



CHAPTER 2

Switch Installation

This chapter contains the steps to install the switch. Please read the topics and follow the steps in the following order:

- [Warnings, page 2-1](#)
- [Installation Guidelines, page 2-3](#)
- [Verifying Switch Operation, page 2-3](#)
- [Installing the Switch, page 2-4](#)
- [Installing and Removing SFP Modules, page 2-19](#)
- [Inserting and Removing the SFP Module Patch Cable, page 2-21](#)
- [Replacing the SD Flash Memory Card, page 2-22](#)
- [Connecting Devices to the Ethernet Ports, page 2-24](#)
- [Where to Go Next, page 2-26](#)

Warnings

These warnings are translated into several languages in the Regulatory Compliance and Safety Information for the Cisco CGS 2520 document that ships on the documentation CD.

These warning statements apply to all the switches:



Warning

Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. Statement 43



Warning

Do not work on the system or connect or disconnect cables during periods of lightning activity. Statement 1001



Warning

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

**Warning**

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.

Statement 1017

**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**

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

**Warning**

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

Statement 1040

**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.

10/100/1000 Ethernet Statement 1044

**Warning**

To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of:

140°F (60°C) Statement 1047

**Warning**

This equipment is supplied as “open type” equipment. It must be mounted within an enclosure that is suitably designed for those specific environmental conditions that will be present and appropriately designed to prevent personal injury resulting from accessibility to live parts. The interior of the enclosure must be accessible only by the use of a tool. The enclosure must meet IP 54 or NEMA type 4 minimum enclosure rating standards. Statement 1063

**Warning**

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

**Note**

For U.S. installations, refer to national electrical code ANSI/NFPA 70.

**Warning**

To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 1.75 in. (4.4 cm). Statement 1076

Installation Guidelines

Before installing the switch, verify that these guidelines are met:

- Cabling must be kept away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures. Make sure that the cabling is away from other devices that might damage the cables.
- Operating environment is within the ranges listed in [Technical Specifications, page A-1](#)
- Relative humidity around the switch does not exceed 95 percent (noncondensing).
- Altitude at the installation site is not higher than 10,000 feet.
- For 10/100 and 10/100/1000 fixed ports, cable lengths from the switch to connected devices are not more than 328 feet (100 meters).
- For cable lengths for small-form-factor pluggable (SFP)-module connections, see the [SFP Module Cables, page B-4](#) and the module documentation.
- Airflow around the switch and through the vents is unrestricted. To prevent overheating, the switch must meet the minimum clearance of 1.75 inches (4.4 cm) at the top and bottom. For clearances needed for wall mounting, see specifications in [Wall-Mounting, page 2-16](#).

**Note**

If the switch is installed in a closed or multirack assembly, take into consideration that the temperature around the switch might be greater than normal room temperature and that special accommodations in clearance must be made.

Verifying Switch Operation

Before installing the switch in a rack or on a wall, you should power on the switch and verify that the switch passes the power-on self-test (POST).

To wire the switch to the power source, see [Power Supply Installation, page 3-1](#)

When the switch begins POST, the System LED blinks green, and the other LEDs stay green. When the switch passes POST, the System LED turns green. The other LEDs turn off and return to their operating status. If the switch fails POST, the System LED is amber.

**Note**

Contact Cisco Systems immediately if your switch fails POST.

After a successful POST, disconnect the power from the switch. For more information, see [Power Supply Installation, page 3-1](#) See the [Installing the Switch, page 2-4](#) to install the switch into a rack or onto a wall.

Installing the Switch

The following installation information is covered in this section:

- [Mounting into a Rack, page 2-4](#)
- [Wall-Mounting, page 2-16](#)



Note

After the switch is mounted onto the rack, connect the power source to the switch. See [Power Supply Installation, page 3-1](#)

Mounting into a Rack

The following mounting procedures are explained in this section:

- [.Mounting Brackets, page 2-4](#)
- [Attaching Brackets for 19-Inch Racks, page 2-5](#)
- [Attaching Brackets for 19-Inch Racks \(IP-30 Compliance\), page 2-7](#)
- [Attaching Brackets for 23-Inch Racks, page 2-12](#)
- [Attaching Brackets for ETSI Racks, page 2-13](#)
- [Mounting the Switch into a Rack, page 2-15](#)



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 the only rack 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 1008

.Mounting Brackets

[Figure 2-1](#) shows the 19-inch rack mounting brackets.

Figure 2-1 19-inch Mounting Brackets

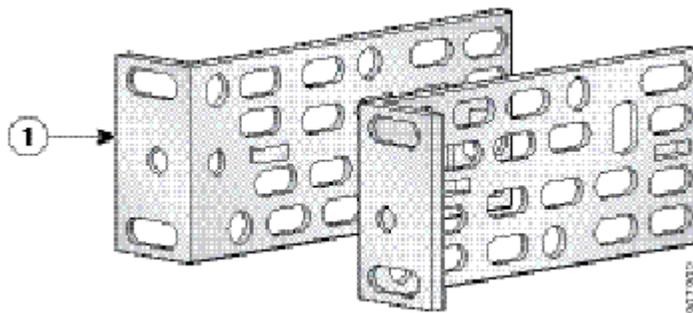


Figure 2-2 shows the 23-inch rack mounting brackets.

Figure 2-2 23-inch Mounting Brackets

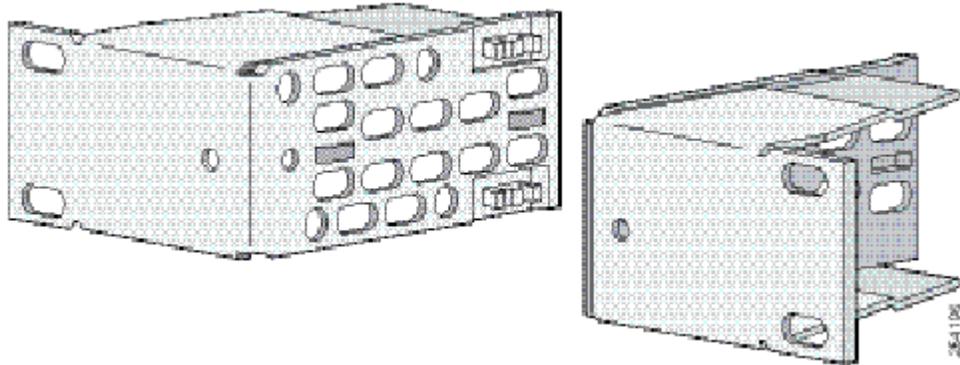
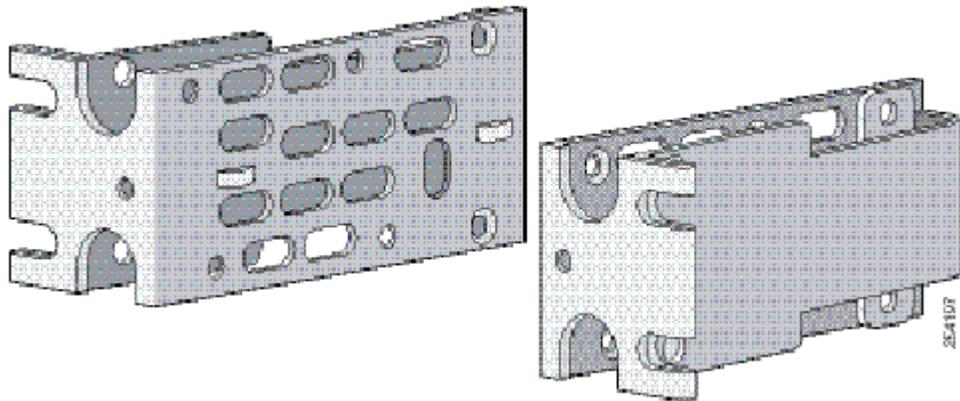


Figure 2-3 shows the ETSI rack mounting brackets.

