CHAPTER **2**

Installing the Router

This chapter describes the equipment and the procedures for successfully installing the Cisco 800M Series ISR, and contains the following sections:

- Equipment, Tools, and Connections, page 2-2
- Installing the Router, page 2-3
- Mounting the DC Power Supply, page 2-14

Note   For compliance and safety information, see *Regulatory Compliance and Safety Information for Cisco 800 Series Routers*.

Warning   **Read the installation instructions before connecting the system to the power source.** Statement 1004

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   **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 1030

Warning   **No user-serviceable parts inside. Do not open.** Statement 1073

Warning   **Ultimate disposal of this product should be handled according to all national laws and regulations.** Statement 1040

Warning   **Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system.** Statement 378

Warning   **The covers are an integral part of the safety design of the product. Do not operate the unit without the covers installed.** Statement 1077

Warning   **Do not locate the antenna near overhead power lines or other electric light or power circuits, or where it can come into contact with such circuits. When installing the antenna, take extreme care not to come into contact with such circuits, because they may cause serious injury or death. For proper installation and grounding of the antenna, please refer to national and local codes (for example, U.S.:NFPA 70, National Electrical Code, Article 810, Canada: Canadian Electrical Code, Section 54).** Statement 1052

Warning   **This product is not intended to be directly connected to the Cable Distribution System. Additional regulatory compliance and legal requirements may apply for direct connection to the Cable Distribution System. This product may connect to the Cable Distribution System ONLY through a device that is approved for direct connection.** Statement 1078

Equipment, Tools, and Connections

This section describes the equipment, tools, and connections necessary for installing the Cisco 800M Series ISR. It contains the following topics:

- Items Shipped with your Router, page 2-2
- Connections, page 2-2
- Ethernet Devices, page 2-2

Items Shipped with your Router

Unpack the box and verify that all items listed on the invoice are shipped with the Cisco 800M Series ISR.The following items are shipped with your router:

- PWR CABLE - Country specific Power Cable, Max 1
- PWR-30W-AC - Power Adapter

Note   The default power supply is AC. You can convert your AC power supply to DC power supply.

Note   No items are shipped with 3G Module and Console Port Module.

Connections

Obtain a broadband or Ethernet connection from your service provider.

Ethernet Devices

Identify the Ethernet devices that you connect to the router: hub, servers, and workstations or PCs. Ensure that each device has a network interface card (NIC) for connecting to the Ethernet ports.

If you plan to configure the software using Cisco IOS commands through the console port, provide an ASCII terminal or a PC that is running terminal emulation software to connect to the console port.

If you plan to connect a modem, provide the modem and modem cable.

Installing the Router

This section describes how to install the Cisco 800M Series ISR. The Cisco 800M Series ISR can be installed on a table top or mounted on a wall. You can choose the type of mounting while ordering the Cisco 800M Series ISR. The recommended clearance when horizontally mounted is 1.5 inches on both sides for floor mount bracket clearance and 2 inches on top. Top clearance is not required but stacking heat-dissipating objects on top of the router is not allowed. Input/Output (I/O) side clearance is needed as it is required to access the cable connections. This section also describes how to attach external antennas to the routers and contains the following topics:

Warnings

Warning   **This equipment needs to be grounded. Use a green and yellow 12 to 14 AWG ground wire to connect the host to earth ground during normal use.** Statement 242

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   **Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system.** Statement 378

Warning   **Do not cover or obstruct the router vents located on both sides of the router; otherwise, overheating could occur and cause damage to the router.**

⚠️

Warning   **Do not place anything on top of the router that weighs more than 10 pounds (4.5 kilograms), and do not stack routers on a desktop. Excessive weight on top of the router could damage the chassis.**

⚠️

Warning   **Do not install the router or power supplies next to a heat source of any kind, including heating vents.**

Installing on a Table

A four rubber feet is provided as part of the router hardware (shown in Figure 2-1) if you have opted for table mount while ordering. Insert the rubber feet at the bottom of the router. Connect the chassis to a reliable earth ground. Keep at least 200 mm of clear space on both left and right side for heat dissipation.

