



Install and Connect

This chapter describes how to install and connect the Cisco Catalyst 8200 Series Edge Platforms to WAN, and Voice networks.

The following sections provide the technical details:

- [Safety Warnings, on page 1](#)
- [What You Need to Know, on page 2](#)
- [Before You Begin, on page 3](#)
- [Unpack the Device, on page 3](#)
- [Install the Device, on page 3](#)
- [Connect Power to the Device, on page 14](#)
- [Overview of the Power Options, on page 15](#)
- [Connect to a Console Terminal or Modem, on page 16](#)
- [Connect WAN Interfaces, on page 18](#)

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

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.

Before You Begin

Before installing and connecting Cisco Catalyst 8200 Series Edge Platforms, 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.

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 Device

If you need to install Network Interface Modules (NIMs), Pluggable Interface Modules (PIMs), and Field-Replaceable Units (FRUs) on the Cisco Catalyst 8200 Series Edge Platforms devices, then, you can install them either before or after you install the device. Ideally, you can install these 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 the device.

You can install the device in one of the following ways:

- Set the chassis on a desktop
- Attach the chassis to the wall
- Mount the chassis on a rack



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

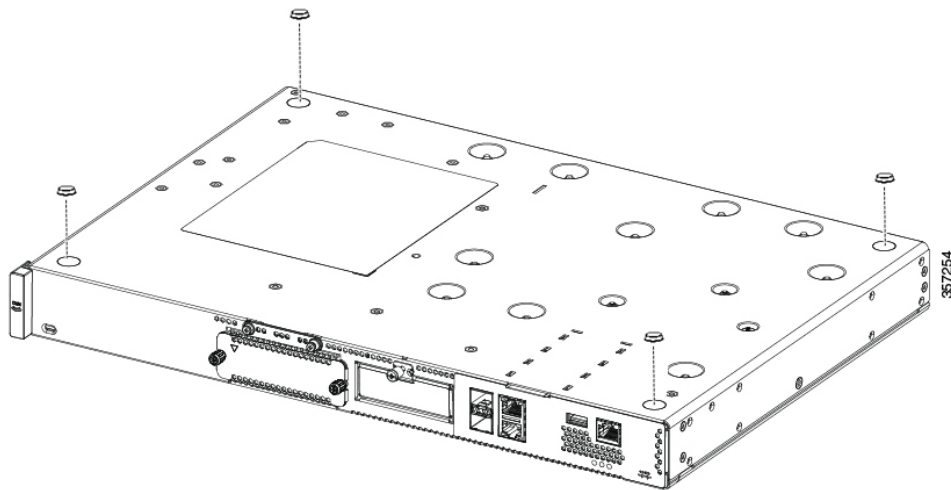
Mount the Chassis on a Desktop



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

The Cisco Catalyst 8200 Series Edge Platforms have 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 1: Applying Rubber Feet to the Router



Note Do not set the chassis in an area where the moderate acoustic noise can be an issue.



Caution Do not place anything on top of the device that weighs more than 10 pounds (4.5 kg), and do not stack device on a desktop. Excessive distributed weight of more than 10 pounds, or pound point load of 10 pounds on top could damage the chassis.



Caution Your chassis installation must allow unrestricted airflow for chassis cooling. For placing the device on a desktop, keep at least 1 inch (2.54 cm) of clear space beside the cooling inlet and exhaust vents.

After the device is installed, you must connect the chassis to a reliable earth ground. For the chassis ground connection procedures, see the Chassis Grounding section.

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: 40 degrees C. Statement 1047

The Catalyst 8200 Series Edge Platforms can be installed in 19-inch (48.26-cm) racks. You can order the standard brackets for mounting the chassis in a 19-inch EIA rack.

The mounting ears for the device are designed for #12-24 UNC screws for rack mounting.

You can rack-mount the device in the following ways:

- I/O-side mounting—Brackets attached at the front of the chassis with the front panel facing forward
- Power-input side mounting—Brackets attached at the back of the chassis with the back panel 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).