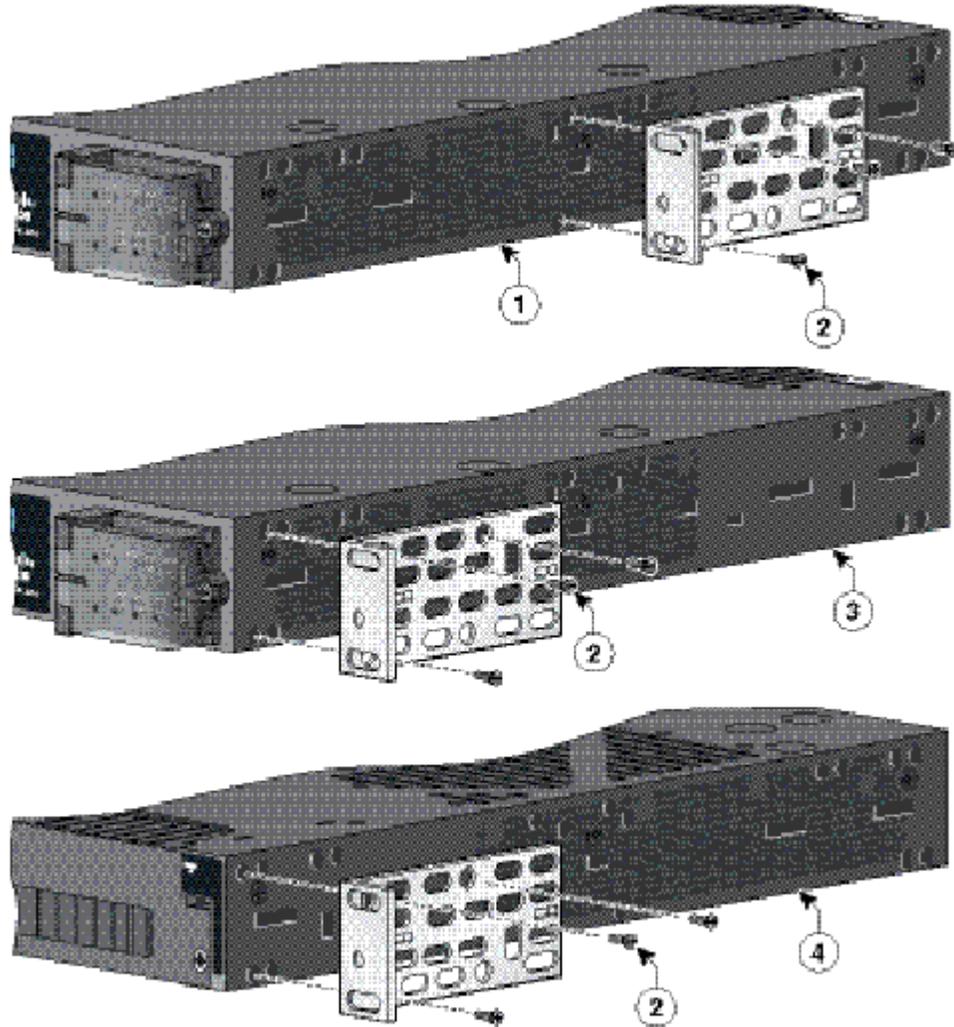
Figure 2-3 ETSI Mounting Brackets



Attaching Brackets for 19-Inch Racks

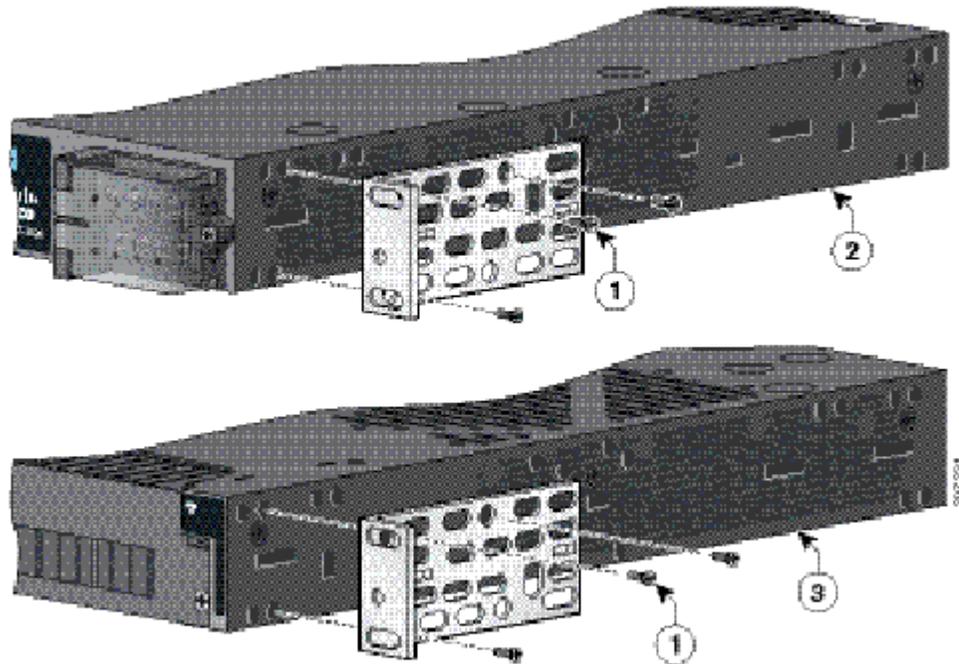
Figure 2-4 and Figure 2-5 shows the 19-inch rack mounting bracket locations on the switch for cable-side mounting and power-side mounting onto an 19-inch rack.

Figure 2-4 Attaching Brackets for 19-Inch Racks



1	Mid-mount position	3	Cable-side mounting position
2	Phillips flat-head screws	4	Power supply-side mounting position

Figure 2-5 Attaching Brackets for 19-Inch Racks



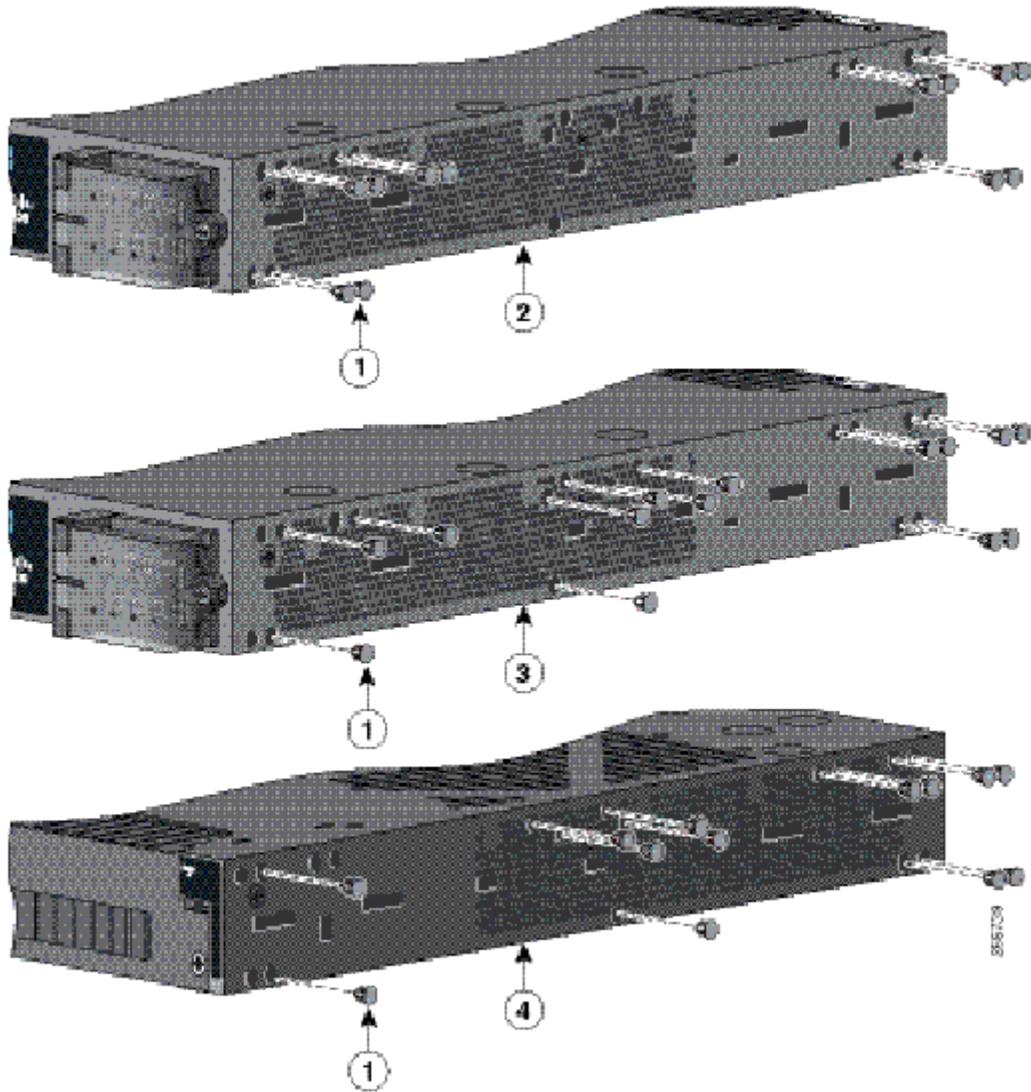
1	Phillips flat-head screws	3	Power supply-side mounting position
2	Cable-side-mounting position		

Attaching Brackets for 19-Inch Racks (IP-30 Compliance)

Before installing the mounting brackets, you need to install the rubber plugs into the unused mounting holes of the switch chassis. You can get the appropriate rubber plugs by ordering kit CGS-2520-IP30KIT. Follow the procedure below to install the rubber plugs.