Figure 2-1   *Four Rubber Feet*
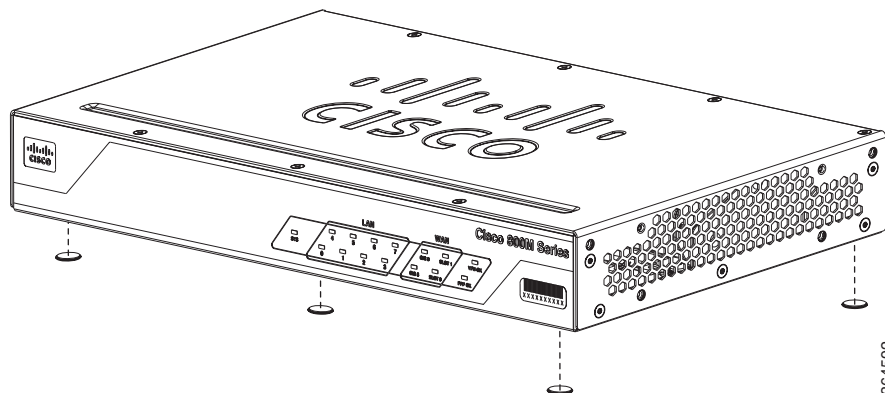
Mounting on a Wall

Two brackets and six counter-sunk screws are provided as part of the router hardware. These brackets and screws can be used for both rack mount and wall mount and the brackets can be oriented in different angles based on the need for wall mount and rack mount.

For wall mount, the supported configurations for the router are:

- I/O side facing upwards, as shown in Figure 2-2
- I/O side facing downwards, as shown in Figure 2-3

🔍

Tip   When choosing a location for wall-mounting the router, consider cable limitations and wall structure.

To mount the router on a wall, follow these steps:

Step 1   Attach the two brackets to the chassis using the three screws provided for each bracket such that the brackets are facing the bottom of the router, as shown in Figure 2-2.

Step 2   Orient the Cisco 800M Series router, facing the I/O side facing upwards as shown in Figure 2-2, or in the opposite direction such that the I/O side is facing downwards as shown in Figure 2-3.

Figure 2-2   Attaching the Brackets (I/O Side facing upwards)
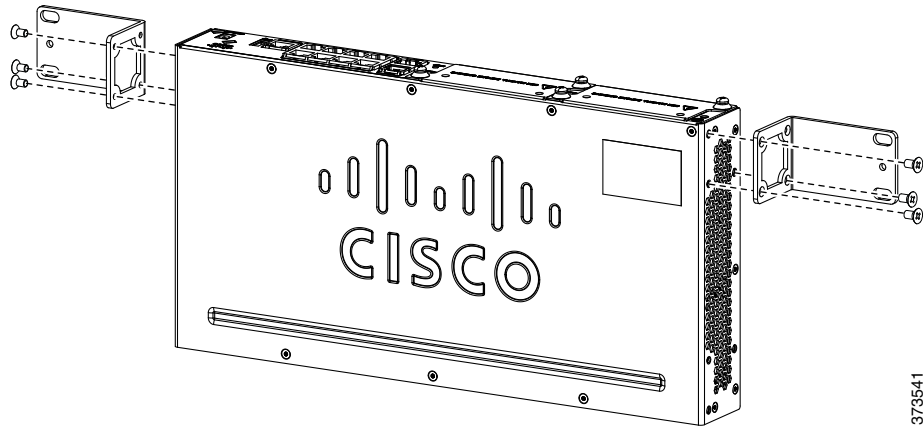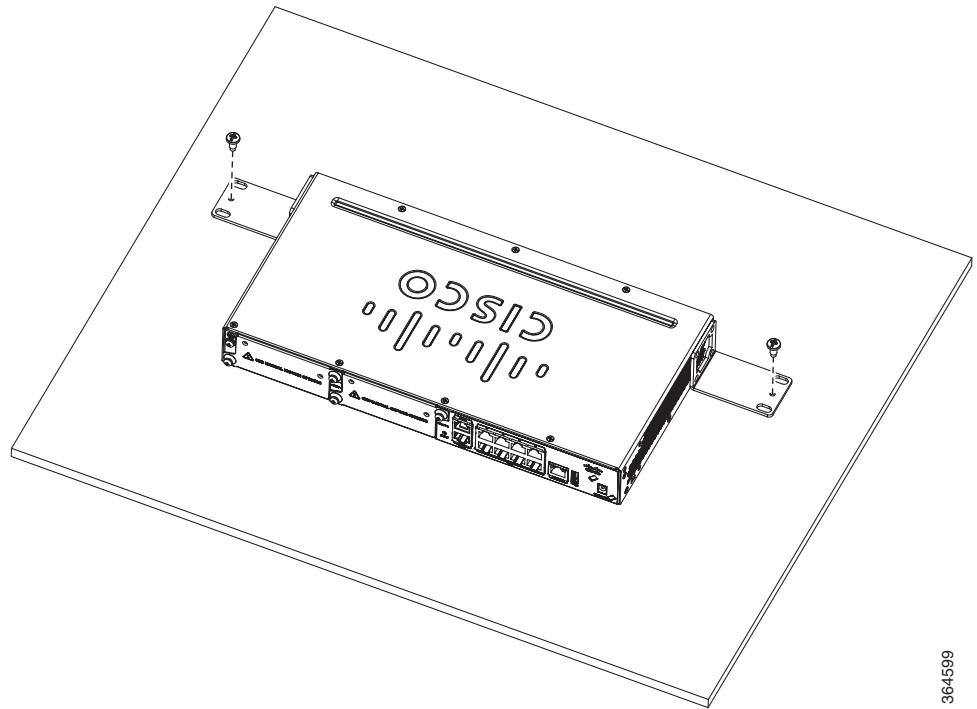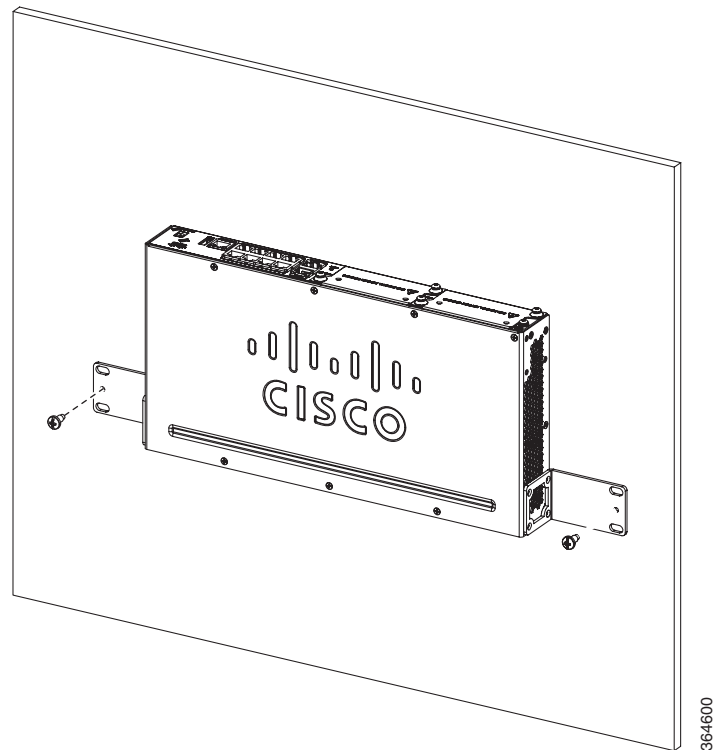

