Installing the Router

This chapter describes the equipment and the procedures for successfully installing the Cisco IR1101 ISR. There is a separate section for installing the IR1101 with an Expansion Module.

- Installing the Router, on page 1

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This section contains the following sections:

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

WARNING: Read the installation instructions before connecting the system to the power source. Statement 1004

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

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

WARNING: A minimum of 1 inch clearance is required on all sides of the product when mounting in either horizontal or vertical orientation. Stacking heat-dissipating objects on top of the router is not allowed. I/O
side clearance is needed as it is required to access the cable connections. Clearance is required to attach, mount the DIN rail bracket, and Wall mount bracket.

Equipment, Tools, and Connections

This section describes the equipment, tools, and connections necessary for installing your Cisco IR1101.

Note
No antenna is shipped with the IR1101 by default.

Items Shipped with your Router

Unpack the box and verify that all items listed on the invoice were shipped with the Cisco IR1101.

The following items are shipped with your router:

• Getting Started/Product Document of Compliance
• Grounding Lug Kit
• Power Connector

Additional Items

The following items are not shipped with the router but are required for installation:

• ESD-preventive cord and wrist strap.
• Wire crimper for chassis grounding.
• Wire for connecting the chassis to an earth ground.
• Ethernet cables for connecting to the Fast Ethernet (FE) WAN and LAN ports.
• Ratcheting torque flathead screwdriver that exerts up to 15 in-lb (1.69 N-m) of pressure.
• A number-2 Phillips screwdriver.

Ethernet Devices

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

Installing the Router

This section describes how to install the Cisco IR1101. This router can be installed in the following ways:

• Table top
• Flat horizontal surface
• Mounted on a wall
• Using a DIN rail

Warnings

WARNING: For NEC-compliant grounding, use size 16awg (1.5mm2) or larger copper wire and a ring terminal with an inner diameter of 1/4 in. (6 to 7mm).
Mounting on a Wall, Table, or Other Flat Surface

The Cisco IR1101 can be mounted in a vertical or horizontal orientation. It can be mounted to a wall or other flat surface, and can also be mounted to a DIN rail.

Note
See the Installing the Router, on page 1 for limitations on mounting with the IRM-1100 attached.

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

**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:** A minimum of 1 inch clearance is required on all sides of the product when mounting to allow for proper air flow.

The wall mounting kit contains the following:
- Mounting brackets (x2)
- Mounting screws (x4)

To mount the router on a wall or other flat surface, follow these steps:

**Step 1**
Attach the mounting brackets to the bottom of the router. Refer to **Figure 1: Cisco IR1101 Mounting Bracket, on page 4** for guidance.
Step 2  Align the mounting brackets (1) over the mounting holes (3) so that the larger holes on the brackets extend out over the router.

Step 3  Attach the brackets to the router with the 4 screws (2) provided using a Phillips head driver. Torque to 13-15 in. lbs.

Step 4  Mount the router with the attached brackets in a proper wall structure to carry the weight of the device. See Figure 2: Wall/Floor mounting hole dimensions with mounting brackets attached, on page 5 and Figure 3: Wall/Floor mounting clearance and overall dimensions with mounting brackets attached, on page 6 for the dimensions of the mounting holes with the brackets attached to the router.
Figure 2: Wall/Floor mounting hole dimensions with mounting brackets attached

**Note**  Four #10-32 screws are recommended when mounting the unit with these brackets attached to the neighboring surface.
Step 5  Route the cables so that they do not put a strain on the connectors or mounting hardware.

**Installing a DIN Rail**

The DIN Rail kit is ordered separately.
The DIN Rail can be installed on the Base IR1101 in two different orientations, horizontally and vertically. If the Base IR1101 has an Expansion Module attached, horizontal DIN mounting is not supported.

To attach the DIN rail bracket to the Cisco IR1101, follow these steps.

**Mounting the DIN Rail Bracket on the Router**

**Step 1**  
First, attach the DIN rail bracket to the back of the router. The DIN rail bracket mounts in two different ways, depending on the orientation you wish to use. See the following two figures for vertical orientation, and for horizontal orientation.

*Figure 4: Attaching the DIN Rail Bracket for vertical mounting*

Note  
Position the router with the ground lug facing down for vertical mounting.
Note: Position the router with the front ports facing down for horizontal mounting.

**Step 2**  
Attach the DIN mounting bracket (1) to the router using the two screws provided in the kit (2). Position the bracket over the two mounting holes (3) that correspond to your orientation. Then use 13-15 in. lbs. of torque to screw the bracket onto the router.