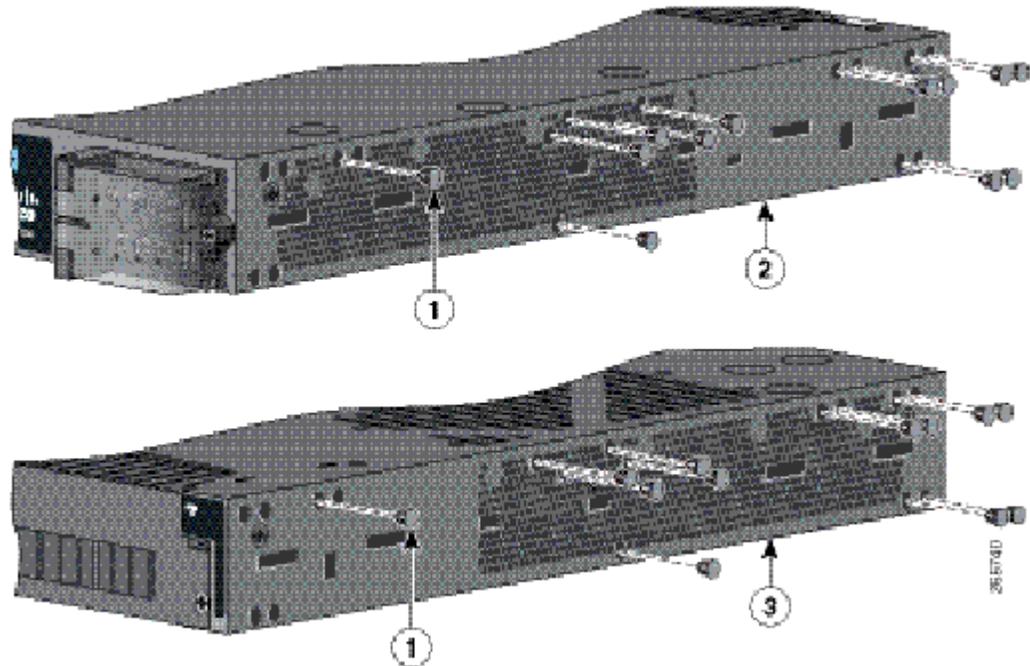
-
- Step 1** Determine whether you will install using the mid-mount, cable-side, or power supply-side positioning by identifying your bracket mounting positions shown in [Figure 2-9](#) and [Figure 2-10](#).
- Step 2** Insert the rubber plugs into the appropriate holes according to your mount position as shown in [Figure 2-6](#) and [Figure 2-7](#). Follow the same procedure for both sides of the switch.

Figure 2-6 Inserting the Rubber Plugs



1	Rubber plug	3	Cable-side mounting position
2	Mid-mount position	4	Power supply-side mounting position

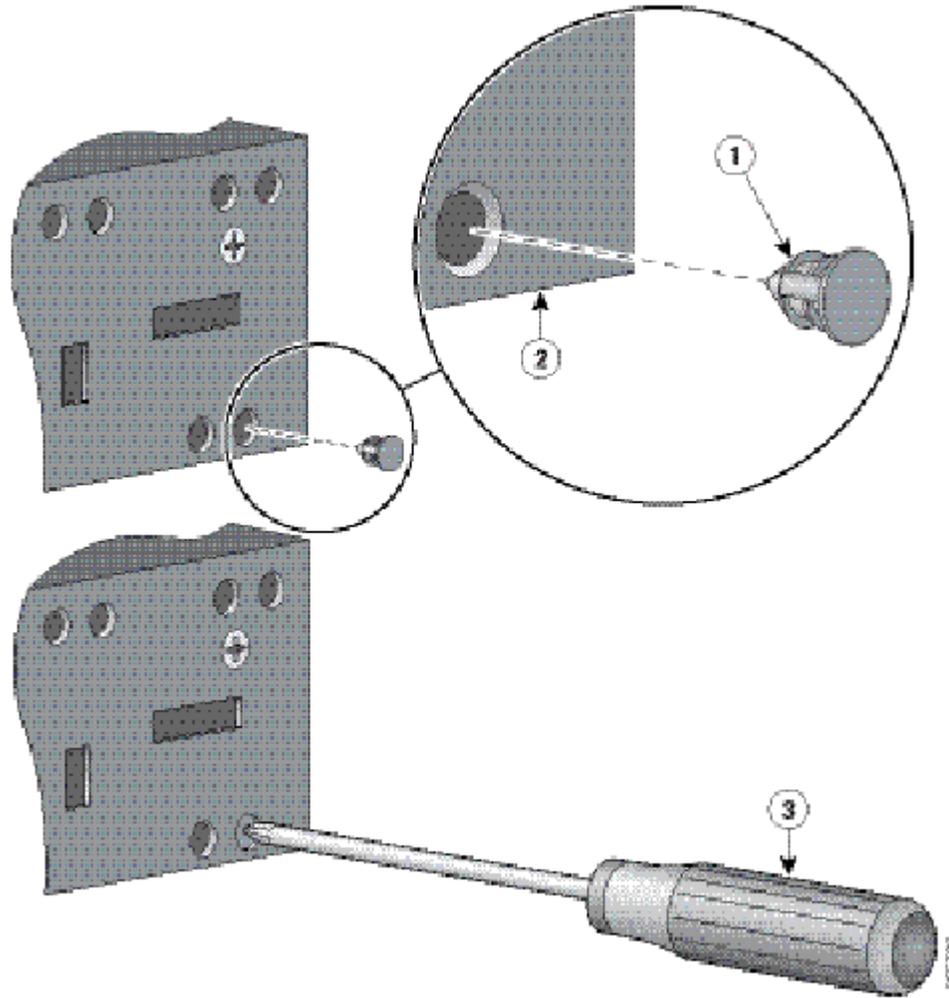
Figure 2-7 Inserting the Rubber Plugs



1	Rubber plug	3	Power supply-side mounting position
2	Cable-side mounting position		

Step 3 Use a screwdriver or pen to completely push in the rubber plugs. [Figure 2-8](#) shows a close-up of the rubber plug and how they are inserted into the mounting holes.