Figure 2-3   I/O Side facing downwards

Step 3   Install the router to a wall stud using two number-10 wood screws, and round- or pan-head. The screws must be long enough to penetrate at least 1.0 inch (25.4 mm) into the supporting wood or metal wall stud as shown in Figure 2-4.

Figure 2-4   *Installing the Router to the Wall*

364600

✎

Note   For hollow-wall mounting, each bracket requires two wall anchors with washers. Wall anchors and washers must be size number 10.

Step 4   Route the cables so that they do not put a strain on the connectors or mounting hardware. To comply with IP 41, cables should be routed down relative to the router to prevent water from traveling on the cables.

Mounting on a Rack

The two brackets provided along with the router which can be used for wall mount or rack mount. These brackets support mounted the router on a standard 19 inch rack. The brackets must be rotated 90 degrees and used for mounting it on the rack.

Note   Maintain 1RU gap (both above and below) while stacking the units.

To mount the router on a rack, follow these steps:

Step 1   Attach the two brackets to the chassis using the three screws provided for each bracket. The brackets can be attached to the router in the following three ways based on the needs of the user:

- Router LEDs facing the user as shown in Figure 2-5.
- I/O side facing the user as shown in Figure 2-6.
- Router I/O facing the user - Reverse the rack mount brackets to have offset rack mount option as shown in Figure 2-7.

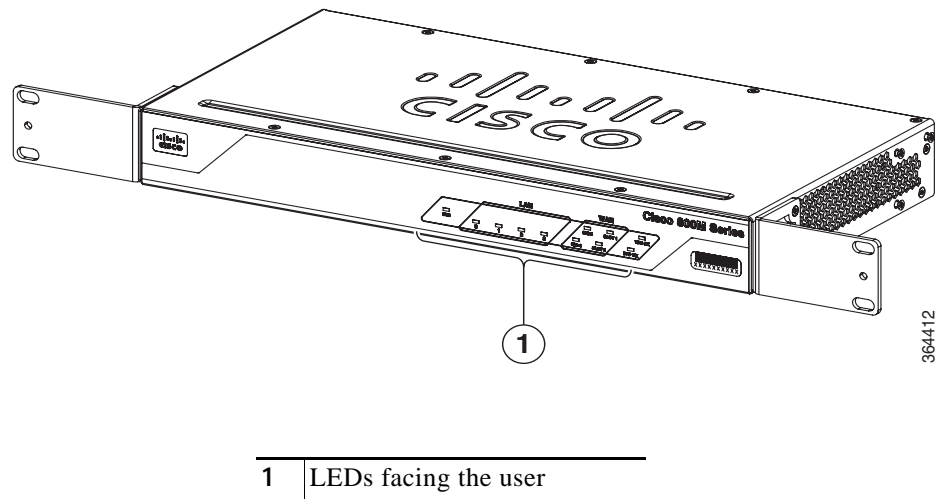*Figure 2-5   Attaching the Brackets (LEDs facing the user)*