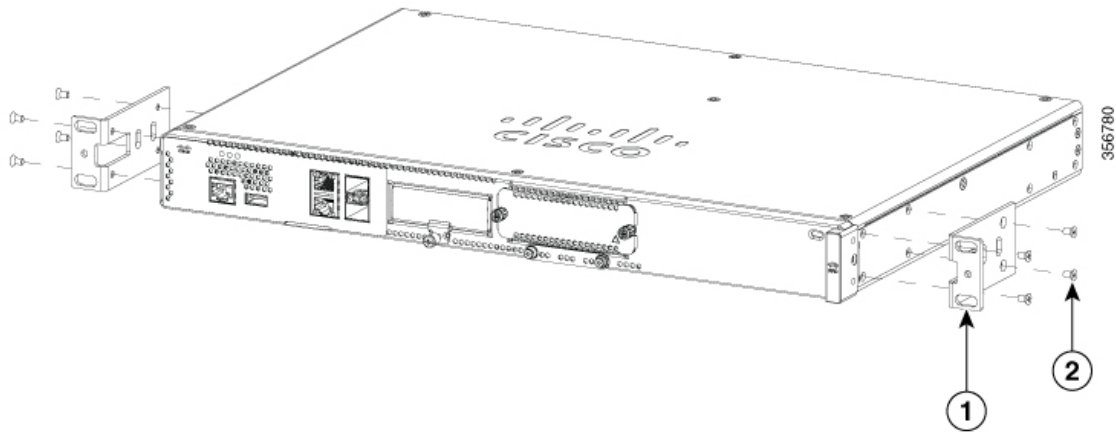
Caution Your chassis installation must allow unrestricted airflow for chassis cooling.

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 Cisco 8200 Series device, perform these steps:

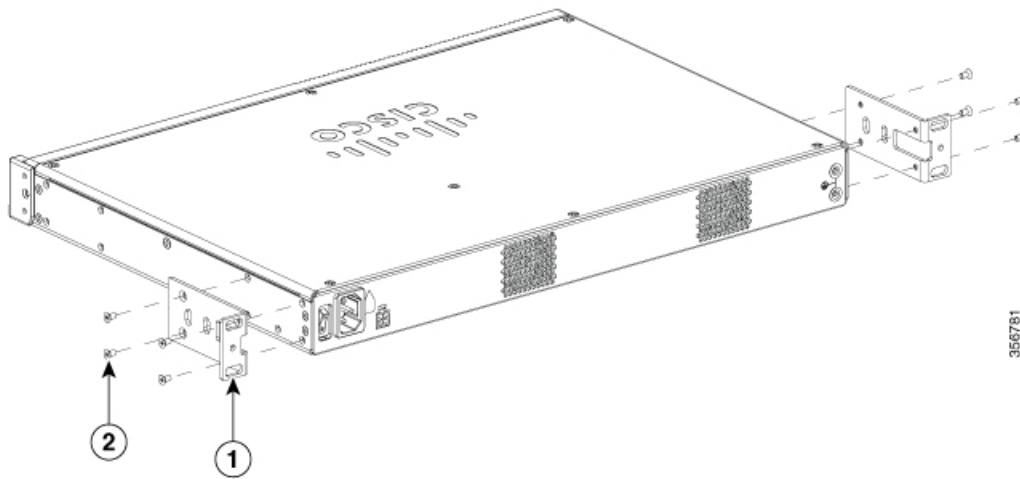
- Step 1** Select the mounting orientation for the router in the equipment rack. I/O- side (recessed to allow space for the RFID badge) or power-input side (flush).
- Step 2** Align the rack mount bracket with the mounting holes in the side of the device.
- Step 3** Insert the #6-32 FHM screws. Use only the screws that are provided in the rack mount bracket kit.
- Step 4** Tighten the screws to a torque value of 15 to 18 inch-lb. (1.7 to 2.0 N-m).