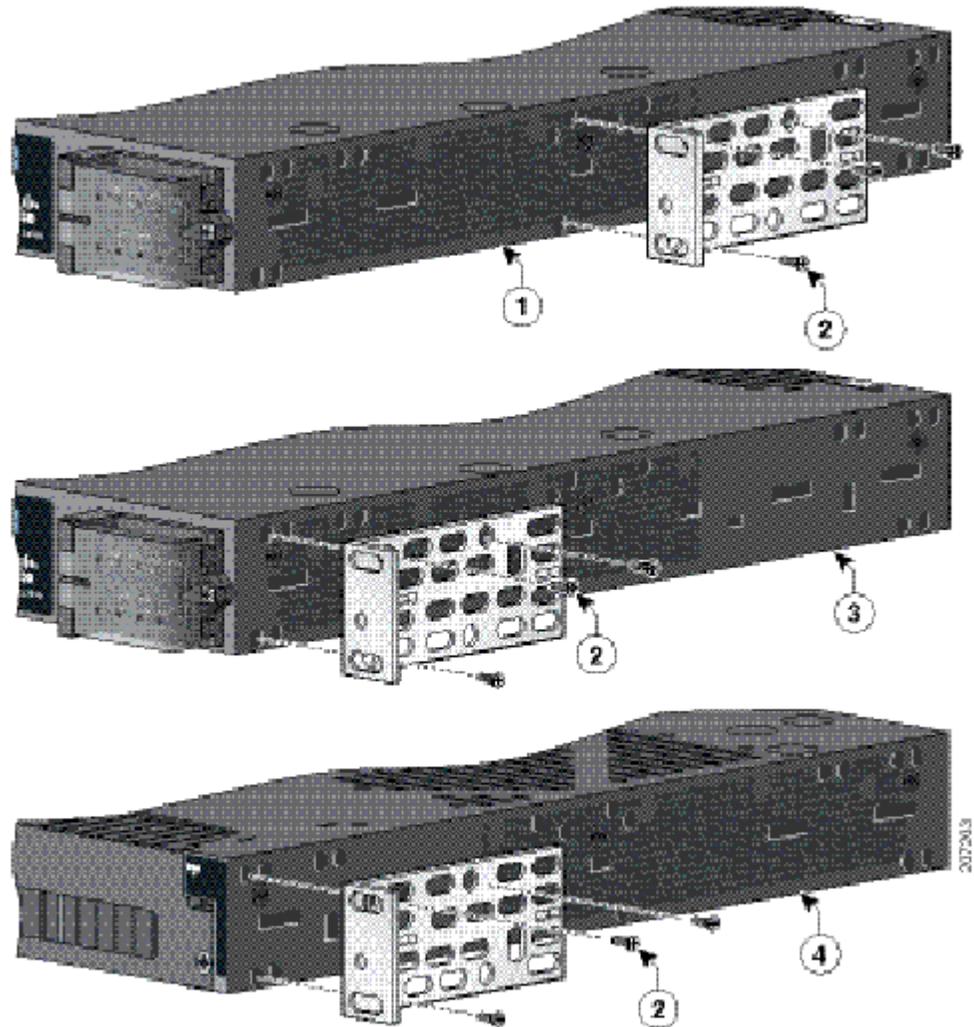
Figure 2-8 Inserting the Rubber Plugs (detail)



1	Rubber plug	3	Screwdriver
2	Switch		

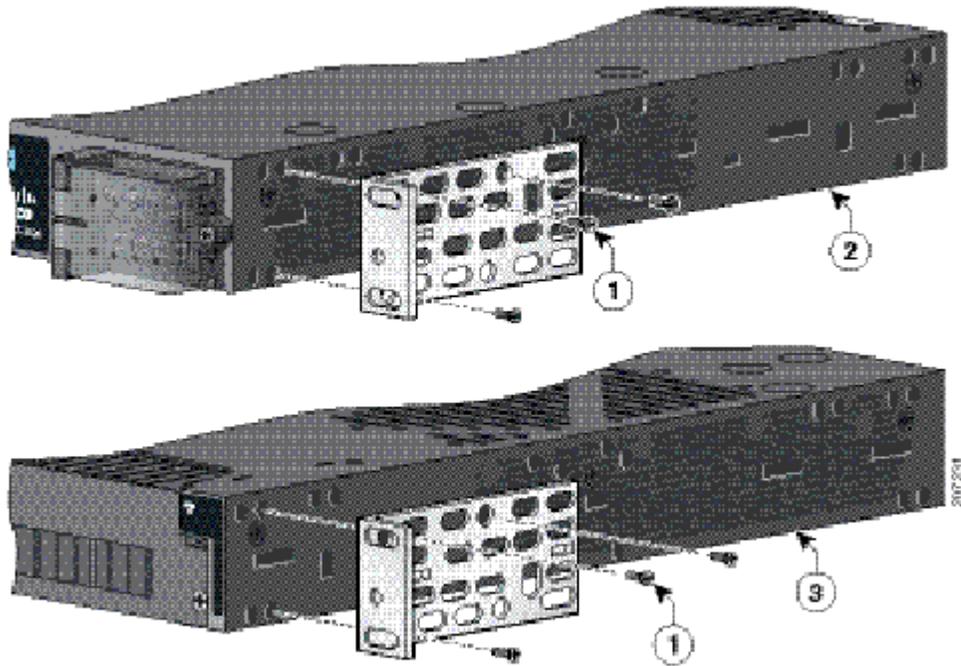
Step 4 Install the brackets on both sides of the switch as shown in [Figure 2-9](#) and [Figure 2-10](#).

Figure 2-9 Attaching Brackets for 19-Inch Racks



1	Mid-mount position	3	Cable-side mounting position
2	Phillips flat-head screws	4	Power supply-side mounting position

Figure 2-10 Attaching Brackets for 19-Inch Racks



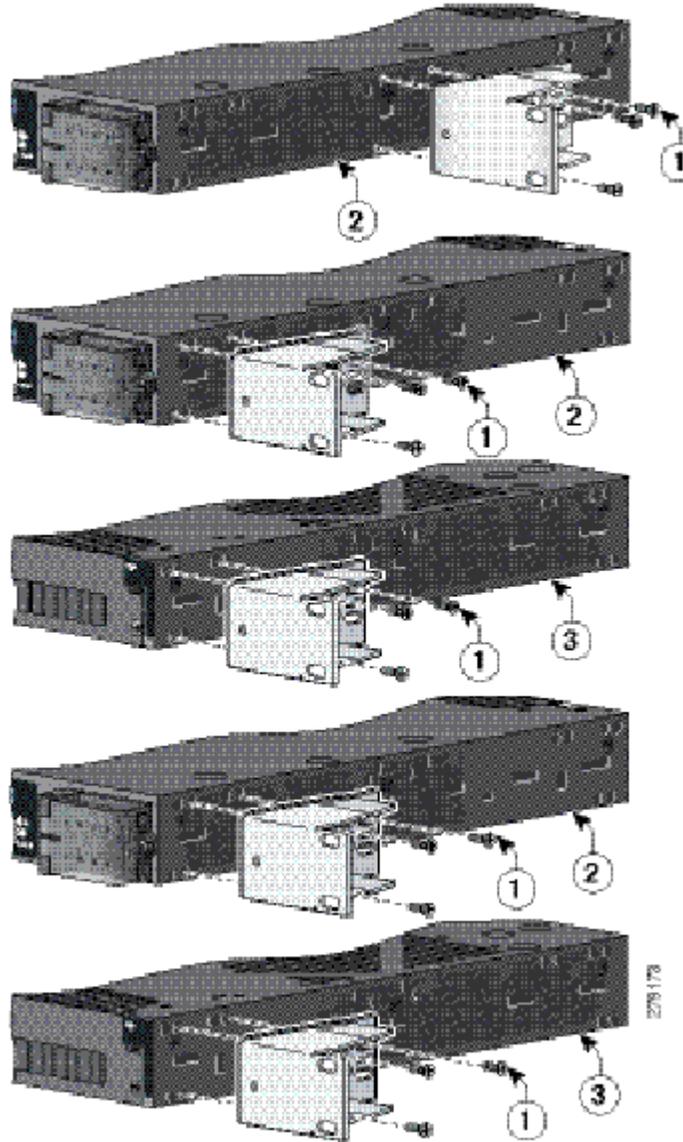
1	Phillips flat-head screws	3	Power supply-side mounting position
2	Cable-side-mounting position		

Note For IP-30 compliance: If you use 23-inch brackets or ETSI brackets, you can insert the rubber plugs in the same holes as shown in [Figure 2-6](#) and [Figure 2-7](#) before installing the brackets.

Attaching Brackets for 23-Inch Racks

[Figure 2-11](#) shows the 23-inch rack mounting bracket locations on the switch for cable-side mounting and power-side mounting onto a 23-inch rack.