1	LEDs facing the user

Figure 2-6   Attaching the Brackets(I/O side facing the user)
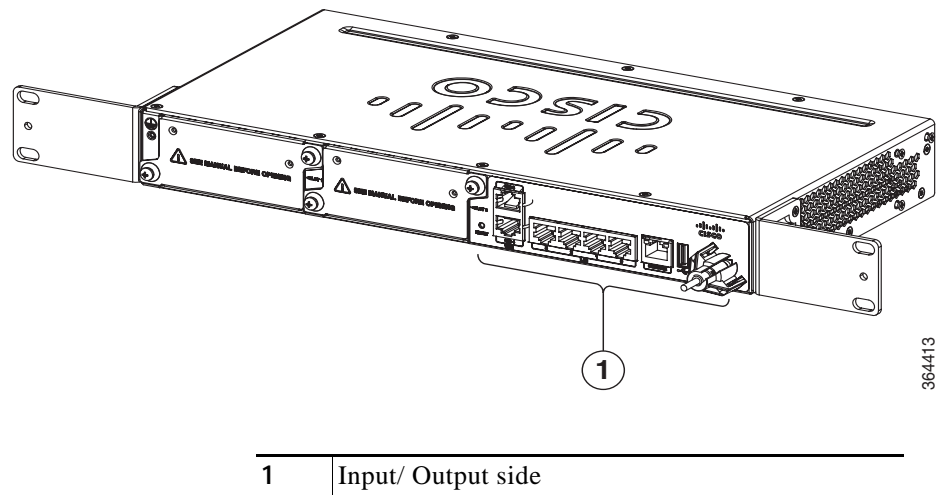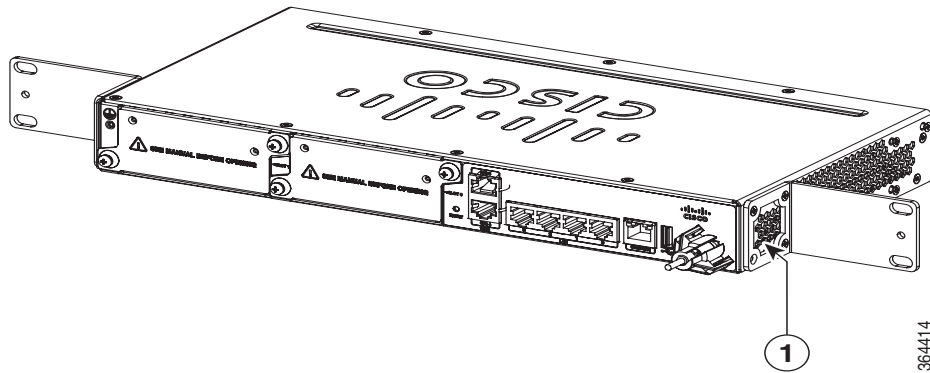

1	Input/ Output side

Figure 2-7   Attaching the Brackets (I/O side facing the user - Offset rack mount)

1	Offset rack mount

Step 2   Mount the router into the rack using the screws provided in the rack.

Installing the modules

You can choose either slot 0 or slot 1 for inserting modules.

Combination of modules supported by Cisco 800M Series ISR is as follows:

• One 3G module and one serial port module.

• Two serial port modules.

Note   Two 3G modules are not supported at a time.

Warning   **Make sure that the router is powered off before inserting the modules.**

