Installing the Cisco ASR 907 Router

This chapter describes how to install the Cisco ASR 907 Router and includes the following sections:

- Prerequisites, on page 1
- Installing the Router in a Rack, on page 1
- Installing the Chassis Ground Connection, on page 12
- Installing the Fan Tray, on page 15
- RSP Installation, on page 20
- Installing the Interface Module Carrier, on page 24
- Interface Module Installation, on page 24
- Installing the Power Supply, on page 29
- Connecting the Cisco ASR 907 Router to the Network, on page 40

Prerequisites

Before installing the Cisco ASR 907 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)
- Unpacking and inspecting the Cisco ASR 907 Router
- Gathering the tools and test equipment required to properly install the Cisco ASR 907 Router

For more instructions on how to prepare for the installation of the Cisco ASR 907 Router, see Preparing for Installation.

Installing the Router in a Rack

The following sections describe how to install the Cisco ASR 907 Router in a rack:

Installing the Chassis Brackets

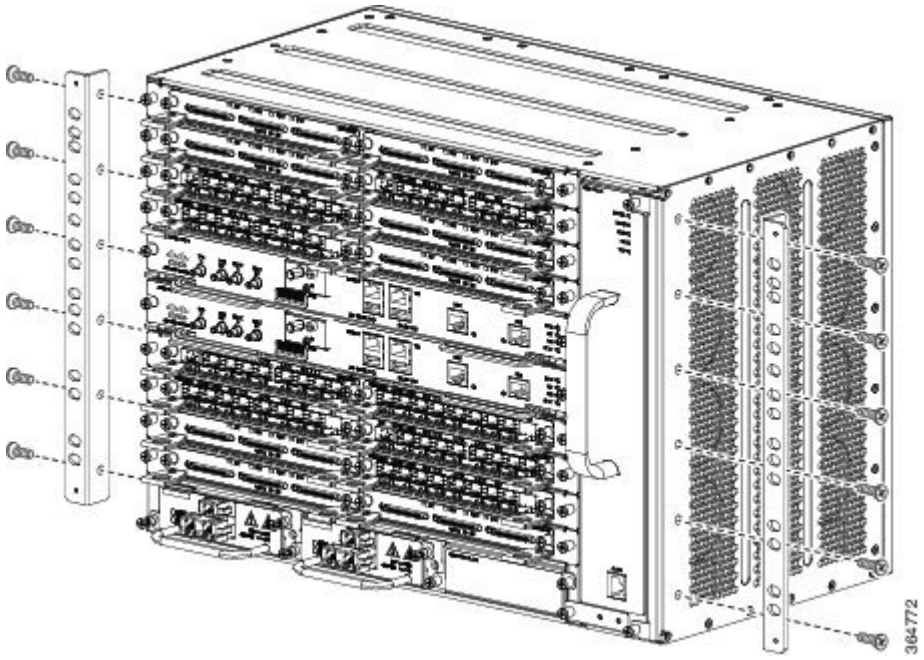
The chassis is shipped with mounting brackets that can be installed on the front or rear of the chassis. To install the brackets on the front of the chassis, perform these steps:

Procedure

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

The figure below shows how to attach the brackets on the Cisco ASR 907 Router for a 19-inch EIA rack and 300 mm ETSI Cabinet.

Figure 1: Attaching Mounting Brackets for a 19-inch EIA Rack and 300 mm ETSI Cabinet



Step 2 Position one of the brackets against the chassis side, and align the screw holes.

Step 3 Secure the bracket to the chassis with the screws removed when performing Step 1. The recommended maximum torque is 28 in.-lb (3.16 N-m).

The A907-FAN-E fan tray with filter (A907-FAN-F) cannot be mounted using the mounting screws that are supported for fan tray. This is not an issue with the FAN tray filter blank panel (A907-FAN-F-B). We recommend that you use the short screws provided in the following rack mount kits to avoid interference of the air filter during rack mounting and while replacing the fan tray with the fan tray filter (A907-FAN-E):

- 19" rack mount kit (A907-RCKMT-19IN)
- ETSI rack mount kit (A907-RCKMT-ETSI)

What to do next

Repeat Step 2 and Step 3 for the other bracket.

Installing the Router Chassis in the Rack

The procedures in this section apply to both horizontal and vertical mounting of the router in a rack.

