Cisco Catalyst 8300 Series Edge uCPE Hardware Installation Guide

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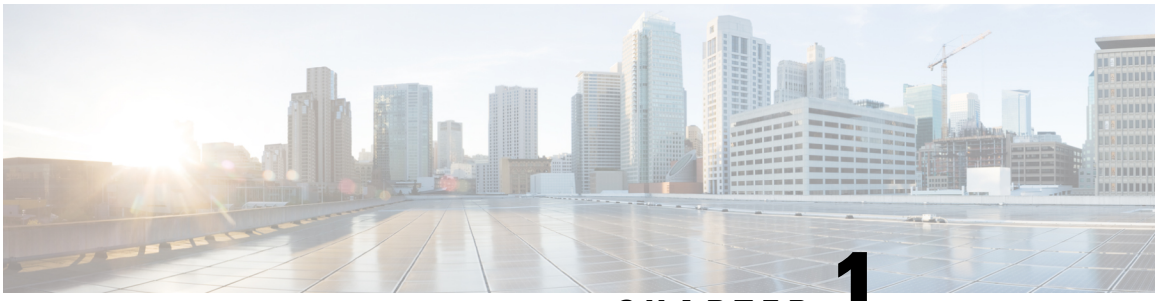


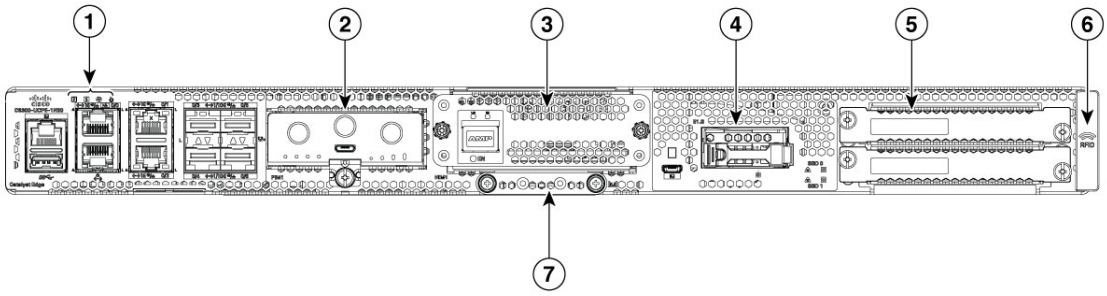
CHAPTER 1

Overview of Cisco Catalyst 8300 Series Edge uCPE

The Cisco Catalyst 8300 Series Edge universal Customer Premises Equipment (uCPE) is a purpose-built x86 platform that is designed for branch virtualization. It enables device consolidation across network and security functions, improves operational flexibility and service agility, simplifies network operations, and results in reduced deployment times and fewer truck rolls for delivery of add-on services.

Cisco Catalyst 8300 Series Edge uCPE Chassis

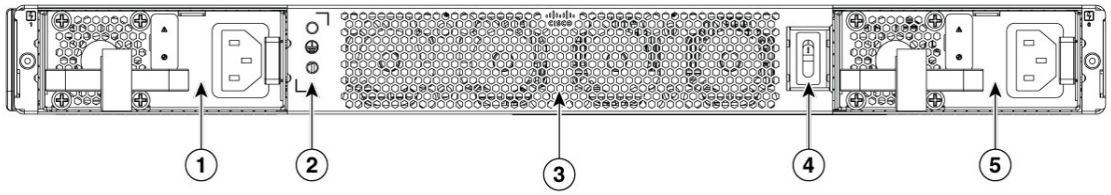
Figure 1: Chassis Front Panel



1	Status LEDs
2	Physical Interface Module (PIM) slot for CAT 7 LTE or 5G cellular connectivity (for future use)
3	Network Interface Module (NIM) slot for additional L2/L3 MACsec, Power over Ethernet (PoE) ports (for future use)

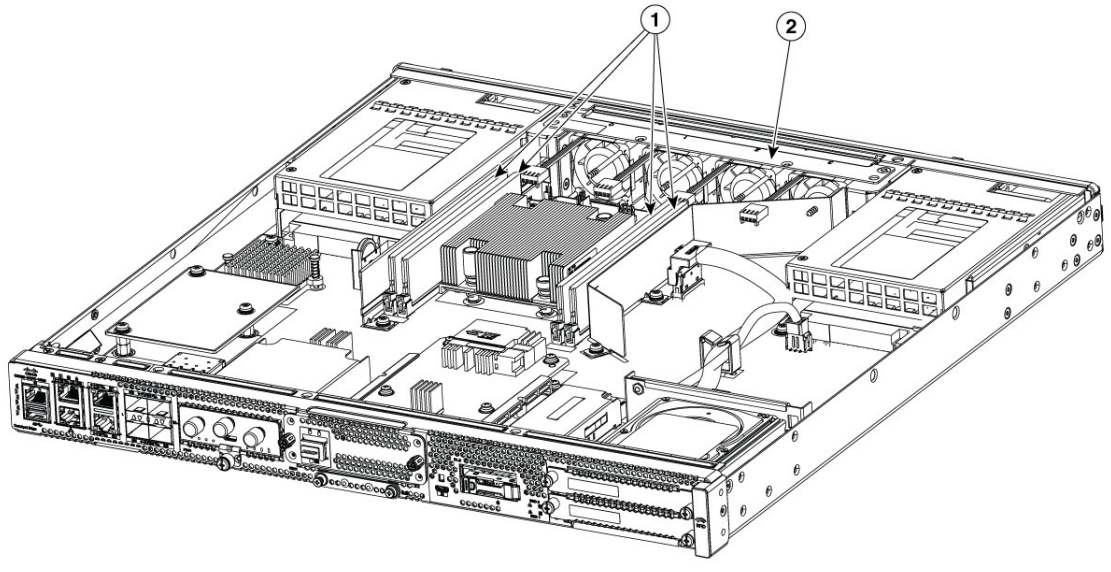
4	E1.S disk slot (For future use)
5	U.2 2.5-inch disk slots x 2
6	Radior Frequency Identification (RFID)
7	M.2 disk slot (75 GB USB M.2, 600 GB or 2 TB NVMe disk)

Figure 2: Chassis- Bezel Side



1	PSU Slot
2	GND lug or ground point
3	Fan tray (Visible through chassis)
4	Chassis on/off switch
5	PSU slot

Figure 3: Chassis- Internal



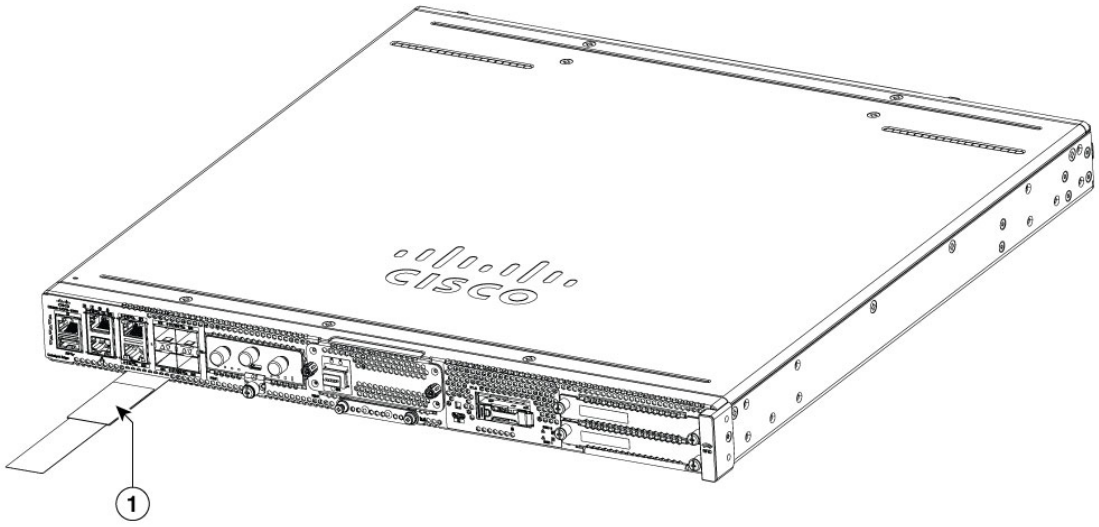
1	DIMM slots x 4

2	Fan Tray

Location of Labels on Cisco Catalyst 8300 Series Edge uCPE

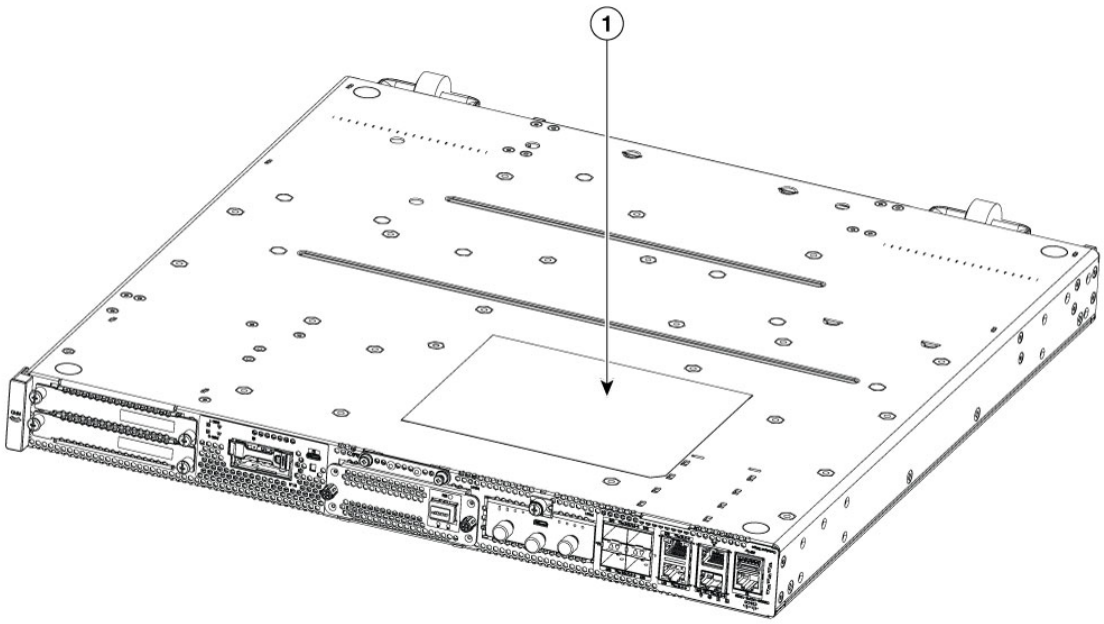
The figure below shows the location of the labels on the Cisco Catalyst 8300 Series Edge uCPE. Labels are located at the same location on all the Cisco Catalyst 8300 Series Edge uCPE.

Figure 4: Product Lables



1	Product label location

Figure 5: Compliance label



1	Compliance label location

Hardware Features

- **USB-A 3.0 and Micro-USB Console port**: You can use this port to connect a mouse, keyboard, or any other USB device. Using a USB hub, you can connect more than one USB device to this port. Because this port is backward compatible, you can also use an older version of USB device.
- **Front panel Gigabit Ethernet ports**: There are four SFP ports and four copper ports (GE0 supports 802.3bt POE standard and UPOE+ PD if compliant with 802.3bt).
- **M.2 storage module**: This is a high capacity storage component. The OS is installable in this module. The storage capacity of this module is upgradeable. The storage capacity is 75 GB USB M.2 or 600 GB NVME M.2 or 2 TB NVME M.2.
- **CPU**: Ice Lake 20-core HCC with all core turbo frequency of 2.5 GHz, D2796NFT base frequency is 2 GHz and maximum turbo frequency of 3.1 GHz.
- **Dual In-Line Memory Modules (DIMMs)**: Stores the running configuration and routing tables and is used for packet buffering by the network interfaces.