Step 1   To remove the blank module, use screw drivers to loosen the screws. The screws are designed in way that after it disengages, user can hold the screws and pull the blank cover out.
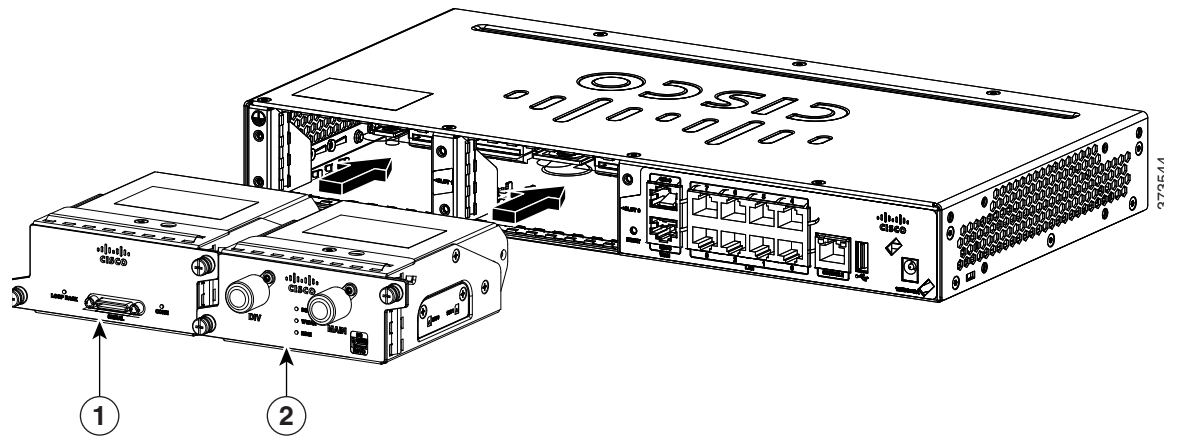
Step 2   Remove the blank covers for the slots where you want to insert the module as shown in Figure 2-8.

Figure 2-8   Removing the blank covers
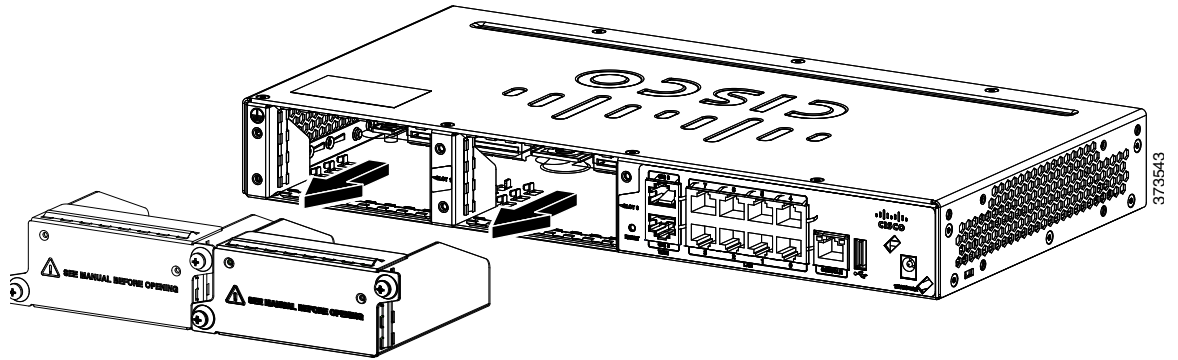
Step 3   Insert the 3G module or serial port module using the captive screws such that the Cisco logo of the module is facing the user as shown in Figure 2-9.

Figure 2-9   Inserting the Modules

1	Module Slot 1	2	Module Slot 0

Accessing the SIM Card

This section describes how to install and replace the SIM card.

Caution   Do not touch any part of the exposed PCB circuit area when the SIM cover is removed.

Warning   **Hot surface.** Statement 1079

Warning   **Make sure that the router is powered off before inserting or removing SIM card from 3G Module.**

To access the SIM card in the Cisco 800M Series ISR, follow these steps:

Step 1 Power off the router and disconnect the power cable from the power source.

Step 2 Place the router on its bottom side and remove the 3G Module by loosening the screws which are attached to the module.

✎
Note The screws in 3G module are inbuilt to the module. For removing the module, you can loosen the screws. The 3G module comes out, but the screws will remain attached to the module.

Step 3 Remove the SIM cover plate by removing the two counter-sunk screws towards the right side of the 3G module as shown in Figure 2-10.

Figure 2-10   Removing the SIM cover plate
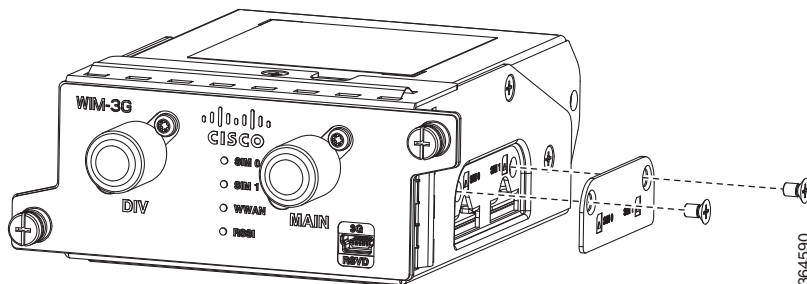
Step 4 Insert the SIM card by pushing it into the slot SIM0 or SIM1. You can also insert SIM cards in both the slots.