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

Procedure

Step 1 Position the chassis in the rack as follows:

- If the front of the chassis (front panel) is at the front of the rack, insert the rear of the chassis between the mounting posts.
- If the rear of the chassis is at the front of the rack, insert the front of the chassis between the mounting posts.

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

Caution Do not use interface module and power supply ejector handles to lift the chassis; using the handles to lift the chassis can deform or damage the handles. Installing the Chassis to support the Japanese JIS Rack Standard.

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

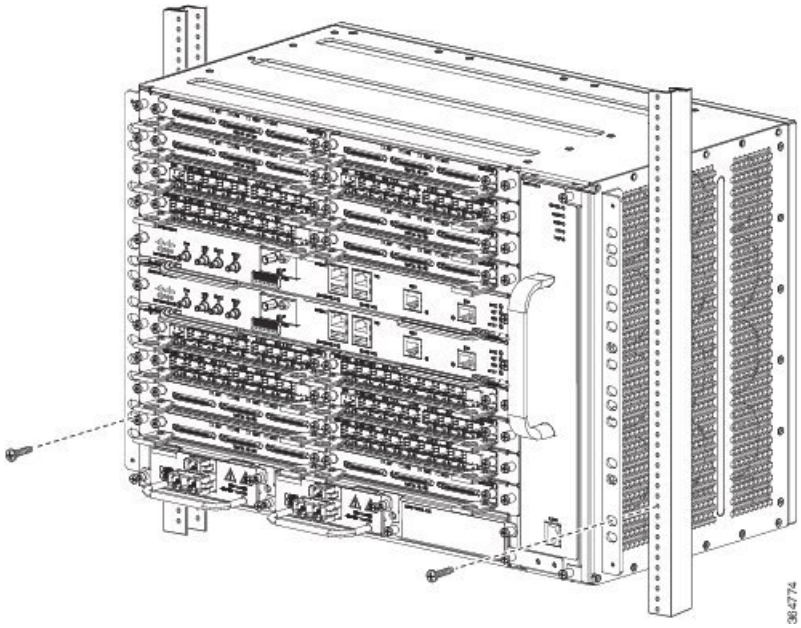


Figure 3: Installing the Chassis to support the Japanese JIS Rack Standard

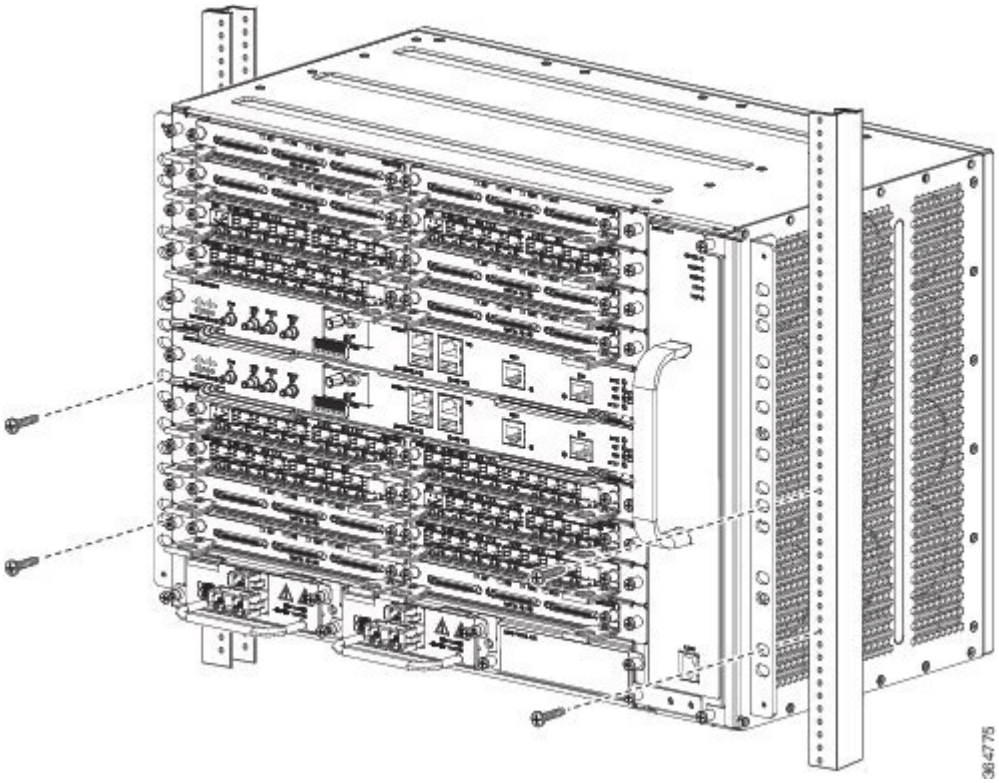
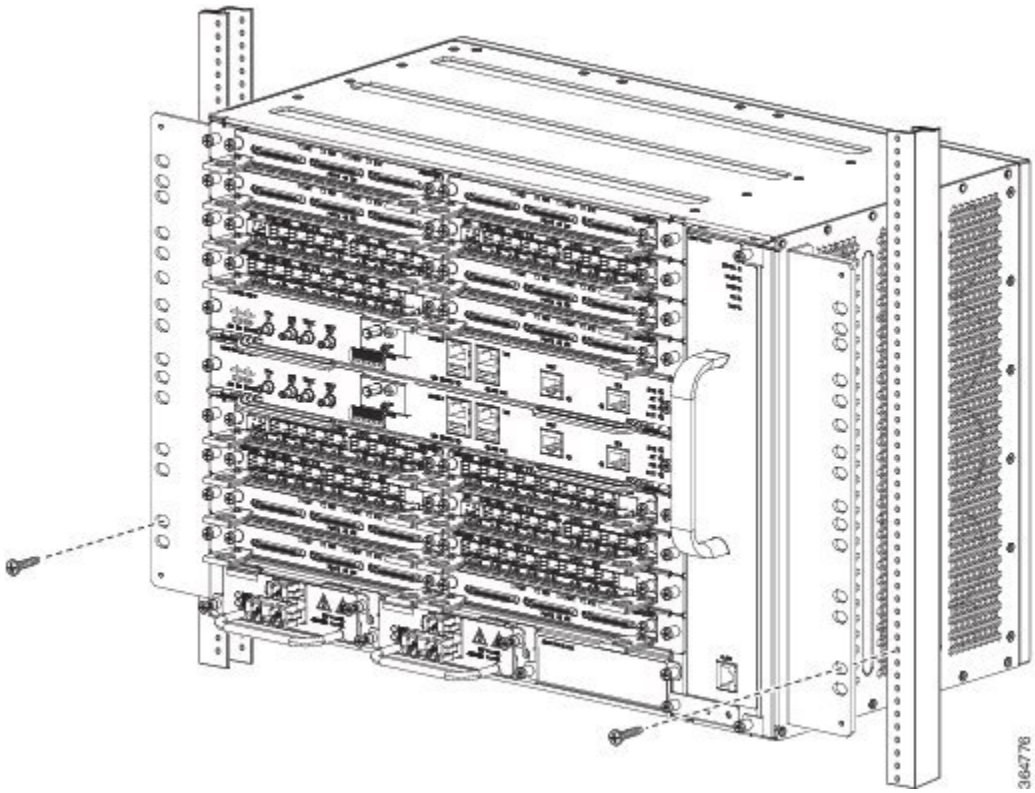


Figure 4: Installing the Chassis in a 300 mm ETSI Cabinet



Note The router can be mounted in an ETSI rack but the required bend radius for the cables and fibers within the 300 mm ETSI specification cannot be maintained.

If you want to mount the router in ETSI cabinets, you need to have a custom-made cabinet front door to meet the fiber bend radius requirement.

Step 3 Install the 8 or 12 (4 or 6 per side) 12-24 x 3/4-inch or 10-32 x 3/4-inch screws through the holes in the bracket and into the threaded holes in the equipment rack posts.