Figure 2-11 Attaching Brackets for 23-Inch Racks



1	Phillips flat-head screws	3	Power supply-side mounting position
2	Cable-side-mounting position		



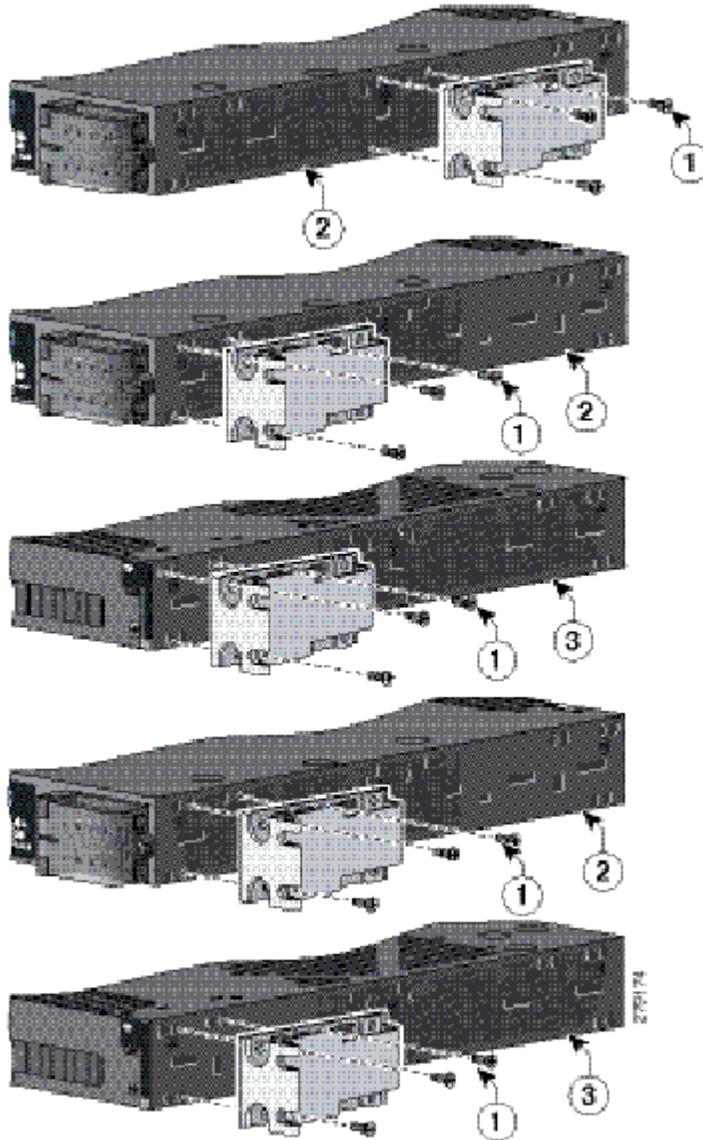
Note

For IP-30 compliance: If you use 23-inch brackets, you can insert the rubber plugs in the same holes as shown in [Figure 2-7](#) or [Figure 2-8](#) before installing the brackets.

Attaching Brackets for ETSI Racks

[Figure 2-12](#) shows the mounting bracket locations on the switch for cable-side mounting and power-side mounting onto an ETSI rack.

Figure 2-12 Attaching Brackets for ETSI Racks



1	Phillips flat-head screws	3	Power supply-side mounting position
2	Cable-side mounting position		

**Note**

For IP-30 compliance: If you use ETSI brackets, you can insert the rubber plugs in the same holes as shown in [Figure 2-7](#) or [Figure 2-8](#) before installing the brackets.

Mounting the Switch into a Rack

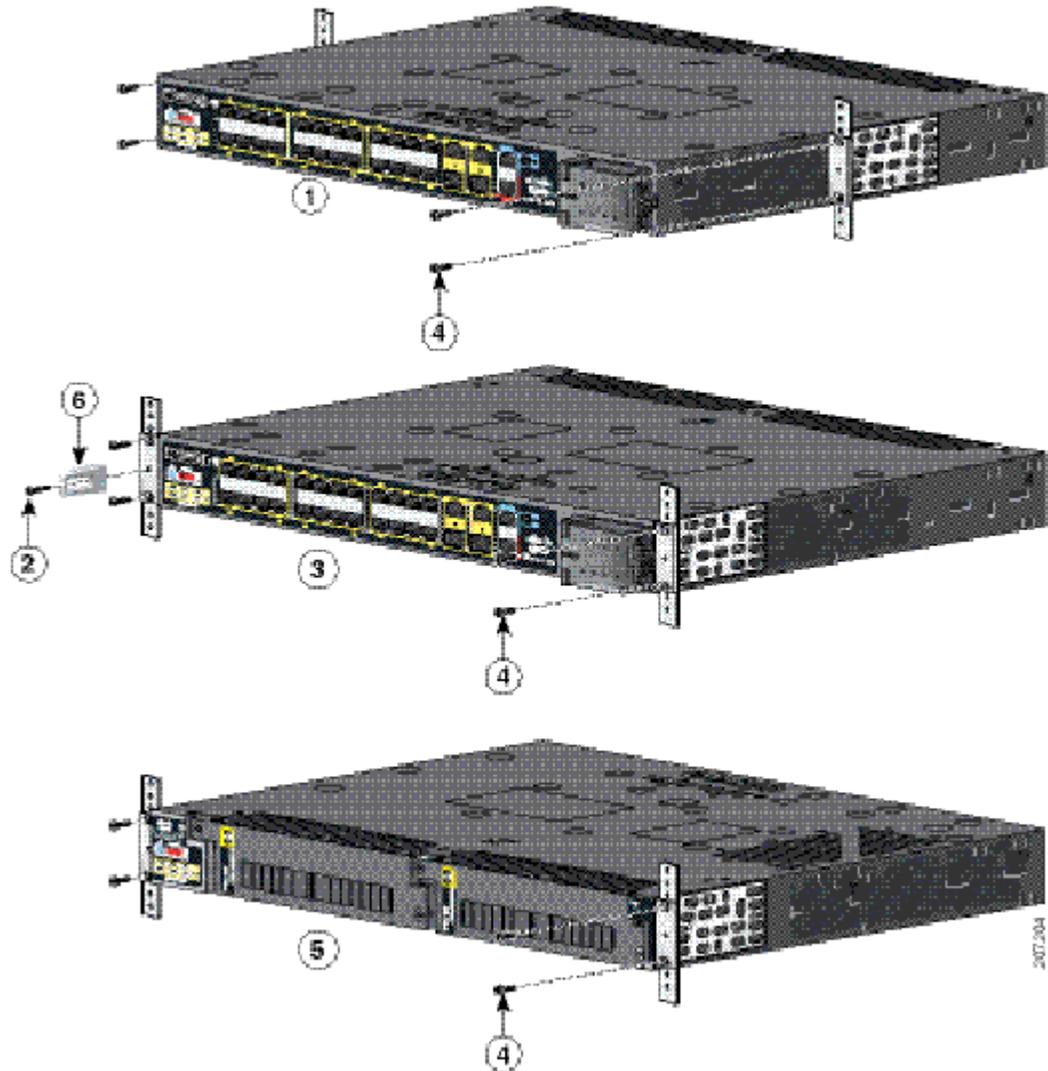
After you attach the brackets onto the switch, use the four supplied number-12 Phillips machine screws to attach the brackets to the rack as shown in [Figure 2-13](#). (Brackets for the 19-inch rack shown in this example.)



Note

We recommend attaching the cable guide to prevent the cables from obscuring the LED panels on the devices in the rack. Use the supplied black screw shown in [Figure 2-13](#) [6] to attach the cable guide to the left or right bracket.

