

Installing the Controller

This chapter provides procedures for installing the Cisco Catalyst 9800-40 Wireless Controller on an equipment shelf, tabletop, or in an equipment rack.

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Installation Methods

The Cisco Catalyst 9800-40 Wireless Controller s are designed for standalone, 2-rail 19-inch rack-mount (front rail only), and 4-rail 19-inch rack-mount (front and rear rail) installations.

Although rack-mounting is the preferred method of installation, you can mount the chassis on an equipment shelf or tabletop.

Warning **Read the installation instructions before using, installing or connecting the system to the power source.**

Statement 1004

Note Proceed with the installation, if you have already unpacked your chassis and read all the site requirements for your new equipment.

Guidelines for a Standalone Equipment Shelf or Tabletop Installation

The chassis should already be in the area where you want to install it. If you have not determined where to install your chassis, see the **Preparing Your Site for Installation** section for information about site considerations.

When installing the Cisco Catalyst 9800-40 Wireless Controller on a sturdy equipment shelf or tabletop, ensure that the surface is clean and that you have considered the following:

- The Cisco Catalyst 9800-40 Wireless Controller requires at least 3 inches (7.62 cm) of clearance at the inlet and exhaust vents (the front and rear sides of the chassis).
- The chassis should be installed off the floor. Dust that accumulates on the floor is drawn into the interior of the controller by the cooling fans. Excessive dust inside the controller can cause over temperature conditions and component failures.
- There must be approximately 19 inches (48.3 cm) of clearance at the front and rear of the chassis to install and replace FRUs, or to access network cables and equipment.
- The chassis needs adequate ventilation. Do not install it in an enclosed cabinet where ventilation is inadequate.
- Keep the cable-management bracket ready, if you plan to install it on the front of the chassis.
- Ensure that an adequate chassis ground (earth) connection exists for your controller chassis (see the **Attaching a Chassis Ground Connection** section).

Installing the Controller on a Standalone Equipment Shelf or Tabletop

Procedure

Step 1 Remove any debris and dust from the tabletop or platform, as well as the surrounding area.

Step 2 Lift the chassis into position on the equipment shelf or tabletop.

Note
Step 3 to **Step 9** are optional, if you are installing the Cisco Catalyst 9800-40 Wireless Controller on a rack shelf. The chassis rack-mount brackets must be installed prior to installing the cable-management brackets. See the **Attaching the Front Rack-Mount Brackets** section.

Step 3 Attach the front rack-mount brackets. Locate the threaded holes in the front sides of the chassis (first holes beyond the vent holes) and use the package of black screws that is shipped with the chassis.

Step 4 Align the front rack-mount bracket to one side of the chassis.

Step 5 Insert and tighten the screws on one side.

Step 6 Repeat **Step 3** to **Step 5** on the other side of the chassis. Use all the screws to secure the rack-mount brackets to the chassis.

Step 7 Gather the two cable-management brackets and screws shipped with your chassis. See the **Attaching Cable Management Bracket** section.

Step 8 Screw a cable-management bracket to each side of the rack-mount brackets that are attached to the chassis. Use two screws for each cable-management bracket. Use a screw from the package of four screws.

Note
Ensure that the cable-management U feature device has the open end pointing outwards when you attach it to the chassis.

Step 9 Check that all the screws are securely tightened.

What to do next

Go to the **Attaching a Chassis Ground Connection** section for instructions about continuing the installation.

Guidelines for Rack Installation

The can be installed in the following rack types:

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

Note The can be installed with front rack-mount brackets.

When planning your rack installation, consider the following guidelines:

- The requires a minimum of 1.75 inches or 4.45 cm rack units of vertical rack space. Measure the proposed rack location before mounting the chassis in the rack.
- Before using a particular rack, check for obstructions (such as a power strip) that could impair the rack-mount installation. If a power strip does impair a rack-mount installation, remove the power strip before installing the chassis, and then replace it after the chassis is installed.
- Allow sufficient clearance around the rack for maintenance. If the rack is mobile, you can push it back near a wall or cabinet for normal operation and pull it out for maintenance (installing or moving cards, connecting cables, or replacing or upgrading components). Otherwise, allow 19 inches (48.3 cm) of clearance to remove field-replaceable units.
- Maintain a minimum clearance of 3 inches on the front and back sides of the chassis for the cooling air inlet and exhaust ports, respectively. Avoid placing the chassis in an overly congested rack or directly next to another equipment rack; the heated exhaust air from other equipment can enter the inlet air vents and cause an over temperature condition inside the controller.
- Always install heavier equipment in the lower half of a rack to maintain a low center of gravity to prevent the rack from falling over.