**Step 3**  
Once the bracket is attached to the router, it can be mounted onto the DIN Rail.

**Attaching the Bracket onto the DIN Rail**

To attach the Cisco IR101 with the bracket to a DIN rail, follow these steps. Refer to the following figure for details.
Step 1  Position the router so that the lower edge and spring of the Din clip (1) engages with the bottom section of the Din rail (2).

Step 2  Push up on the router so that the spring of DIN clip (1) compresses against the lower section of DIN rail (2) and then rotate the router so that the top hook of the DIN clip (1) clamps to the top section of DIN rail (2).

Step 3  To remove the router from the DIN Rail, simply reverse the procedure.

What to do next

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**Note**

The procedure to attach the unit to the rail is the same with both orientations.
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. There are separate grounding points on the Base IR1101 and the Expansion Module.

- For NEC-compliant grounding, use size 16awg (1.5mm2) or larger copper wire and a ring terminal with an inner diameter of 1/4 in. (6 to 7mm).
- For EN/IEC 60950-compliant grounding, use size 18 AWG (1 mm2) or larger copper wire.

**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](#)

**CAUTION:** Cable distribution system should be grounded (earthed) in accordance with ANSI/NFPA 70, the National Electrical Code (NEC), in particular Section 820.93, Grounding of Outer Conductive Shield of a Coaxial Cable.

To install the ground connection, follow these steps:

**Step 1** Locate the grounding lug (I) attached to the side of the Cisco IR1101. It will be attached underneath two screws. Remove the screws holding it to the router and set it aside for reuse.

**Step 2** Strip one end of the ground wire to the length required for the terminal.

**Step 3** Crimp the ground wire to the grounding lug using the wire crimper.

**Step 4** Attach the grounding lug (I) to the chassis using the screws set aside in step 1. Tighten the screw to a torque of 8 to 10 inch-pound (0.9 to 1.1 newton meter). (See [Figure 7: Chassis Ground Connection Points](#), on page 11.)
**Step 5**  Connect the other end of the ground wire to a known reliable earth ground point at your site.

**Step 6**  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.

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**What to do next**

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.

**Pluggable Module**

The Pluggable Module provides the IR1101 with a number of different configuration options. In this section the modular cellular modem Pluggable Module remove and replace option is shown.

The IR1101 may have a blank plate covering the Pluggable Module slot. This will need to be removed prior to installing the cellular modem module. The following example shows the LTE Pluggable Module.

**Step 1**  Remove the blank plate by unscrewing the latch lock screw(1) that holds the plate secure. See Figure 8: Latch Lock Screw, on page 12.
Step 2  
Slide the blank plate out of the device.

Step 3  
Prepare the cellular modem module by inserting the micro sims applicable for your modems into the device. Remove the screw (1) holding the access plate in place that covers the sim slots. It is located on the side of the module, as shown in .

Figure 8: Latch Lock Screw
Step 4  
Install your sims as shown in Figure 10: Sim Installation, on page 13. Make note of the proper slot number and sim orientation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Micro SIMs</td>
</tr>
<tr>
<td>2</td>
<td>SIM 0 (towards the device)</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
</tr>
<tr>
<td>3</td>
<td>SIM 1 (away from device)</td>
</tr>
</tbody>
</table>

**Step 5**
Push in each SIM until it clicks into place. When the SIMs are installed, re-attach the access plate previously removed with a screwdriver. Torque to 2.8 to 3.8 inch-lbs (0.9-1.1 newton meter).

**Note**: Ensure the cover is properly aligned with the screw hole.

**Step 6**
If your Pluggable Module is the type that has a USB port, make sure that the USB cover is properly installed. Place the USB cover (1) with the plug indentation against the USB port (2). The half circle of the USB cover fits behind the latch lock screw. See Figure 11: USB Port Cover Installation, on page 14 for details.

*Figure 11: USB Port Cover Installation*

**Step 7**
Tighten the latch lock screw to a torque of 2.8 to 3.8 inch-lbs (0.3 to 0.4 newton meter). Refer to Figure 12: USB Cover Finished Installation, on page 15 for a finished USB cover installation.
Step 8  

Slide the Pluggable Module into the device as shown in Figure 13: Pluggable Module Insert, on page 16. The latch lock screw (1) aligns with the screw hole (2) on the front of the device. Push the Pluggable Module all the way into the device until you feel it seat, and then torque the latch lock screw 8-10 inch-pound (0.9 to 1.1 newton meter).
Step 9  Attach your antennas to the ports on the pluggable module. There are different instructions for each antenna type, be sure to consult the antenna documentation for proper orientation and torque to install them.

Step 10 If no antennas are being installed on a port, make sure the caps are installed on the connector.