Figure 2-13 Rack Mounting



1	Mid-mount position	4	Phillips machine screws
2	Cable screw	5	Power supply-side mounting position
3	Cable-side mounting position	6	Cable guide

Wall-Mounting

The following steps are covered in this section:

- [Attaching Brackets for Wall Mounting](#), page 2-16
- [Wall-Mounting \(for IP-30 Compliance\)](#), page 2-17



Warning

If the switch is wall-mounted in an enclosure allow for these minimum clearances:

- **Sides of switch (facing up and facing down): 3.75 in. (9.52 cm)**
 - **Port side 3.0 in. (7.62 cm)**
 - **Power supply side: 5.25 in. (13.33 cm)**
 - **Cover side (side not facing wall): 1.75 in. (4.44 cm)**
 - **Base side (facing wall): 0 in. (0 cm)**
-

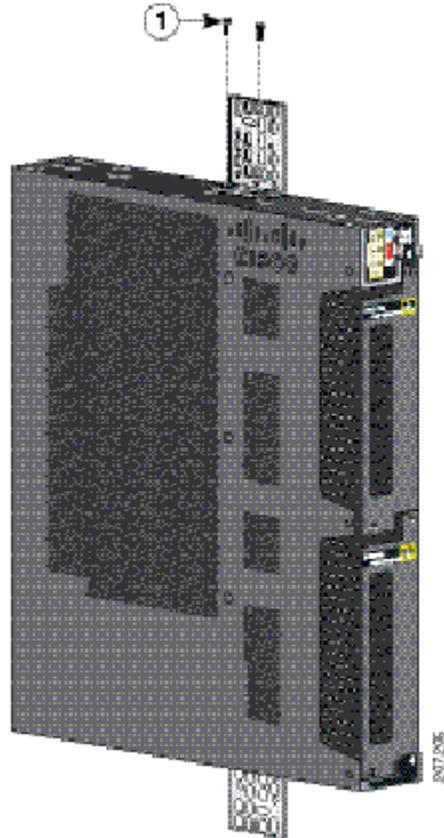
Attaching Brackets for Wall Mounting

Follow these steps to mount the switch onto a wall.

-
- Step 1** Insert the rubber plugs into the appropriate holes. Follow the same procedure for the other side of the switch.
- Step 2** Use a screwdriver or pen to completely push in the rubber plugs (see [Figure 2-8](#)).
- Step 3** Install the brackets onto both sides of the switch (see [Figure 2-16](#)).
- Step 4** Secure the bracket and switch to the wall using the screws provided.
-

[Figure 2-14](#) shows how to wall-mount the switch onto a wall.

Figure 2-14 Attaching 19-inch Rack Brackets for Wall Mounting



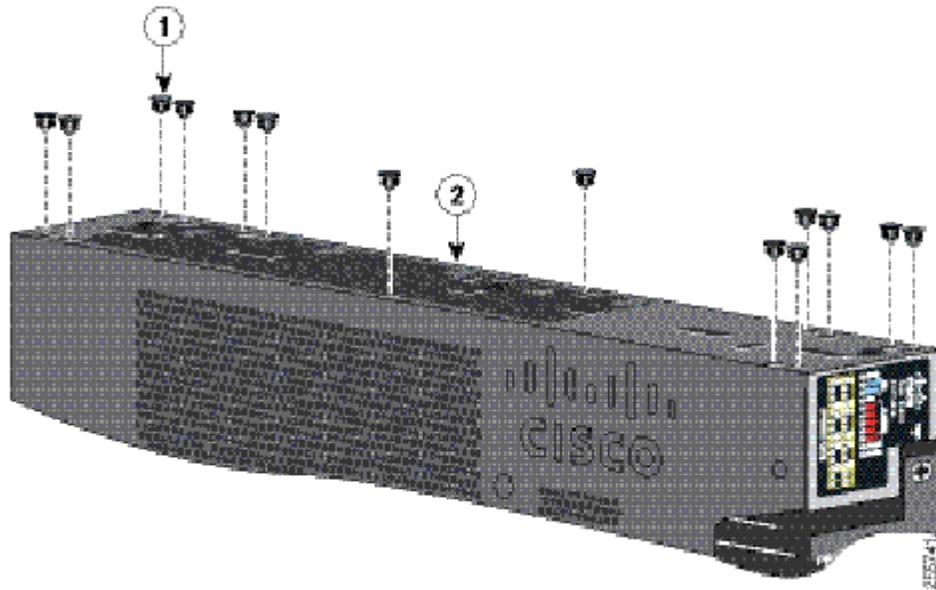
1	Phillips truss-head screws
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Wall-Mounting (for IP-30 Compliance)

Follow these steps to mount the switch onto a wall and conform to IP-30 Compliance regulations.

-
- Step 1** Insert the rubber plugs into the appropriate holes (see [Figure 2-15](#)). Follow the same procedure for the other side of the switch.
- Step 2** Use a screwdriver or pen to completely push in the rubber plugs (see [Figure 2-8](#)).

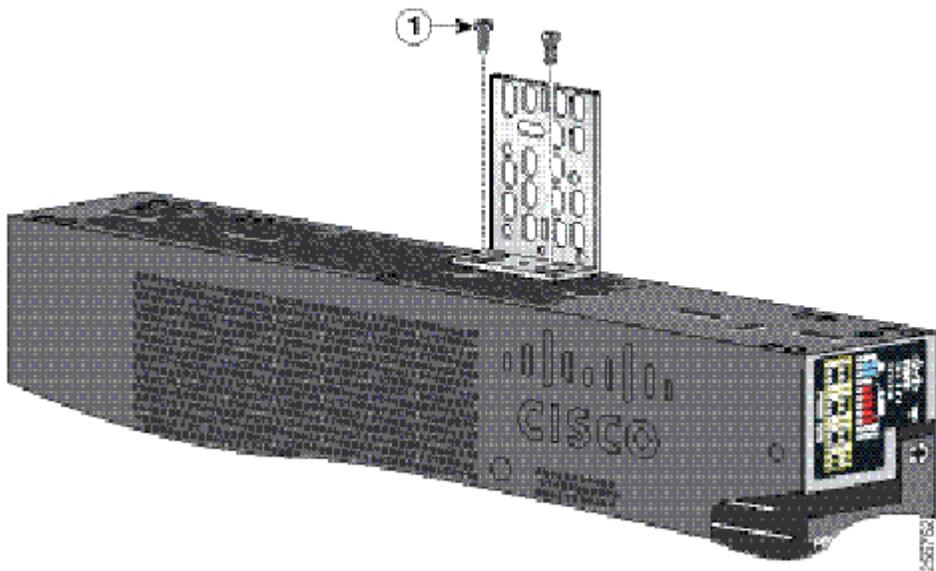
Figure 2-15 Inserting the Rubber Plugs into the Switch Holes



1	Rubber plug
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Step 3 Install the brackets on both sides of the switch (see [Figure 2-16](#)).

Figure 2-16 Attaching 19-inch Rack Brackets



1	Phillips truss-head screws
----------	----------------------------

Installing and Removing SFP Modules

Small-form-factor pluggable (SFP) modules provide the uplink optical interfaces, laser send (TX) and laser receive (RX).

When installing or removing SFP modules, observe these guidelines:

- Removing and installing an SFP module can shorten its useful life. Do not remove and insert any module more often than is absolutely necessary.
- To prevent ESD damage, follow your normal board and component handling procedures when connecting cables to the switch and other devices.

**Warning**

Class 1 laser product. Statement 1008

**Caution**

Do not remove the dust plugs from the fiber-optic SFP module port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the SFP module ports and cables from contamination and ambient light.

**Caution**

We strongly recommend that you not install or remove the SFP module while the fiber-optic cable is attached to it because of the potential damage to the cables, to the cable connector, or to the optical interfaces in the SFP module. Disconnect the cable before you remove or install an SFP module.

Installing SFP Modules

This section describes how to install Small Form Factor pluggable (SFP) modules. SFP modules are inserted into the SFP modules connected to the switch.

Step 1 Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.

Step 2 Find the send (TX) and receive (RX) markings on the module top.

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

Step 3 If the 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 insert until you feel the connector snap into place.

Step 5 If the module has a bale-clasp latch, close it to lock it into place.

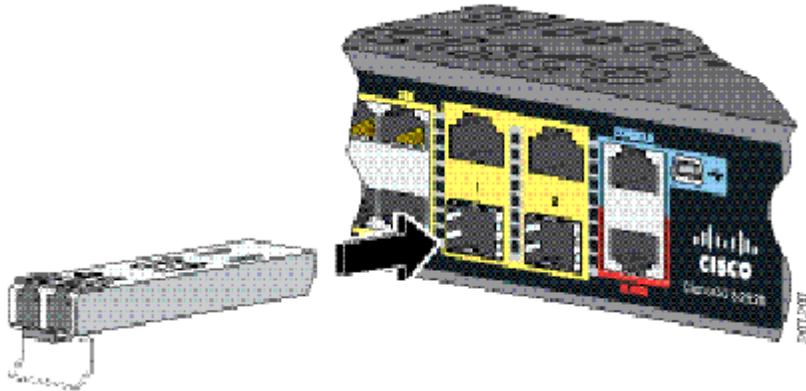
Step 6 For fiber-optic SFP modules, remove the dust plugs and store them in a clean location for reuse.