- Install and use the cable-management brackets included with the controller to keep cables organized and out of the way of cards and processors. Ensure that cables from other equipment already installed in the rack do not impair access to the cards or require you to disconnect cables unnecessarily to perform equipment maintenance or upgrades.
- Provide an adequate chassis ground (earth) connection for your controller chassis.

In addition to the preceding guidelines, review the precautions for avoiding excessive temperature conditions in the **Physical Characteristics** section and the **Site Environmental Requirements** section.

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

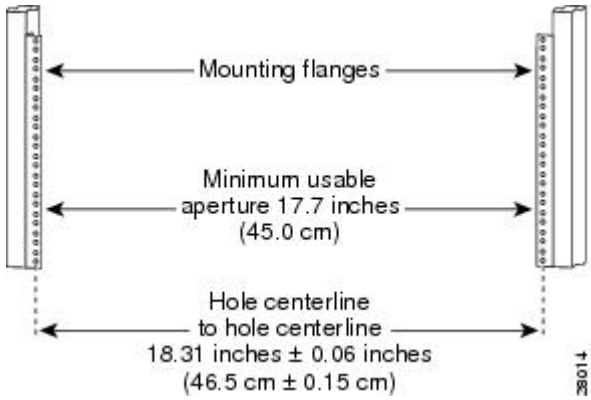
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Verifying Rack Dimensions

Before you begin

Before you install the chassis, measure the space between the vertical mounting flanges (rails) on your equipment rack to verify that the rack conforms to the measurements shown in the following figure.

Figure 1: Verifying Equipment Rack Dimensions



Procedure

Step 1 Mark and measure the distance between two holes on the left and right mounting rails. The distance should measure 18.31 inches ± 0.06 inches (46.5 cm ± 0.15 cm)

Note
Measure for pairs of holes near the bottom, middle, and top of the equipment rack to ensure that the rack posts are parallel.

Step 2 Measure the space between the inner edges of the left front and right front mounting flanges on the equipment rack. The space must be at least 17.7 inches (45 cm) to accommodate the chassis that is 17.25 inches (43.8 cm) wide and fits between the mounting posts on the rack.

Attaching Front Rack-Mount Brackets

Before you begin

Before installing the chassis in the rack, you must install the rack-mount brackets on each side of the chassis.

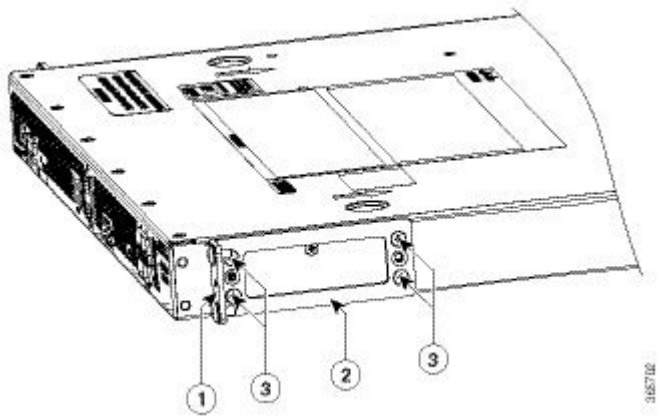
Determine where in the rack you want the chassis to be mounted. If you are mounting more than one chassis in the rack, then start from the bottom up or the center of the rack. The following figure shows the brackets attached to the chassis. Depending on the bracket holes you use, the chassis may protrude in the rack

Note The cable-management brackets are attached to the chassis after you install the chassis rack-mount brackets on the chassis and mount the chassis in the rack

Procedure

Step 1 Locate the threaded holes on the side of the chassis. Ensure that you hold the front rack-mount bracket with the ear and holes facing outward and towards the front of the chassis. The following figure shows where to attach the front rack-mount brackets to the Cisco Catalyst 9800-40 Wireless Controller.