Figure 2: Bracket Installation for I/O Side Mounting



1	Rack Mounting brackets
2	Mounting screws

Figure 3: Bracket Installation on Power-input Side Mounting



1	Rack Mounting brackets
2	Mounting screws

Mount the Chassis on a Rack

After you attach the brackets to the device, install the chassis on the rack as shown in following figures. You need two screws to attach each bracket to the rack. Total four screws are required to attach the device to the rack. The screws for attaching the device to the rack are not provided with the kit.



Tip For the 19-inch EIA 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.

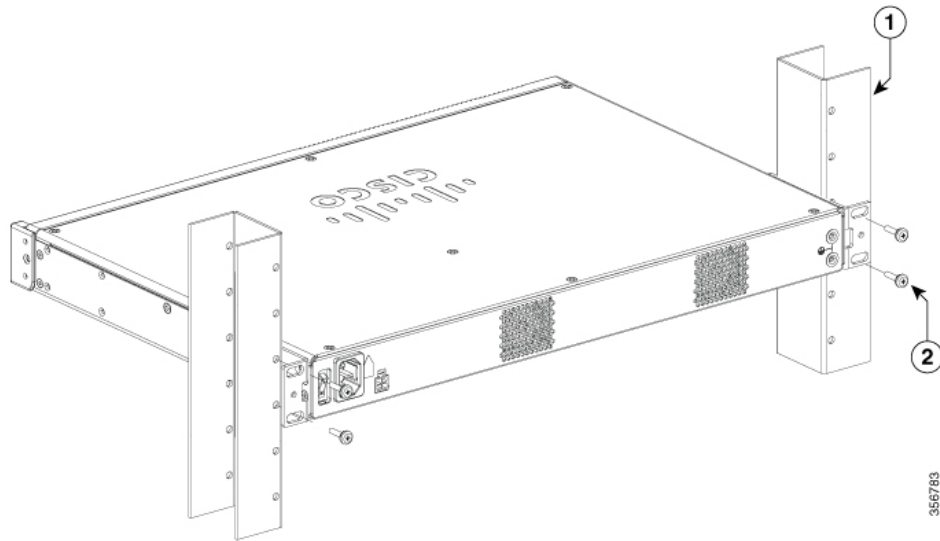
Step4. Tighten the screws to the appropriate torque value for your equipment

Figure 4: Mounting the Chassis on the Rack – I/O-Side (Cisco 8200 Series Chassis)



1	Rack
2	Rack Mounting screws

Figure 5: Mount the chassis on the rack - Power-input Side (Cisco 8200 Series Chassis)



1	Rack
1	Rack Mounting screws

Attach Cisco Catalyst 8200 Series Edge Platforms on a Wall



Caution When mounted on a wall, the Catalyst 8200 Series Edge Platforms should always be oriented with a side of the device oriented in the downward position. The I/O side and power-input side should be oriented so that the fan vents and cable entry will be oriented to the left or right. Neither the I/O side nor Power-input side should ever be oriented downwards.



Caution Your chassis installation must allow unrestricted airflow for chassis cooling.

Step 1 Attach the rack mount brackets to the sides of the device using only the hardware provided in the wall mounting kit (#6-32 x 0.44 inch PHMS).

Step 2 The outer face of the rack mount bracket ear, the part that typically mounts to an equipment rack, should be placed against the side of the router. Use the spacers provided to adapt the larger obround holes down to smaller holes for the screws to fit into.

Step 3 The brackets should be located diagonally from each other as shown in the figure below.

Step 4 Tighten the screws to a torque value of 15 to 18 inch-lb. (1.7 to 2.0 N-m).

