

Install the Cisco N540-6Z14S-SYS-D Routers

This chapter describes how to install the routers and includes the following sections.

Note

- The DC power input cable to the router should not be routed outdoor before or after connecting to the router. For a similar installation, there must be a proper surge arrester where the cable enters or exits the cabinet hosting the router.
- The DC power should have a battery-based backup that is placed parallel to the rectifier output when installed with a single source for the DC feed.
- When battery backup is not provided, the redundant feeds A and B of the router should be provided with two independent power sources to avoid power failure when one feed fails.
- The router is rated for surge immunity of 2KV DM and 4KM CM. When surges beyond this level are expected, an appropriate surge arrestor must be installed to limit the surge to the above-mentioned levels.

- Prerequisites, on page 1
- Install the Router in a Rack, on page 1

Prerequisites

Before installing the router, it is important to prepare for the installation by:

- Preparing the site (site planning) and reviewing the installation plans or method of procedures (MOP). See *Site Planning* section.
- Unpacking and inspecting the router. See *Unpacking and Verifying the Shipped Contents* section.
- Gathering the tools and test equipment required to properly install the router. See *Tools and Equipment* section.

For more instructions on how to prepare for the installation of the router, see *Prepare for Installation*.

Install the Router in a Rack

The following sections describe how to install the router in a rack. The procedures in this section apply to both horizontal and vertical mounting of the router in a rack.

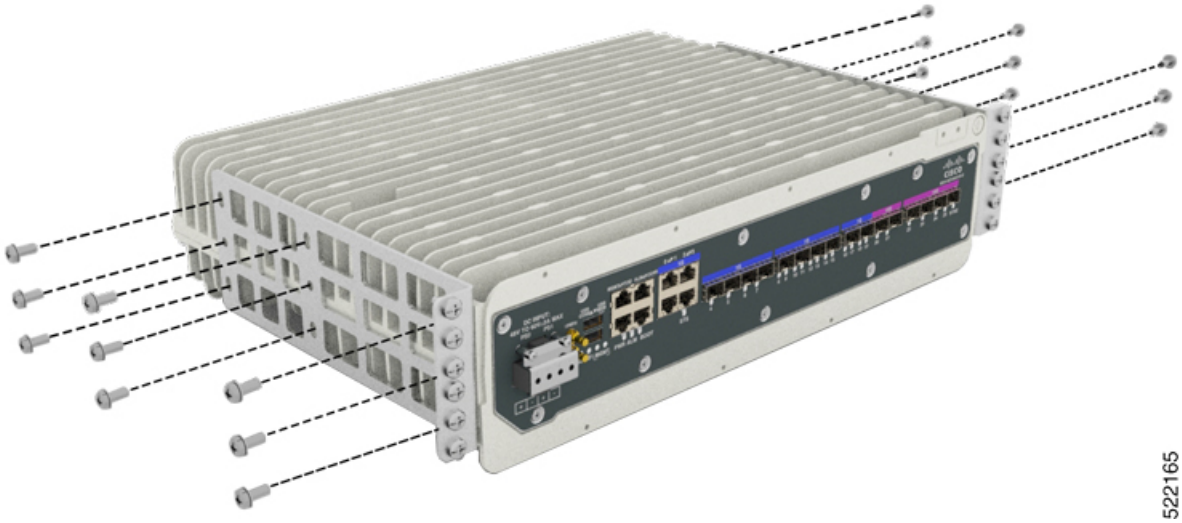
Install the Chassis Brackets

The chassis is shipped with mounting brackets that can be installed on the front of the chassis. To install the brackets on the front of the chassis, perform these steps:

1. Remove the rack-mount brackets from the accessory kit and position them beside the router chassis.

   Figure below shows how to attach the brackets at the front position on the router for a 19-inch EIA rack.

   Figure 1: Attach Mounting Brackets for a 19-inch EIA Rack



2. Position one of the brackets against the chassis side, and align the screw holes.
3. Secure the bracket to the chassis with the M5 screws removed when performing Step 1. The recommended maximum torque is 10 in.-lb.
4. Repeat Step 2 and Step 3 for the other bracket.

Install the Router Chassis in the Rack

Note Ensure adequate clearance and air flow when mounting the router in a rack. For more information, see the *Clearance Guidelines* section.

Note Install the cable guides along with rackmount brackets to install the router in a 19-inch EIA rack. See *Attaching the Cable Guides*.

To install the router chassis in the equipment rack, perform these steps:

1. Insert the rear of the chassis between the mounting posts.

2. Align the mounting holes in the bracket (and optional cable guide) with the mounting holes in the equipment rack.

   The following figure shows how to install the router in a 19-inch EIA rack.

Figure 2: Install the Chassis in a 19-inch EIA Rack



Figure 3: Install the Chassis in a 23-inch EIA Rack



3. Install the eight 12-24 x 3/4-inch or 10-32 x 3/4-inch zinc-plated steel screws through the holes in the bracket and into the threaded holes in the equipment rack posts.
4. Use a tape measure and level to verify that the chassis is installed straight and level.

Attach the Cable Guides

The router supports the A920-CBL-GUIDE-PC cable guide.

To install the cable guides, perform these steps:

1. Position the cable guide-left and cable guide-right against the front of the chassis and align the four screw holes, as shown in figure below.

