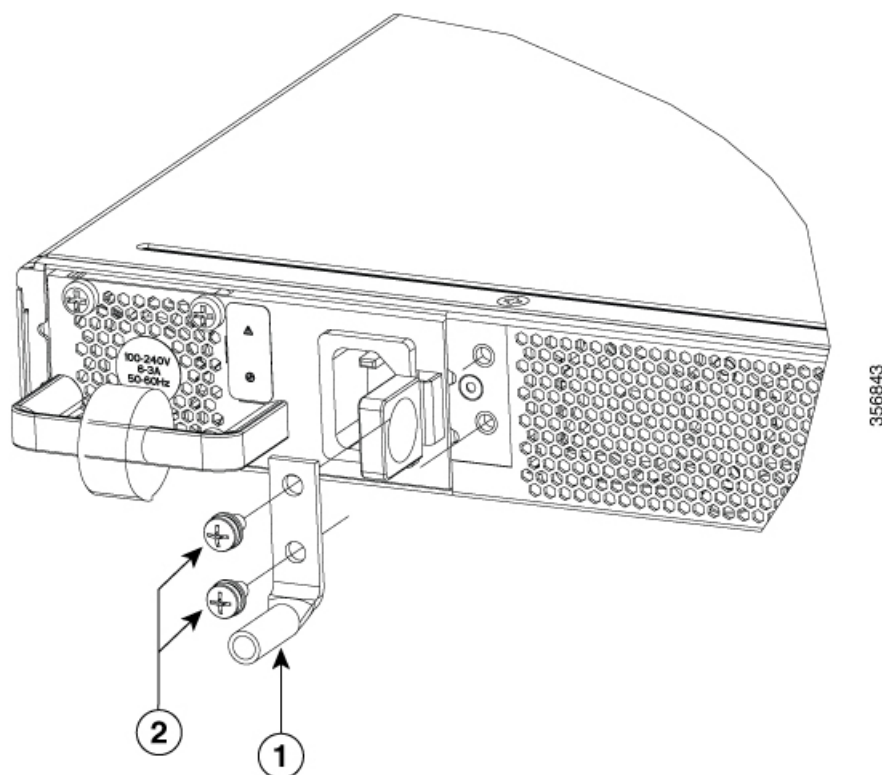
You must connect the chassis to a reliable earth ground; the ground wire must be installed in accordance with local electrical safety standards.

- For grounding, use size 6 AWG (13 mm²) copper wire and the ground lug provided in the accessory kit.

To install the ground connection for your router, perform the following steps:

- Step 1** Strip one end of the ground wire to the length required for the ground lug or terminal.
- For the ground lug—approximately 0.75 inch (20 mm)
 - For user-provided ring terminal—as required
- Step 2** Crimp the ground wire to the ground lug or ring terminal, using a crimp tool of the appropriate size.
- Step 3** Attach the ground lug or ring terminal to the chassis as shown in Chassis Grounding section. For a ground lug, use the two screws with captive locking washers provided. For a ring terminal, use one of the screws provided. Tighten the screws to a torque of 8 to 10 in-lb (0.9 to 1.1 N-m).

Figure 13: Chassis Ground Connection on the C8500-L 8S4X



- Step 4** Connect the other end of the ground wire to a known reliable earth ground point at your site.

1	Ground lug
---	------------

2	Screws
---	--------

Safety Considerations Before Connecting Power to the Device



Warning

Read the installation instructions before connecting the system to the power source. Statement 1004



Warning

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028



Warning

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030



Note

The installation must comply with all required electrical codes applicable at the installation site.



Warning

When installing the product, please use the provided or designated connection cables/power cables/AC adaptors. Using any other cables/adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL-certified cables (that have the “UL” shown on the code) for any other electrical devices than products designated by CISCO. The use of cables that are certified by Electrical Appliance and Material Safety Law (that have “PSE” shown on the code) is not limited to CISCO-designated products. Statement 371.

If your device uses AC power, connect it to a 15 A, 120 VAC (10 A, 240 VAC) circuit with overcurrent protection.



Note

The input voltage tolerance limits for AC power are 100 and 240 VAC.



Note

This product requires surge protection to be provided as part of the building installation. To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, an external surge protective device (SPD) is required at the AC power service equipment.



Warning

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than 20A. Statement 1005

Connect to a Console Terminal or Modem

The Catalyst 8500L-8S4X Edge Platforms have asynchronous serial ports. These ports provide administrative access to the router either locally (with a console terminal or a PC). To configure the router through the Cisco IOS CLI, you must establish a connection between the router console port and either a terminal or a PC.

Use the following cables and adapters to establish a local or remote connection.

Figure 14: Ports

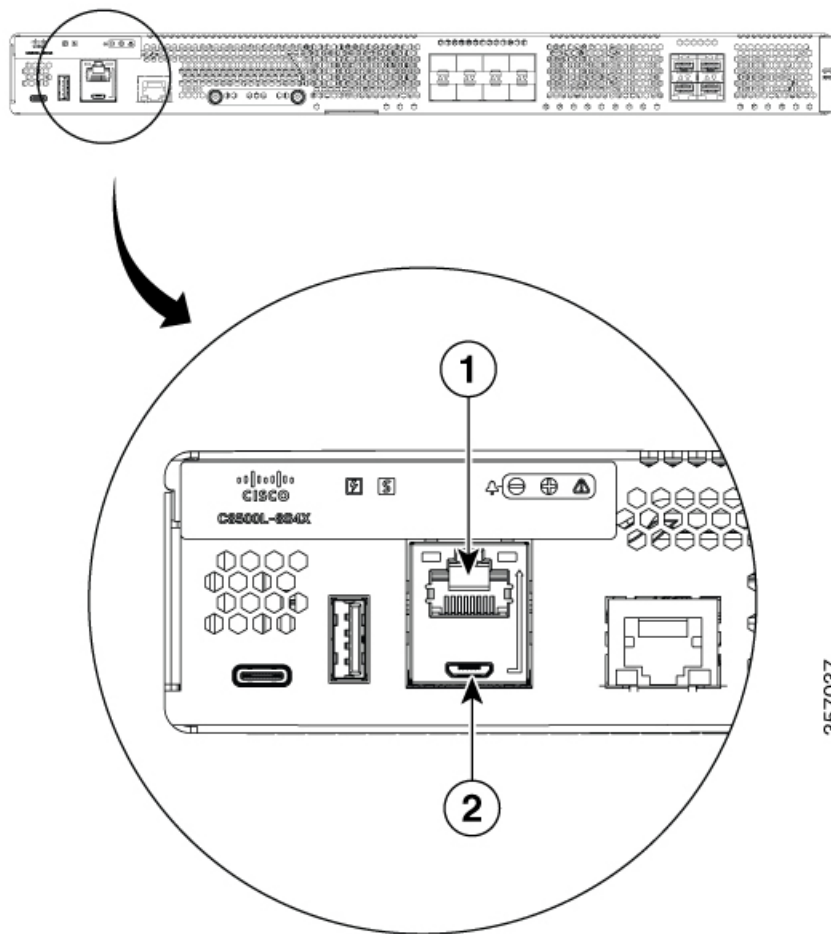


Table 7: Local and Remote Connections

Port Type	Cable
1. Serial (RJ-45)	EIA RJ-45

Port Type	Cable
2. Serial (USB)	USB 5-pin micro USB Type-B-to-USB Type-A

Connect to the Console Port with Mac OS X

This procedure describes how to connect a Mac OS X system USB port to the console using the built in OS X Terminal utility.

-
- Step 1** Use the Finder to go to Applications > Utilities > Terminal.
- Step 2** Connect the OS X USB port to the router.
- Step 3** Enter the following commands to find the OS X USB port number

Example:

```
macbook:user$ cd /dev
macbook:user$ ls -ltr /dev/*usb*
crw-rw-rw-  1 root   wheel          9,  66 Apr  1 16:46 tty.usbmodem1a21 DT-macbook:dev user$
```

- Step 4** Connect to the USB port with the following command followed by the router USB port speed

Example:

```
macbook:user$ screen /dev/tty.usbmodem1a21 9600
```

To disconnect the OS X USB console from the Terminal window

Enter Ctrl-a followed by Ctrl-\

Connect to the Console Port with Linux

This procedure shows how to connect a Linux system USB port to the console using the built in Linux Terminal utility.