✎
Note SIM 0 and SIM 1 are Push-Push slots. If the SIM card is pushed once, it gets inserted into the SIM slot. If the SIM card is pushed for the second time, it is ejected from the SIM slot. The 3G module can have SIM cards in both the slots. However, at a given point of a time, only one SIM card can be active.

Step 5 After inserting the SIM card, replace the cover plate and tighten the 2 counter-sunk screws which were removed in Step 3.

Step 6 Replace the 3G module into the Router and tighten the screws.

✎
Note Please note down the MEID number before installing the module into the router. It is required to activate the SIM on certain carriers.
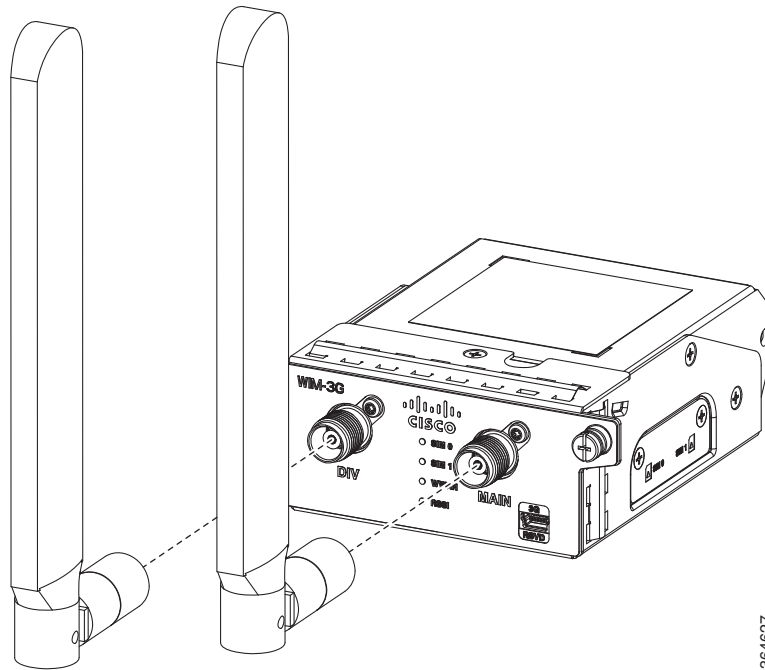
Installing Antennas

✎
Note Before you install the Cisco 800M Series ISR on a table, wall or rack, install the antennas on the front panel. It is difficult to install the antennas after the router is installed.

To attach the antennas to your router, follow these steps:

Step 1 Remove the two rubber caps from the 3G Module.

Step 2   Manually screw the antenna tight to the TNC connectors in front side of the 3G Module. See Figure 2-11.

Figure 2-11   *Installing Antennas*

Step 3   Orient the antennas as required. For optimum wireless performance, antennas should be perpendicular to each other. If the router is being mounted on a desk, orient the antennas straight up.

Installing the Router Ground Connection

The router must be connected to a reliable earth ground. Install the ground wire in accordance with local electrical safety standards.

- For NEC-compliant grounding, use size 14 AWG (2 mm2) or larger copper wire and a ring terminal with an inner diameter of 1/4 in. (5 to 7 mm).

- For EN/IEC 60950-compliant grounding, use size 18 AWG (1 mm2) or larger copper wire.

⚠️

Warning   **This equipment needs to be grounded. Use a green and yellow 12 to 14 AWG ground wire to connect the host to earth ground during normal use.** Statement 242

To install the ground connection, follow these steps:

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

Step 2   Crimp the ground wire to the ring terminal using the wire crimper.

Step 3   If you choose to install the power switch lock, perform Step 5 to Step 7. Otherwise, perform Step 4, Step 6 and Step 7.

Step 4   Attach the ring terminal to the chassis. Use the single screw provided. Tighten the screws to a torque of 8 to 10 inch-pound (0.9 to 1.1 newton meter) as shown in Figure 2-12.

Figure 2-12   Chassis Ground Connection Using Ring Terminal
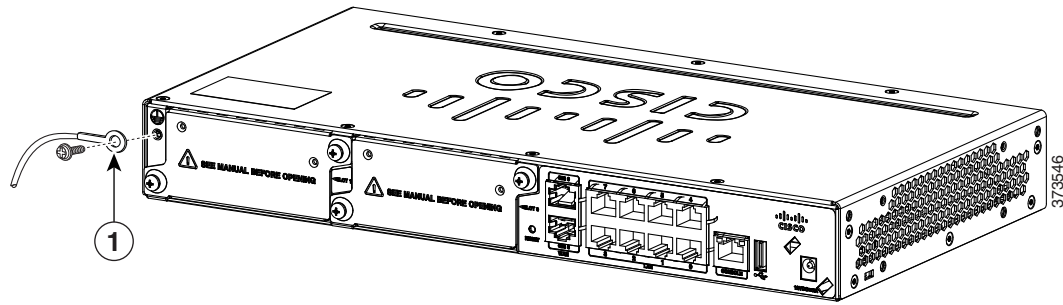
1	Ring terminal		

Step 5   Install the power switch lock, see the "Mounting the DC Power Supply" section on page 2-14. Tighten the screws to a torque of 8 to 10 in-lb (0.9 to 1.1 N-m). Torque the hex standoff to the same torque.