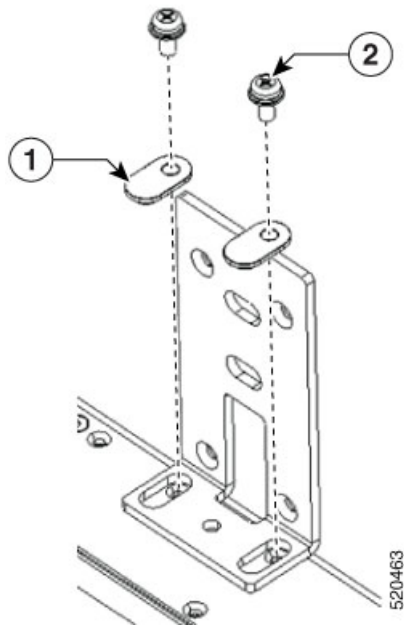
Step 5 Use #6 or 4mm hardware to secure the brackets to the wall; at least 2 per bracket. Securing hardware should be a minimum of 1 inch in length (25.4 mm).



Note The customer must supply the appropriate hardware for securing the mounting brackets to the wall. Each mounting bracket has 4 holes and 2 slots that may be used for mounting the brackets to the wall.

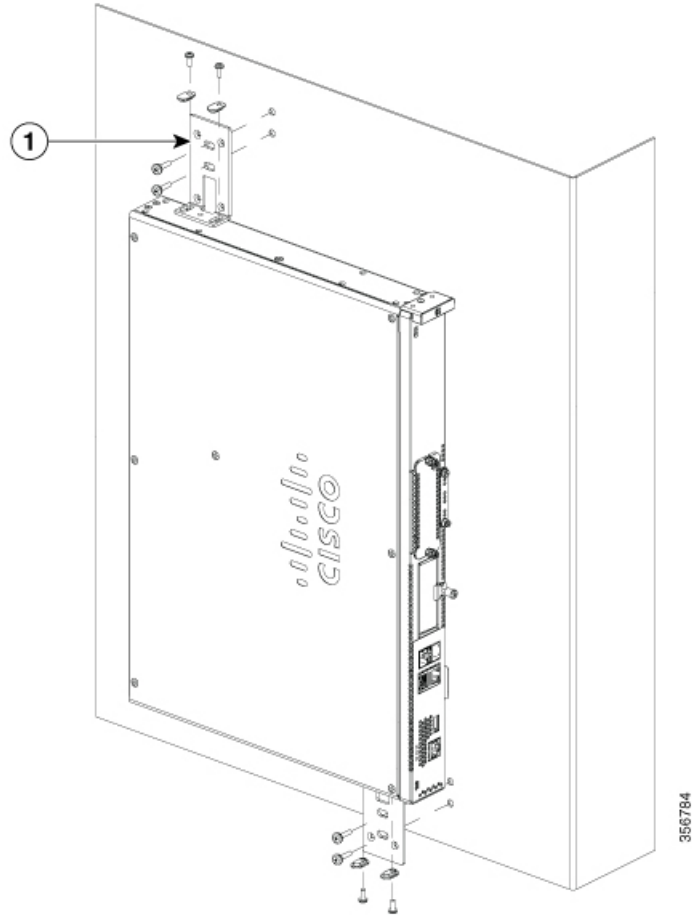
Step 6 Route the cables so that they do not put a strain on the connectors or mounting hardware.

Figure 6: Attach Wall Mount Brackets (Cisco 8200 Series Chassis)