-
- Step 1** Open the Linux Terminal window.
- Step 2** Connect the Linux USB port to the router.
- Step 3** Enter the following commands to find the Linux USB port number

Example:

```
root@usb-suse# cd /dev
root@usb-suse /dev# ls -ltr *ACM*
crw-r--r--  1 root   root      188,   0 Jan 14 18:02 ttyACM0
root@usb-suse /dev#
```

- Step 4** Connect to the USB port with the following command followed by the router USB port speed

Example:


```
root@usb-suse /dev# screen /dev/ttyACM0 9600
```

To disconnect the Linux USB console from the Terminal window

Enter Ctrl-a followed by : then quit



CHAPTER 4

Install and Upgrade Internal Modules and FRUs

This document describes how to install and upgrade internal modules and field replaceable units (FRUs) in the Cisco Catalyst 8500L-8S4X Edge Platform. The install and upgrade information is contained in these sections:

- [Safety Warnings, on page 45](#)
- [Locate and Access Internal Modules, on page 46](#)
- [Remove and Replace DDR DIMMs, on page 49](#)
- [Remove and Replace the Power Supplies , on page 51](#)
- [Replace a Fan Tray for Cisco Catalyst 8500L-8S4X Edge Platform , on page 63](#)
- [Install SFP and SFP+ Modules, on page 65](#)
- [Remove and Install an M.2 Module, on page 67](#)
- [Prevent Electrostatic Discharge Damage, on page 67](#)
- [Install and Remove the M.2 Storage Device, on page 68](#)

Safety Warnings



Warning

High touch/leakage current – Permanently connected protective earth ground is essential before connecting to telecommunication network.



Warning

Class 1 laser product. Statement 1008



Warning

To reduce the risk of electric shock, the chassis of this equipment needs to be connected to permanent earth ground during normal use. Statement 0445



Warning

To reduce risk of electric shock and fire, a readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022

**Warning**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

**Warning**

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

**Warning**

Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard. Statement 1056

**Warning**

Only instructed person or skilled person should be allowed to install, replace, or service this equipment. Refer to statement 1089 for description of skilled person.

**Warning**

Only instructed person or skilled person should be allowed to install, replace, or service this equipment. Refer to statement 1089 for description of skilled person. Statement 1090

**Warning**

Only instructed person or skilled person should be allowed to install, replace, or service this equipment. Refer to statement 1089 for description of skilled person. Statement 1091

**Warning**

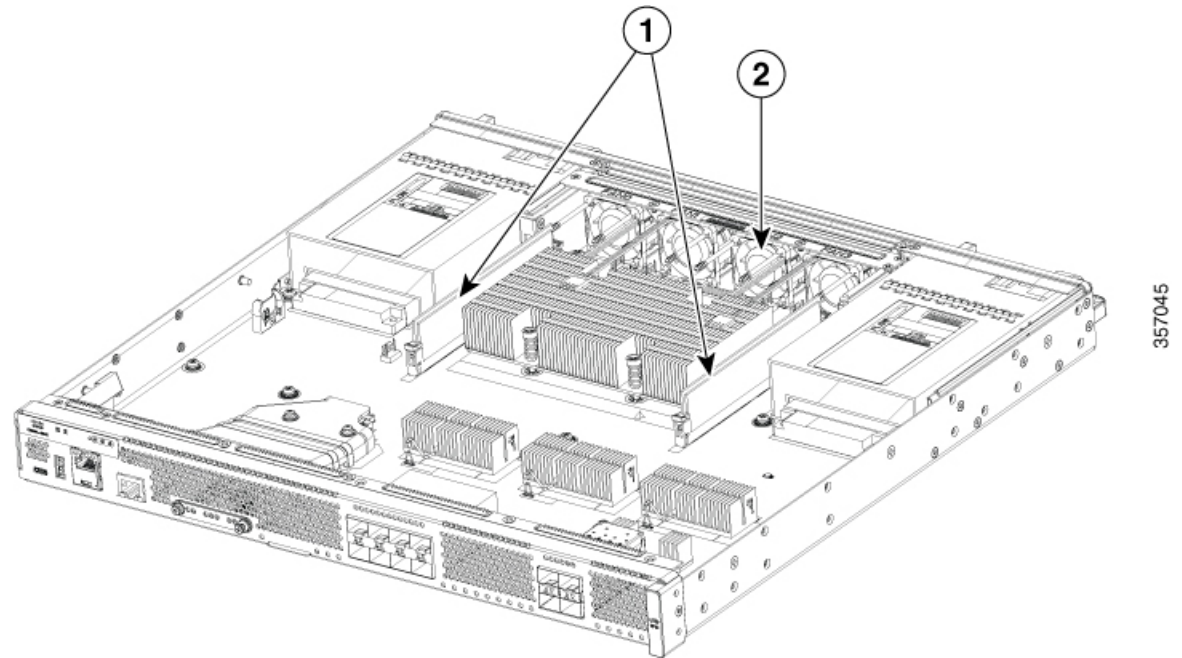
Pluggable optical modules comply with IEC 60825-1 Ed. 3 and 21 CFR 1040.10 and 1040.11 with or without exception for conformance with IEC 60825-1 Ed. 3 as described in Laser Notice No. 56, dated May 8, 2019.. Statement 1255

Locate and Access Internal Modules

The figures below show the locations of internal modules on the motherboard. Internal modules include DIMMs and fan tray on Cisco Catalyst 8500L-8S4X Edge Platform.

To access the internal modules on the device, you must first remove the chassis cover. For instructions on how to remove and replace the chassis cover on the device, see the sections on Install and Remove Chassis Covers.

Figure 15: Internal Module Locations in the C8500L-8S4X



1	DIMM
2	Fan tray

Remove and Replace the Chassis Cover

The Cisco Catalyst 8500L-8S4X Edge platform have removable covers. Before removing the cover, note the following:

- Do not run the router with the cover off. Doing so can cause the router to overheat very quickly.
- Before opening the unit, disconnect the telephone-network cables to avoid contact with telephone-network voltages. Statement 1041.
- Disconnect all power cables.
- Remove the device from the rack
- Use a number-2 Phillips screwdriver to perform the following tasks.

Remove the Chassis Cover

To remove the cover, perform the following steps.

-
- Step 1** Read the Safety Warnings and disconnect the power supply before you perform any module replacement.
- Step 2** Confirm the device is turned off and disconnected from the power supply or power supplies. If a redundant power is used, disconnect from the redundant power supply.

Replace the Cover

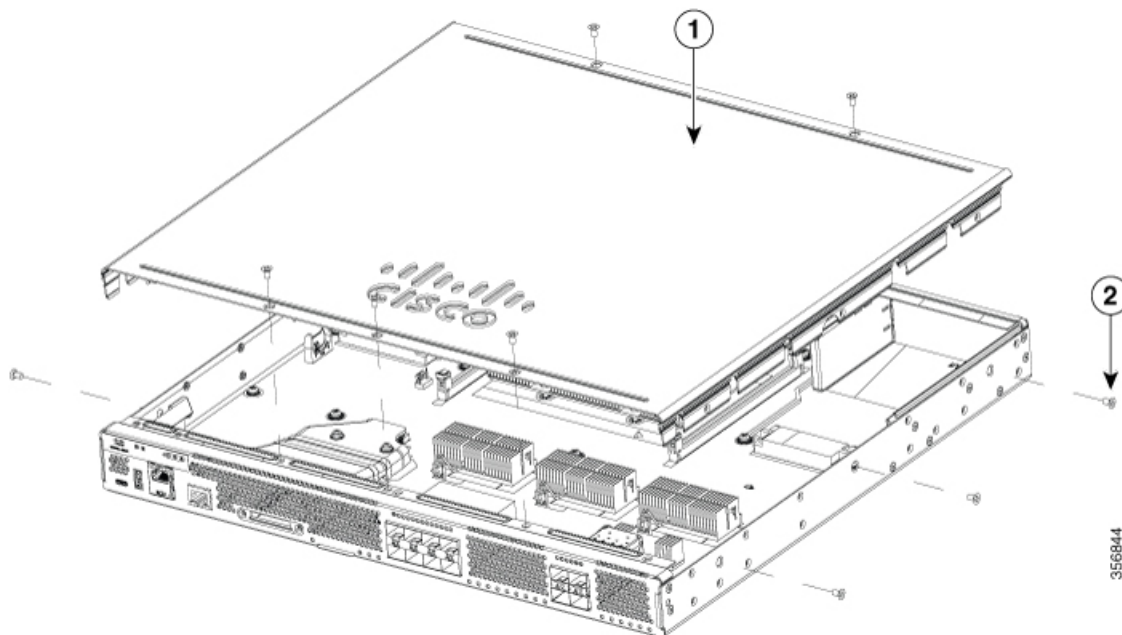
- Step 3** Place the chassis on a flat surface.
- Step 4** Remove the 11 cover screws.
- Step 5** Lift the cover straight up.