Figure 2: Attaching the Front Rack-Mount Brackets to the Cisco Catalyst 9800-40 Wireless Controller



1	Front rack-mount bracket ear and holes	3	Front rack-mount bracket screws
2	Front rack-mount bracket		

Step 2 Position the front rack-mount bracket top hole with the chassis, first top hole behind the side vent holes.

Step 3 Insert and tighten the black screws on one side.

Step 4 Repeat **Step 1** to **Step 3** on the other side of the chassis. Use black screws to secure the rack-mount brackets to the chassis.

Attaching Rear Rack-Mount Brackets

Before you begin

Note This procedure is not required if you are installing the chassis in a two-post rack.

Before installing the chassis in a four-post rack, you must install the rear rack-mount brackets on each side of the chassis.

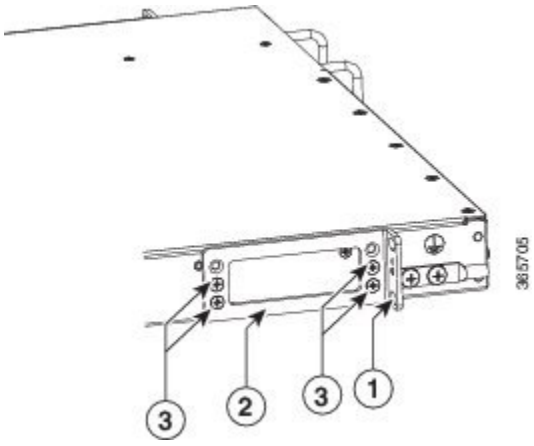
Determine where in the rack you want the chassis to be mounted. If you are mounting more than one chassis in the rack, then start from the bottom up or the center of the rack. The following figure shows the brackets attached to the chassis

Procedure

Step 1 Locate the threaded holes on the side of the chassis. Ensure that you hold the rear rack-mount bracket with the ear and holes facing outward and towards the rear of the chassis.

The following figure shows where to attach the rear rack-mount brackets to the Cisco Catalyst 9800-40 Wireless Controller.

Figure 3: Attaching the Rear Rack-Mount Brackets to the Cisco Catalyst 9800-40 Wireless Controller



1	Rear rack-mount bracket ear and holes	3	Rear rack-mount bracket screws
2	Rear rack-mount bracket		

Step 2 Position the rear rack-mount bracket with the chassis.

Step 3 Insert the black screws on one side. Do not fully tighten the screws. The rear bracket holes are slotted to allow for adjustment. Do not fully tighten the screws until the chassis is installed in the four-post rack.

Step 4 Repeat **Step 1** to **Step 3** on the other side of the chassis. Use black screws to secure the rack-mount brackets to the chassis.

Mounting the Controller in the Rack

After installing the rack-mount brackets on the chassis, mount the chassis by securing the rack-mount brackets to two posts or mounting strips in the rack using the screws provided. Because the rack-mount brackets support the weight of the entire chassis, ensure that you use all the screws to fasten the two rack-mount brackets to the rack posts.

Two-Post Rack Installation

Before you begin

The Cisco Catalyst 9800-40 Wireless Controller can be installed on a two-post rack, either 19 inch or 23 inch. We recommend that you allow at least 1 or 2 inches (2.54 or 5.08 cm) of vertical clearance between the controller and any equipment directly above and below it.

Procedure

Step 1 On the chassis, ensure that all the screw fasteners on the installed components are securely tightened.

Step 2 Make sure that your path to the rack is unobstructed. If the rack is on wheels, ensure that the brakes are engaged or that the rack is otherwise stabilized

Step 3 (Optional) Install a shelf in the rack to support the Cisco Catalyst 9800-40 Wireless Controller . If you use a shelf, it helps support the chassis while you secure it to the rack.

Note
If you are using a shelf, place the chassis on the shelf and slightly raise the front of the chassis to align the mounting bracket holes with the rack post holes while allowing the bottom of the chassis to rest on the shelf.

Step 4 With two people, lift the chassis into position between the rack posts.

Step 5 Align the mounting bracket holes with the rack post holes and attach the chassis to the rack.

Step 6 Position the chassis until the rack-mounting flanges are flush against the mounting rails on the rack.