Figure 4: Cable Guide Installation For 19-inch Rack Brackets

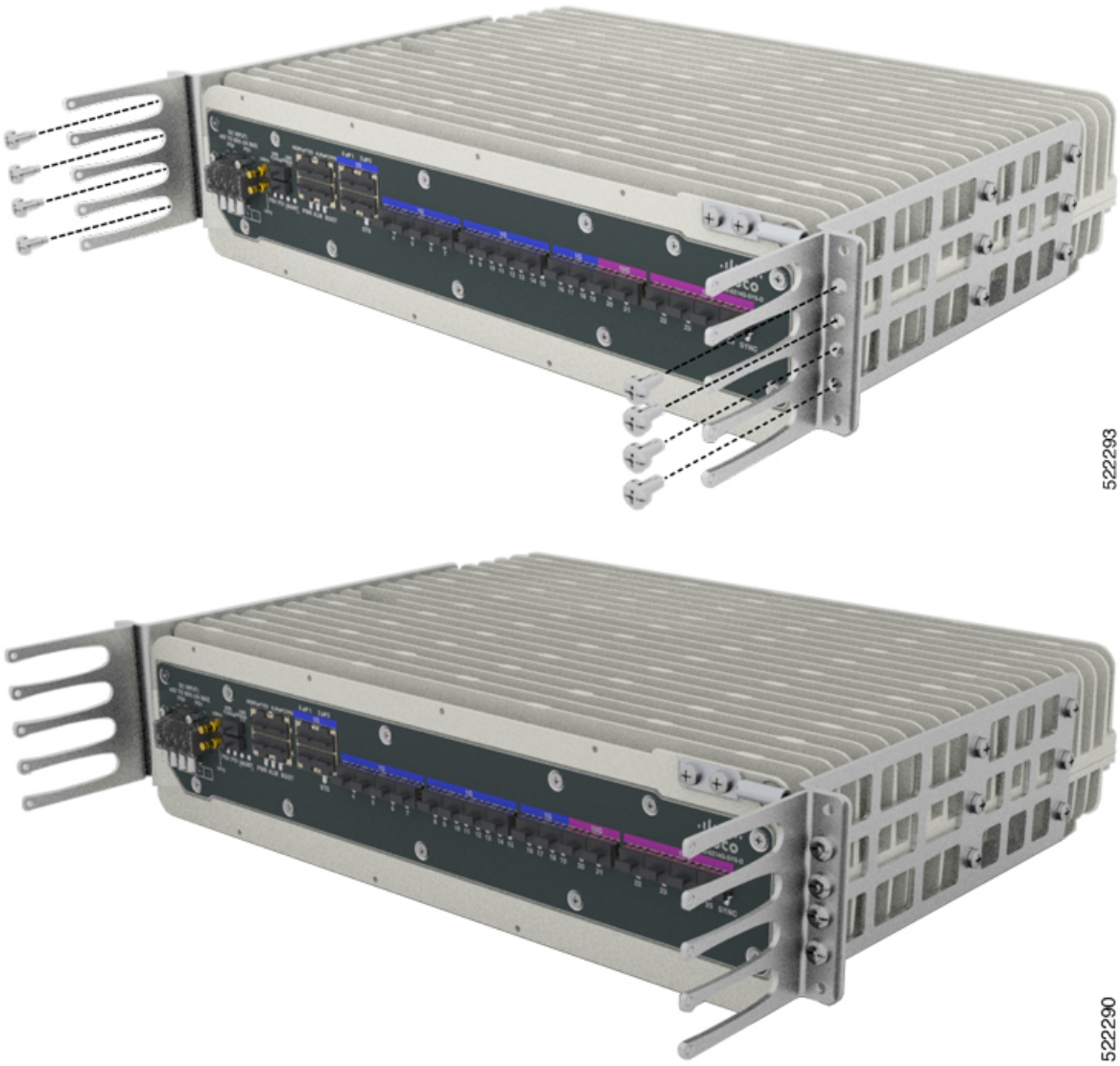
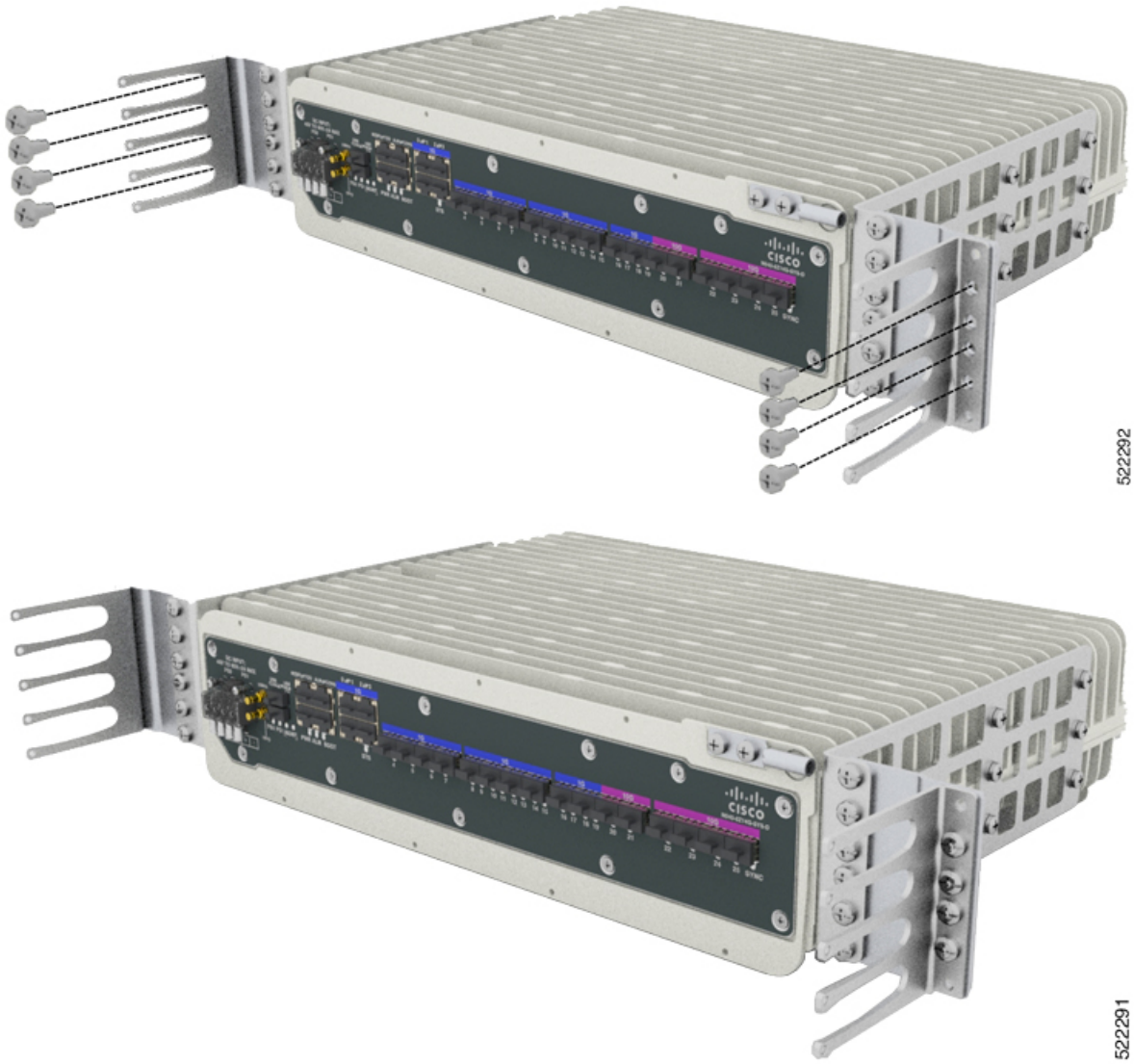


Figure 5: Cable Guide Installation For 23-inch Rack Brackets



2. Secure the cable guides along with rack mount brackets and fix it with the screws as shown above. M4 screws supplied with the cable guide are not indented to use for this unit.