Replace the Cover

To replace the cover, perform the following steps.

- Step 1** Place the chassis on a flat surface.
- Step 2** Drop the cover straight down and ensure that the side flanges insert into the chassis. Care should be taken to not damage the EMC Gaskets.
- Note** The correct orientation of the cover is determined by location of the CISCO logo as shown in image below.
- Step 3** Install the 11 cover screws.

Figure 16: Install the Cover on the C8500L-L8S4X



1	Chassis cover
2	Screws

Remove and Replace DDR DIMMs

To access the DIMMs, you must remove the chassis cover as described in the Access and Install Modules section.



Caution Always wear an ESD-preventive wrist strap and ensure that it makes good contact with your skin when you remove or install DIMMs. Connect the equipment end of the wrist strap to the metal part of the chassis.

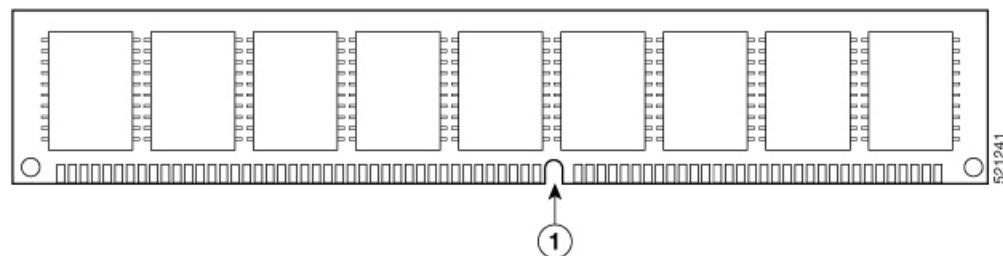


Caution Handle DIMMs by the edges only. DIMMs are ESD-sensitive components and can be damaged by mishandling.

Locate and Orient DIMM

DIMMs have a polarization notch on the mating edge to prevent incorrect insertion. The following image shows the polarization notch on a DIMM.

Figure 17: DIMM Showing Polarization Notch

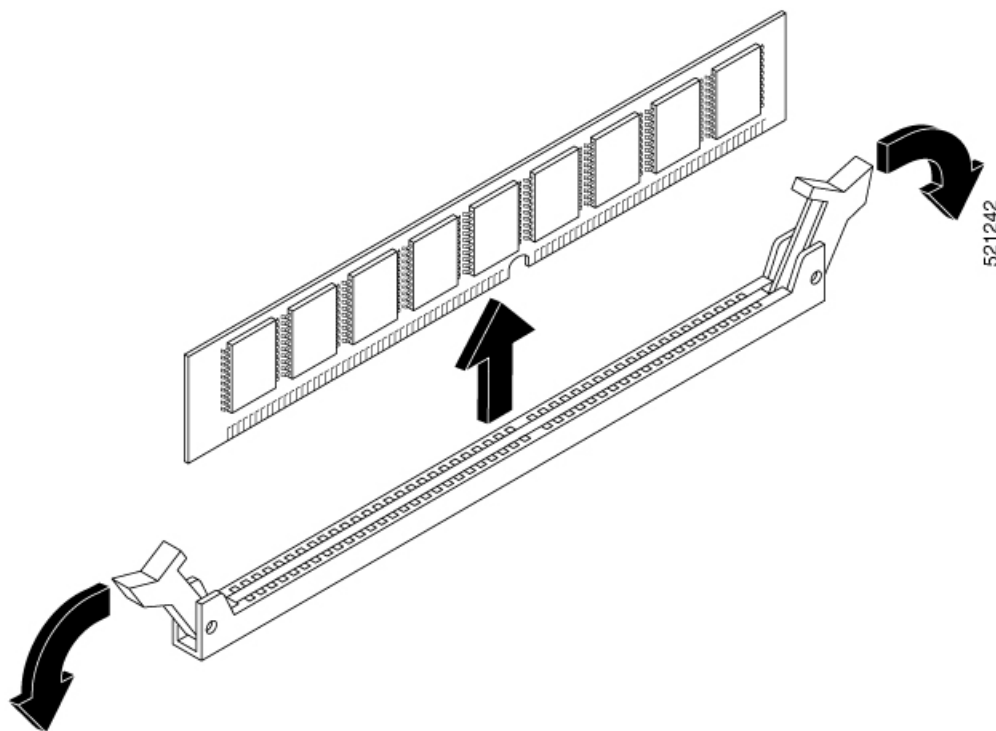


1	Polarization notch
---	--------------------

Remove a DIMM

Follow these steps to remove a DIMM:

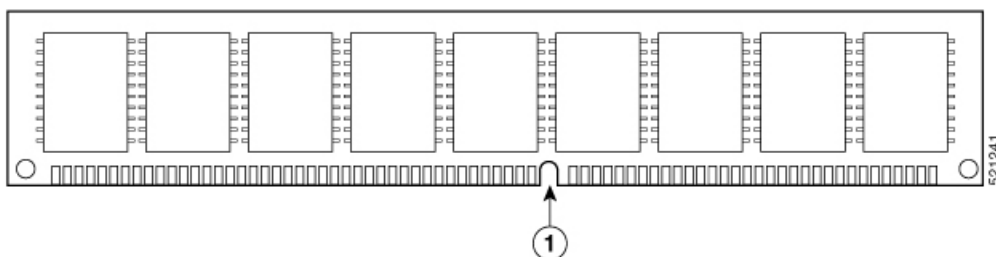
- Step 1** Read the Safety Warnings section and disconnect the power supply before you perform any module replacement.
- Step 2** Remove the chassis cover. See the Remove the Chassis Cover section
- Step 3** Locate the DIMM module to find the DIMM sockets on the chassis.
- Step 4** Rotate DIMM connector handles downwards to extract the DIMM module.

Figure 18: Remove a DIMM

Install a DIMM

Follow these steps to install a DIMM on the Cisco Catalyst 8500L-8S4X Edge device.

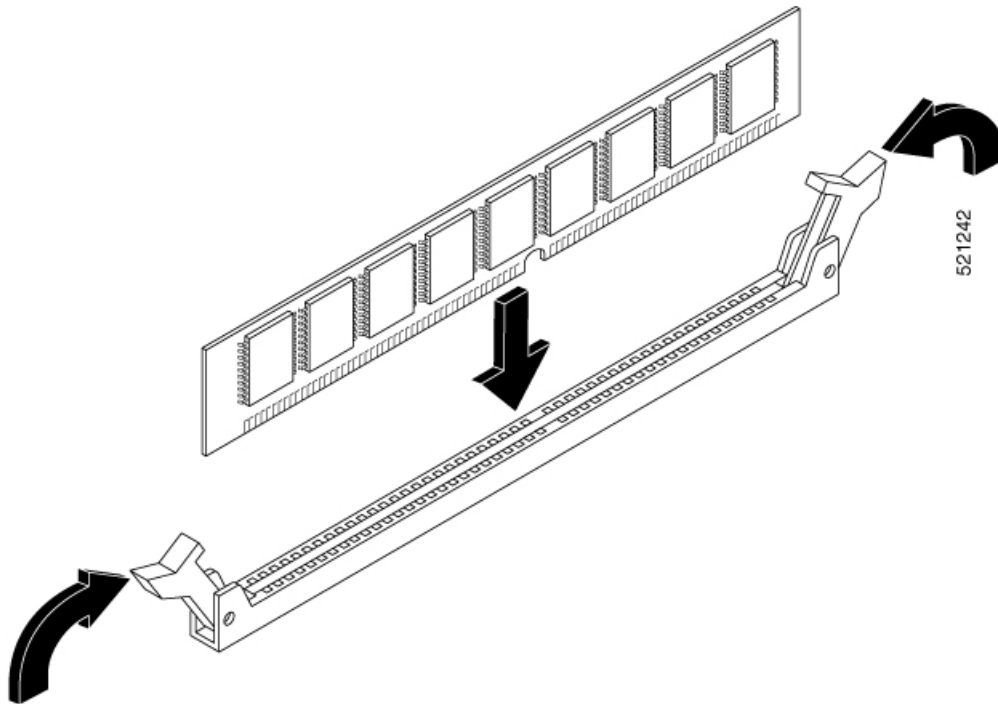
- Step 1** Read the Safety Warnings section and disconnect the power supply before you perform any DIMM replacement.
- Step 2** Remove the chassis cover.
- Step 3** Locate the DIMM module to find the DIMM sockets on the device.
- Step 4** Ensure that both latches on the DIMM connector are in the open position.
- Step 5** Orient the DIMM so that the polarization notch lines up with the polarization key on the connector.