Note

- Supports maximum of 128 GB of main memory with 4 x 32 GB DDR4 DIMMs.
- Four DIMM slots, numbered from 0 to 3 with a frequency of 3200 MHz.
- Uses DDR4 DIMMs for the main memory.
- Memory DIMM combinations allowed: 1 x 32GB, 2 x 16GB, 2 x 32GB, 4 x 16GB, 4 x 32GB.

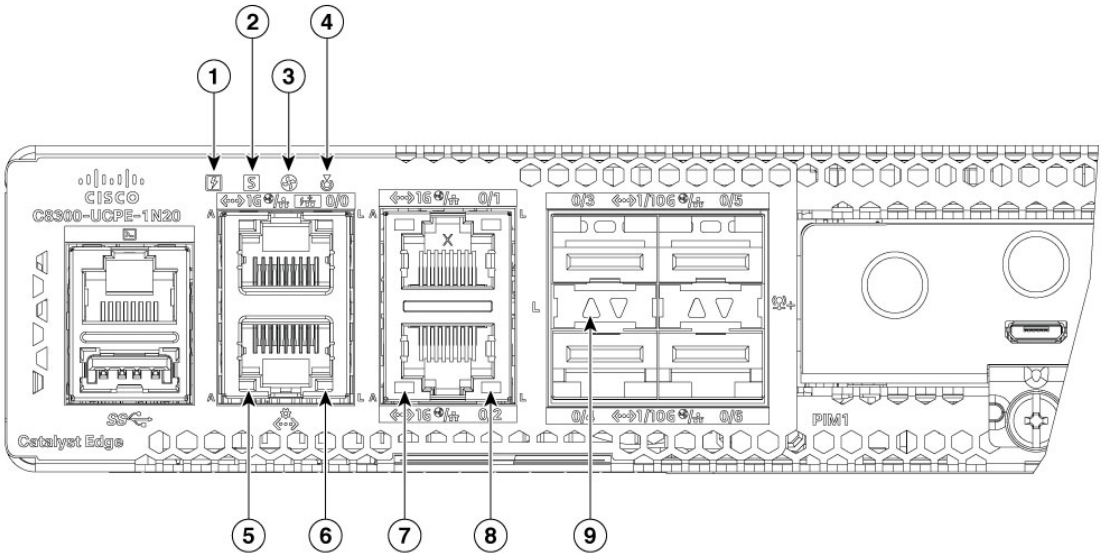
- **Network Interface Module (NIM)**: The device supports one NIM when you need additional ports. See data sheet for supported NIMs.
- **Pluggable Interface Module (PIM)**: The device supports one PIM for cellular connectivity. See data sheet for supported PIMs.

Note For proper thermal functioning of the system, install and provision a functional module with a blank filler for all module slots or optional components (PIM, NIM, E1.S, M.2 and U.2) that do not have a functional module installed.

Status Indicators and LEDs for Gigabit Ethernet Ports

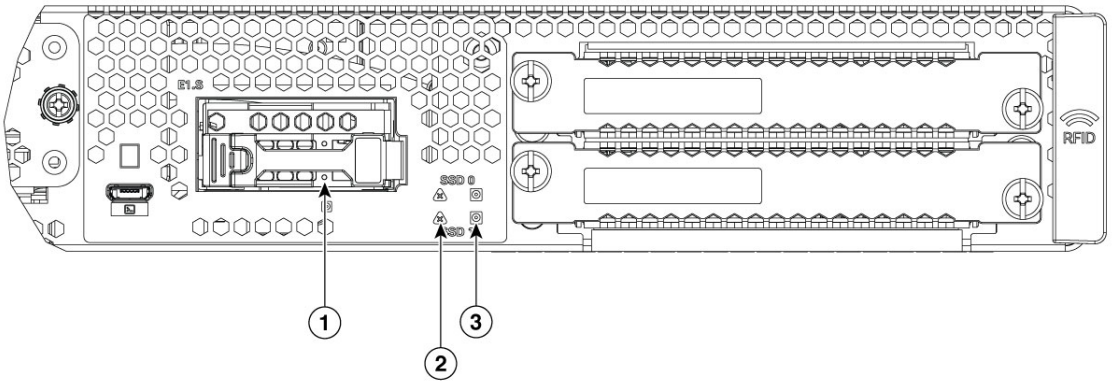
The front panel Gigabit Ethernet ports have eight ports: four RJ45 ports and four SFP ports.

Figure 6: Status and LED indicators



1	LED indicator for power supply	2	LED indicator for device status
3	LED indicator for environmental status	4	LED indicator for blue beacon
5	CPU Activity	6	Link
7	Activity for 0/0 - 0/2 copper ports	8	Link for GEO/0~0/2
9	Link/LOS for SFP 0/3~0/6		

Figure 7: Activity and Fault indicators



1	E1.S Activity	2	Hazard fault symbol
3	SSD Activity for U.2 slot		

LED Definition	Color	Description
GE0-2 RJ45 Activity LED	Green	**Ethernet port 0/1/2 Activity LED** Off: No activity blinking green : ethernet activity detected
GE0-2 RJ45 Link LED	Green	**Ethernet port 0/1/2 Link LED** Off: No link, green: ethernet cable present and link established with other side
SFP+ 0-3 Link LED	Green/Yellow	**SFP+ port 0/1/2/3 Link LED** Off: not present or not configured, Yellow: Loss of Signal, Green: Link established
BMC Management port Activity LED	Green	**BMC Management Ethernet Activity LED** Off: No activity, blinking Green: Activity

LED Definition	Color	Description
BMC Management port Link LED	Green	**BMC Management Ethernet Link LED** Off: No link, Green: ethernet cable present and link established with other side

LED	Behavior	Description
PWR (1 LED)	**Red/Yellow LED1**	**Power supply status LED** Off: The system is powered off Amber (Green + Red)- A PSU in system is not functioning correctly Green- All installed PSUs are operating correctly
STATUS (1 LED)	**Red/Green/Yellow LED2**	**Status LED** GREEN- x86 booted fine Amber- x86 in rommon mode (setup menu) Red blinking — x86 Secure boot failure Red- x86 is UP but BIOS is not fully UP yet (bios post cmplt not set) Off- x86 in power-off state
ENV (1 LED)	**Red/Green/Yellow LED3**	**ENV LED** Off- Monitor is not active. Red- The system has detected a critical overcurrent event and may shut down. Blinking Amber- One or more temperature sensors in the system are outside the acceptable range. Amber- One or more fans in the system are outside the acceptable range. Green- All temperature sensors and fans in the system are within acceptable range.
Beacon (1 LED)	**B LED4**	**Beacon LED** Off- Default state Blue- The administrator can light to show the router needs attention

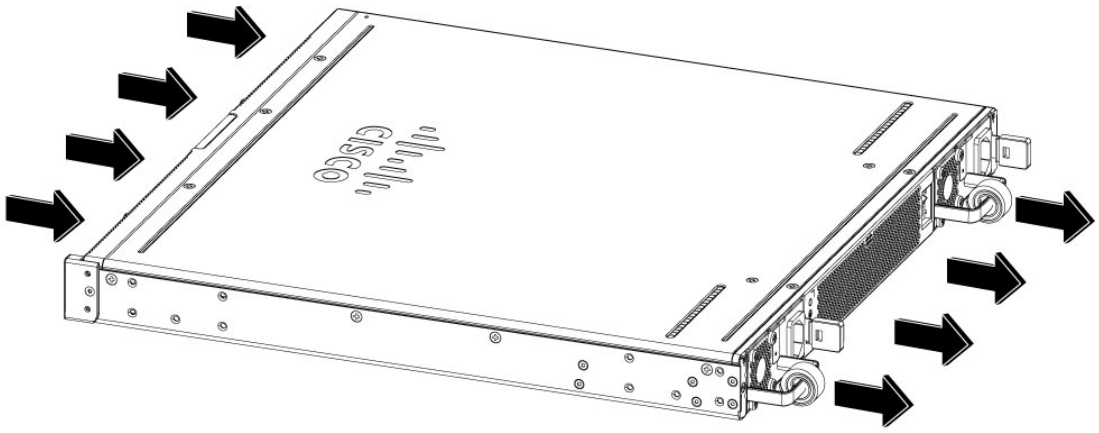
Warning **Statement 1055—**Class 1/1M Laser

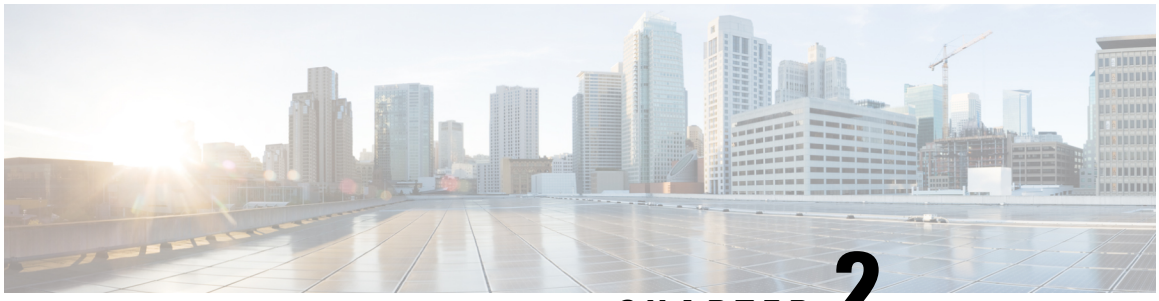
Invisible laser radiation is present. Do not expose to users of telescopic optics. This applies to Class 1/1M laser products.

Fans, Ventilation, and Airflow

The chassis temperature is regulated with internal fans. Onboard sensors control 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 for different environmental conditions.

Figure 8: Airflow direction from front to back





CHAPTER 2

Prepare for Installation

Safety Recommendations and Warnings

Review the safety warnings listed in the Regulatory Compliance and Safety Information for the Cisco Catalyst 8300 Series Edge uCPE before installing, configuring, or maintaining the device.

Read the following safety guidelines before you install this product:

Warning

Statement 1071—Warning Definition

IMPORTANT SAFETY INSTRUCTIONS

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 at the beginning of each warning statement to locate its translation in the translated safety warnings for this device.

SAVE THESE INSTRUCTIONS

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 9001—**Product Disposal

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

Always follow these electrostatic discharge (ESD) prevention procedures when removing and replacing modules:

- Ensure that the 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.

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

Network Equipment-Building System (NEBS) Statements

NEBS describes the environment of a typical United States Regional Bell Operating Company (RBOC) central office. NEBS is the most common set of safety, spatial, and environmental design standards applied to telecommunications equipment in the United States. It is not a legal or regulatory requirement, but rather an industry requirement.

The following NEBS statements apply to the Cisco Catalyst Edge uCPE 8300:

Warning **Statement 7003**—Shielded Cable Requirements for Intrabuilding Lightning Surge

The intrabuilding port(s) of the equipment or subassembly must use shielded intrabuilding cabling/wiring that is grounded at both ends.

The following port(s) are considered intrabuilding ports on this equipment:

RJ-45 Copper Ethernet Port

Warning **Statement 7005**—Intrabuilding Lightning Surge and AC Power Fault

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.

This statement applies to the intrabuilding ports listed below:

RJ-45 Copper Ethernet Port

Warning **Statement 7012—**Equipment Interfacing with AC Power Ports

Connect this equipment to AC mains that are provided with a surge protective device (SPD) at the service equipment that complies with NFPA 70, the National Electrical Code (NEC).

Note **Statement 7013—**Equipment Grounding Systems—Common Bonding Network (CBN)

This equipment is suitable for installations using the CBN.

Note **Statement 7016—**Battery Return Conductor

Treat the battery return conductor of this equipment as Isolated DC return (DC-I).

Note **Statement 7018—**System Recover Time

The equipment is designed to boot up in less than 30 minutes provided the neighboring devices are fully operational.

Note **Statement 8015—**Installation Location Network Telecommunications Facilities

This equipment is suitable for installation in network telecommunications facilities.