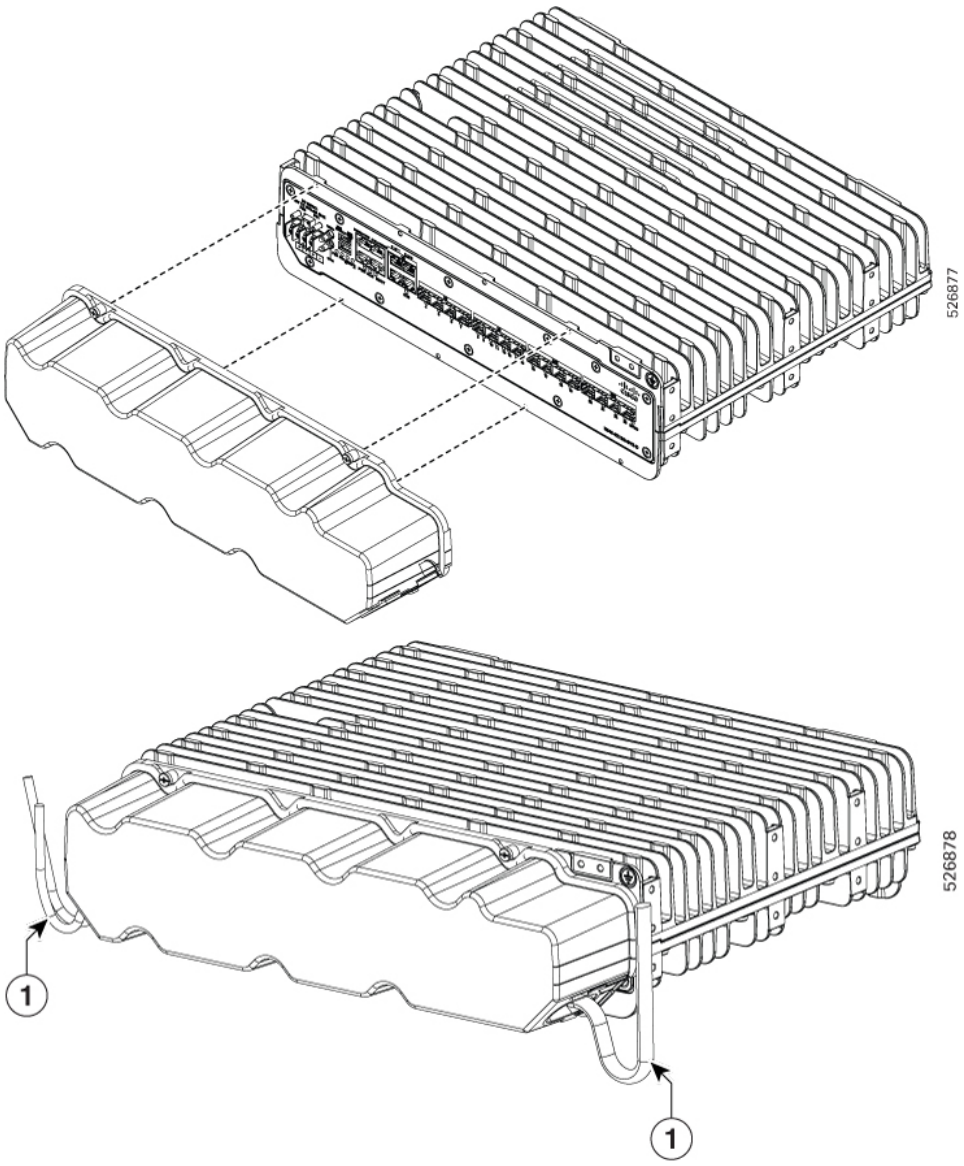
Protective cover for chassis

The protective cover for chassis helps to prevent water splashing into the chassis. With this cover, you can perform only horizontal mounting.

You can use this protective cover for the following routers:

- N540-6Z14S-SYS-D
- N540-8Z12G-SYS-D

Figure 6: Protective cover



The wire cabling should pass through the downward position (1) as displayed in the illustration.

Connect the Chassis Ground and Power

Before you connect the power or turn on power to the router, you must provide an adequate chassis ground (earth) connection to your router.

Ground the Router

The router provides a grounding point on either side of the unit for a two-hole lug.

Caution Before making connections to the router, ensure that you disconnect the power at the circuit breaker. Otherwise it may result in severe injury to yourself, or damage to the router.

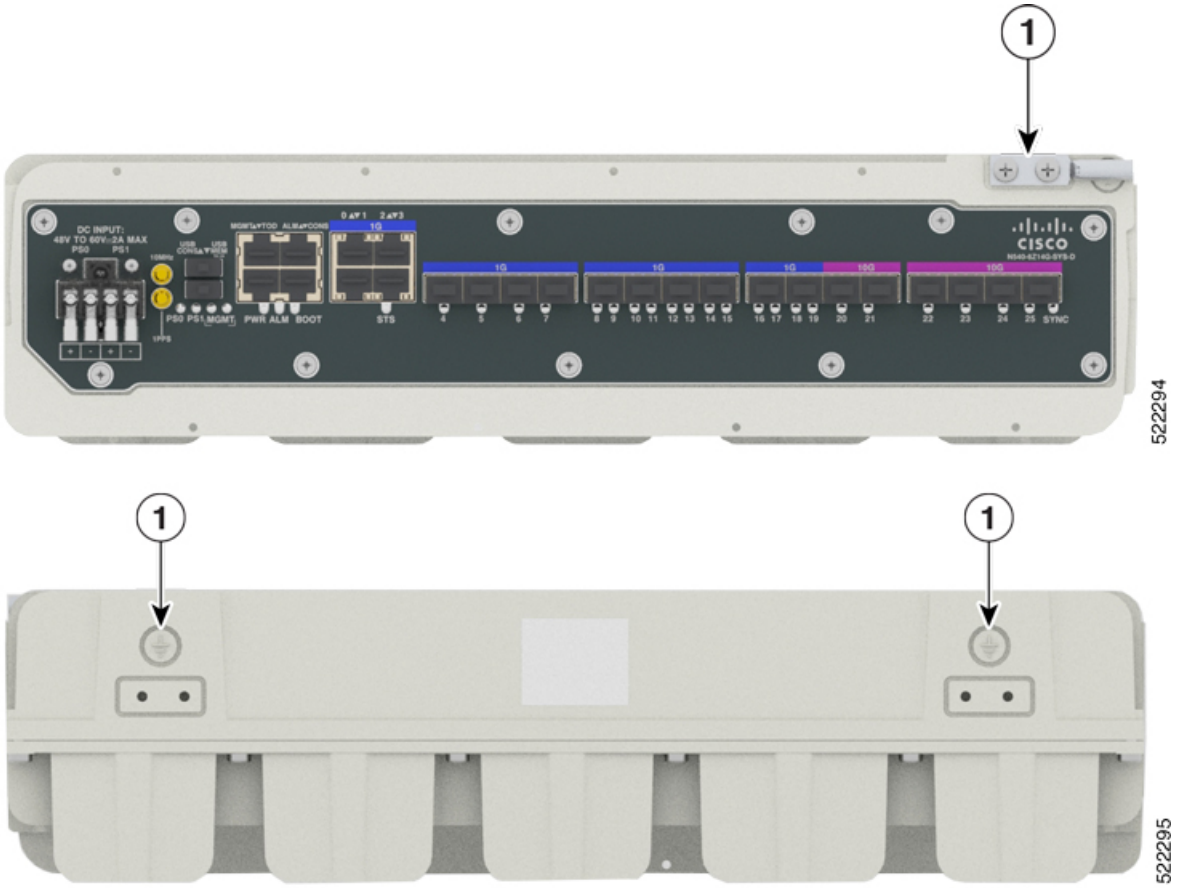
Warning This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. Statement 1024

Warning Use copper conductors only. Statement 1025

Warning When installing the unit, the ground connection must always be made first and disconnected last. Statement 42

The following figure shows one of the grounding points of the router, for ease of installation. The other grounding point is on the front panel, which can also be used for grounding the router.

Figure 7: Grounding Point on the Router



1	Grounding Point

Perform the steps given below to ground the router using a two-hole lug and the corresponding mounting point. Most routers require a 6-AWG ground connection. Verify your router requirements for the ground connection.