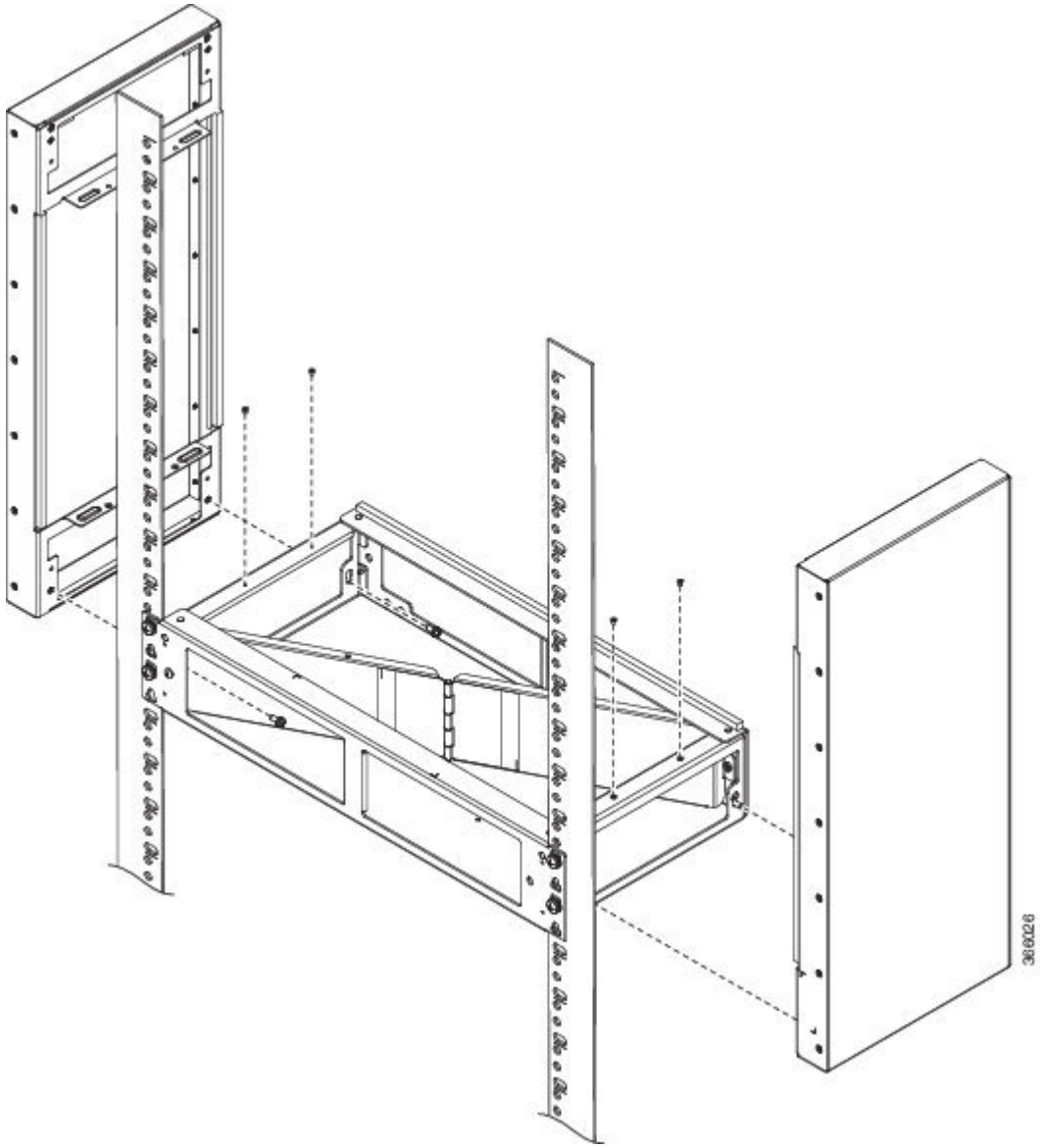
Step 4 Use a tape measure and level to verify that the chassis is installed straight and level.

Installing Plenum A907-F2B-AIR-U Assembly and Chassis in the Rack

Procedure

Step 1 Position the air baffle and the side plate to the plenum. Secure the air baffle using a maximum torque of 11.5 in.-lb (1.3 N-m). See figure below.

