



Installing the Catalyst 4224 Access Gateway Switch

This section describes how to install the Catalyst 4224 Access Gateway Switch in a rack. For a first-time installation, perform the following procedures in the order listed:

- [Unpacking the Switch, page 3-2](#)
- [Installing the Rack-Mount Kit, page 3-2](#)
- [Installing the Switch, page 3-4](#)
- [Removing the Switch from the Rack, page 3-7](#)
- [Connecting the System Ground, page 3-7](#)
- [Connecting Power to the Switch, page 3-10](#)
- [Connecting a Terminal to the Console Serial and Ethernet Management Ports, page 3-10](#)
- [Verifying Switch Chassis Installation, page 3-11](#)



Warning

Before you install, operate, or service the system, read *Regulatory Compliance and Safety Information for Catalyst 4200 Series Access Gateway Switch*. This guide contains important safety information you should know before working with the system.

**Warning**

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

Before starting the installation procedures in this chapter, complete the site-planning checklist in [Chapter 2, “Preparing for Installation.”](#)

Unpacking the Switch

**Note**

Do not discard the packing carton and other packing materials after you unpack the switch. Flatten the packing carton and store it. You will need the packing materials if you have to move or ship the switch in the future. Repacking instructions are provided in [Appendix D, “Repacking the Catalyst 4224 Access Gateway Switch.”](#)

Check the contents of the accessory kit against the accessories checklist and the packing slip. Verify that you received all listed equipment, which should include the following:

- Switch hardware and software documentation
- Optional equipment such as network interface cables, transceivers, or special connectors

Installing the Rack-Mount Kit

This section describes how to install the rack-mount kit provided in the accessories box. The kit contains a shelf bracket and crossbar assembly that attaches directly to the rack and L brackets that attach to the switch chassis.

A standard rack-mount kit is included for mounting the switch in a standard 19-inch (48.3 cm) equipment rack with two unobstructed outer posts. This kit is not suitable for use with racks with obstructions (such as a power strip) that could impair access to switch field-replaceable units (FRUs).

Open the rack-mount kit and use the checklist in [Table 3-1](#) to verify that all parts are included.

Rack-Mounting Guidelines

This section provides a rack-mounting checklist (see [Table 3-1](#)).

Table 3-1 *Rack-Mount Kit Checklist*

Part Description	Received
L brackets	2
M3 Phillips countersunk-head screws	
12-24 x 3/4-inch Phillips binder-head screws	
10-32 x 3/4-inch Phillips binder-head screws	
Shelf brackets	
Crossbar bracket	
M4 Phillips pan-head screws	4

Before rack-mounting the switch, ensure that the equipment rack complies with the following guidelines:

- The width of the rack, measured between the two front-mounting strips or rails, must be 17.75 inches (45.09 cm).
- The depth of the rack, measured between the front- and rear-mounting strips, must be at least 19.25 inches (48.9 cm) but not more than 32 inches (81.3 cm).
- The rack must have sufficient vertical clearance to insert the chassis. The chassis height is 2.5 rack units (RU) (about 3.4 inches).



Note

Chassis height is measured in RU.



Caution

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

Required Tools

These tools and equipment are required to install the rack-mount kit:

- Number 1 and number 2 Phillips screwdrivers
- 3/16-inch flat-blade screwdriver
- Tape measure and level

These tools and equipment are required to install the switch chassis in a rack:

- Number 1 Phillips, number 2 Phillips, or a 3/16-inch flat-blade screwdriver
- Antistatic mat or antistatic foam
- Your own electrostatic discharge (ESD) grounding strap or the disposable ESD strap included with the switch



Note

For more information about ESD, refer to the *Site Preparation and Safety Guide*.

Installing the Switch

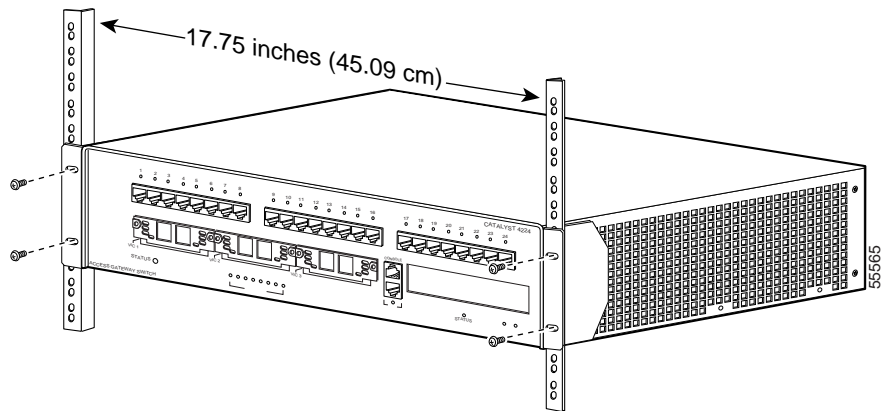
To install the Catalyst 4224 in a rack, follow these steps:

Procedure

- Step 1** Prepare for installation as follows:
- a. Place the Catalyst 4224 on the floor or on a sturdy table, as close as possible to the rack. Leave enough clearance to allow yourself room to move around the switch.
 - b. Use the tape measure to measure the depth of the rack. Measure from the outside of the front-mounting posts to the outside of the rear-mounting strip. The depth must be at least 19.25 inches (48.9 cm) and not greater than 32 inches (81.3 cm).

- c. Measure the space between the inner edges of the left front- and right front-mounting posts to ensure that it is 17.75 inches (45.09 cm) wide. (The chassis is 17.5 inches [44 cm] wide and must fit between the mounting posts. (See [Figure 3-1](#).)
- d. Open the rack-mount kit and refer to the component checklist to verify that all parts are included.

Figure 3-1 Installing the Catalyst 4224 Access Gateway Switch in the Rack



Note

Some equipment racks have a power strip along the length of one of the rear posts. If the rack has this feature, consider the position of the strip when planning fastener points. Before installing the L brackets on the chassis, determine whether to install the chassis from the front or the rear of the rack.

Step 2

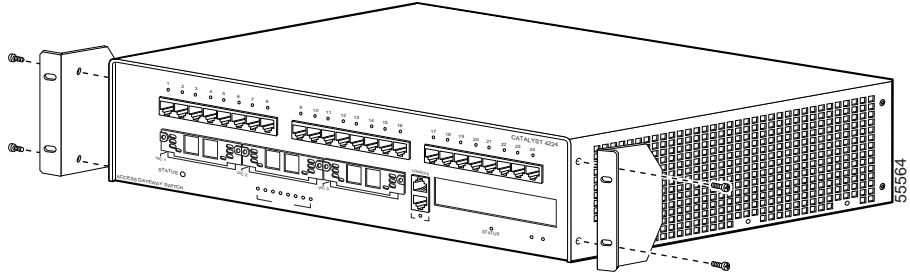
Attach the left and right L brackets using the four M4 Phillips pan-head screws provided in the rack-mount kit (see [Figure 3-2](#)).



Note

The L brackets for the Catalyst 4224 are stamped with an L and an R to identify them as left and right.

The L brackets connect the switch chassis to the rack. You can mount the L brackets to the front- or rear-mounting holes of the chassis, depending on which end is in the front of the rack.

Figure 3-2 Attaching the L Brackets**Note**

[Figure 3-1](#) illustrates how to attach the front of the switch to the rack. You can also attach the rear of the switch to the rack, depending on the configuration of your rack.

Step 3

Install the chassis in the rack as follows:

- a. Position the switch chassis in the rack (see [Figure 3-1](#)):
 - If the chassis front panel will be positioned in the front of the rack, insert the rear of the chassis between the mounting posts.
 - If the rear of the chassis will be positioned in the front of the rack, insert the front of the chassis between the mounting posts.
- b. Align the mounting holes in the L bracket with the mounting holes in the equipment rack.
- c. Secure the chassis using four 12-24 x 3/4-inch screws through the elongated holes in the L bracket and into the threaded holes in the mounting post.
- d. Use the tape measure and level to ensure that the chassis is installed straight and level.

Removing the Switch from the Rack

You might need to remove the Catalyst 4224, if there is a complete failure of the 8-port RJ21 FXS module, the power supply, or either of the two printed circuit board (PCB) assemblies or fans.

To remove the Catalyst 4224, follow these steps:

Procedure

-
- Step 1** Detach the Catalyst 4224 from the rack by removing the 12-24 x 3/4-inch screws on the L bracket.
 - Step 2** Detach the left and right L brackets by removing the four M4 Phillips pan-head screws.
 - Step 3** Place the switch on the floor or on a sturdy table.
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Connecting the System Ground

This section describes how to connect a system (earth) ground to the Catalyst 4224.



Note

You must connect both the system and the power supply ground connections to an earth ground.

Two threaded M4 holes are provided on the chassis frame to attach the ground cable (see [Figure 3-3](#)).