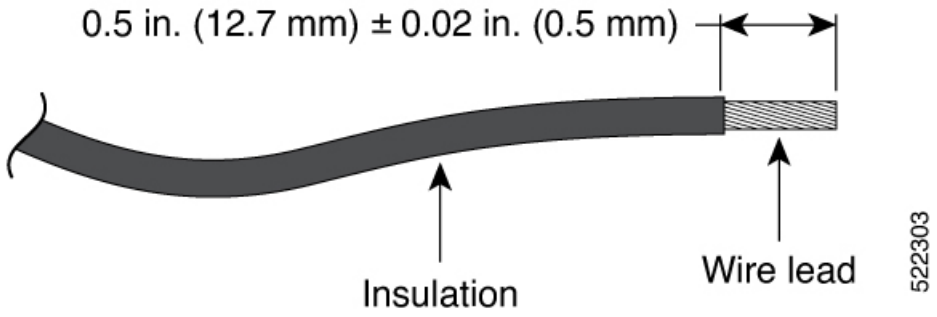
Materials Required

To ensure the chassis ground connection that you provide is adequate, you need the following parts and tools:

- Ratcheting torque screwdriver with Phillips head that exerts up to 15 pound-force inches (lbf-in) of pressure for attaching the ground wire to the router.
- Crimping tool as specified by the ground lug manufacturer.
- 6-AWG or larger copper wire for the grounding wire
- Appropriate wire-stripping tools

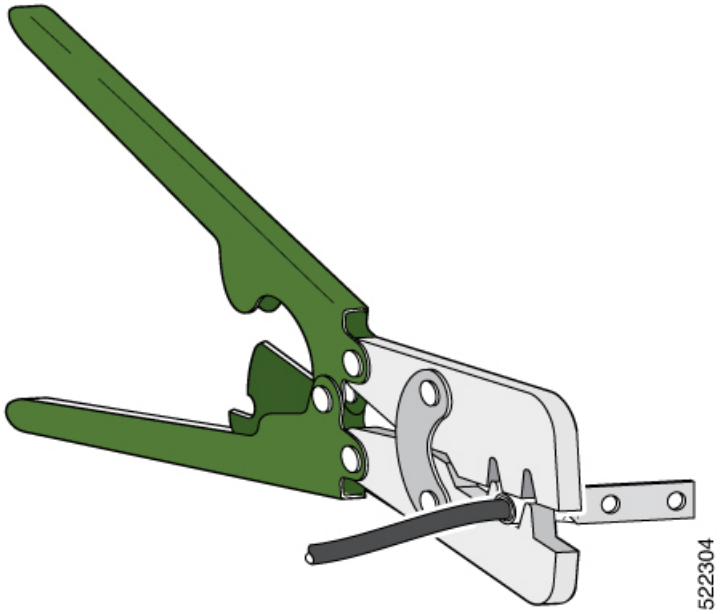
1. Remove the two-hole lug from the router.
2. Set the parts aside.
3. If your ground wire is insulated, use a wire-stripping tool to strip the ground wire to 0.5 inch ± 0.02 inch (12.7 mm ±0.5 mm) for the ring terminal (see the following figure).

Figure 8: Stripping a Ground Wire



4. Slide the open end of your 2-hole ground lug over the exposed area of the ground wire.
5. Using a crimping tool (as specified by the ground lug manufacturer), crimp the ground lug to the ground wire as shown in figure below.

Figure 9: Crimping a Ground Lug on to the Ground Wire



6. Use a Phillips head screwdriver to attach the 2-hole ground lug and wire assembly to the router with the 2 pan-head Phillips head screws.
7. Connect the other end of the ground wire to a suitable grounding point at your site.

Power Connection Guidelines

This section provides guidelines for connecting the router power supplies to the site power source.

Warning 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 213.

Warning The plug-socket combination must be accessible at all times because it serves as the main disconnecting device. Statement 1019.

Guidelines for DC-Powered Systems

Basic guidelines for DC-powered systems include the following:

- Each chassis power supply should have its own dedicated input power source. The source must comply with the safety extra-low voltage (SELV) requirements in the UL 60950, CSA 60950, EN 60950, and IEC 60950 standards.
- The circuit must be protected by a dedicated two-pole circuit breaker. The circuit breaker should be sized according to the power supply input rating and local or national code requirements.
- The circuit breaker is considered the disconnect device and should be easily accessible.
- The system ground is the power supply and chassis ground.
- Do not connect the DC return wire to the system frame or to the system-grounding equipment.
- Use the grounding lug to attach a wrist strap for ESD protection during servicing.

Preventing Power Loss

Use the following guidelines to prevent power loss to the router:

- To prevent loss of input power, ensure that the total maximum load on each circuit supplying the power supplies is within the current ratings of the wiring and breakers.
- In some systems, you can use an UPS to protect against power failures at your site. Avoid UPS types that use ferroresonant technology. These UPS types can become unstable with systems such as the router, which can have substantial current-draw fluctuations due to bursty data traffic patterns.

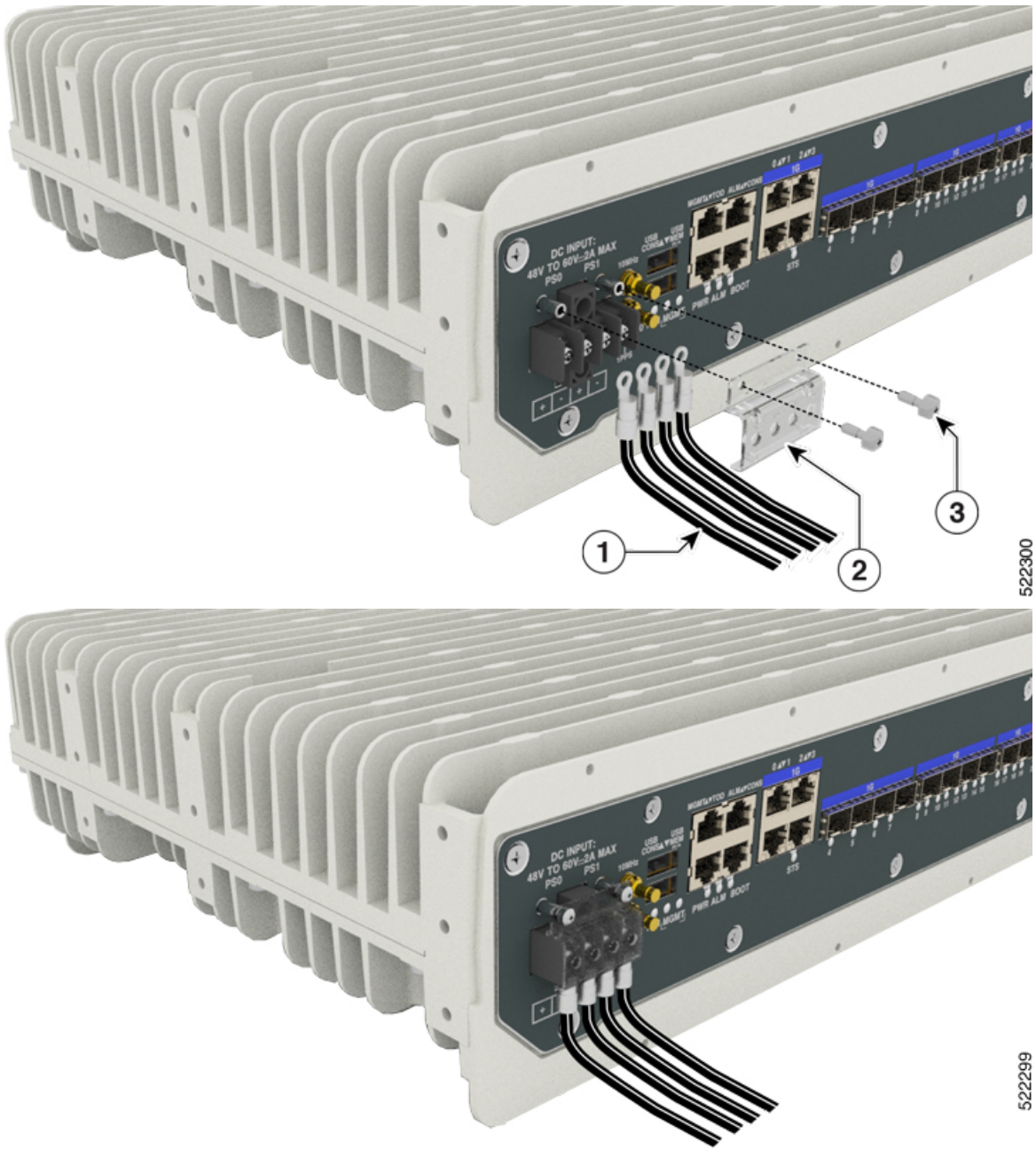
Use the information in the *Overview* section to estimate the power requirements and heat dissipation of a router based on a given configuration of the router. Determining power requirements is useful for planning the power distribution system needed to support the router.