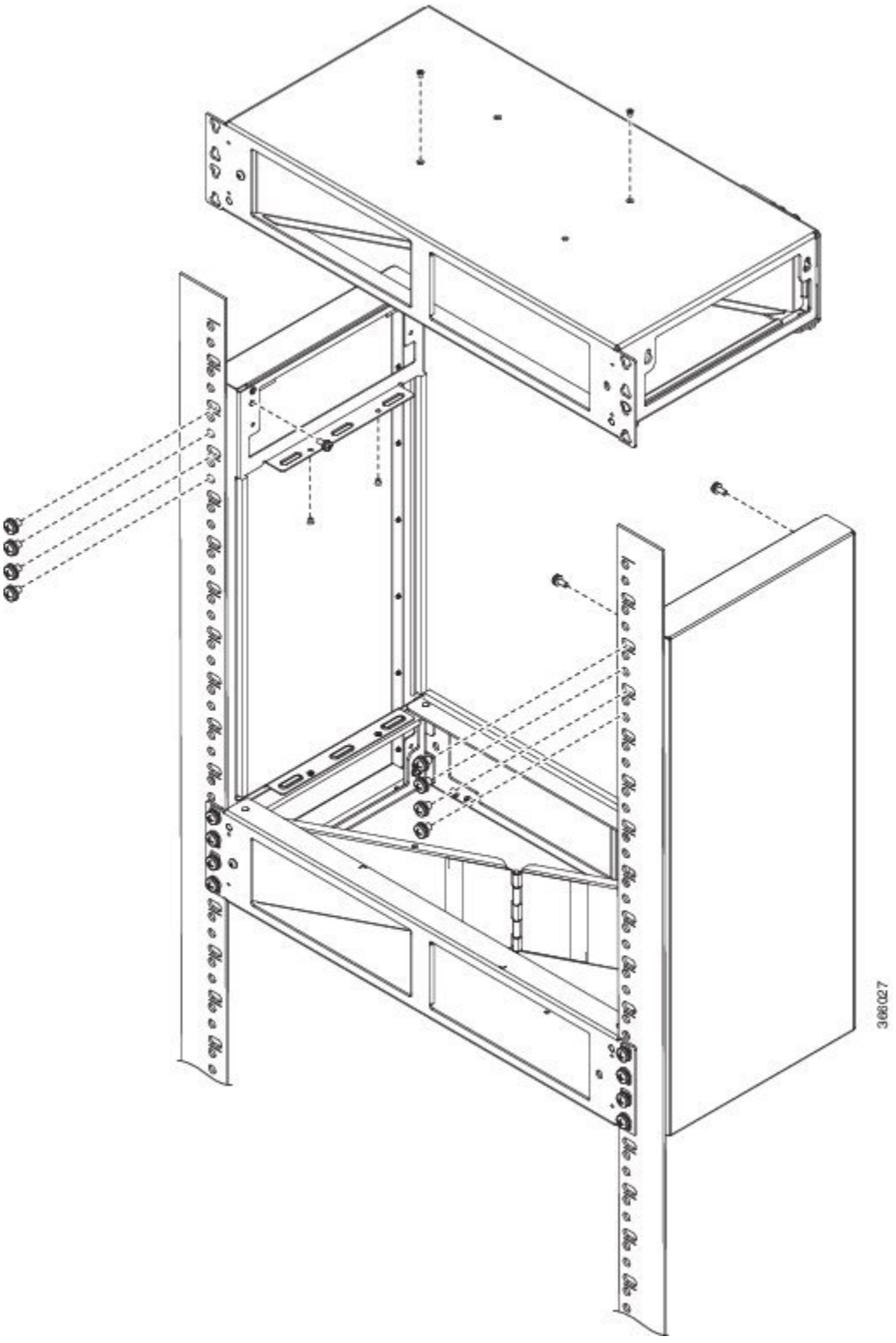
Figure 5: Securing the Air Baffle Tray



Step 2 Position the plenum assembly to the rack and secure the cable brackets to the rack using a torque of 11.5 in.-lb (1.3 N-m). See figure below.

Note For a 19-inch rack installation, the rack has to have a flat post.

Figure 6: Plenum Assembly to Rack



Step 3 Repeat Step-1 and Step-2 to complete the plenum assembly on the other side of the plenum base.

Step 4 Position cable guides on the router chassis.

Step 5 Ensure to select the 21-inches or 23-inches adapter for your plenum based on your rack size.

Note The 19-inches bracket is an integral part of the plenum base.