Note **Statement 8016—**Installation Location Where the National Electric Code (NEC) Applies

This equipment is suitable for installation in locations where the NEC applies.

General Safety Guidelines For Electrical Equipment

Follow these general guidelines when working on equipment that is 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, proceed as follows:
  - Turn off power to the device.
  - Call for help.
  - Determine if the person needs rescue breathing or external cardiac compressions; then take appropriate action.

Follow these guidelines when working with any equipment that is disconnected from a power source but is still connected to ethernet wiring or other network cabling:

- Never install ethernet wiring during a lightning storm.
- Never install ethernet jacks in wet locations unless the jack is specifically designed for it.
- Never touch uninsulated ethernet wires or terminals unless the ethernet line is disconnected atthe network interface.
- Use caution when installing or modifying ethernet lines.
- Remove power cables from all installed power supplies before opening the chassis.

Always follow these electrostatic discharge (ESD) prevention procedures when removing and replacing modules:

- Ensure that the router chassis is electrically connected to 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 megaohms (Mohm).

Site Requirements

Follow the general precautions listed below when installing or working with your device:

- Do not block cooling vents.
- Route system cables, and the power supply cable and plug so that they cannot be stepped on ortripped over. Be sure that nothing else rests on your system component cables or power cable.

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

Warning

Statement 1005—Circuit Breaker

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

Mounting Requirements

The following table provides the height, width, depth and weight of the chassis:

Characteristic	Measurement
Height	1 RU (1.73 inches, 4.39 cm)
Width	17.5 inches (44.45 cm)
Depth	17.5 inches (44.45 cm)
Weight	19 lb (9.015 kg) when fully configured

You can mount the Cisco Catalyst 8300 Edge uCPE using the following ways:

- On a desktop
- In a rack or cabinet (optional 4-point kit to use if rear support is required)
- On a wall

The positioning of your device and the arrangement of your equipment rack or wiring room are crucial factors for optimal functionality. Placing equipment too closely, poor ventilation, and panels that are hard to reach can lead to malfunctions, shutdowns, and pose challenges for maintenance. Ensure that both the front and rear panels of the device are easily accessible during your planning process.

This information can help you plan the rack configuration for your equipment:

- Allow clearance around the rack for maintenance.
- Enclosed racks must have adequate ventilation. Ensure that the rack is not congested, because each device generates heat. An enclosed rack should have louvered sides and a fan to provide cooling air. Heat generated by equipment near 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.

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.

Note

Statement 407—Japanese Safety Instruction

You are strongly advised to read the safety instruction before using the product.

https://www.cisco.com/web/JP/techdoc/pldoc/pldoc.html

When installing the product, use the provided or designated connection cables/power cables/AC adapters.

〈製品仕様における安全上の注意〉
www.cisco.com/web/JP/techdoc/index.html

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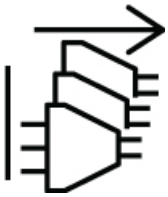
Warning

Statement 1028—More Than One Power Supply

This unit might have more than one power supply connection. To reduce risk of electric shock, remove all connections to de-energize the unit.



Network Cabling Specification

- Ethernet cables for RJ45 ports
- Serial or console cables used to connect devices like routers
- Shielded USB cables with properly terminated shields for the USB port

Required Tools and Equipment

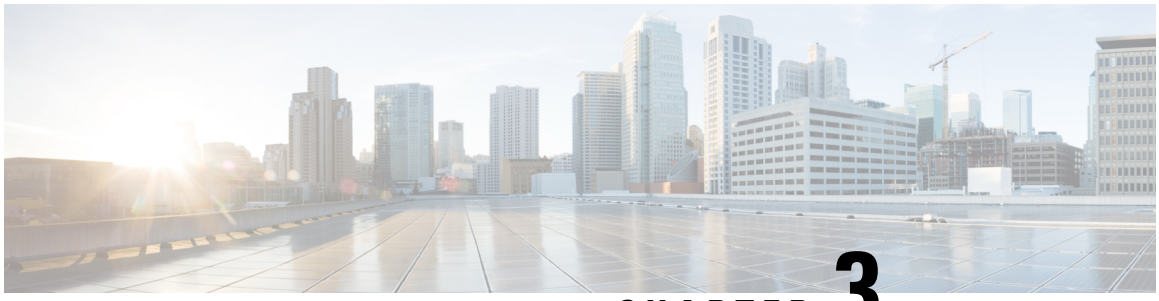
Have the following equipments available to install the uCPE 8300 device and its equipment:

- ESD-preventive cord and wrist strap
- Phillips screwdrivers: small, 3/16-in. (4 to 5 mm), and medium, 1/4-in. (6 to 7mm)
- Screws that fit your rack
- Wire crimper for chassis grounding - to be used along with the ground lug kit
- One 14 AWG cable for the ground lug kit

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 (depending on the configuration)

Note If you order the required cables when you purchase the device, the cables ship along with the product.



CHAPTER 3

Install the Cisco Catalyst 8300 Series Edge uCPE

Unpacking the Device

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

Only unpack the product when you are ready to install it.

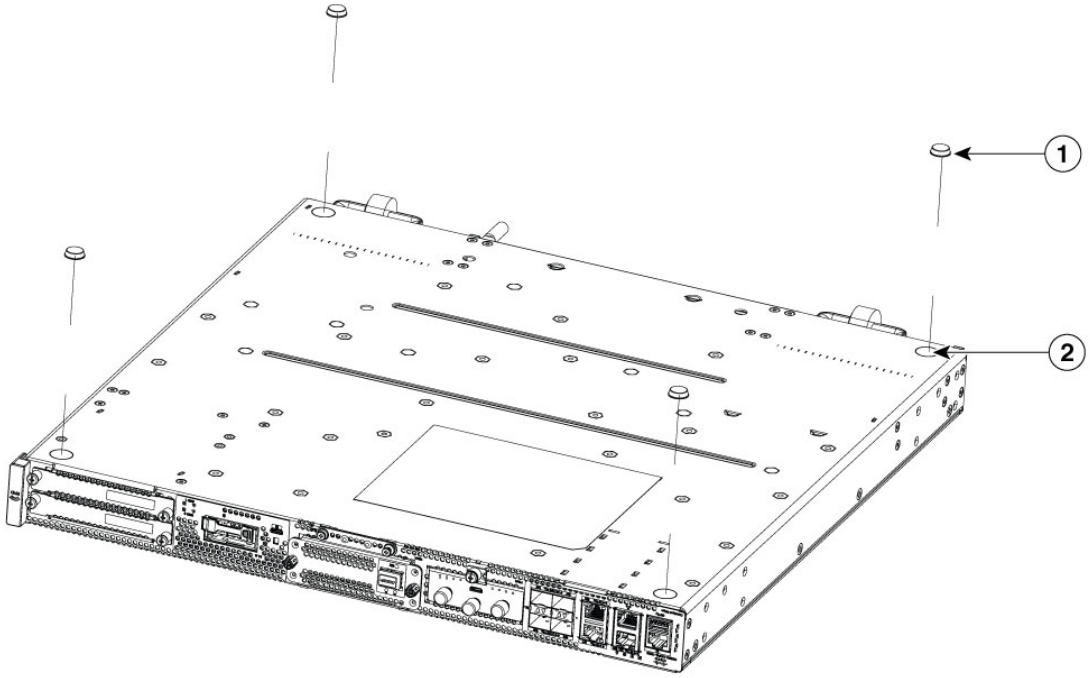
Installing the Cisco Catalyst 8300 Series Edge uCPE

If not already installed, the DIMMs must be installed before rack-mounting the chassis.

Desktop-Mounting the Chassis

The Cisco Catalyst 8300 Edge uCPE has circular markings on the bottom of the chassis for rubber feet. Apply the rubber feet when installing the router on horizontal surface (desk or shelf).

Figure 9: Desktop-mounting the chassis



1	Rubber feet
2	Circular markings for placing the feet

Rack-Mounting the Chassis

The Cisco Catalyst 8300 Edge uCPE can be installed in 19-inch (48.26-cm) or 23-inch (58.42-cm) racks. The mounting ears for the device are designed for #12 screws for securing to the rack.

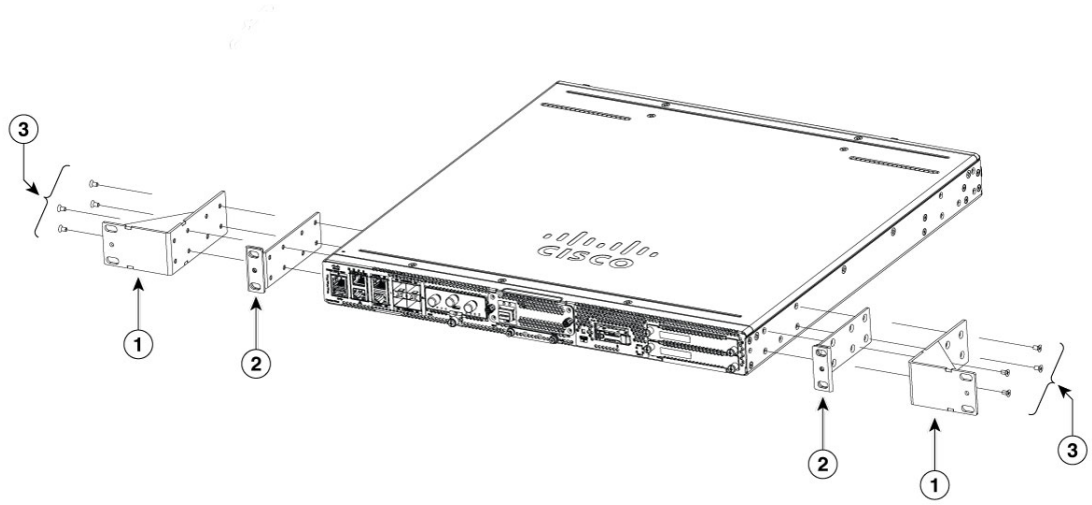
The device can be rack-mounted in the following ways:

- Front (I/O-face) mounting: Brackets attached at the front of the chassis with the front panel (I/O) facing forward
- Back (PSU-side) mounting: Brackets attached at the back of the chassis with the back (PSU-side) panel facing forward

Attaching Brackets to the Chassis

Attach one mounting bracket to each side of the device as shown in following figures. Four screws are required to attach each bracket to the device. Screws are provided with the mounting kit to attach the screws to the device.