Assemble and Connect the DC Power Cable to the Router

To connect the DC power cable to the router:

1. There is a DC cover over the DC power supply. Remove the screws to remove the DC terminal block protection cover.
2. The four lugs are provided in the accessories kit. The lugs are in turn connected with the wires.
3. Crimp the lugs to the wires. Fix the lugs to the terminal block and then fix the terminal block protection cover.

Figure 10: Connect the DC Power Cable to the Router



1	Four Lugs
2	DC Terminal Block Protection Cover
3	Screws

When installing DC power supply, use 20 AWG, 90°C wires. Always ensure that the building's installation for short-circuit (overcurrent) protection does not exceed 15A.

Note A circuit breaker of maximum 6A should be used.

Warning A readily accessible two-poled disconnect device must be incorporated in the fixed wiring. Statement 1022

Note This equipment is suitable for installation in Network Telecommunications Facilities and locations where the NEC applies. The equipment is suitable for installation as part of the Common Bonding Network (CBN).

Warning Connect the unit only to DC power source that complies with the safety extra-low voltage (SELV) requirements in IEC 60950 based safety standards. Statement 1033

Caution The grounding architecture of this product is DC-isolated (DC-I) for DC-powered products. DC-powered products have a nominal operating DC voltage of -48 VDC.

Power On the Router

After the router is rack mounted, perform these tasks to complete the installation:

- Power on the router.
- Connect the front-panel ports. See the *Connect to SFP Modules* section, to complete the installation.

Activate the DC Power Supply

Perform the following procedure to activate a DC power supply:

1. Remove the tape from the circuit-breaker router handle, and restore power by moving the circuit-breaker router handle to the On (|) position.
2. Verify power supply operation by checking if the front panel LED (PWR) is ON.

Note If you are connecting a redundant DC power supply, it is recommended that each power supply be connected to a separate power source in order to prevent power loss in the event of a power failure.

Install and Remove SFP Modules

These sections describe how to install and remove SFP modules. The modules are inserted into the SFP module slots as depicted in *Install an SFP Module into an SFP Module Slot* figure. These field-replaceable modules provide interfaces.

See the Supported SFPs and PIDs for the list of SFP modules that the router supports. Each port must match the wavelength specifications on the other end of the cable. For reliable communications, the cable must not exceed the stipulated cable length.

Use only Cisco SFP modules on the Cisco router. Each SFP module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the SFP module meets the requirements for the router.

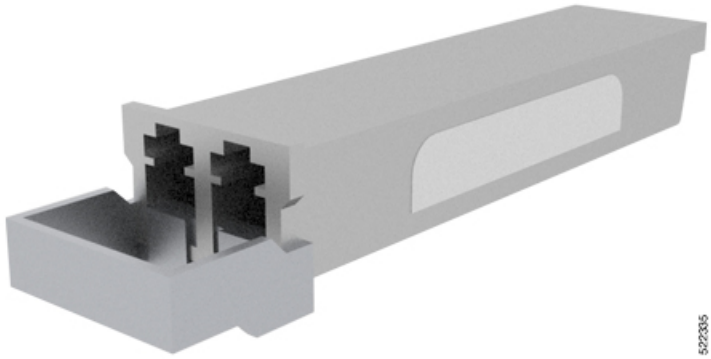
For detailed instructions on installing, removing, and cabling the SFP module, see the *SFP module* documentation.

Install SFP Modules

The figure below shows an SFP module that has a bale-clasp latch.

Caution We strongly recommend that you do not install or remove fiber-optic SFP modules with cables attached because of the potential damage to the cables, the cable connector, or the optical interfaces in the SFP module. Disconnect all cables before removing or installing an SFP module. Removing and installing an SFP module can shorten its useful life. Do not remove and insert SFP modules more often than is absolutely necessary.

Figure 11: SFP Module with a Bale-Clasp Latch



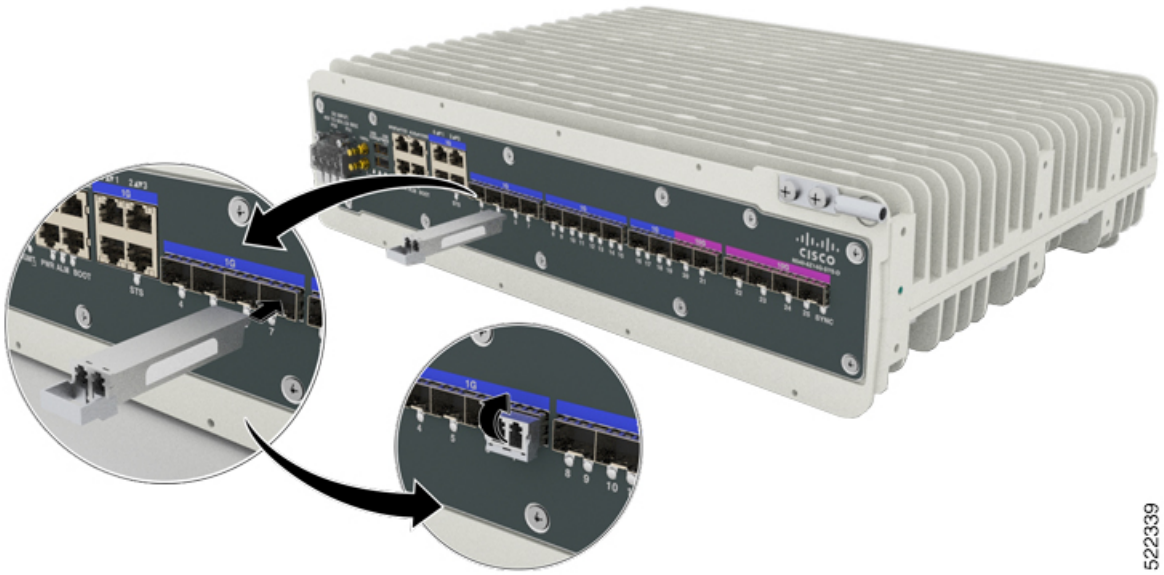
To insert an SFP module into the module slot, follow these steps:

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

   Some SFP modules identify the top side of the module with send (TX) and receive (RX) markings or arrows that show the direction of the connection.