Figure 19: DIMM Showing Polarization Notch

- Step 6** Insert the DIMM into the connector one side at a time.

Step 7 Rotate the connector handles upward and click into place.

Figure 20: Install a DIMM



Step 8 Replace the chassis cover.

Remove and Replace the Power Supplies



Warning

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; 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. Statement 1029



Warning

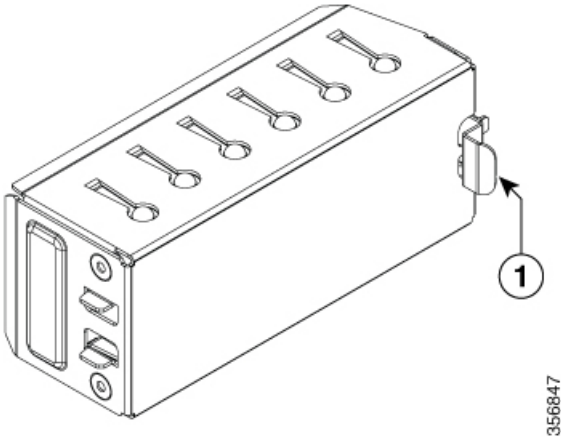
This unit has more than one power supply connection. All connections must be removed to de-energize the unit. Statement 1028



Note

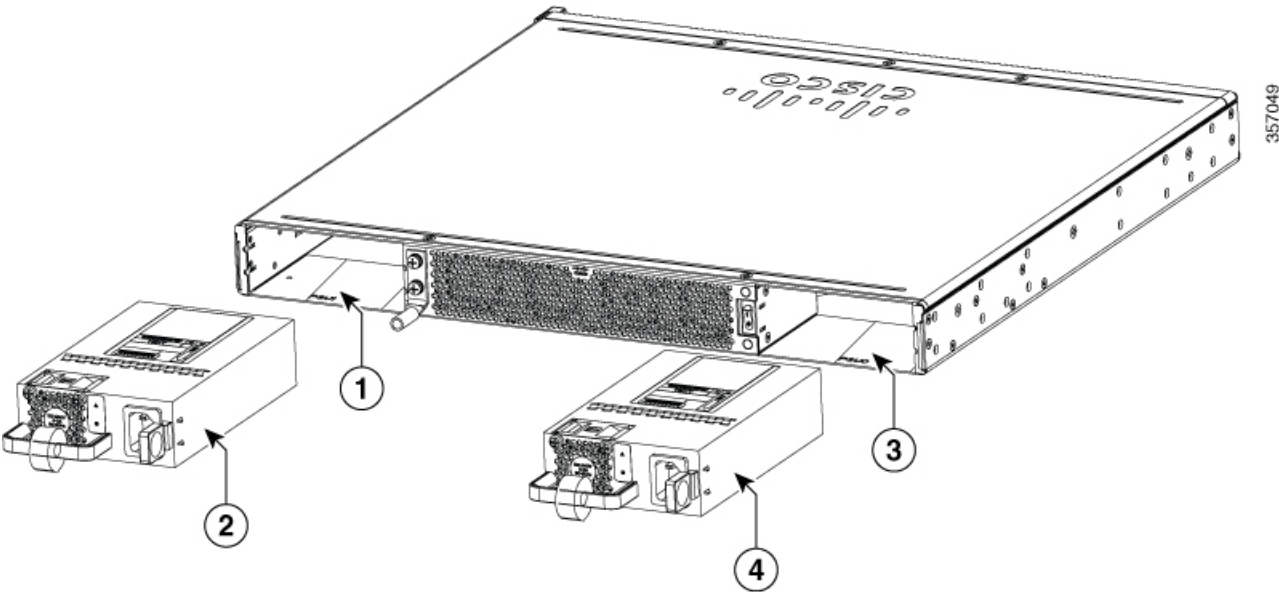
If a PSU which is failed is removed, a PSU-blank must be installed in the slot until a new PSU is installed.

Figure 21: Power Supply Blank



Sl. No	Module
1	Latch

Figure 22: Power Supply Unit of C8500L-8S4X

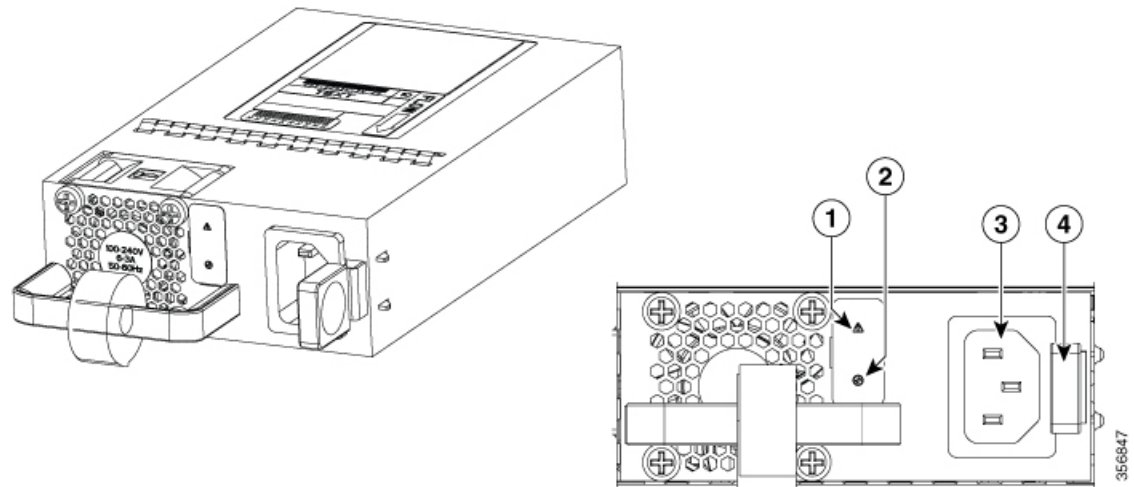


Sl. No	Module
1	Slot for PSU1
2	PSU1
3	Slot for PSU0
4	PSU0

AC Power Supplies

Overview of the AC Power Supply

Figure 23: 400W AC Power Supply for C8500L-8S4X



1 Alarm Fail LED	2 Status LED
3 AC socket	4 Latch

Installing AC Power Supplies



Note Do not install the power supplies with the chassis cover off.

- Step 1** Ensure that the chassis power switch on the chassis is in the Standby position.
- Note** It is not required to place the chassis power switch in the Standby position if you want to hot-swap a single power supply.
- Step 2** Insert the power supply module into the appropriate slot(s), making sure that the retention latch is firmly placed. You can verify that the power supply module is firmly latched by gently pulling the power supply handle.
- Step 3** Insert the power supply cables firmly into the power supplies.
- Note** Ensure that both power supplies are inserted firmly and the power cords are in place.
- Step 4** If you have changed the chassis power switch to the Standby position in Step 1, press the power switch to the On position. The power supply LEDs are illuminated (green).

Replace the AC and HVAC or HVDC Power Supply in the C8500L-8S4X



Note The device has redundant power supplies that can be hot-swapped.

To remove an AC power supply from the C8500L-8S4X, perform these steps:

- Step 1** Read the safety warnings section of this document.
- Step 2** If there is only one power supply in the system, shut down the device before removing the power supply.
- Step 3** If there are redundant power supplies in use the device does not have to be shut down prior to replacing the power supply. The power supply can be replaced while the device is in service.
- Step 4** If in use, remove the strain relief securing the power supply cable to the power supply latch.
- Step 5** Remove the power cord from the power socket.
- Step 6** Depress the power supply latch and use the handle to pull the supply out of the router.