Figure 10: 19 inches or 23 inches Bracket Installation for Front Mounting

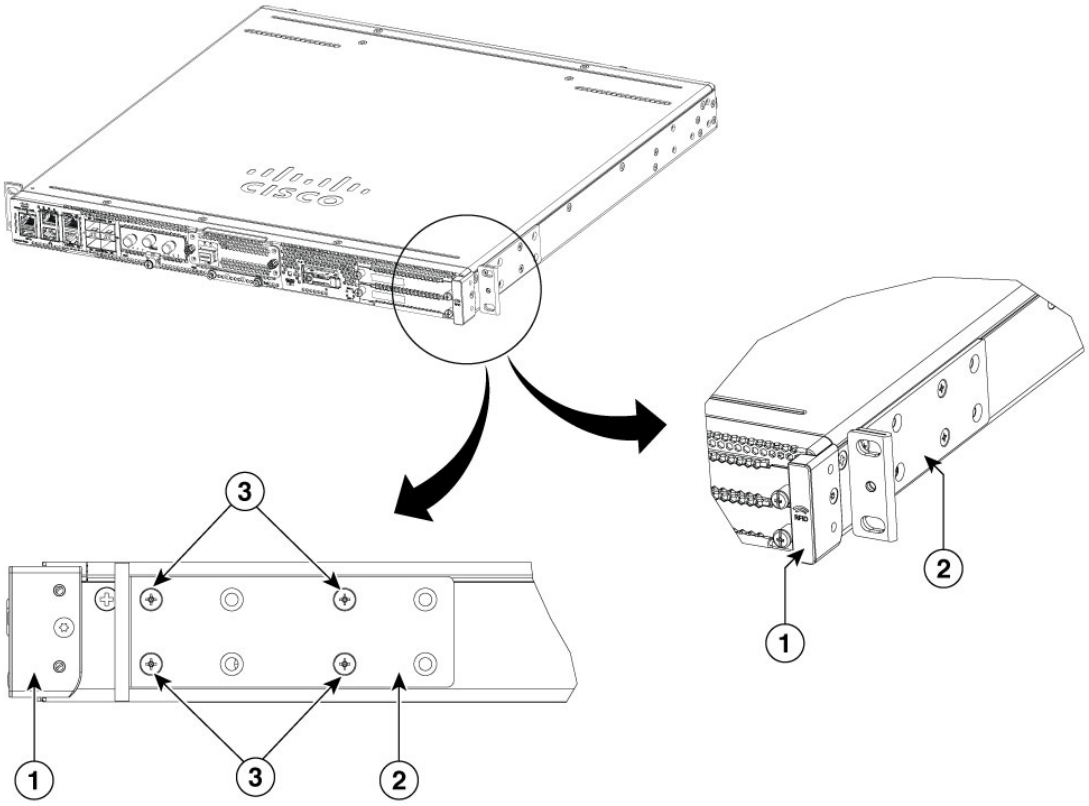


1	23 inches Rack Mount brackets
2	19 inches Rack Mount brackets
3	Securing screws

Brackets have optional securing locations so they can be mounted flush to the I/O-face or recessed from the face when RFID is provisioned. The following image shows the brackets secured to the I/O-face in the recessed position (RFID is applied). If flush securing is desired, slide the bracket forward and secure the other 4 bracket-securing holes.

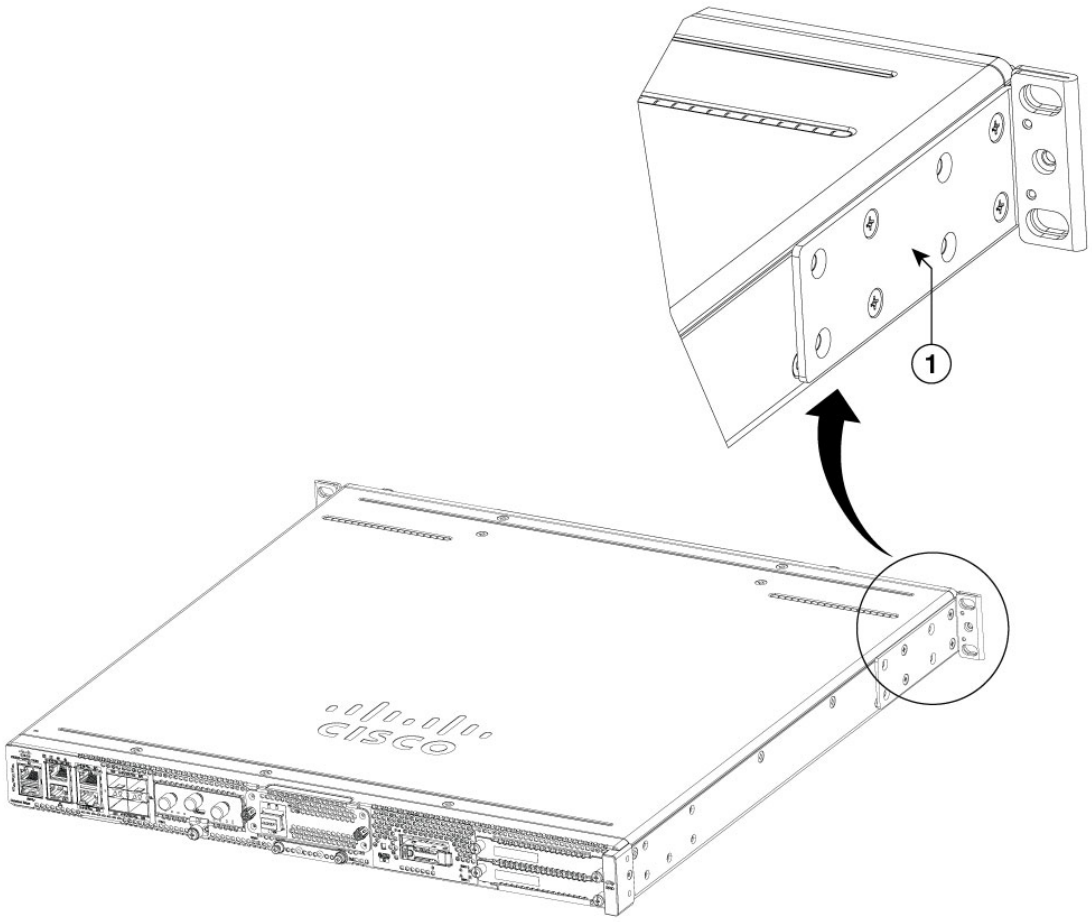
Note Recessed mounting is not supported on the PSU-face.

Figure 11: Rack mount brackets applied recessed from I/O-face



1	RFID provisioned (reference)
2	Rack-mount bracket
3	Screws

Figure 12: Rack mount brackets applied flush to PSU-side



1	Rack-mount bracket

Mounting the Device in a Rack

Afteryou secure the brackets to the device, install the chassis in the rack as shown in following figures. Four screws are required to secure in the rack. The screws for attaching the device to the rack are not provided with the kit.

Tip For both the 19-inch EIA brackets and 23 inch brackets, start the lower pair of screws first, and the rest of the brackets are 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, raise or lower the brackets to the next rack hole.

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.

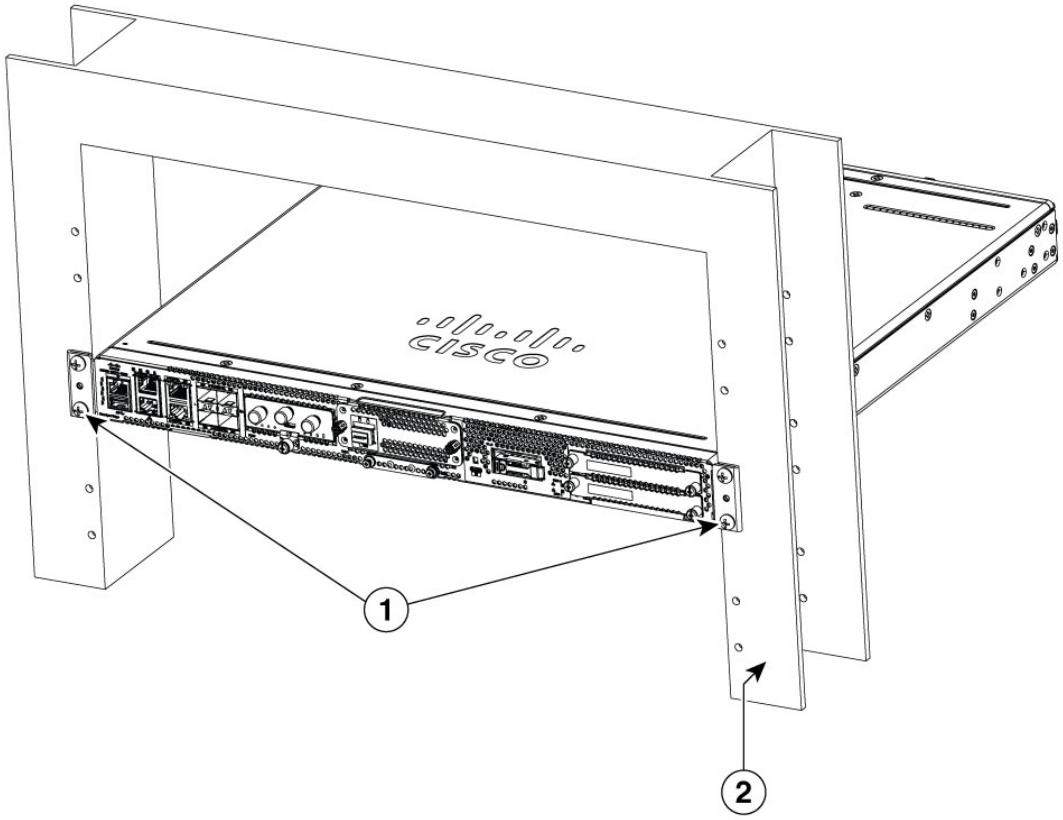
Warning **Statement 1032—**Lifting the Chassis

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.

The following figures show a typical rack mounting of a chassis in a rack.

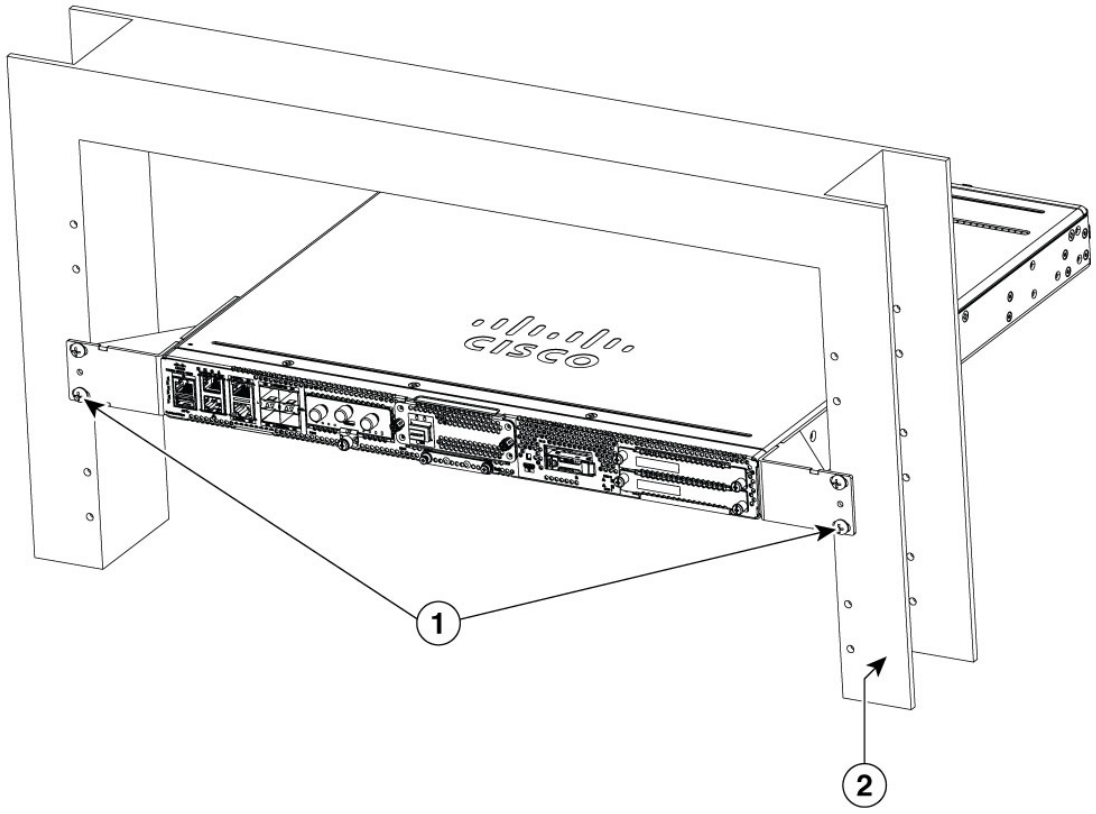
1. Locate the desired position in the equipment rack.
2. Align the holes in the rack mount brackets with the mounting holes in the equipment frame.
3. Secure the device using mounting screws appropriate for your equipment frame. The rack mount brackets have been designed for #12 screws.
4. Tighten the screws to the appropriate torque value for your equipment.