Step 6   Connect the other end of the ground wire to a known reliable earth ground point at your site.

Step 7   If you are using this router in a vehicle, attach the ring terminal to the chassis using one of the screws provided and the green or green and yellow striped wire. Connect the other end of the wire to the vehicle ground.

After you install and properly ground the router, you can connect the power wiring, the LAN cables, and the cables for administrative access as required for your installation.

Installing the Power Cord Retention Latch

The Cisco 800M Series ISR has a power cord retention mechanism as a accessory. It locks the power cord to the router. When a user accidentally pulls on the power cord, the power cord will not come out from the router.

This section describes how to install the power cord retention lock.

Step 1   Place the power cord lock onto the power cord, as shown in Figure 2-13. The cable slides into the slot and then pull the plug back to seat in the lock.

*Figure 2-13   Place the Power Cord Lock onto the Power Cord*
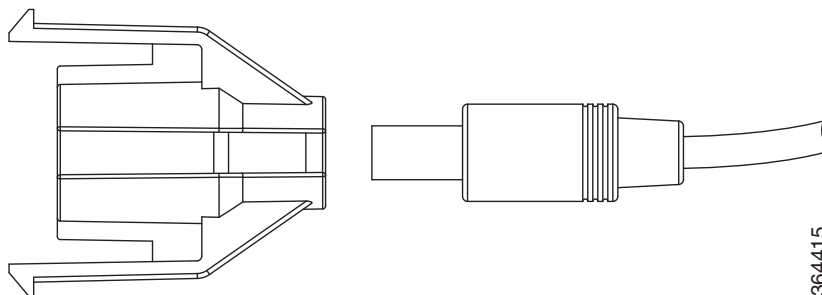
Step 2   Install the power cord with power cord lock and the pre-installed o-ring to mate with the power jack on the router. Make sure that the two arms of the power cord lock slide into the corresponding slots on the router and are fully seated with both arms locking into the slots as shown in Figure 2-14.

Figure 2-14   Installing Power Cord Lock onto the Router
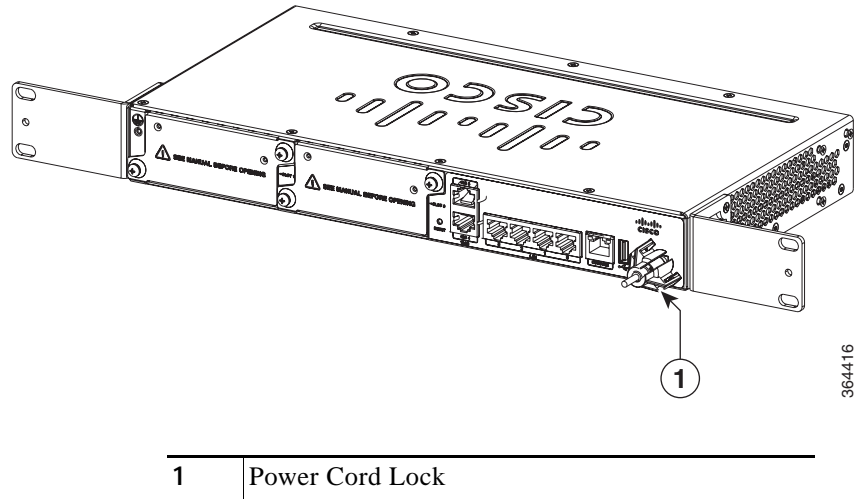
1	Power Cord Lock

Step 3   To remove the power cord lock, use your thumb and index fingers to squeeze ends of tabs while pulling away from the router as shown in Figure 2-15.