2. If the SFP module that you are using has the markings, use them to identify the top side of the module.
3. Align the SFP module in front of the slot opening.
4. Insert the SFP module into the slot until you feel the connector on the module snap into place in the rear of the slot.

Figure 12: Install an SFP Module into an SFP Module Slot



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. Store the dust plugs for later use.

5. Insert the cable connector into the SFP module.

Remove SFP Modules

To remove an SFP module from a module receptacle, follow these steps:

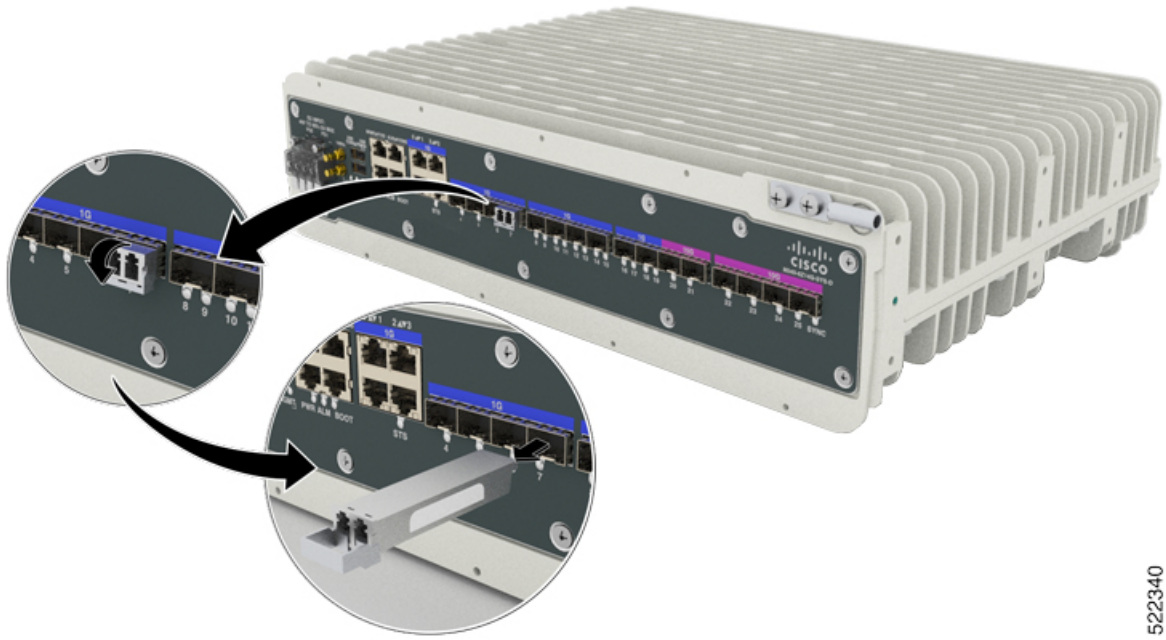
1. Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface on the chassis.
2. Disconnect the cable from the SFP module, and insert a dust plug into the cable end.

Tip For reattachment, note which cable connector plug is transmit (TX) and which is receive (RX).

3. Unlock and remove the SFP module, as shown in the following figure.

   If the module has a bale-clasp latch, pull the bale out and down to eject the module. If the bale-clasp latch is obstructed and you cannot use your index finger to open it, use a small, flat-blade screwdriver or other long, narrow instrument to open the bale-clasp latch.

Figure 13: Remove a Bale-Clasp Latch SFP Module



4. Grasp the SFP module between your thumb and index finger, and carefully remove it from the module slot.
5. For fiber-optic SFP modules, insert a dust plug into the optical ports of the SFP module to keep the optical interfaces clean.
6. Place the removed SFP module in an antistatic bag or other protective environment.

Connect to the 10/100/1000 Ports

Note The router 10/100/1000 ports configure themselves to operate at the speed of attached devices. If the attached ports do not support autonegotiation, you can explicitly set the speed and duplex parameters. Connecting devices that do not autonegotiate or that have their speed and duplex parameters manually set can reduce performance or result in no linkage.

To maximize performance, choose one of these methods for configuring the Ethernet ports:

- Let the ports autonegotiate both speed and duplex.
- Set the port speed and duplex parameters on both ends of the connection.

1. When connecting to workstations, servers, and routers, connect a straight-through cable to an RJ-45 connector on the front panel.When connecting to routers or repeaters, use a crossover cable.
2. Connect the other end of the cable to an RJ-45 connector on the other device. The port LED turns on when both the router and the connected device have established link.

   If the port LED turns Yellow, the device at the other end might not be turned on, or there might be a cable problem or a problem with the adapter installed in the attached device.

Note On network interface ports, the port LED is green after the link is established.

3. Reconfigure and reboot the connected device, if necessary.
4. Repeat Steps 1 through 3 to connect each device.

Connect to SFP Modules

This section describes how to connect to SFP modules. For instructions on how to connect to fiber-optic SFP modules, see the *Connect to Fiber-Optic SFP Modules*.

For instructions about how to install or remove an SFP module, see the *Install and Remove SFP Modules*.

Connect to Fiber-Optic SFP Modules

Follow these steps to connect a fiber-optic cable to an SFP module:

Warning Class 1 laser product. Statement 1008

Caution Do not remove the rubber plugs from the 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.

1. Remove the rubber plugs from the module port and fiber-optic cable, and store them for future use.
2. Insert one end of the fiber-optic cable into the SFP module port.
3. Insert the other cable end into a fiber-optic connector on a target device.
4. Observe the port status LED.

   The LED turns green when the router and the target device have an established link. If the LED turns Yellow, the target device might not be turned on, there might be a cable problem, or there might be problem with the adapter installed in the target device.
5. If necessary, reconfigure and restart the router or target device.

Connect the Router to the Network

The following sections describe how to connect a router to the network:

Note Connect only SELV services to all the router ports.

Connect Console Cables

The following sections describe how to connect to the router using console cables:

Connect to the USB Serial Port Using Microsoft Windows

This procedure shows how to connect to the USB serial port using Microsoft Windows.