Tip
To allow space to attach the cable-management brackets to the chassis in the rack easily, use the rack-mount bracket ear holes mentioned in Steps 7 and 8.

Step 7 Hold the chassis in position against the mounting rails in the equipment rack and follow these steps:

a. Insert the bottom screw into the second hole up from the bottom of the rack-mount ear and use a hand-held screwdriver to tighten the screw to the rack rail.

Tip
To make installation easier, insert one screw at the bottom of the chassis and the next screw at the top of the chassis diagonally from the first screw

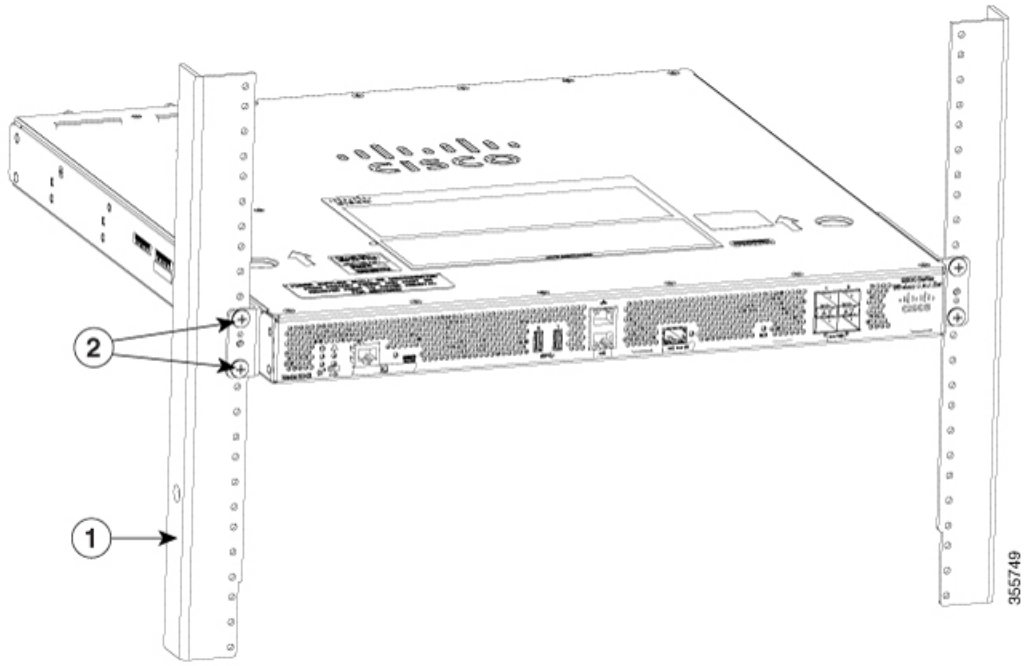
b. Insert the top screw into the second hole from the top of the rack-mount ear diagonally from the bottom screw and tighten the screw to the rack rail.

c. Insert the rest of the screws to secure the chassis to the rack equipment.

Step 8 Tighten all the screws on each side to secure the chassis to the equipment rack.

The following figure shows the Cisco Catalyst 9800-40 Wireless Controller on a two-post equipment rack.

Figure 4: Cisco Catalyst 9800-40 Wireless Controller Installed on a Two-Post Equipment Rack



1	Rack equipment rail	2	Rack mount bracket ear and screws

What to do next

This completes the procedure for installing the chassis on a two-post rack. Proceed to the **Attaching a Chassis Ground Connection** section to continue with the installation.

Four-Post Rack Installation

Procedure

Step 1 (Optional) Install a shelf in the rack to support the Cisco Catalyst 9800-40 Wireless Controller. If you use a shelf, it helps support the chassis while you secure it to the rack.

Note
If you are using a shelf, place the chassis on the shelf and slightly raise the front of the chassis to align the mounting bracket holes with the rack post holes while allowing the bottom of the chassis to rest on the shelf.

Step 2 With two people, lift the chassis into position between the rack posts.

Step 3 Position the chassis until the rack-mounting flanges are flush against the mounting rails on the rack.