**Caution**

Do not remove the dust plugs from the fiber-optic SFP module port until you are ready to insert the SFP cables.

Step 7 Connect the SFP cables.

Figure 2-17 Installing an SFP Module



Removing SFP Modules

This section describes how to replace small-form-factor pluggable (SFP) modules. SFP modules are inserted into the SFP modules connected to the switch.

-
- Step 1** Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.
- Step 2** Disconnect the cables from the SFP module ports. For reattachment, note which cable connector plug is send (TX) and which is receive (RX).

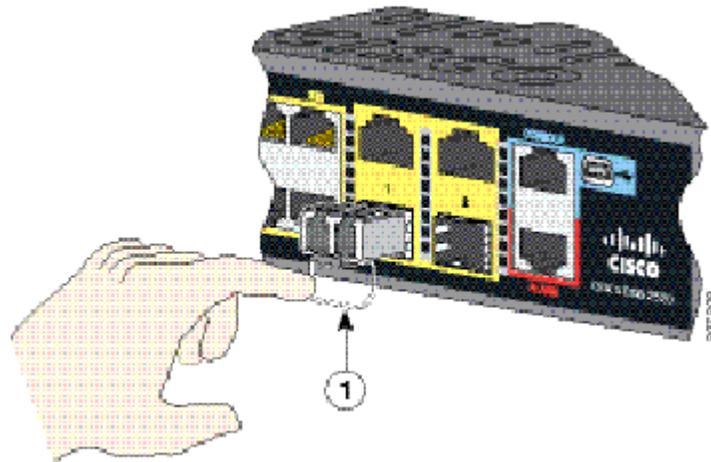
Note On some SFP modules, the send and receive (TX and RX) markings might be replaced by arrows that show the direction (send or receive) of the connection.



Caution Do not remove cables from the fiber-optic SFP module ports until you are ready to insert the dust plugs.

- Step 3** Insert a dust plug into the optical ports of the SFP module.
- Step 4** If the module has a bale-clasp latch, pull the bale out and down to eject it. If the latch is obstructed and you cannot use your finger, use a small, flat-blade screwdriver or other long, narrow instrument.

Figure 2-18 Removing a Bale Clasp Latch SFP Module

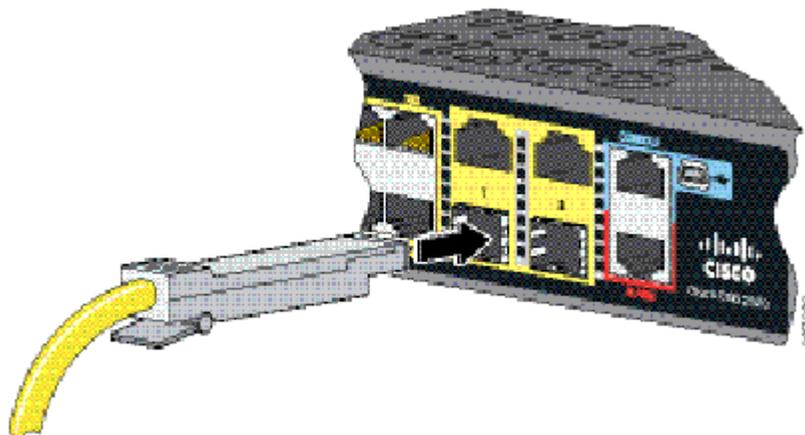


- Step 5** Grasp the SFP module, and carefully remove it from the slot.
- Step 6** Place the module in an anti-static bag or other protective environment.

Inserting and Removing the SFP Module Patch Cable

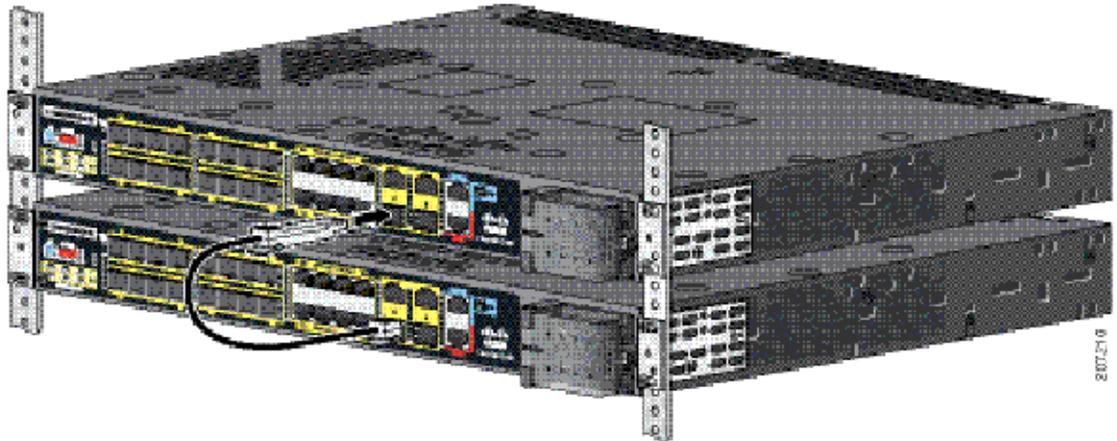
- Step 1** Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.
- Step 2** Insert the SFP module patch cable into the slot until you feel the connector on the cable snap into place at the rear of the slot (see [Figure 2-19](#)).

Figure 2-19 Inserting an SFP Module Patch Cable



- Step 3** Repeat these steps for the second switch that you want to connect to the first switch.

Figure 2-20 Connecting Two Switches with an SFP Module Patch Cable



Removing the SFP Module Patch Cable

To remove an SFP module patch cable from the SFP module slot, release the connector, and pull it from the slot.

Replacing the SD Flash Memory Card

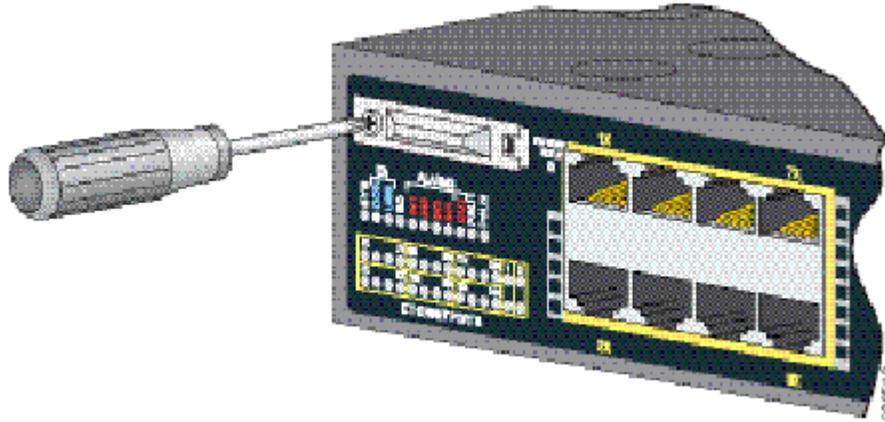


Warning

Be aware that the SD card contains sensitive and security relevant information, including but not limited to full device configuration information, public and private keys used for SSH and SSL (if those protocols are enabled), device passwords and others. Access to SD cards for any Cisco CGS switch should be limited to authorized personnel.