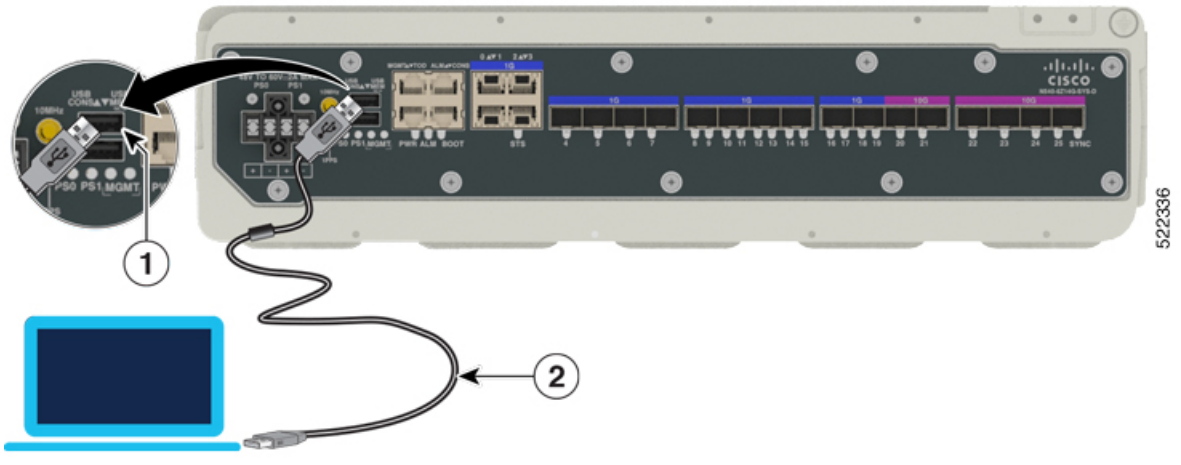
Note Install the USB device driver before establishing a physical connection between the router and the PC, by using the USB console cable plugged into the USB serial port. Otherwise, the connection will fail. For more information, see the *Installing the Cisco USB Device Driver* section.

1. Connect a USB Type A-to-Type A cable to the USB console port, as shown in figure below.

Note You cannot use the USB port and the EIA port concurrently. When the USB port is used, it takes priority over the EIA port.

2. Connect the USB Type A cable to the PC.
3. To communicate with the router, start a terminal emulator application, such as Microsoft Windows HyperTerminal. This software should be configured with the following parameters:
   - 115200 baud
   - 8 data bits
   - no parity
   - 1 stop-bit
   - no flow control

Figure 14: Connect the USB Console Cable to the Router



Connect to the Console Port Using Mac OS X

This procedure describes how to connect a Mac OS X system USB port to the console using the built-in OS X terminal utility.

1. Use the Finder to choose Applications > Utilities > Terminal.
2. Connect the OS X USB port to the router.
3. Enter the following commands to find the OS X USB port number:

```
macbook:user$ cd /dev
macbook:user$ ls -ltr /dev/*usb*
crw-rw-rw-  1 root    wheel       9,  66 Apr  1 16:46 tty.usbmodem1a21 DT-macbook:dev
user$
```

4. Connect to the USB port with the following command followed by the router USB port speed:

```
macbook:user$ screen /dev/tty.usbmodem1a21 9600
```

To disconnect the OS X USB console from the terminal window, enter **Ctrl-a** followed by **Ctrl-**

Connect to the Console Port Using Linux

This procedure shows how to connect a Linux system USB port to the console using the built-in Linux terminal utility.

1. Open the Linux terminal window.
2. Connect the Linux USB port to the router.
3. Enter the following commands to find the Linux USB port number:

```
root@usb-suse# cd /dev
root@usb-suse /dev# ls -ltr *ACM*
crw-r--r--    1 root     root     188,   0 Jan 14 18:02 ttyACM0
root@usb-suse /dev#
```

4. Connect to the USB port with the following command, followed by the router USB port speed:

```
root@usb-suse /dev# screen /dev/ttyACM0 9600
```

To disconnect the Linux USB console from the terminal window, enter **Ctrl-a** followed by : then **quit**

Install the Cisco USB Device Driver

A USB device driver must be installed the first time a Microsoft Windows-based PC is connected to the USB serial port on the router.

This procedure describes how to install the Microsoft Windows USB device driver in Microsoft Windows XP, Windows Vista, Windows 2000, Windows 7, and Windows 8. Download the driver for your router model from the Tools and Resources Download Software site, USB Console Software category, at:

https://software.cisco.com/download/home/286037604/type/282855122/release/3.13

Note To download the driver, you must have a valid service contract associated to your Cisco.com profile.

1. Unzip the file asr-9xx_usbconsole_drivers.zip.
2. Double-click xrusbser_ver2100_installer.exe in the XR21x141x-Win-DriversOnly-Vers2.1.0.0/EXE folder.

   Installation Wizard GUI is displayed.
3. Click Next. The InstallShield Wizard Completed window is displayed.
4. Click Finish.
5. Connect the USB cable to the PC and router USB console ports. Follow the on-screen instructions to complete the installation of the driver.
6. The message displays that XR21V1401 USB UART Device driver is successfully installed.

   The USB console is ready for use.

Uninstall the Cisco USB Driver

This procedure describes how to uninstall the Microsoft Windows USB device driver in Microsoft Windows XP, Windows Vista, Windows 2000, Windows 7, and Windows 8.

Note Disconnect the router console terminal before uninstalling the driver.

1. Choose Start > Control Panel > Add or Remove Programs.
2. Scroll to **Windows Driver Package - Exar corporation (xrusbser) Ports** and click **Remove**. The **Program Maintenance** window is displayed.
3. Click **Yes** to uninstall the driver.

Connect to the EIA Console Port

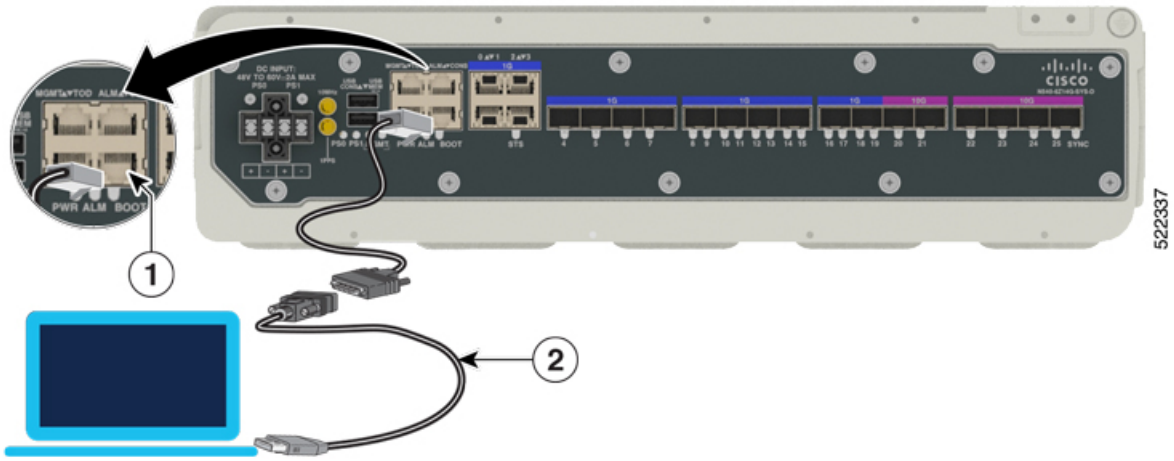
Note The USB-to-RJ45 adapter cable and the DB9 console cable are not included with the router; they can be ordered separately from Cisco.

Note The serial console cable kit is not included with the router; it has to be ordered separately.

To connect a terminal to the EIA Console port on the router, follow these steps:

1. Connect the USB end of the USB-to RJ-45 cable to the EIA Console port.
2. Connect the RJ-45 end of the DB-9 adapter cable to the USB-to RJ-45 cable, as shown in figure below.