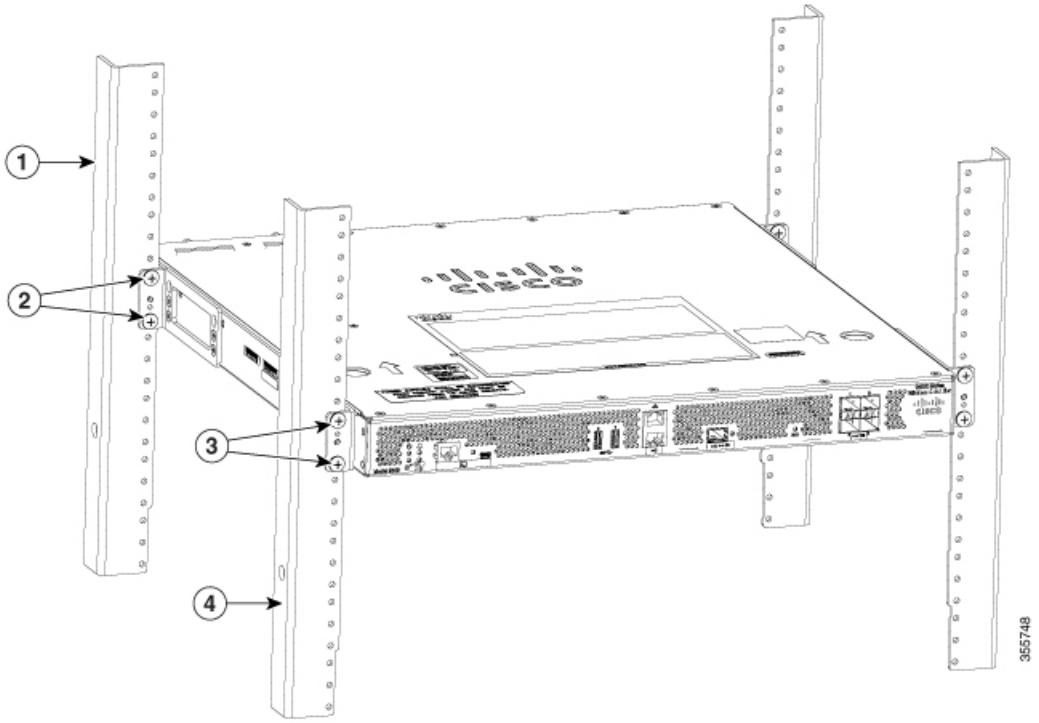
Note
Use the second hole up from the bottom of the rack-mount bracket and the second hole down from the top of the rack-mount bracket. This will make it easier to attach the cable-management bracket to the chassis in the equipment rack.

Step 4 Hold the chassis in position against the mounting rails while the second person finger-tightens a screw to the rack rails on each side of the chassis.

Step 5 Finger-tighten screws to the rack rails on each side of the chassis.

Step 6 Tighten all the screws on each side to secure the chassis to the equipment rack. The following figure shows the Cisco Catalyst 9800-40 Wireless Controller on a four-post equipment rack.

Figure 5: Cisco Catalyst 9800-40 Wireless Controller in a Four-Post Rack—Front and Rear Rack-Mounting



1	Rear rack equipment rail	3	Front rack mount bracket ear and screws
2	Rear rack mount bracket ear and screws	4	Front rack equipment rail

Step 7 Use a level to verify that the tops of the two brackets are level, or use a measuring tape to verify that both brackets are the same distance from the top of the rack rails.

What to do next

This completes the procedure for installing the chassis in the rack. Proceed to the **Attaching a Chassis Ground Connection** section to continue the installation.

Attaching the Cable Management Bracket

Before you begin

The cable management brackets should be mounted to each rack-mount bracket on the chassis to provide cable management to both sides of the chassis. These brackets are screw-mounted to the rack-mount brackets to allow easy installation and removal of cables.

The cable-management brackets for the Cisco Catalyst 9800-40 Wireless Controller contains one independent cable-management U-type feature with two screws for each bracket.

Note Make certain that the cable-management bracket "U" feature is facing upwards when you attach it to the chassis.

Procedure

Step 1 Align the cable-management bracket to the rack-mount bracket on one side of the Cisco Catalyst 9800-40 Wireless Controller.