Figure 13: Mounting the Chassis on the Rack- Front (I/O face) Shown for 19 inches Rack Mount



1	Securing screws (not included)
2	19-inch rack (upright)

Figure 14: Mounting the Chassis on the Rack- Front (I/O face) shown for 23-inches Rack Mount



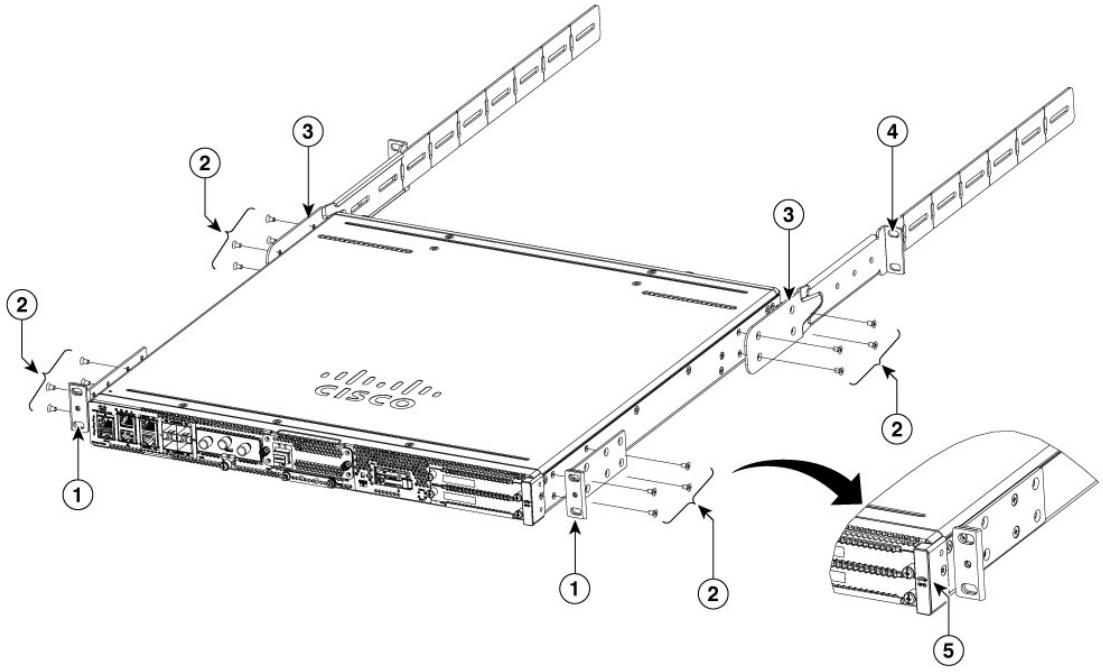
1	Securing screws (not included)
2	23-inches rack upright

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, raise or lower the brackets to the next rack hole.

Four-point Mounting in a Cabinet

Four-point mounting is supported for 19-inches cabinets that require rear-support of the device. A range of rear-support depths is supported depending on whether you choose flush-mounting or recessed-mounting.

Figure 15: Four-point kit assembly for 19-inches cabinets (recessed-mounting shown)



1	19-inches rackmount brackets
2	Securing screws
3	Slider bracket
4	Rear bracket (adjustable depth)
5	RFID (reference)

Figure 16: Flush Mount (No RFID) Depths

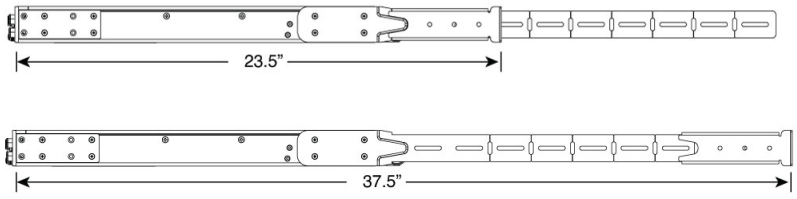
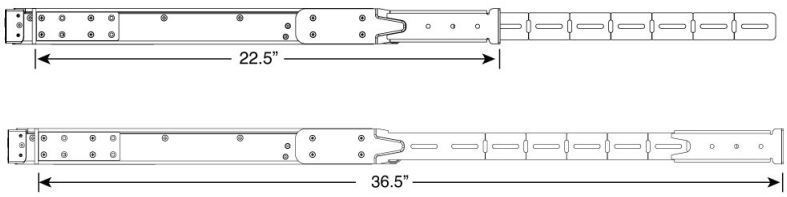


Figure 17: Recessed-Mount Front Bracket Depths



Wall-Mounting the Chassis

Wall-mounting is supported for the device.

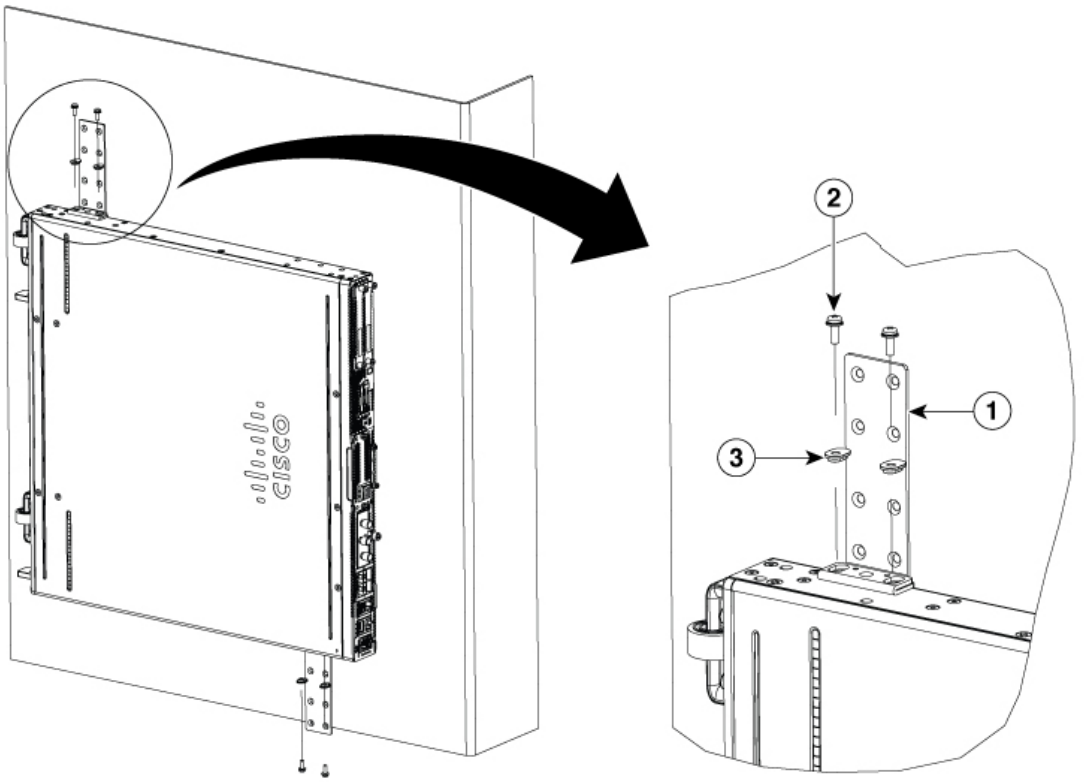
For safety reasons, the device must be mounted as shown in the following figure with the I/O-face to the side. I/O-face may be oriented to the right (as shown) or to the left, but only a side of the chassis may be facing down.

1. Attach the brackets to the device using the screws provided with the mounting kit.

   Two screws should be used to attach each bracket to the chassis as shown in the following figure.

Note The wall-mounting kit is different from the rack-mounting kit.

Figure 18: Showing the securing of brackets to the side of the device for wall-mounting



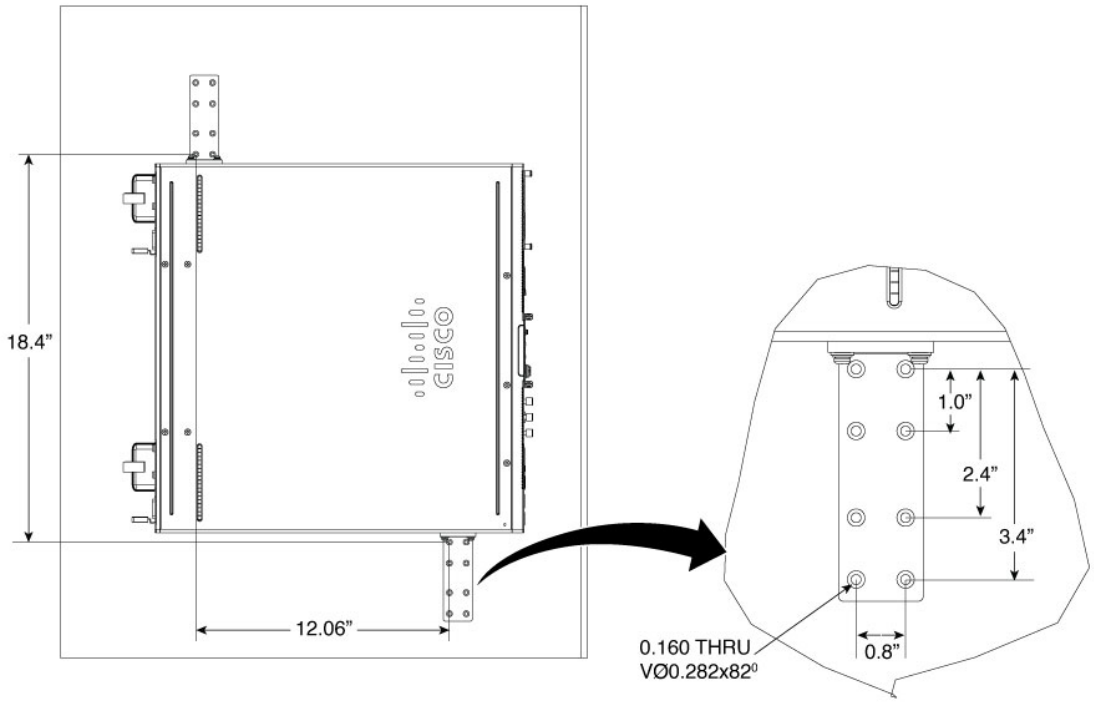
1	Mounting bracket
2	Securing screws
3	Bushings

2. Fix the chassis to the wall using the brackets that you attached to the device.

   The screws or anchors for attaching the device to the wall are not provided with the kit. Depending on the type of wall (wood, brick, stone etc), use appropriate screws or anchors to fix the device to the wall.

Note Route the cables so that they do not put a strain on the connectors or mounting hardware. For safety reasons, the chassis may only be mounted with ports going out in left or right direction. Do not mount the chassis with ports facing upward or downward direction.

Figure 19: Showing locations of holes in the brackets that can be used to secure to the wall



Vertical spacing; hole centre to hole centre	18.4 inches
Horizontal spacing; hole center to hole centrer	12.06 inches

Grounding the Chassis

Warning **Statement 1024**—Ground Conductor

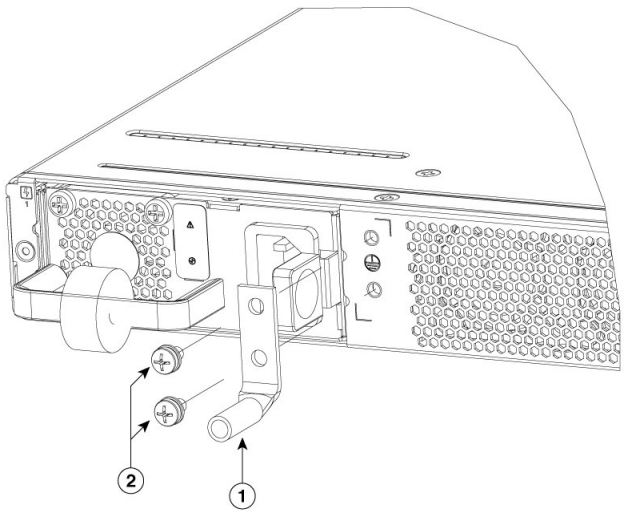
This equipment must be grounded. To reduce the risk of electric shock, never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding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

Warning **Statement 1046**—Installing or Replacing the Unit

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

If your unit has modules, secure them with the provided screws.