Figure 24: Step 4

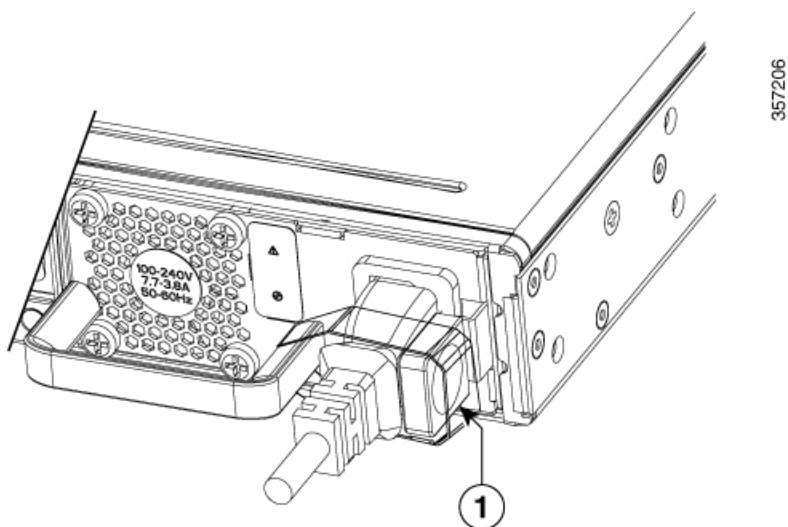


Figure 25: Step 5

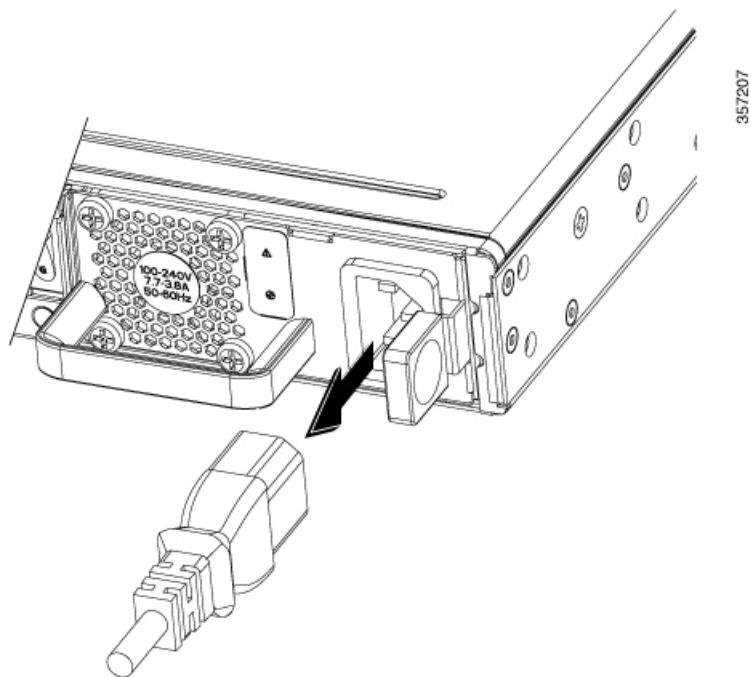
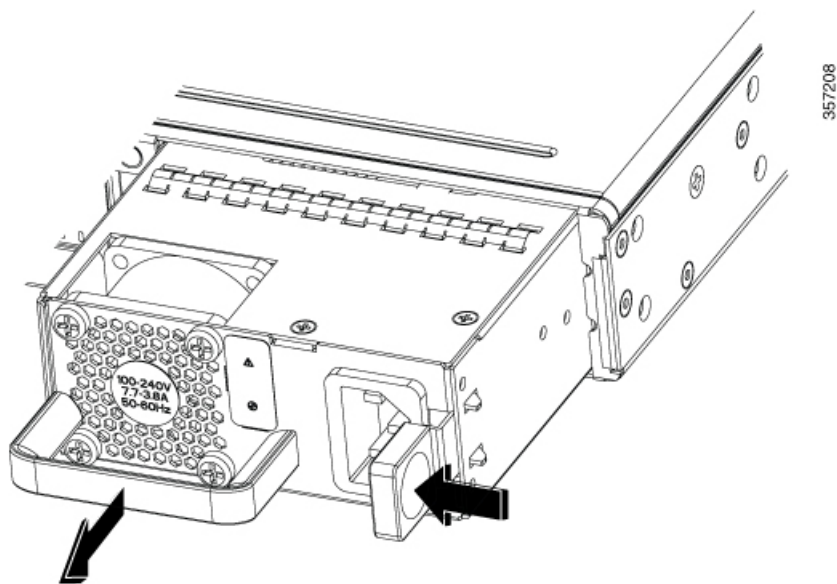


Figure 26: Step 6



DC Power Supplies

Overview of the DC Power Supply

This section describes how to install the DC power supply input power that leads to the DCinput power supply. Before you begin, read these important notices:

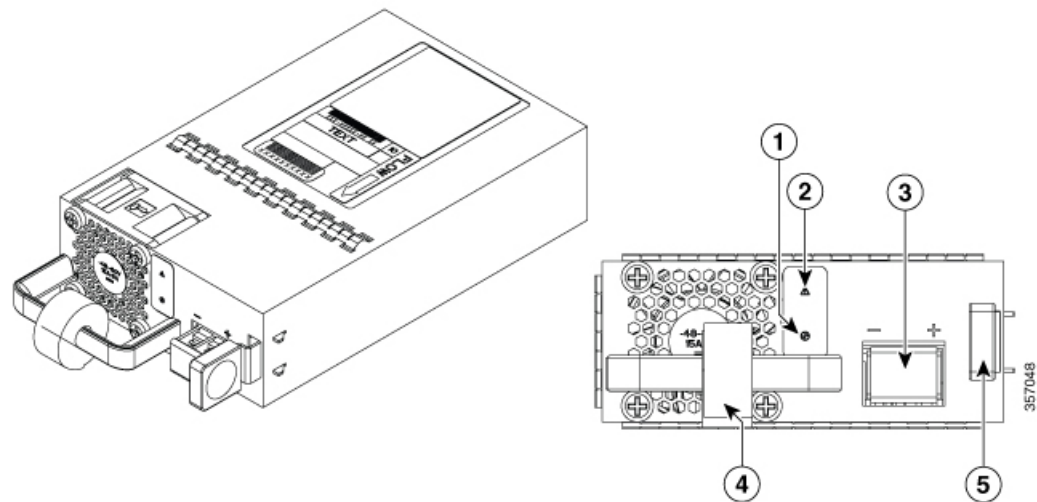


Note The device has redundant power supplies that can be hot-swapped.

The DC input connector has negative(-) on left and positive(+) on right with mark.

The power supply has a handle to be used for insertion and extraction. The module must be supported with one hand because of its length.

Figure 27: DC Power Supply for C8500L-8S4X



400W DC

1 Status LED	2 Alarm Fail LED
3 DC terminals	4 Handle
5 Latch	

Installing DC Input Power Supplies



Note Do not install the power supplies with the chassis cover off.

To reduce risk of electric shock, before performing any of the following procedures, ensure that power is removed from the system.

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

Do not install the power supplies with the chassis cover off.

This section describes how to install the DC power supply input power leads to the DC input power supply. Before you begin, read these important notices:

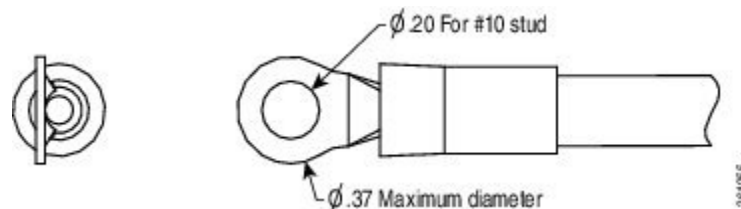
- The color coding of the DC input power supply leads depends on the color coding of the DC power source at your site. Ensure that the lead color coding you choose for the DC input power supply matches the lead color coding used at the DC power source and verify that the power source is connected to the negative (–) terminal and to the positive (+) terminal on the power supply.
- Ensure that the chassis ground is connected on the chassis before you begin installing the DC power supply. Follow the steps provided in the *Chassis Ground Connection* section.
- For DC input power cables, the wire gauge is based on the National Electrical Code (NEC) and local codes for 15 amp service at nominal DC input voltage (40/72 VDC). One pair of cable leads, source DC (–) and source DC return (+), are required for each power distribution unit (PDU). These cables are available from any commercial cable vendor. All DC input power cables for the chassis should be at least 14 gauge wire for less than 10 feet cable length. For greater than 10 feet cable length, 12 and bigger gauge wire is recommended. The cable lengths for positive and negative should match within 10 percent of deviation.