Figure 2-15   End of Tabs
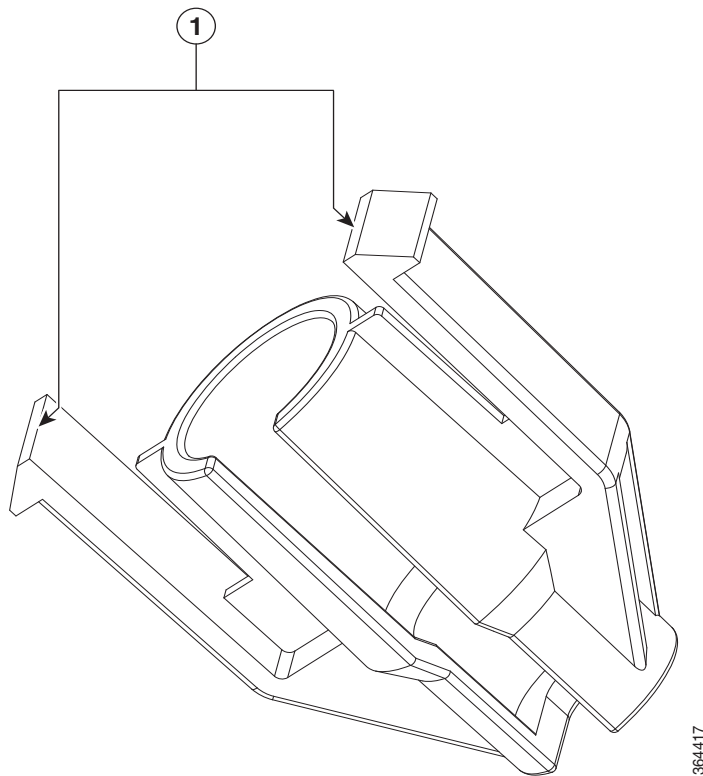
1	End of tabs

Mounting the DC Power Supply

Warning   **Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system.** Statement 378

The Cisco 800M ISR DC power supply may be mounted to a wall using four #6 pan- or round-head wood screws for the mounting holes on the supply.

Caution   Each mounting screw must go into a wall stud (wood) or a wall anchor of the appropriate type for the wall. Screws into drywall is not sufficient to support the DC power supply.

- For attaching to a wall stud, the power supply requires #6 wood screws (round- or pan-head). The screws must be long enough to penetrate and tap at least 0.75 inches (19.1 mm) into the supporting wood or metal wall stud.

- For hollow-wall mounting, the power supply requires the use of appropriate-sized wall anchors that work with the drywall thickness the unit is to be installed in. Use hollow-wall anchors that support using #6 screws and use #6 pan- or round-head screws to secure the power supply to the wall. Each wall anchor should be rated for at least 30 lbs.

Caution   If the screws are not properly anchored, the strain of the DC supply cables could pull the router from the wall.

To mount the DC power supply to the wall, follow these instructions:

Step 1   Install the four screws into the mounting holes on the DC power supply as shown in Figure 2-16, before being secured to the wall studs or wall anchors.

Figure 2-16   DC Power Supply Wall-Mounting Features
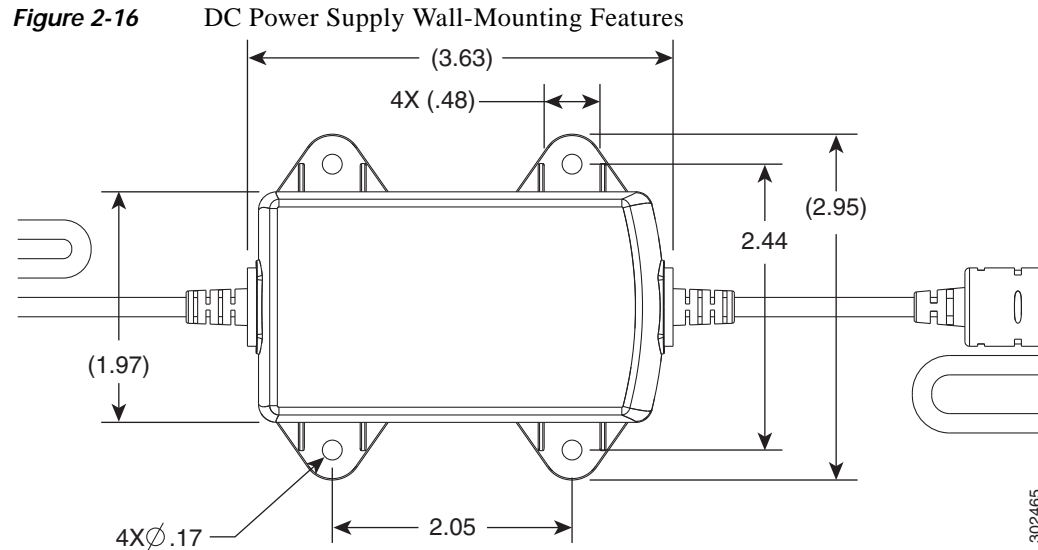
Step 2   Hang the DC power supply by securing the screws to the wall stud or into the wall anchors.

Note   The DC supply is IP 41 compliant in all six orthogonal directions. The mounting orientation will not affect IP 41 compliance.

Step 3   Connect the chassis to a reliable earth ground.