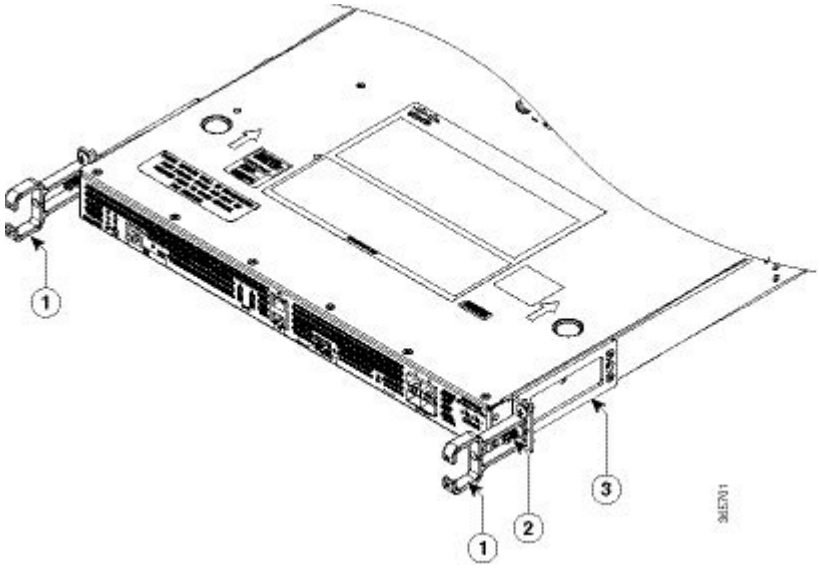
The cable-management bracket aligns to the top hole of the chassis rack-mount bracket.

Step 2 Using a Phillips screwdriver, insert one screw through the top screw hole of the cable-management bracket and into the chassis rack-mount bracket and tighten the screw

Note
Use the package of screws that came with your chassis containing four screws.

The following figure shows where to attach the cable-management brackets to the Cisco Catalyst 9800-40 Wireless Controller.

Figure 6: Attach the Cable-Management Brackets to the Attaching the Cable-Management Brackets to the Cisco Catalyst 9800-40 Wireless Controller

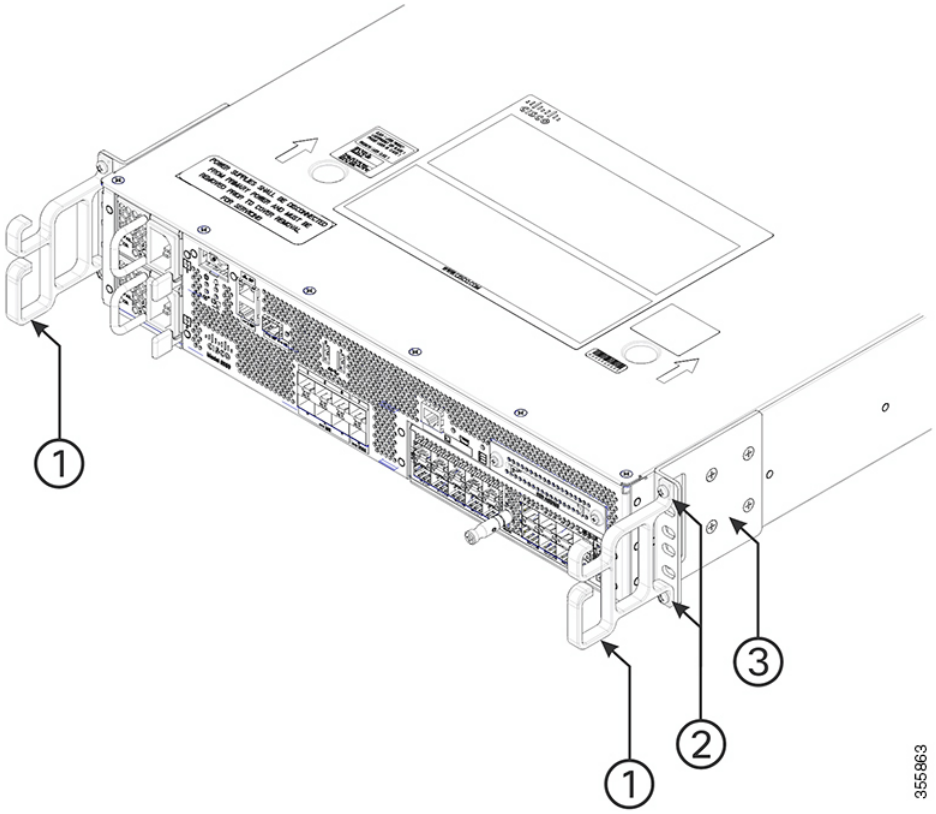


1	Cable-management bracket "U" feature	3	Chassis front rack-mount bracket
2	Cable-management bracket screw		

Note
Use the package of screws that came with your chassis containing four screws.