Each DC input power cable is terminated at the PDU by a cable lug, as shown in the following figure.



Note DC input power cables must be connected to the PDU terminal studs in the proper positive (+) and negative (–) polarity. In some cases, the DC cable leads are labeled, which is a relatively safe indication of the polarity. However, you must verify the polarity by measuring the voltage between the DC cable leads. When making the measurement, the positive (+) lead and the negative (–) lead must always match the (+) and (–) labels on the power distribution unit.

Figure 28: DC Input Power Cable Lug



Note To avoid hazardous conditions, all components in the area where DC input power is accessible must be properly insulated. Therefore, before installing the DC cable lugs, be sure to insulate the lugs according to the manufacturer's instructions.

Remove and Replace the DC Power Supply

The device has redundant power supplies that can be hot-swapped.

This section describes how to remove a DC power supply from C8500L-8S4X

Follow these steps:

-
- Step 1** Read the safety warnings section of this document.
 - Step 2** If there is only one power supply in the system, shut down the device before removing the power supply.
 - Step 3** If there are redundant power supplies in use the device does not have to be shut down prior to replacing the power supply. The power supply may be replaced while the device is in service.
 - Step 4** At the power distribution panel or at the local circuit breaker, remove the power from the DC power leads (label 1) attached to the power supply to be replaced.
 - Step 5** Remove the terminal block cover and loosen the terminal screws (label 1) securing the power cabling. Remove the power cabling from the terminal block.
 - Step 6** Depress the power supply latch and use the handle to pull the supply out of the device.

Figure 29: Remove a DC Power Supply from the C8500L-8S4X

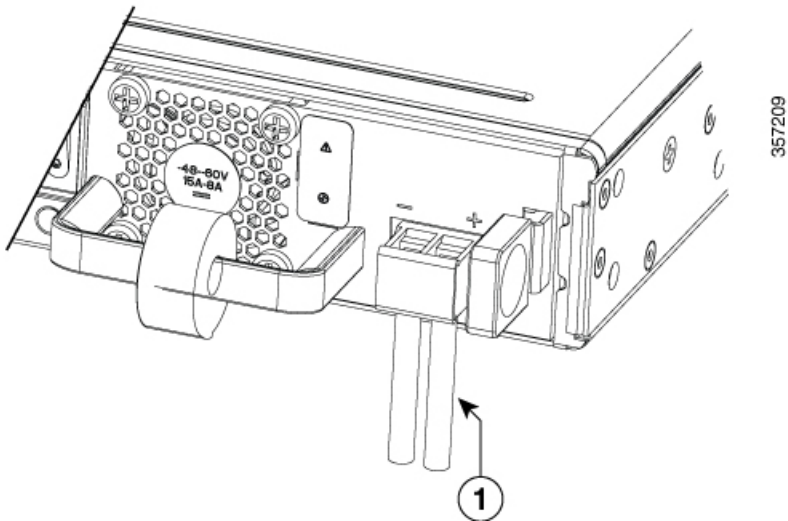


Figure 30: Step 6

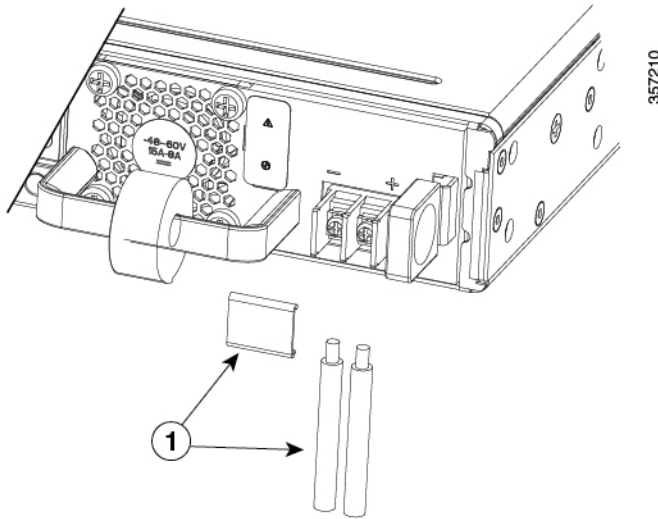
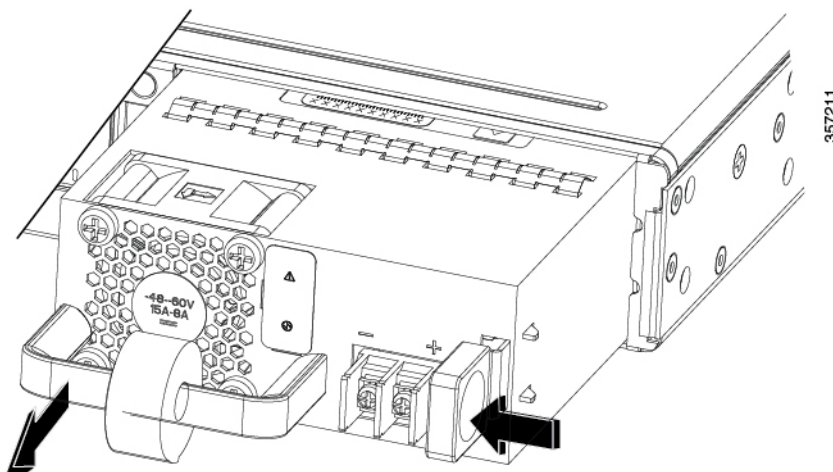


Figure 31: Step 7



This completes the procedure for removing a DC power supply from the C8500L-8S4X device.

Wire the DC Input Power Source



Warning

To reduce risk of electric shock, when installing or replacing the unit, the ground connection must always be made first and disconnected last.

In the C8500L-8S4X platform, the DC power supply has a terminal block that is installed into the power supply terminal block header.

Use the following steps to wire the DC input power source:

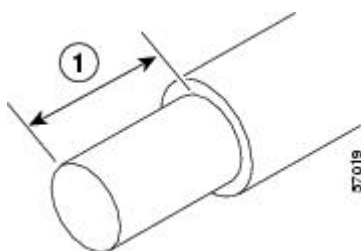
Step 1 Turn off the circuit breaker from the power source to be connected to the power source.

Step 2 Insert the power module in the power-supply slot, and gently push it into the slot.

- The DC power supply (excluding the extraction handle) is flushed with the device.

Step 3 Wire can be stripped and terminated directly to the power supply terminal block, or a crimp style spade terminal lug can be used. If using a terminal lug follow the manufacturer's instructions for terminating the lug to the wire. If terminating directly to the terminal block using bare wire, following the below directions. Use a wire-stripping tool to strip each of the two wires coming from the DC input power source and strip the wires to approximately 0.39 inch (10 mm) + 0.02 inch (0.5 mm). It is recommended that 14 AWG insulated wire be used. Do not strip more than the recommended length of wire because doing so could leave the wire exposed from the terminal block and shows a stripped DC input power source wire.

Figure 32: Stripped DC Input Power Source Wire



1	0.39 inch (10 mm) is the recommended wire-strip length for the terminal block.
---	--

Warning An exposed wire lead from a DC input power source can conduct harmful levels of electricity. Be sure that no exposed portion of the DC input power source wire extends from the terminal block. Statement 122

Step 4 Identify the positive and negative feed positions for the terminal block connection.

- Positive (+) lead wire (right)
- Negative (–) lead wire (left)

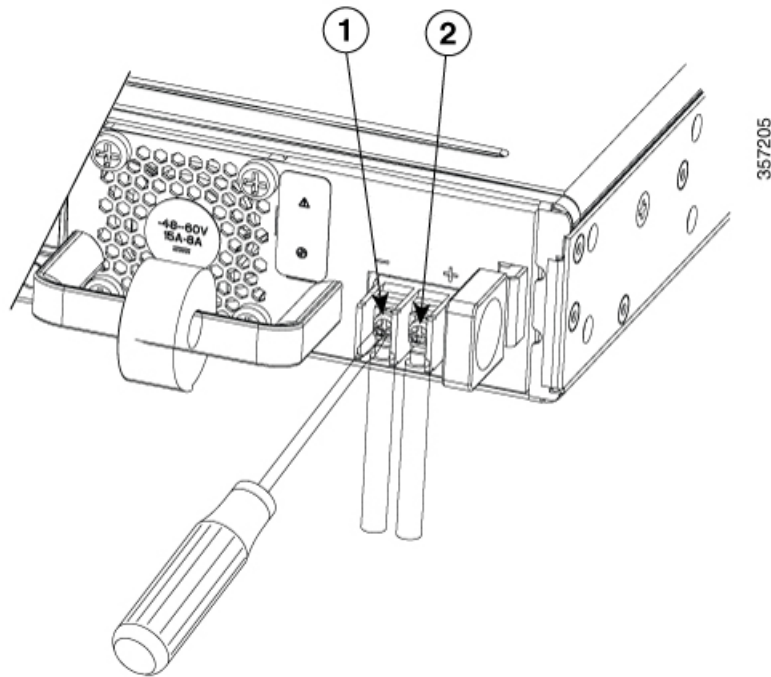
Step 5 Remove the terminal block cover.