Figure 20: Grounding the Chassis



1	Ground lug
2	Screws

These are the steps to install the ground connection for the device. The ground lug kit is provided with the chassis:

Before you begin

- Connect the chassis to the earth ground; the ground wire must be installed in accordance with local electrical safety standards.
- For grounding, use size 14 AWG copper wire and the ground lug provided in the accessory kit.

1. Strip one end of the ground wire to the length required for the groundlug.
2. Crimp the ground wire to the ground lug using a crimp tool of the appropriatesize (7/8 inches strip length).
3. Attach the ground lug to the chassis as shown in the figure. Use the screws provided and with the ground lug to attach the lug to the device.

Initial Server Setup

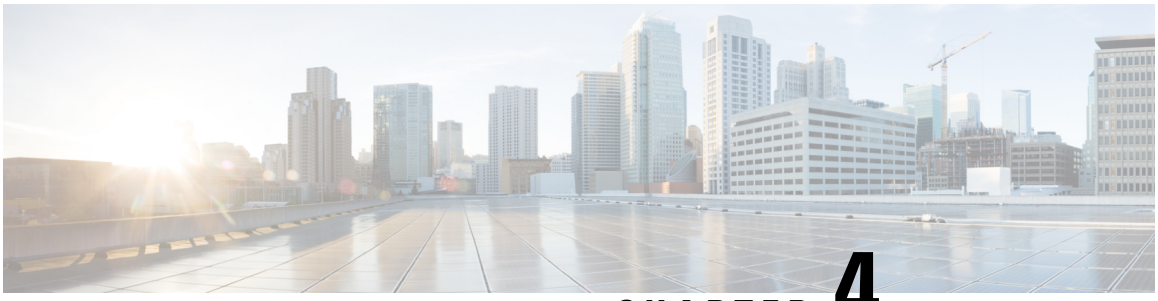
Local Connection Procedure

- Ensure that the device is powered on.
- Connect serial console port on the front panel of the device.
- When you see the prompt, you can press F2 to get into the setup (BIOS) to change some settings.
- After you have performed the required configuration, save the setup and continue to boot.

For more information on initial server setup see, Hardware Installation Guide for Cisco Catalyst 8300 Series Edge uCPE.

Remote Connection Procedure

- Plug in your terminal server to the Serial port (Refer to front panel of chassis).
- Telnet into the console and perform the necessary configuration using corresponding commands.



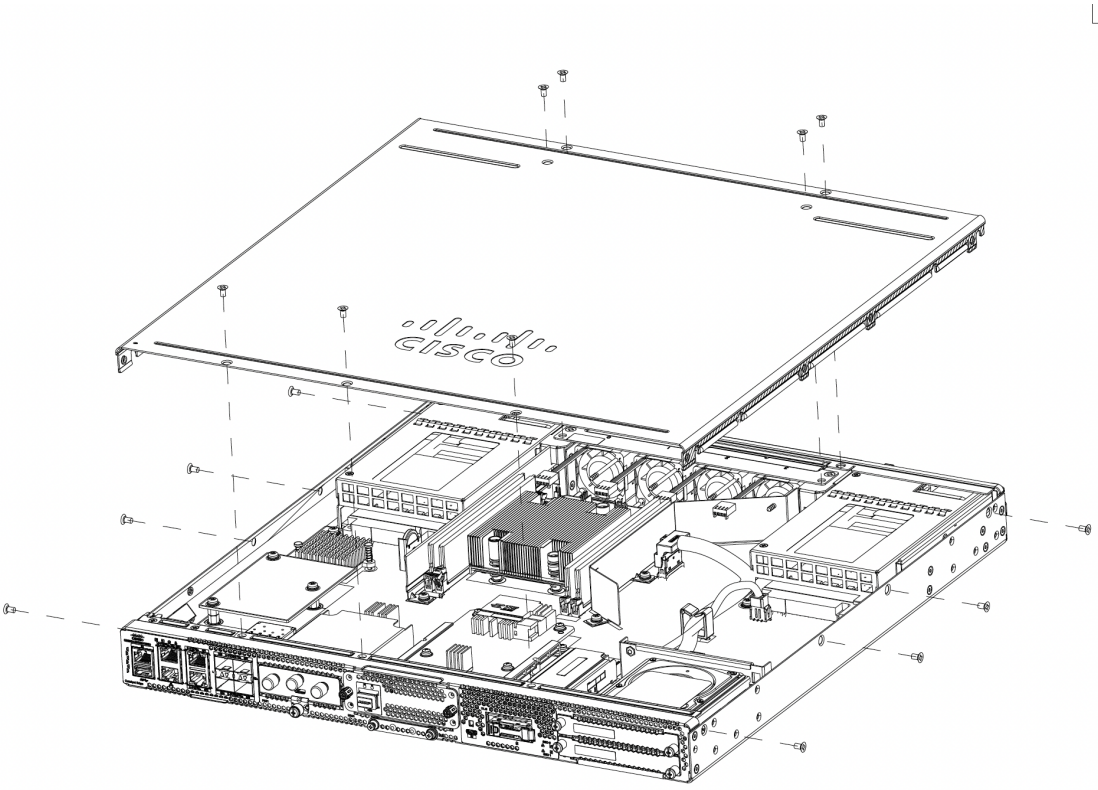
CHAPTER 4

Install and Upgrade Field Replaceable Units

These are the steps to remove the chassis cover:

Removing and Replacing the Chassis Cover

Figure 21: Removing and Replacing the chassis cover



1. Confirm that the chassis is turned off and disconnected from the power supply or power supplies.
2. Place the chassis on a flat surface.
3. Remove the screws from the top of the chassis cover.
4. Remove screws from each side and from the top of the device as shown in the figure.

5. Lift the chassis cover after you have removed all the screws.

Note To replace the chassis cover, place the cover evenly on the top of the device and use the screws to secure it to the device.

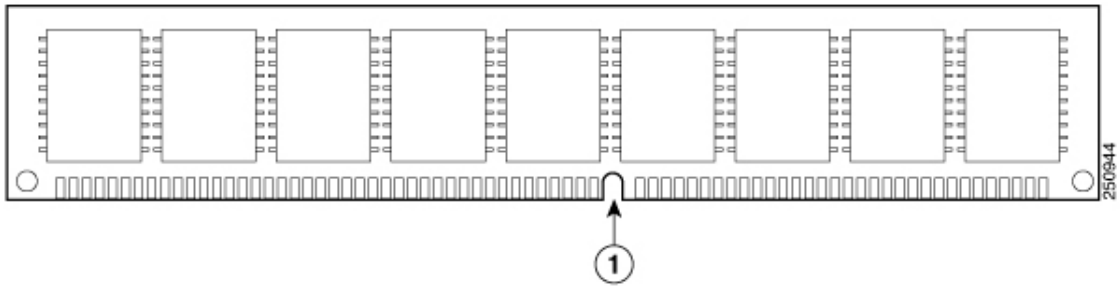
- Instal a Dual In-line Memory Module (DIMM), on page 32
- Removing a DIMM, on page 33
- Installing the M.2 Storage Module, on page 34
- Installing and Removing a Network Interface Module (NIM), on page 35
- Installing Pluggable Interface Module, on page 36
- Installing Drive Bays, on page 37
- Replace (Remove and Install) Fan Tray, on page 40
- Remove Small Form Pluggable Modules, on page 41

Instal a Dual In-line Memory Module (DIMM)

Before you begin

There are four DDR4 DIMM slots. DIMMs have a polarization notch on the connecting edge to prevent incorrect orientation of the module during insertion.

Figure 22: DIMM Showing Polarization Notch

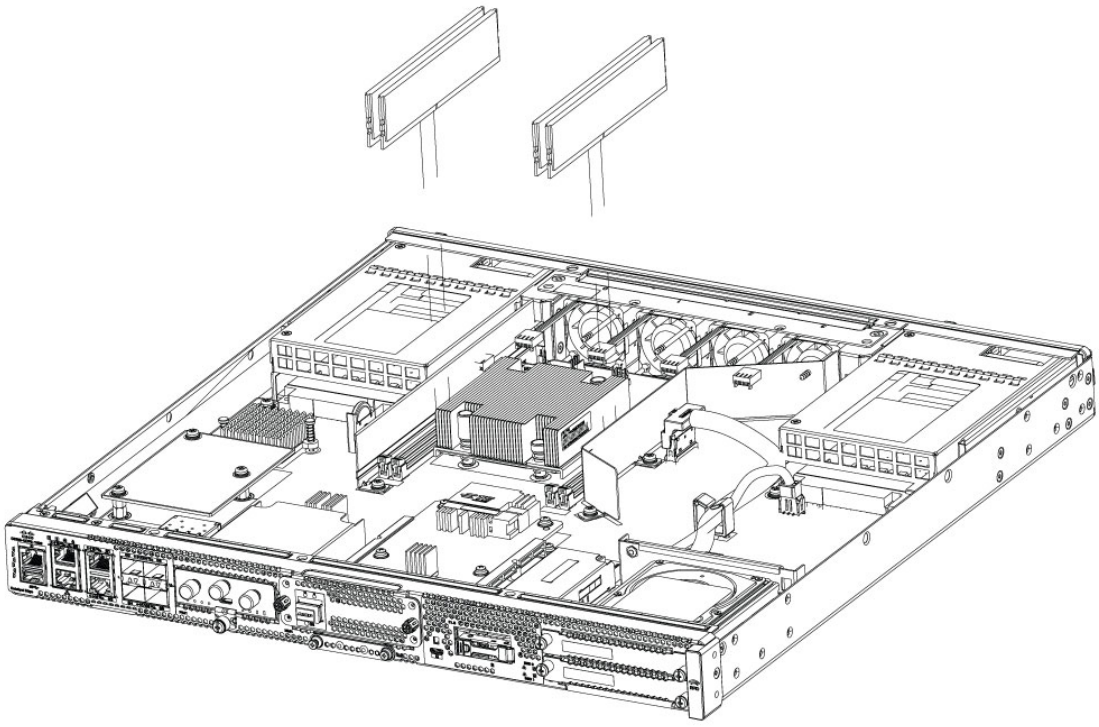


1	Polarization Notch

These are the steps to install a DIMM:

1. Remove the chassis cover.
2. Locate the DIMM slots on the device. There are four DIMM slots in the chassis and you can install the DIMM module on any of the slots.
3. Make sure that both latches on the DIMM connector are in the open position.

Figure 23: DIMM orientation



4. Orient the DIMM so that the polarization notch lines up with the polarization key on the connector.
5. Insert the DIMM into the connector.
6. Replace the chassis cover.

Removing a DIMM

These are the steps to remove a DIMM:

1. Remove the chassis cover.
2. Locate the DIMM module on the device. Refer to the Chassis-Internal section to identify and locate the DIMM module.
3. Pull the latches away from the DIMM at both ends to lift the DIMM slightly. Pull the DIMM out of the socket.
4. Place the DIMM in an antistatic bag to protect it from ESD damage.
5. Replace the chassis cover.