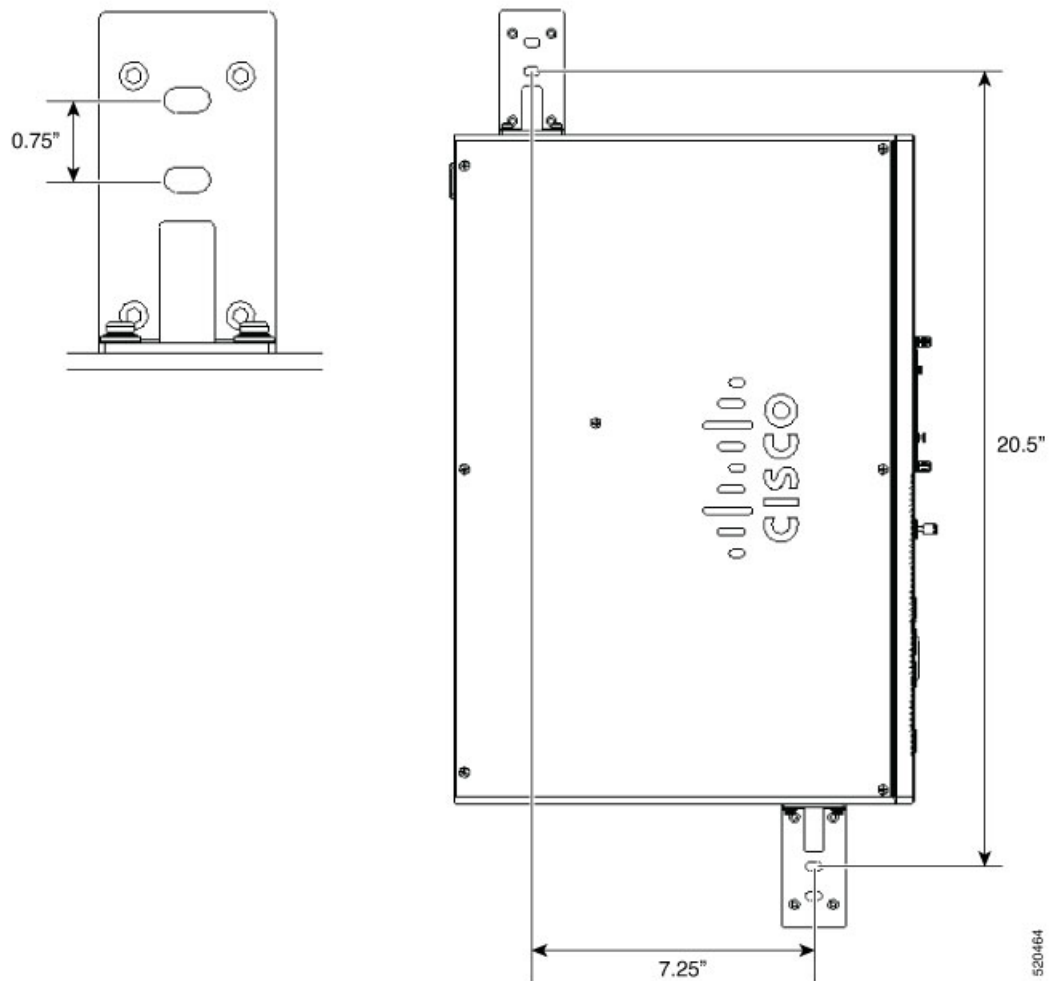


1	Bracket slot spacer for screw. Orient spacer in slot as shown.
2	Screws

Figure 7: Wall Mount the Cisco 8200 Series Chassis



1	Wall-mount bracket against wall
---	---------------------------------



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.



Note This equipment is suitable for installation in Network Telecommunications Facilities and locations where the NEC applies. The equipment is suitable for installation as part of the Common Bonding Network (CBN).

- For NEC-compliant grounding, use size 14 AWG (2 mm²) or larger copper wire and an appropriate user-supplied ring terminal with an inner diameter of 1/4 in. (5–7 mm)
- AWG 10 (4 mm²) or larger wire for EN/IEC 60950-1 and EN/IEC 62368-1 compliant chassis grounding



Note The grounding wire should be sized according to local and national installation requirements. The above recommended AWG values for NEBS-compliant, NEC-compliant, EN/IEC 60950-1 and EN/IEC 62368-1 as the minimum requirement respectively, the higher AWG value recommendation also with the higher priority, this means AWG 10 is the minimum requirement only when NEBS is not required. Commercially available 6-AWG grounding wire is always preferred from the chassis to the rack ground or directly to the common bonding network (CBN). The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.