Step 6 Insert the exposed wire into the terminal block. Ensure that you cannot see any wire lead outside the plastic cover. Only wires with insulation should extend from the terminal block.

Caution Do not overtorque the terminal block captive screws. Ensure that the connection is snug, but the wire is not crushed. Verify by tugging lightly on each wire to ensure that they do not move.

Step 7 Use a screwdriver to tighten the terminal block captive screws.

Figure 33: DC Power Supply with Lead Wires



1	Negative (–) lead wire	2	Positive (+) lead wire
---	------------------------	---	------------------------

Step 8 Repeat these steps for the remaining DC input power source wire as applicable.

Step 9 Use a tie wrap to secure the wires to the rack, so that the wires are not pulled from the terminal block by casual contact.

Step 10 Turn on the circuit breaker at the power source.

HAVC Power Supplies

Overview of HVAC Power Supply

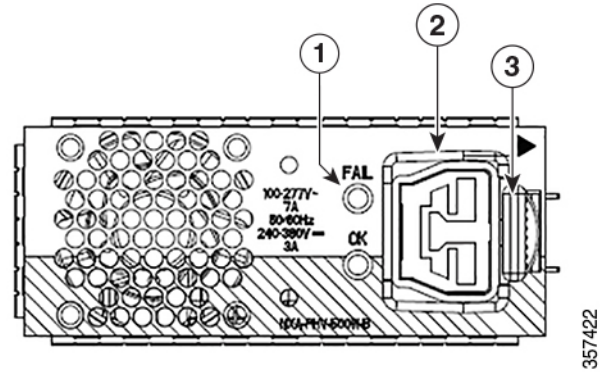


Figure 34: 400W HVAC Power Supply for C8500L-8S4X

1 Status LED	2 HVAC/HVDC socket
3 latch	

Installing HVAC Power Supplies



Note Do not install the power supplies with the chassis cover off.

Step 1 Ensure that the chassis power switch on the chassis is in the Standby position.

Note It is not required to place the chassis power switch in the Standby position if you want to hot-swap a single power supply.

Step 2 Insert the power supply module into the appropriate slot(s), making sure that the retention latch is firmly placed. You can verify that the power supply module is firmly latched by gently pulling the power supply handle.

Step 3 Insert the power supply cables firmly into the power supplies.

Note Ensure that both power supplies are inserted firmly and the power cords are in place.

Step 4 If you have changed the chassis power switch to the Standby position in Step 1, press the power switch to the On position. The power supply LEDs are illuminated (green).

Removing HVAC Power Supplies

-
- Step 1** Ensure that the chassis power switch is in the Standby position.
- Note** It is not required to place the chassis power switch in the Standby position if you want to hot-swap a single power supply.
- Step 2** Unplug the power cable from the power supply.
- Step 3** Press the retaining latch towards the pull handle, grasp the handle with one hand, and pull the power supply out of the slot while supporting the weight of the power supply with the other hand.
- Step 4** Repeat these steps if it is required to remove the other HVAC power supply.
-

Replace a Fan Tray for Cisco Catalyst 8500L-8S4X Edge Platform

In the Cisco Catalyst 8500L-8S4X Edge Platform, there is a field replaceable unit (FRU) fan tray (see Figure 13). The fan tray includes all the fans in one assembly. If a fan fails, replace the tray using a #1 Phillips screwdriver.

Before Replacing a Fan Tray

Read the safety precautions below before replacing a fan tray:

- Read the entire procedure and have the required tools available.
- Power off the unit and disconnect all cables from the unit.
- Remove the device from the equipment rack.

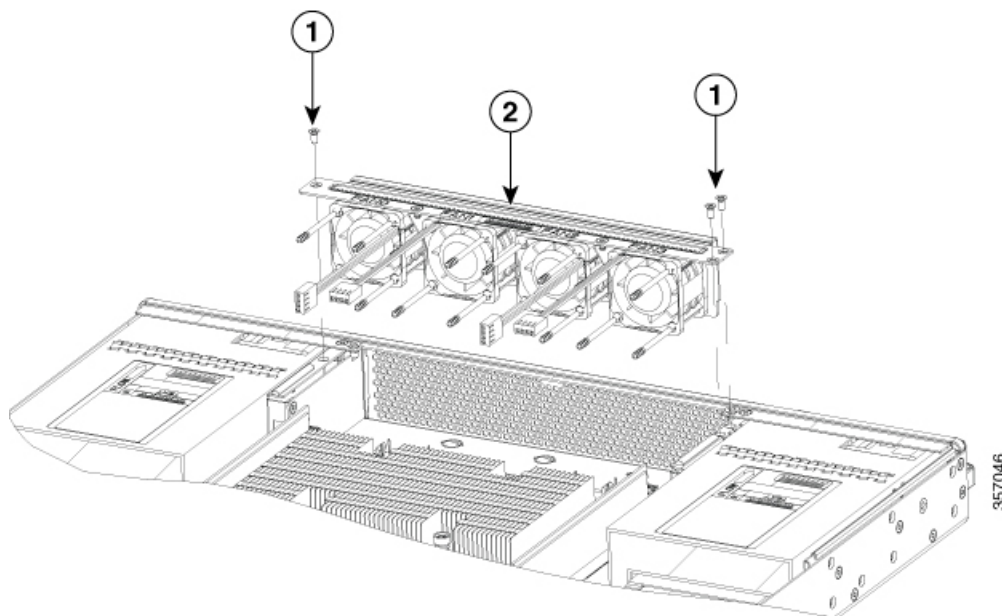
Replace the Fan Tray Cisco 8500L-8S4X

Remove the Fan Tray

To remove the fan tray, complete the following steps:

-
- Step 1** Remove the top cover. See [Remove the Chassis Cover, on page 47](#).
- Step 2** Remove the three screws that secure the fan tray to the chassis.
- Step 3** Disconnect fan cables from the motherboard.
- Step 4** Remove the fan tray.

Figure 35: Fan Tray



1	Screws	2	Fan Tray
---	--------	---	----------

Install the Fan Tray

The C8500L-8S4X supports forward air flow (standard version). To install the fan tray, complete the following steps :

- Step 1** Install the fan tray.
- Step 2** Install the three fan tray mounting screws.
- Step 3** Connect the fan cables to the motherboard.

Note The fan number (FAN0, FAN1, FAN2, and FAN3) is marked on the top of the fan tray and the motherboard. The fan wire should be connected to its corresponding connector on the motherboard.

- Step 4** Install the top cover
- Step 5** Re-install the unit back in an equipment rack.
- Step 6** Reinstall all cables from the chassis
- Step 7** Power on the unit.

Install SFP and SFP+ Modules

Before you begin

See the Cisco Catalyst 8500L-8S4X Edge Platform's [datasheet on cisco.com](#) for a list of supported SFP and SFP+ modules. Use only supported SFP/SFP+ modules on the platform.



Warning

Class 1 laser product. Statement 1008

- Do not remove the dust plugs from the SFP and SFP+ modules or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the module ports and cables from contamination and ambient light.
- Removing and installing an SFP and SFP+ module can shorten its useful life. Do not remove and insert any SFP/SFP+ module more often than is necessary.
- To prevent ESD damage, follow your normal board and component handling procedures when connecting cables to the switch and other devices.
- When you insert several SFP and SFP+ modules in multiple ports, wait for 5 seconds between inserting each SFP/SFP+. This will prevent the ports from going into error disabled mode. Similarly, when you remove an SFP and SFP+ from a port, wait for 5 seconds before reinserting it.

Step 1 Attach an ESD-preventive wrist strap to your wrist and to an earth ground surface.

Step 2 Find the send (TX) and receive (RX) markings that identify the top of the SFP/SFP+ module.