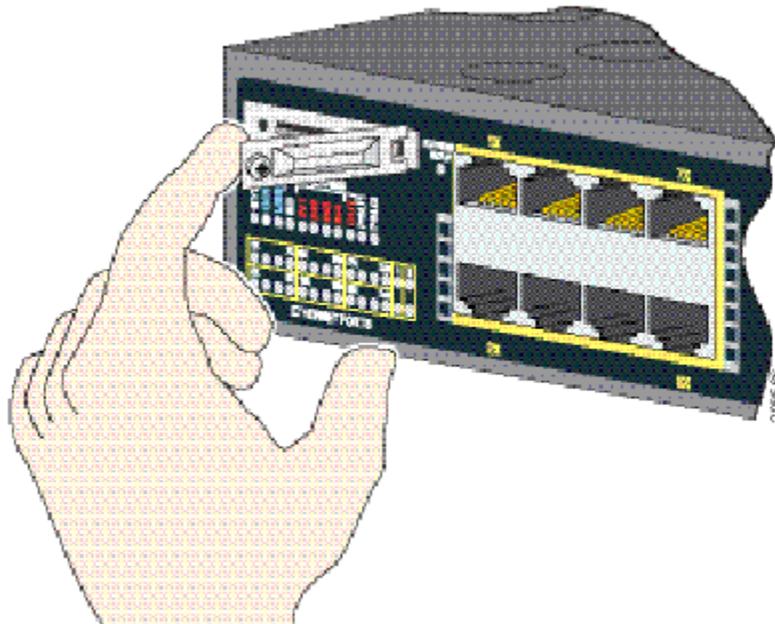
- Step 1** Locate the Secure Digital (SD) flash memory card slot on the cable-side of the switch.
- Step 2** Use a number 1 Phillips screwdriver to loosen the captive screw (see [Figure 2-21](#)).

Figure 2-21 Loosening the Captive Screw



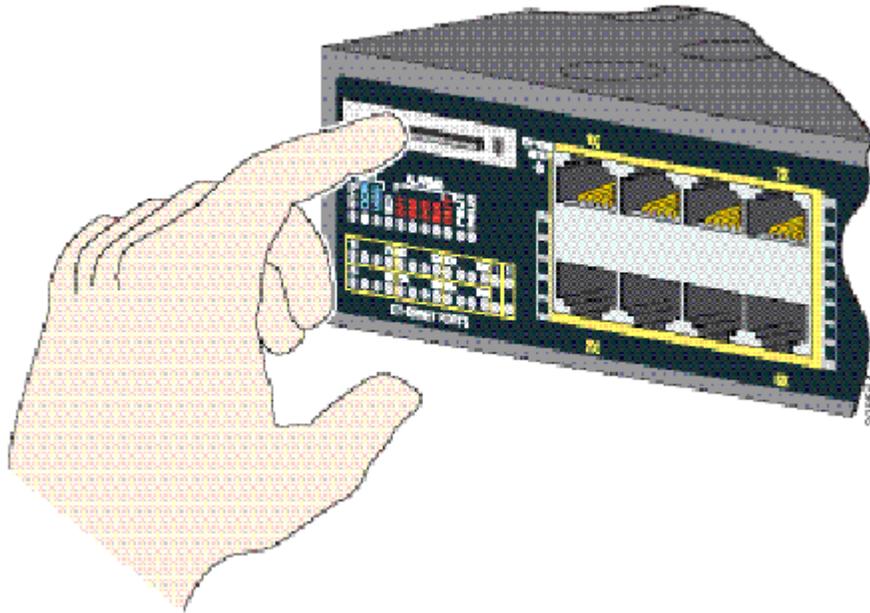
Step 3 Pull the cover open, and pull the cover tabs from the hinge (see [Figure 2-22](#)).

Figure 2-22 Removing the SD Slot Cover



Step 4 Gently push the SD flash memory card to eject it (see [Figure 2-23](#)). Place it in an antistatic bag to protect it from static discharge.

Figure 2-23 Removing the SD Flash Memory Card



- Step 5** Push the replacement card (upside down) into the slot, and press it firmly in place. The card is keyed so that you cannot insert it the wrong way.
- Step 6** Begin replacing the cover by placing the SD slot cover tabs into the hinge.
- Step 7** Close the cover, and use a ratcheting torque number 1 Phillips screwdriver to torque the screw to 4.5 in-lb.

Table 2-1 Ethernet Cables (Auto-MDIX Disabled)

Device	Crossover Cable ¹	Straight-Through Cable ¹
Switch to switch	Yes	No
Switch to hub	Yes	No
Switch to computer or server	No	Yes
Switch to router	No	Yes
Switch to IP phone	No	Yes

1. 10BASE-TX and 100BASE-T traffic requires twisted four-pair, Category 5, Category 5e, or Category 6 cable. 10BASE-T traffic uses Category 3 or Category 4 cable.

Connecting Devices to the Ethernet Ports

This section covers the following procedures:

- [Connecting to the 10/100 and 10/100/1000 Ports, page 2-25](#)
- [Connecting to the 10/100 PoE Ports, page 2-25](#)

Connecting to the 10/100 and 10/100/1000 Ports

The 10/100 and 10/100/1000 Ethernet ports use standard RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 100BASE-TX and 1000BASE-T traffic requires Category 5, Category 5e, or Category 6 UTP cable. The 10BASE-T traffic uses Category 3 or Category 4 cable.

The auto-negotiation feature is enabled by default on the switch. At this setting, the switch ports configure themselves to operate at the speed of the attached device. If the device does not support auto-negotiation, you can set the switch port speed and duplex parameters. To maximize performance, either let the ports autonegotiate both speed and duplex, or set the port speed and duplex parameters on both ends of the connection.

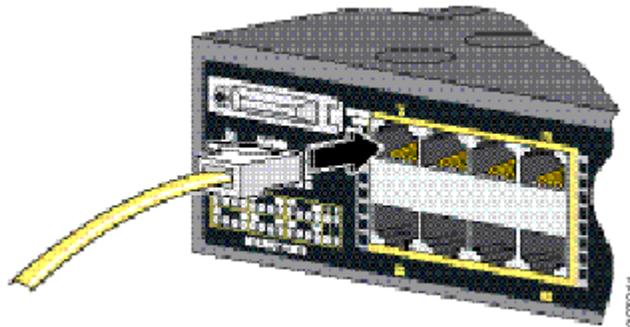
For simplified cabling, the automatic medium-dependent interface crossover (auto-MDIX) feature is enabled by default. With auto-MDIX enabled, the switch detects the required cable type for copper Ethernet connections and configures the interface accordingly. Therefore, you can use either a crossover or a straight-through cable for connections to a 10/100/1000 Ethernet port, regardless of the type of connected device.

See the switch software configuration guide or the switch command reference on Cisco.com for more information about auto-negotiation and auto-MDIX.

If auto-MDIX is disabled, use the guidelines in [Table 2-1](#) to select the cable for connecting the 10/100/1000 Ethernet ports to other devices.

See the [Connector and Cable Specifications, page B-1](#) for cable-pinout descriptions.

Figure 2-24 Connecting to an Ethernet Port



Connecting to the 10/100 PoE Ports

The Cisco CGS-2520-16S-8PC switch (and the CGS-2520-16S-8PC-C switch) 10/100 PoE ports have the same auto-negotiation settings and cabling requirements as those in the [Connecting to the 10/100 and 10/100/1000 Ports, page 2-25](#). These ports provide PoE power.

See the [PoE Ports, page 1-3](#) for information on the cables and connectors.

The ports provide PoE support for devices compliant with IEEE 802.3af and also provide Cisco prestandard PoE support for Cisco IP Phones and Cisco Aironet Access Points.

On a per-port basis, you can control whether or not a port automatically provides power to a connected IP phone or an access point.

To access an advanced PoE planning tool, use the Cisco Power Calculator on Cisco.com:

<http://tools.cisco.com/cpc/launch.jsp>

You can use this application to calculate the power supply requirements for a specific PoE configuration. The results show output current, output power, and heat dissipation.

**Warning**

Voltages that present a shock hazard may exist on Power over Ethernet (PoE) circuits if interconnections are made using uninsulated exposed metal contacts, conductors, or terminals. Avoid using such interconnection methods, unless the exposed metal parts are located within a restricted access location and users and service people who are authorized within the restricted access location are made aware of the hazard. A restricted access area can be accessed only through the use of a special tool, lock and key or other means of security. Statement 1072

**Caution**

Category 5e and Category 6 cables can store high levels of static electricity. Always ground the cables to a suitable and safe earth ground before connecting them to the switch or other devices.

Where to Go Next

After the switch is mounted onto the rack, do the following:

- Wire the switch to a power source (see [Power Supply Installation, page 3-1](#))
- For configuration instructions about the CLI setup program, see [Configuring the Switch with the CLI Setup Program, page C-1](#)
- You can use the default configuration installed on the switch or use any of the management options described in the [Management Options, page 1-13](#) to change the switch settings