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

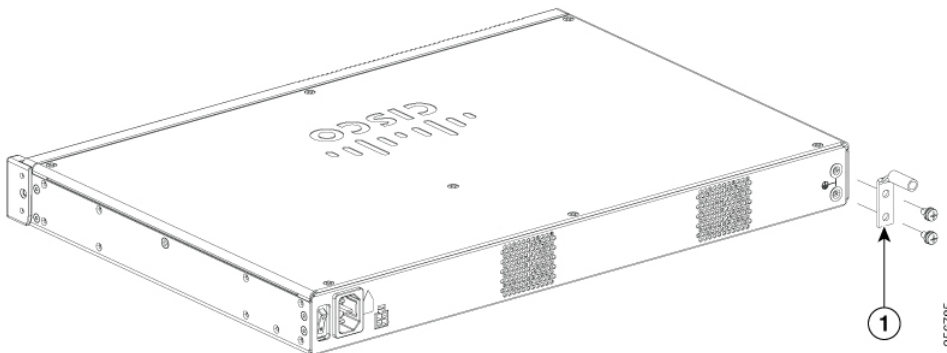
Step 1 Strip one end of the ground wire to the length required for the ground lug or terminal.

- 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 8: Chassis Ground Connection on the Cisco 8200 Series Chassis



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

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

Connect Power to the Device

This section explains how to connect 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 90 and 264 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

Overview of the Power Options

The Powering options for the Cisco Catalyst 8200 Series Edge devices are as follows:

- 100W internal PSU (not field upgradeable). Powers the full router with standard AC cord. Always provided.
- 150W external POE adapter. Optional power input when POE output or modules is required.

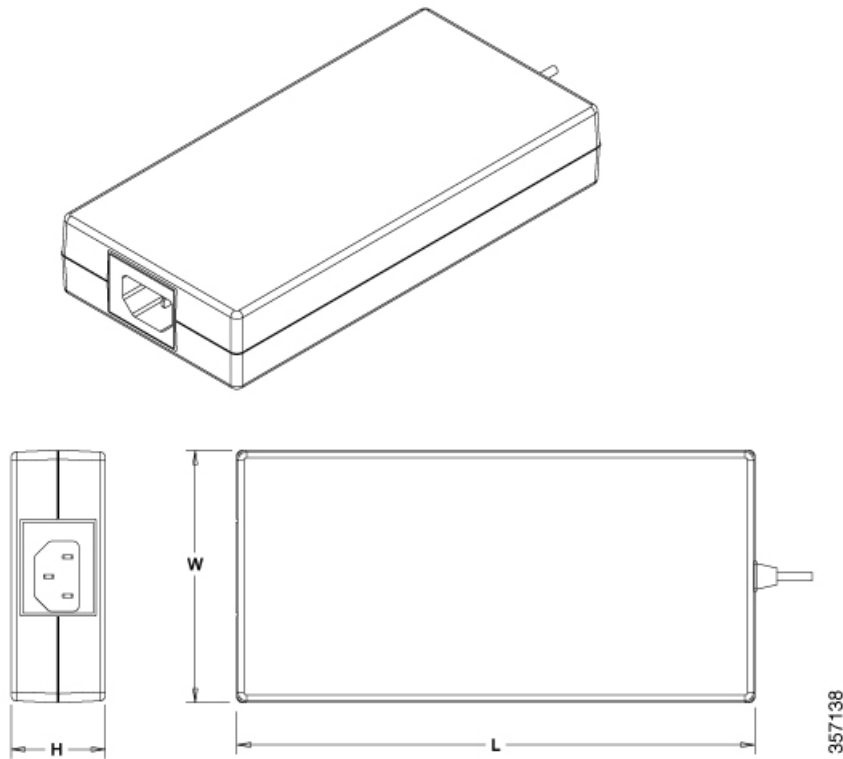
Powering On the Server

An external POE supply may be ordered if required. The table below shows the physical parameters depending on the supplier.