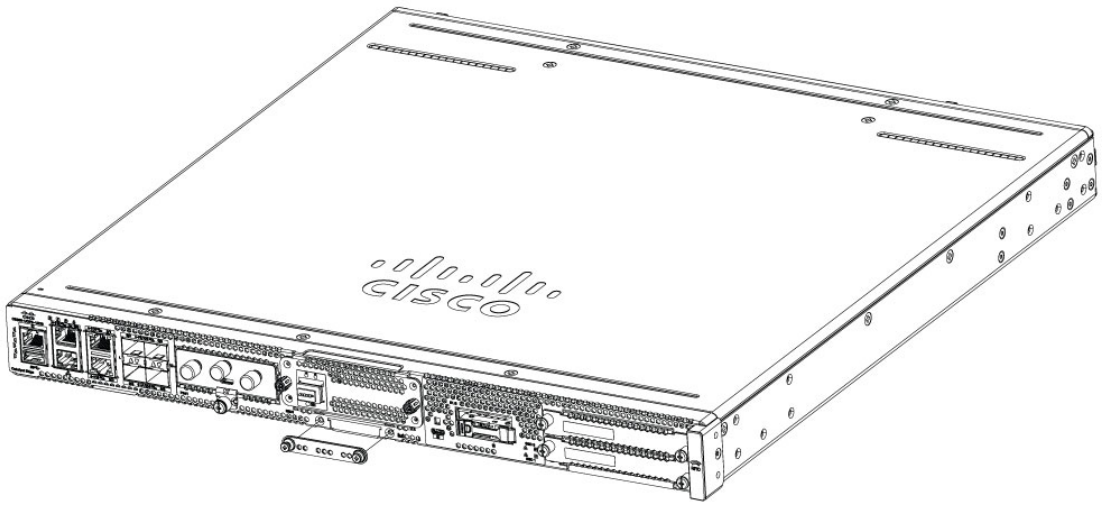
Installing the M.2 Storage Module

The M.2 storage modules come with different storage capacities and can be replaced through the front panel if required.

These are the steps to upgrade the M.2 storage module:

1. Power off of the system before replacing M.2.
2. Locate the M.2 storage module slot. Refer to Chassis - Front Panel to identify and locate the module.

   Figure 24: M.2 storage module slot

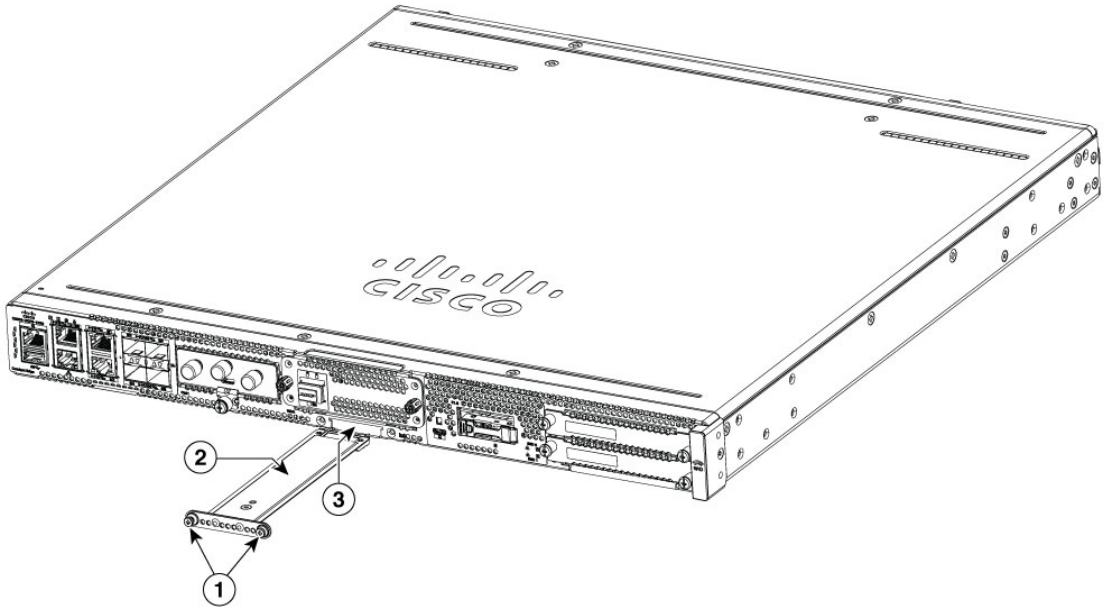


3. Loosen the screws that secures the M.2 blank cover or existing M.2 module in the slot. Remove the blank cover or existing module.

Note The disk used in M.2 is also the boot disk. If you replace the M.2 disk, you must reinstall Cisco NFVIS operating system once again.

4. Plug in the new M.2 storage module in the same location and secure it with the screws.

Figure 25: M.2 storage module slot opened



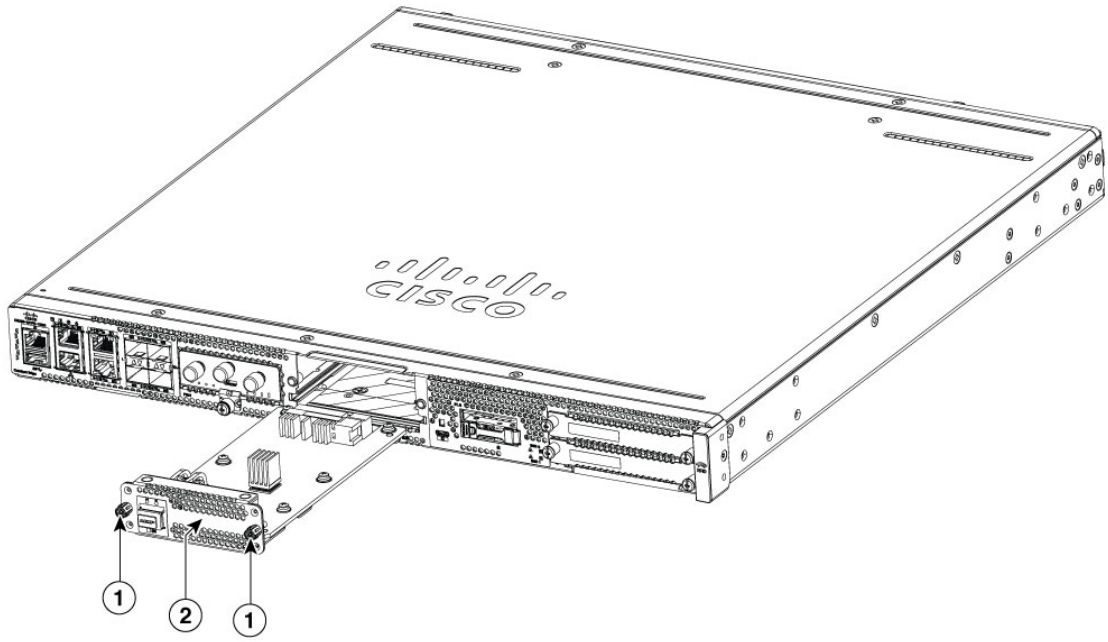
1	Securing screws (torque 3.9 - 5.4 in-lbs)	2	M.2 module orientation with metal carrier on top, M.2 module underneath
3	Chassis cutout prevents M.2 installation in wrong orientation		

Installing and Removing a Network Interface Module (NIM)

These are the steps to install a NIM:

1. Locate the NIM slot on the front panel.
2. Loosen the screws to remove NIM blank cover.
3. Insert the NIM into the slot.
4. Tighten the screws to secure the NIM in the slot.

Figure 26: Securing the NIM in the slot



1	Screws
2	NIM face

These are the steps to remove a NIM:

1. If the NIM is up and running, issue the following command to shut down the NIM gracefully before removing it:

   hw-module subslot slot 0/2 stop

Caution If you do not shut down the NIM gracefully before removing it, the NIM card could get damaged.

2. Locate the NIM slot on the front panel.
3. Loosen the screws that secure the NIM.
4. Gently pull out the NIM from the slot.

All module slots must have a module or blank installed for the product to remain unaffected by thermal activity and for safety purposes.

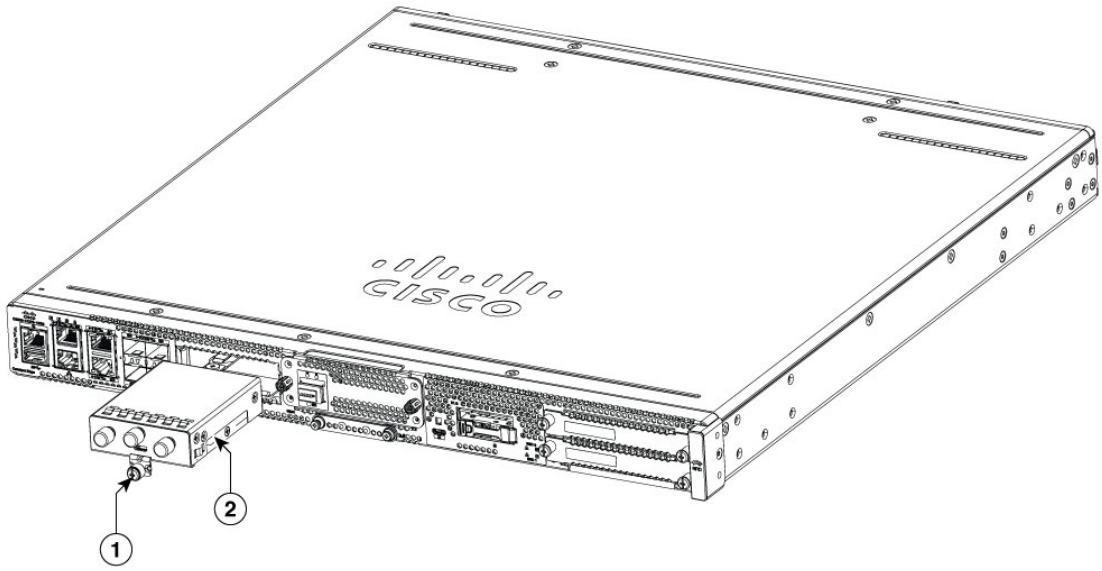
Installing Pluggable Interface Module

To insert the PIM into the router, do these steps:

1. Insert and then gently push the PIM into the pluggable slot until firmly seated in the slot.

2. Tighten the screw.

Figure 27: PIM slot



1	Securing screw	2	PIM module

Installing Drive Bays

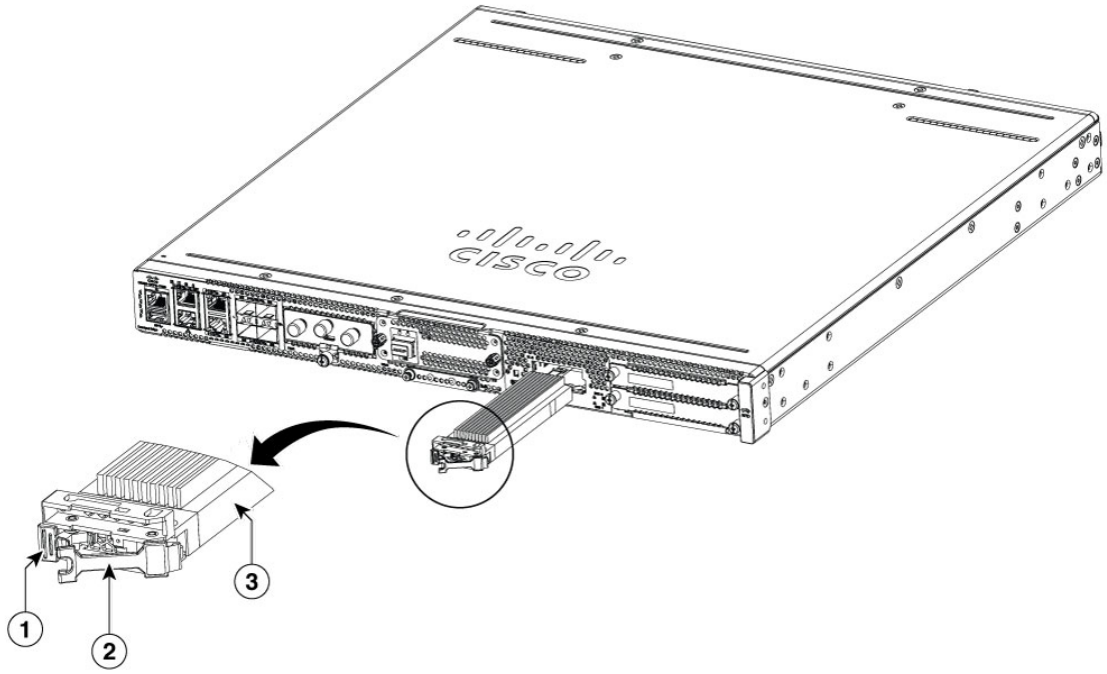
If you have not ordered drives, the drive bay slot is closed with a blank cover.