Required Tools and Equipment

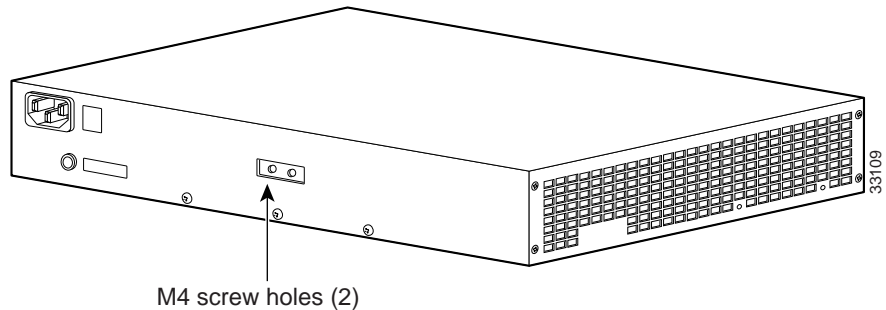
To connect the system ground, you need the following tools and materials:

**Note**

Materials are not provided; contact any commercial cable vendor for the required parts.

- Grounding lug—The grounding lug must have two M4 screw holes and accept 8 AWG wire.
- Two M4 (metric) hexagonal-head screws with locking washers
- One grounding wire—The grounding wire should be sized according to local and national installation requirements. The length of the grounding wires depends on the proximity of the switch to proper grounding facilities.
- Number 2 Phillips screwdriver
- Crimping tool
- Wire-stripping tool

Figure 3-3 Grounding Holes on the Catalyst 4224 Access Gateway Switch



Connecting the System Ground

You must complete this procedure before connecting system power or turning on the Catalyst 4224.

To attach the grounding lug and cable to the grounding pad, perform these steps:

Procedure

- Step 1** Use a wire-stripping tool to remove approximately 0.75 inch (19 mm) of the covering from the end of the grounding wire.
 - Step 2** Insert the stripped end of the grounding wire into the open end of the grounding lug.
 - Step 3** Use a crimping tool to secure the grounding wire in place in the grounding lug.
 - Step 4** Locate and remove the adhesive label from the system grounding pad on the switch.
 - Step 5** Place the grounding wire lug against the grounding pad, making sure there is good metal-to-metal contact.
 - Step 6** Secure the grounding lug to the chassis with two M4 screws. Ensure that the grounding lug will not interfere with other switch hardware or rack equipment.
 - Step 7** Prepare the other end of the grounding wire and connect it to an appropriate grounding point in your site to ensure adequate earth ground for the switch.
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Connecting Power to the Switch

To connect power to the Catalyst 4224, follow these steps:

Procedure

- Step 1** Before you connect the power supply to a power source, ensure that all site power and grounding requirements described in [Chapter 2, “Preparing for Installation,”](#) have been met.
- Step 2** Plug the power cord into the chassis.
- Step 3** Connect the other end of the power cord to an AC-power input source.
- Step 4** Verify power supply operation by checking the front panel power supply LEDs:
- When the power supply is operational, the LED is green.
 - When the power supply has failed, the LED is orange.
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From the system console, enter the **show system** command to display the power supply and system status. For more information on commands, refer to the *Cisco IOS Desktop Switching Command Reference*.

If the LEDs or the **show system** command indicate a power or other system problem, see [Chapter 5, “Troubleshooting,”](#) for more information.

Connecting a Terminal to the Console Serial and Ethernet Management Ports

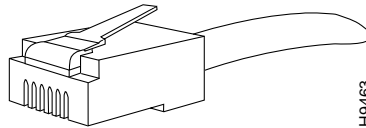
The console serial and Ethernet management ports are located on the front panel of the Catalyst 4224 (see [Figure 1-2 on page 1-6](#)).

These ports use an RJ-45 media-dependent interface crossed-over (MDIX) connector (see [Figure 3-4](#)). For more information about port pinouts and connectors, see [Appendix A, “Technical Specifications.”](#)

**Note**

The MDIX ports are crossed over internally. For an MDI-to-MDI or MDIX-to-MDIX connection, use a crossover cable. For an MDI-to-MDIX connection, use a straight-through cable, which allows the Tx pins to connect with the Rx pins.

Figure 3-4 10BaseTX RJ-45 Connector



Verifying Switch Chassis Installation

After you finish connecting the modules, you need to verify that the switch has been installed correctly.

To verify the switch installation, perform these steps:

Procedure

- Step 1** Verify that the ejector levers of each module are fully closed (parallel to the faceplate) to ensure that the supervisor engine and all switching modules are fully seated in the backplane connectors.
- Step 2** Check the captive installation screws of each module, the power supply, and the fan assembly. Tighten any loose captive installation screws.
- Step 3** Verify that all empty module slots have blank faceplates (WIC-BLANK-PANEL) installed and that the screws holding the plates in place are tight.
- Step 4** Turn the power supply switches on to power up the system.

**Warning**

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain EMI that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all modules, faceplates, front covers, and rear covers are in place.