**Note**

The POE supply provided may be of different sizes.

PSU	Delta PSU	FSP PSU
Main Part Dimensions	L-200 * W-100 * H-43 mm	L-177 * W-86 * H-32.2 mm
Weight	1.015 KG	0.575 KG

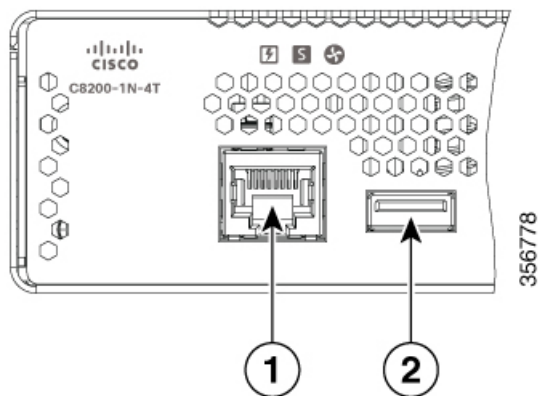


Connect to a Console Terminal or Modem

The Cisco Catalyst 8200 Series 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 9: Local and Remote Connections



Port Type	Cable	Section
1. Serial (RJ-45)	EIA RJ-45	Connect to the Serial Port with Microsoft Windows

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

Connect WAN Interfaces

This section describes how to connect WAN interface cables. Before you connect the interface cables, refer to the following warning statements:



Warning Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations. Statement 1036.



Warning Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface. Statement 1037.



Warning For connections outside the building where the equipment is installed, the following ports must be connected through an approved network termination unit with integral circuit protection, LAN, PoE. Statement 1044.



Warning Avoid using or servicing any equipment that has outdoor connections during an electrical storm. There may be a risk of electric shock from lightning. Statement 1088.

Ports and Cabling

The connections summarized here are also described in detail in the document on Cisco.com: Cisco Modular Access Cable Specifications

Table 1: WAN and Voice Connections

Port or Connection	Port Type, Color ¹	Connection:	Cable
Ethernet	RJ-45, yellow	Ethernet hub or Ethernet switch	Category 5 or higher Ethernet
T1/E1 WANxCE1T1-PRI	RJ-48C/CA81ARJ-48S, tan	T1 or E1 networkExternal T1 CSU or other T1 equipment	RJ-48 T1/E1RJ-48S to RJ-48S TERJ-48S to RJ-48S NTRJ-48S to RJ-48S T1RJ-48S to bareRJ-48S to BNCRJ-48S to twinaxial cableRJ-48S to DB-15RJ-48S to DB-15 null

Port or Connection	Port Type, Color ¹	Connection:	Cable
T3/DS3/E3 WAN	BNC connector	T3 network, CSU/DSU, or other T3/DS3 equipment	75-ohm coaxial cable
Cisco serial	60-pin D-sub, blue	CSU/DSU and serial network or equipment	Cisco serial transition cable that matches the signaling protocol (EIA/TIA-232, EIA/TIA-449, V.35, X.21, or EIA-530) and the serial port operating mode (DTE or DCE). ²
Cisco Smart serial	Cisco Smart compact connector, blue	CSU/DSU and serial network or equipment	
Gigabit Ethernet SFP, optical	LC, color according to optical wavelength	1000BASE-SX, -LX, -LH, -ZX, -CWDM	Optical fiber as specified on applicable data sheet
Gigabit Ethernet SFP, copper	RJ-45	1000BASE-T	Category 5, 5e, 6 UTP

¹ Cable color codes are specific to Cisco cables.

² See the Cisco Modular Access Router Cable Specifications document for information about choosing these cables.

General Precautions

Observe the following general precautions when using and working with your Cisco Catalyst 8200 Series Edge Platforms:

- 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.