Figure 15: Connect a Terminal to the Router



3. Connect the DB-9 end of the console cable to the DB-9 end of the terminal.
4. To communicate with the router, start a terminal emulator application, such as Microsoft Windows HyperTerminal. This software should be configured with the following parameters:
   - 115200 baud
   - 8 data bits
   - no parity
   - 1 stop-bit
   - no flow control

Connect a Management Ethernet Cable

Note It is recommended that you retain the RJ-45 dust caps for the ports (RJ-45, SFP, and USB ports) that are not used.

When using the Ethernet Management port in the default mode (speed-auto and duplex-auto) the port operates in the auto-MDI/MDI-X mode. The port automatically provides the correct signal connectivity through the Auto-MDI/MDI-X feature. The port automatically senses a crossover or straight-through cable and adapts to it.

However, when the Ethernet Management port is configured to a fixed speed (10, 100, or 1000 Mbps) through command-line interface (CLI) commands, the port is forced to the MDI mode.

When in a fixed-speed configuration and MDI mode:

- Use a crossover cable to connect to an MDI port
- Use a straight-through cable to connect to an MDI-X port

Note To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the Management Ethernet ports only to intra-building or unexposed wiring or cable. The intrabuilding cable must be shielded and the shield must be grounded at both ends. The intra-building port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

Install and Remove SFP and SFP+ Modules

The router supports a variety of SFP and SFP+ modules, including optical and Ethernet modules. For information on how to install and remove SFP and SFP+ modules, see the documentation for the SFP or SFP+ module at:

http://www.cisco.com/en/US/partner/products/hw/modules/ps5455/prod_installation_guides_list.html

For information about inspecting and cleaning fiber-optic connections see, http://www.cisco.com/en/US/partner/tech/tk482/tk876/technologies_white_paper09186a0080254eba.shtml

Caution We recommend that you wait for 30 seconds between the removal and insertion of an SFP on an interface module. We recommend this to allow the transceiver software to initialize and synchronize with the router. Changing an SFP more quickly could result in transceiver initialization issues that disable the SFP.

Connect a USB Flash Device

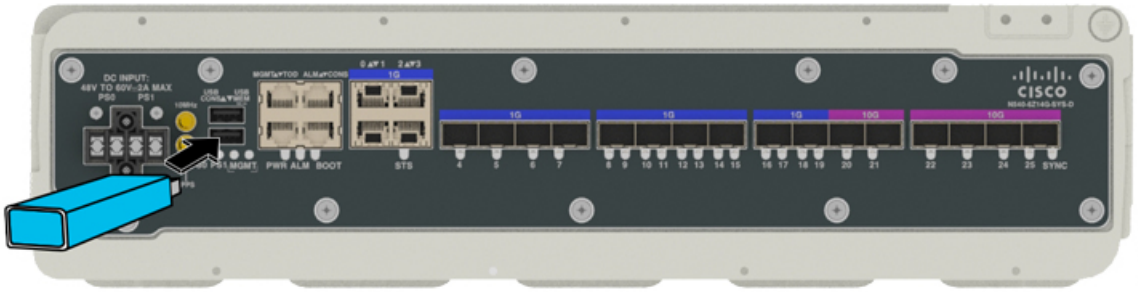
To connect a USB flash device to the router, remove the dust cap and insert the memory stick in the USB port labeled USB MEM.

Note Retain the dust caps for later use.

The Flash memory module can be inserted only one way, and can be inserted or removed regardless of whether the router is powered up or not.

Figure below shows the USB port connector on the router.

Figure 16: Router Flash Token Memory Stick



Remove and Replace a USB Flash Device

To remove and replace a USB flash token memory stick from and into a router, follow these steps:

Note If the USB flash device is abruptly removed, the constant sync operations of the file system in progress fail due to the USB device removal. These errors occur with ext2 or ext3 or ext4 file systems and are not seen with fat32 file system. This is a default behavior on any Linux platform.

The following error messages are displayed when you remove the USB device:

```
*Jun 24 10:29:45.766: %IOSXE-3-PLATFORM: R0/0: kernel: EXT2-fs (sda1): previous I/O error
to superblock detected
*Jun 24 10:29:45.878: %IOSXE-3-PLATFORM: R0/0: kernel: EXT2-fs (sda1): previous I/O error
to superblock detected
*Jun 24 10:29:46.012: %IOSXE-3-PLATFORM: R0/0: kernel: EXT2-fs (sda1): previous I/O error
to superblock detected
*Jun 24 10:29:46.013: %IOSXE-3-PLATFORM: R0/0: kernel: EXT2-fs (sda1): previous I/O error
to superblock detected
```

1. Execute the **eject usb0:** command before removing the USB from the router.

   ```
   rommon 2 > eject usb0
   rommon 2 >
   ```

   If you do not run this command before removing the USB, the following error message is displayed:

   ```
   rommon 2 > dir usb0:
     usb_stor_BBB_comdat:usb_bulk_msg error
     failed to send CBW status 34
     RESET:stall
     usb_stor_BBB_comdat:usb_bulk_msg error
     failed to send CBW status 34
     RESET:stall
     usb_stor_BBB_comdat:usb_bulk_msg error
   ```

2. Pull the memory stick from the USB port.
3. To replace the Cisco USB Flash memory stick, simply insert the module into the USB port labeled USB MEM, as shown in router Flash Token Memory Stick figure. The Flash memory module can be inserted only one way, and can be inserted or removed regardless of whether the router is powered up or not.

Note If you are permanently removing the USB Flash device, reinstall the dust cap in the USB port.

Connect Ethernet Cables

Note To achieve good performance, it is recommended to use Shielded Twisted Pair (STP) Cat 5E/Cat 6 cables for all RJ-45 ports on the router.

The router interface modules support RJ-45 and Ethernet SFP ports. For instructions on how to connect cables to Ethernet SFP ports, see the *Connecting Cables to SFP Modules*.

The RJ-45 port supports standard straight-through and crossover Category 5E unshielded twisted-pair (UTP) cables. Cisco does not supply Category 5E UTP cables; these cables are available commercially.

Note To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the Gigabit Ethernet ports only to intra-building or unexposed wiring or cable. The intrabuilding cable must be shielded and the shield must be grounded at both ends. The intra-building port(s) of the equipment or subassembly must not be metallically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intra-building interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE) and require isolation from the exposed OSP cabling. The addition of Primary Protectors is not sufficient protection in order to connect these interfaces metallically to OSP wiring.

1. Connect one end of the cable to the Gigabit Ethernet port on the router.
2. Connect the other end to the BTS patch or demarcation panel at your site.

Connect Cables to SFP Modules

For information on connecting cables to Cisco optical and Ethernet SFP interfaces, see:

http://www.cisco.com/en/US/partner/products/hw/modules/ps5455/prod_installation_guides_list.html.

Install the Front Cover

The front cover protects the system from dust. Ensure the disturbance to cable routing is minimal to avoid loss of connection.

1. Place the cable sleeve close to the router.
2. Secure the fiber or cable bundle in the cable sleeve.
3. Slide the front cover with cable sleeve and secure it with the fasteners on the cable cover.

Figure 17: Install the Front Cover Assembly