The following figure shows where to attach the cable-management brackets to the .

Figure 7: Attaching the Cable-Management Brackets to the



1	Cable-management bracket "U" feature	3	Chassis front rack-mount bracket
2	Cable-management bracket screw holes		

Step 3 Insert the cable management screw into the screw hole of the cable-management bracket and into the chassis rack-mount bracket and tighten the screw using a Philips screwdriver.

Step 4 Repeat **step 1** to **step 3** for the other side of the chassis.

Chassis Ground Connection

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

Before you connect power or turn on power to your chassis, you must provide an adequate chassis ground (earth) connection for the chassis. A chassis ground connector is provided on each Cisco Catalyst CW9800M Wireless Controller. There is a stud on the rear left side of the chassis.

Warning **When installing or replacing the unit, the ground connection must always be made first and disconnected last**

Statement 1046

Have the recommended tools and supplies available before you begin this procedure.

Recommended Tools and Supplies

Warning **Use copper conductors only.**

Statement 1025

The following tools, equipment, and supplies are necessary to connect the system ground to the chassis:

- Philips screwdriver
- 3.5-mm flat blade screwdriver (Phoenix # 1205053 or equivalent 3.5-mm flat blade)
- Dual-lug chassis ground component
- Grounding wire

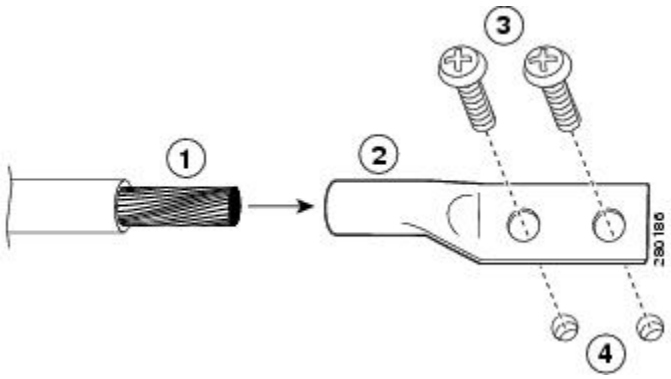
Attaching a Chassis Ground Connection

Procedure

Step 1 Use the wire stripper to strip one end of the AWG #6 wire approximately 0.75 inches (19.05 mm).

Step 2 Insert the AWG #6 wire into the open end of the grounding lug.

Figure 8: Attaching a Grounding Lug to the Chassis Ground Connector



1	Chassis ground lead wire	3	Ground screws
2	Grounding lug	4	Chassis ground connector holes

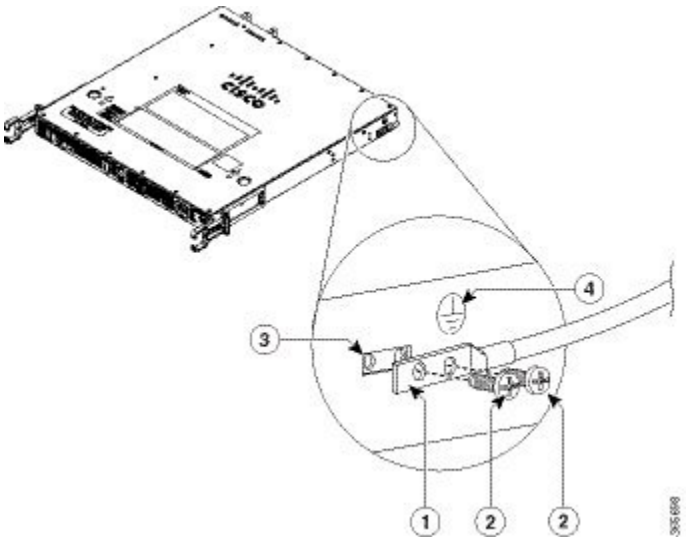
Step 3 Use the crimping tool to carefully crimp the wire receptacle around the wire. This step is required to ensure a proper mechanical connection.