On some SFP/SFP+ modules, the send and receive (TX and RX) markings might be shown by arrows that show the direction of the connection.

Step 3 If the SFP/SFP+ module has a bale-clasp latch, move it to the open, unlocked position.

Step 4 Align the module in front of the slot opening, and push until you feel the connector snap into place.

Step 5 If the module has a bale-clasp latch, close it to lock the SFP/SFP+ module in place.

Step 6 Remove the SFP and SFP+ dust plugs and save.

Step 7 Connect the SFP and SFP+ cables.

Laser Safety Guidelines

Optical Small-Form Pluggable (SFPs) use a small laser to generate the fiber-optic signal. Keep the optical transmit and receive ports covered whenever a cable is not connected to the port.



Warning

Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

**Warning**

Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040

**Warning**

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. Statement 1255.

Follow these steps to install an SFP module in your router:

Step 1 Read the Safety Warnings section and disconnect the power supply before you perform any module replacement.

Step 2 Slide the SFP into the router connector until it locks into position

Tip If the SFP uses a bale-clasp latch (see Laser Safety Guidelines section, the handle should be on top of the SFP module.

Caution Do not remove the optical port plugs from the SFP until you are ready to connect cabling.

Step 3 Connect the network cable to the SFP module.

Remove Small Form-Factor Pluggable Modules

Follow these steps to remove a Small Form-Factor Pluggable (SFP) from the device:

Step 1 Read the Safety Warnings section and disconnect the power supply before you perform any module replacement.

Step 2 Disconnect all cables from the SFP.

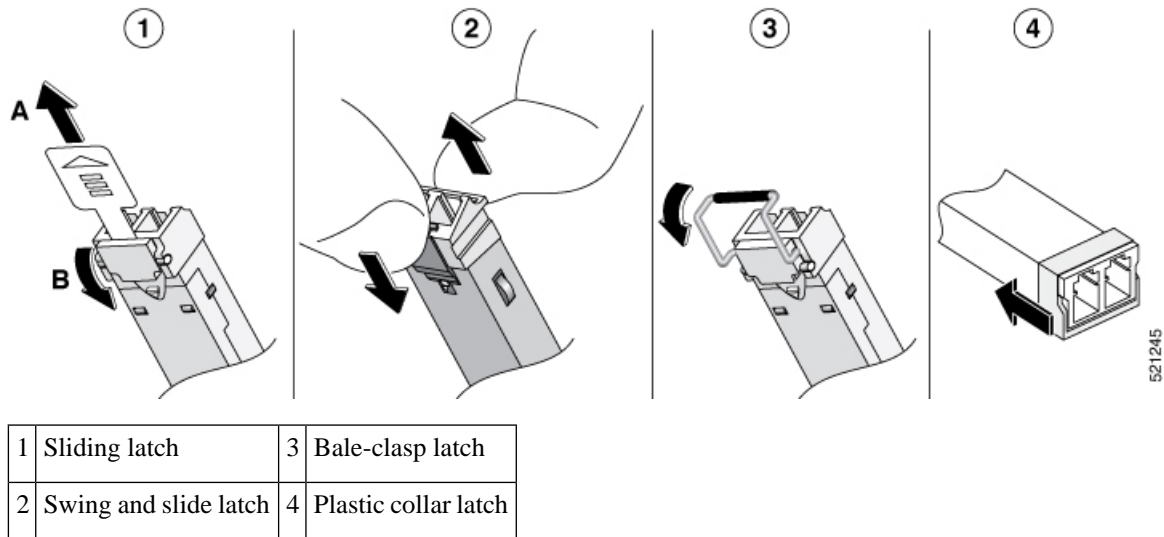
Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

Caution The latching mechanism used on many SFPs locks the SFP into place when cables are connected. Do not pull on the cabling in an attempt to remove the SFP.

Step 3 Disconnect the SFP latch.

Note SFP modules use various latch designs to secure the module in the SFP port. Latch designs are not linked to SFP model or technology type. For information on the SFP technology type and model, see the label on the side of the SFP.

Figure 36: Disconnecting SFP Latch Mechanisms



Tip Use a pen, screwdriver, or other small straight tool to gently release a bale-clasp handle if you cannot reach it with your fingers.

Step 4 Grasp the SFP on both sides and remove it from the device.

Remove and Install an M.2 Module

This section describes installing and replacing an M.2 module on the Cisco Catalyst 8500L-8S4X Edge Platform.

Prevent Electrostatic Discharge Damage

The M.2 module is sensitive to electrostatic discharge (ESD) damage, which can occur when electronic cards or components are handled improperly. ESD results in complete or intermittent failures.

To prevent ESD damage, follow these guidelines:

- Always use an ESD wrist or ankle strap and ensure that it makes good skin contact.
- Connect the equipment end of the strap to an unfinished chassis surface.
- Place the M.2 storage devices on an anti-static surface or in a static shielding bag. If you have to return the device to the factory, immediately place it in a static shielding bag.
- Avoid contact between the device and clothing. The wrist strap protects the device from ESD voltages on the body only; ESD voltages on clothing can still cause damage.
- Do not remove the wrist strap until the installation is complete.



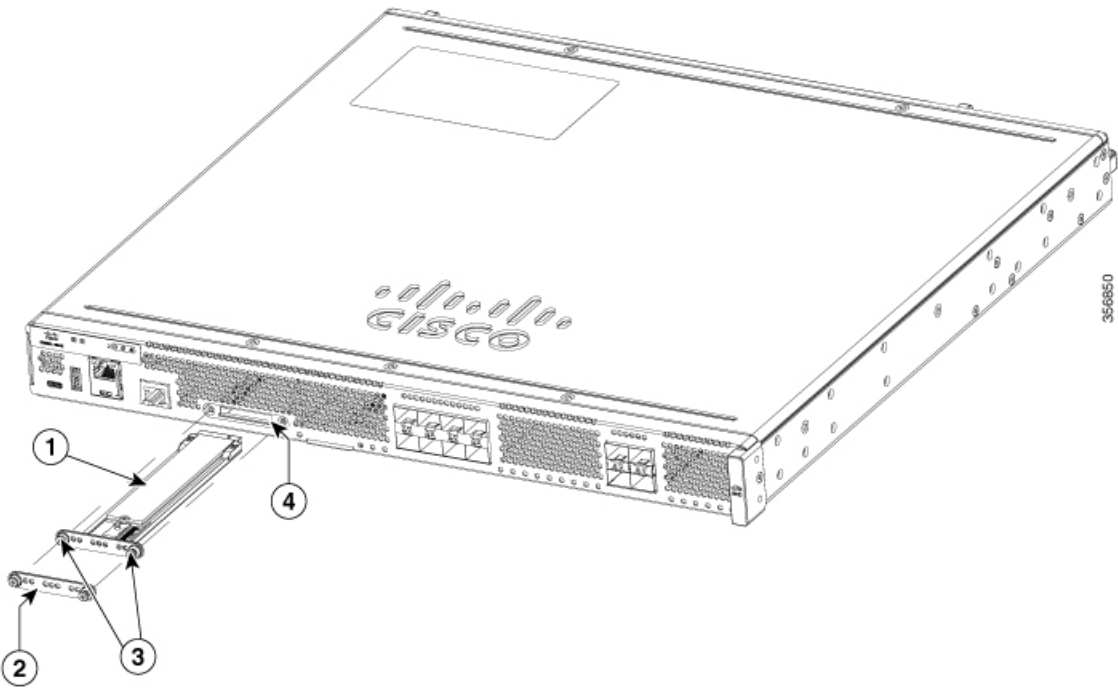
Caution For safety, periodically check the resistance value of the anti static strap. The measurement should be between 1 and 10 megohms (Mohms).

Install and Remove the M.2 Storage Device

To install and remove a M.2 storage device, perform the following steps:

- Step 1** Disconnect the power supply to the C8500L-8S4X before you perform any module replacement.
- Step 2** Loosen the two mounting screws using a #1 Phillips screwdriver and then remove the M.2 module or blank.
- Step 3** Install the M.2 memory module into the slot.

Figure 37: Remove the M.2 Storage Device



1 M.2 Module	2 M.2 blank
3 Mounting screws.	4 Chassis cutout (key to prevent installation of M.2 with incorrect orientation)

Note When the M.2 module is not installed, install a blank in the slot.

- Step 4** Secure the 2 mounting screws using a #1 Phillips screwdriver. Torque to 4-6 in-lbs.