These are the steps to install a drive in a drive bay using E1.S Modules:

Note The drive bay is in the front panel of the device. If you do not install drives in the drive bays, keep them closed with blank covers.

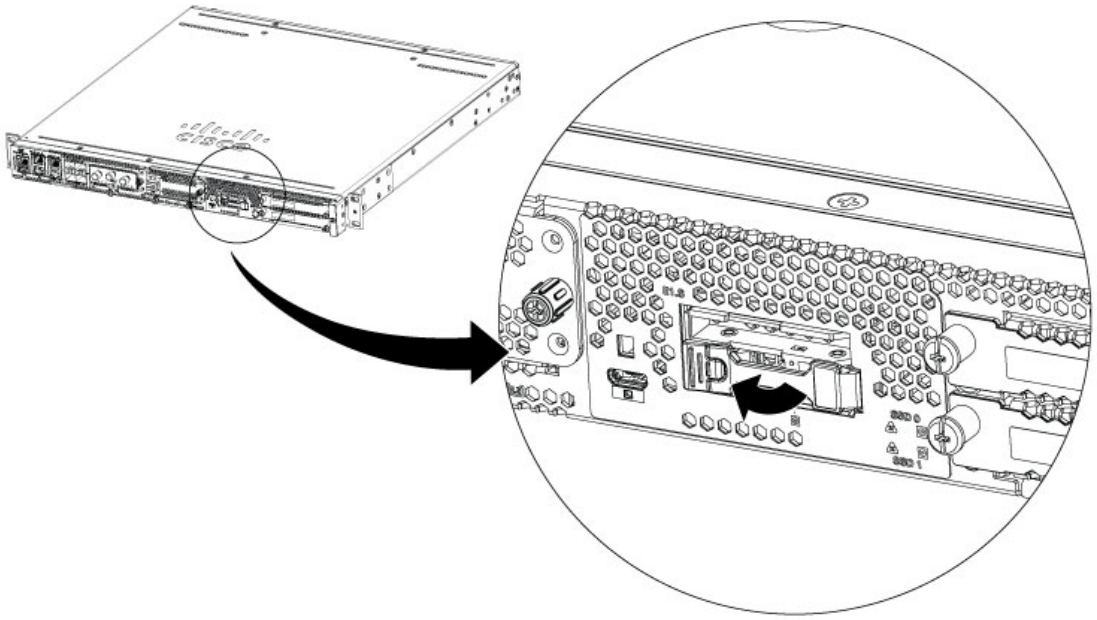
1. Remove the filler in the E1.S slot
2. Press the latch-release button on the E1.S module so that the latch springs to the open position.
3. Slide the E1.S module in the slot and push forward until the module seats in the connector.
4. To secure the module in the chassis, close the latch until it catches the latch-release button.

Figure 28: Inserting the E1.S module in the slot



1	Latch-release button
2	Latch (shown in open position)
3	E1.S Module

Figure 29: Securing the E1.S module in the chassis



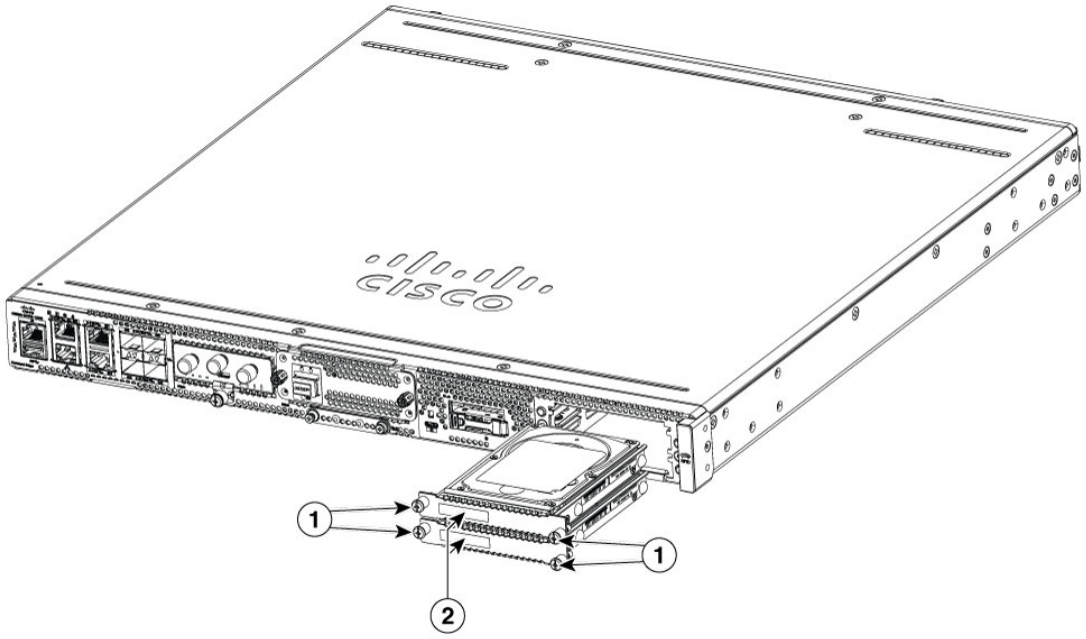
Note Keep the drive bays covered when there are no drives installed in the slot

SSD 2.5-inches Drives

Note The drive bays are in the front panel of the device. The bays are closed with a cover if there are no drives in the slots.

1. Remove the blank in the SSD slot
2. Install the drive into the slot and push forward until the drive seats in the connector
3. To secure the drives in the chassis, secure the screws on each side of the drive faces

Figure 30: Installing the SSD 2.5-inches drives

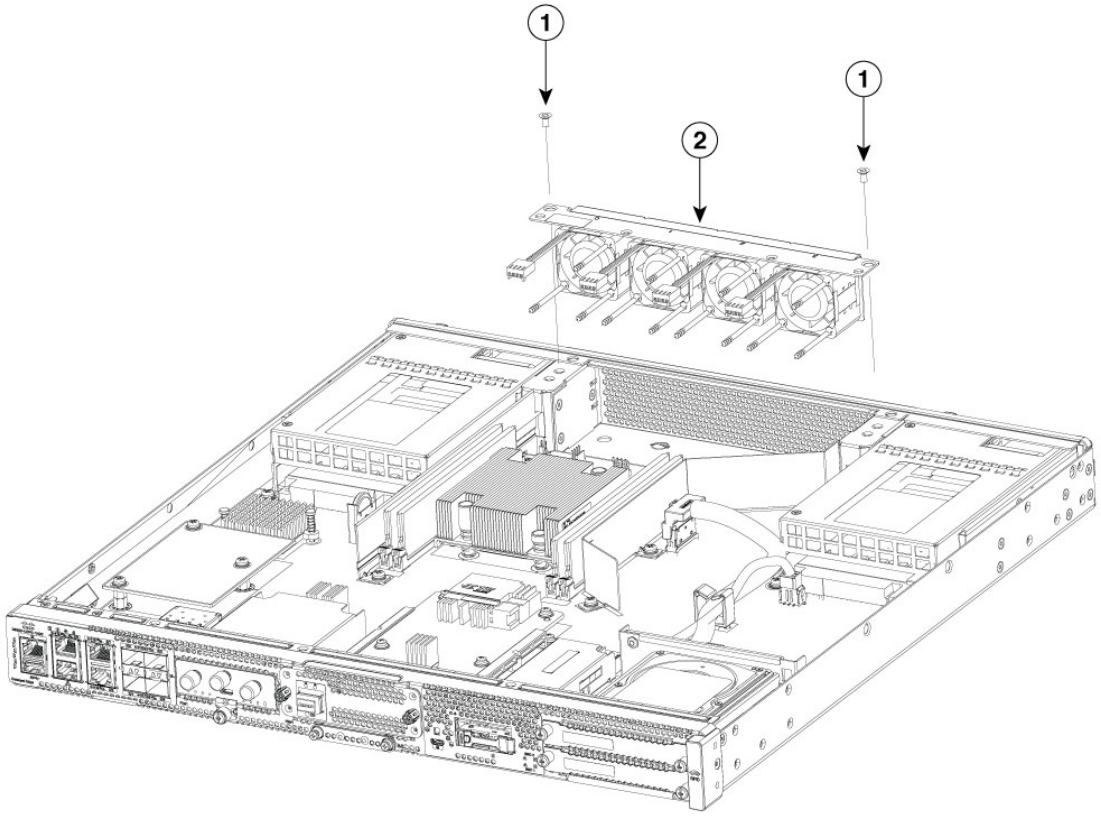


1	Screws
2	SSD 2.5" Drives

Replace (Remove and Install) Fan Tray

1. Remove the top cover.
2. Remove the two screw that secure the fan tray in the chassis.
3. Disconnect the fan cables from the motherboard.
4. Remove the fan tray by lifting up out of the chassis.
5. To install, perform these operations in reverse.

Figure 31: Removing/Installing the fan tray



1	Screws
2	Fan tray

Remove Small Form Pluggable Modules

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

Procedure

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 **Statement 1051—**Laser Radiation

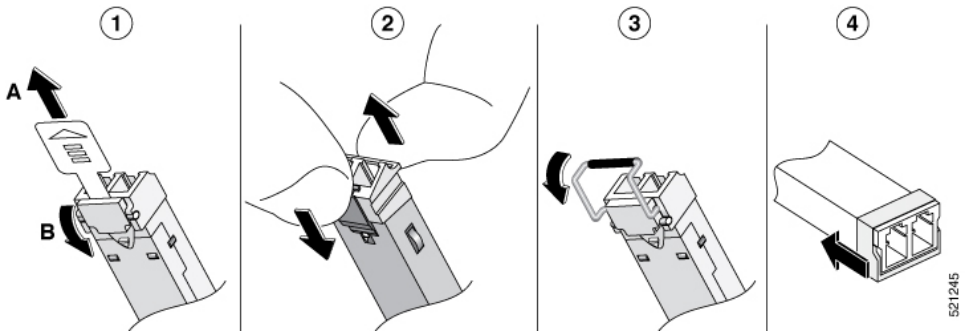
Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

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.

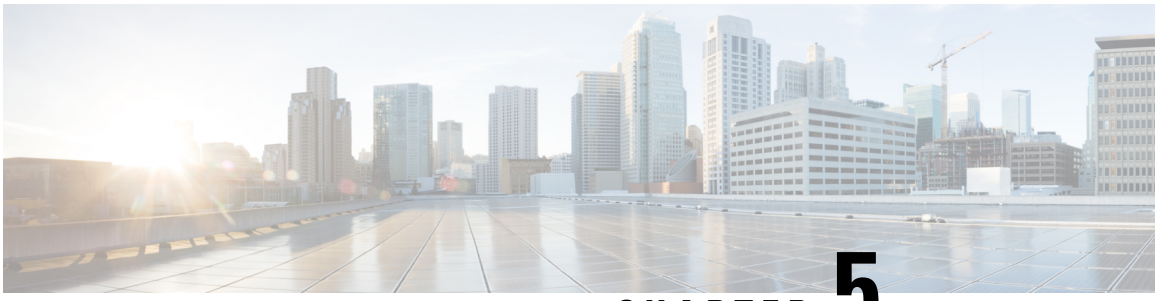
Figure 32: Disconnecting SFP Latch Mechanisms



1	Sliding latch	3	Bale-clasp latch
2	Swing and slide latch	4	Plastic collar latch

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.



CHAPTER 5

Laser Safety Guidelines

Optical small-form pluggable (SFP) modules 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 **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 9001—**Product Disposal

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

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.

Warning **Statement 1056—**Unterminated Fiber Cable

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.