Step 4 Locate the chassis ground connector on the side of your chassis.

Step 5 Insert the two screws through the holes in the grounding lug.

The following figure shows how to attach a grounding lug to the chassis ground connector.

Figure 9: Attaching the Grounding Lug to the Ground Connector of the Cisco Catalyst 9800-H Wirelesss ControllerCisco Catalyst 9800-40 Wireless Controller



1	Chassis ground lug	3	Ground connector on the chassis
2	Grounding screws	4	Ground symbol

Step 6 Use the Number 2 Philips screwdriver to carefully tighten the screws until the grounding lug is held firmly to the chassis. Do not over tighten the screws.

Step 7 Connect the opposite end of the grounding wire to the appropriate grounding point at your site to ensure an adequate chassis ground.

Connecting Cables

Keep the following guidelines in mind when connecting any external cable to the Cisco Catalyst 9800-40 Wireless Controller:

- To reduce the chance of interference, avoid crossing high-power lines with any interface cables.
- Verify all the cabling limitations (particularly distance) before powering on the system.

Connecting the Console Port Cable

The controller uses RJ-45 ports for console port to attach a console terminal. The controller has an asynchronous serial (EIA/TIA-232) RJ-45 console port labeled CON on its front panel. You can connect this port to most types of video terminals with a console cable kit that is included with your controller. The console cable kit contains:

- One RJ-45-to-RJ-45 crossover cable
- One RJ-45-to-DB-9 (female) adapter

The crossover cable reverses pin connections from one end to the other. In other words, it connects pin 1 (at one end) to pin 8 (at the other end), pin 2 to pin 7, pin 3 to pin 6, and so on. You can identify a crossover cable by comparing the two modular ends of the cable. Hold the cable ends in your hand, side-by-side, with the tabs at the back. Ensure that the wire connected to the outside (left) pin of the left plug (pin 1) is the same color as the wire connected to the outside (right) pin of the right plug (pin 8).

The console port is an asynchronous serial port; devices connected to this port must be capable of asynchronous transmission.

Procedure for Connecting the Console Port Cable

Before you begin

Before connecting to the console interface on the controller using a terminal or PC, perform the following steps:

Procedure

Step 1 Before connecting a terminal to the console port, configure the terminal to match the chassis console port as follows: 9600 baud, 8 data bits, no parity, 1 stop bits (9600 8N1).

Step 2 Connect one end of the RJ-45 cable to the serial RJ-45 console port (CON) on the Cisco Catalyst 9800-40 Wireless Controller using the RJ-45 to DB-9 cable. Connect the DB-9 end to your terminal equipment.

Note

For information about how to change the default settings to meet the requirements of your terminal or host, see the *Cisco IOS Terminal Services Configuration Guide*.

Step 3 After you establish normal controller operation, you can disconnect the terminal. Follow the same procedure to connect a video terminal to the console port.

What to do next

Go to the **Connecting to the Mini USB Console Port** section to continue the installation.

Connecting to the Mini USB Console Port

The USB serial console port connects directly to the USB connector of a PC using a USB Type A to 5-pin mini USB Type-B cable. The USB Console supports full speed (12Mbps) operation. The console port does not support hardware flow control.

Note

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

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

For operation with a Microsoft Windows OS version older than Windows 7, the Cisco Windows USB Console Driver must be installed on any PC connected to the console port. If the driver is not installed, the prompts guide you through a simple installation process.

The Cisco Windows USB Console Driver allows plugging and unplugging the USB cable from the console port without affecting Windows HyperTerminal operations. No special drivers are needed for Mac OS X or Linux.

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

Management Ethernet Port Cable Connection

Before you begin

Caution To comply with Class A emission requirements, a shielded Ethernet cable must be used for the connection

Procedure

Step 1 Insert an Ethernet RJ-45 cable into the MGMT port.

Step 2 Insert the other end of the RJ-45 cable to your management device or network.