Figure 7: Different Adapters

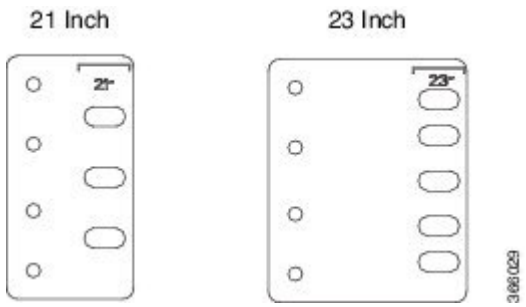
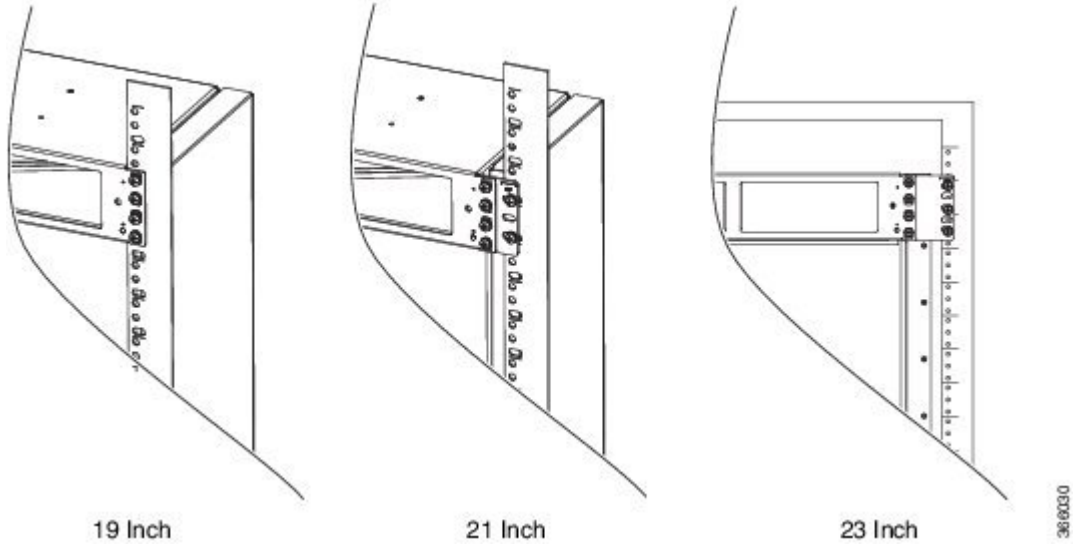


Figure 8: Plenum Installation on Various Racks



Step 6 Position the plenum assembly to the rack and secure the cable brackets to the rack using a torque of 11.5 in.-lb (1.3 N-m). See figure below.

Note For a 19-inch rack installation, the rack has to have a flat post.

Figure 9: Plenum Assembly to 21-inch Rack

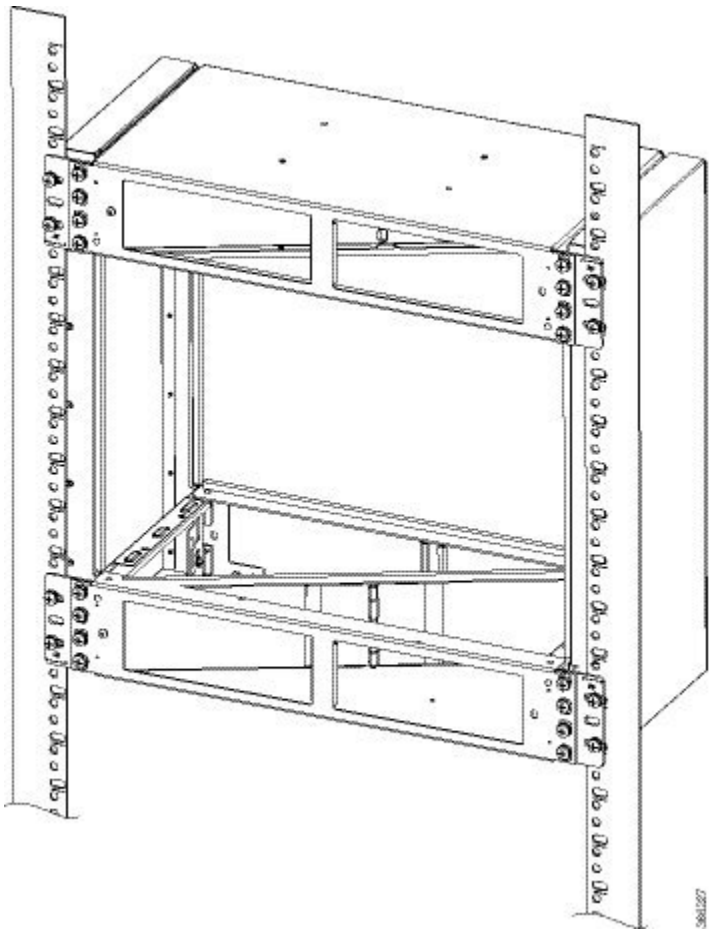
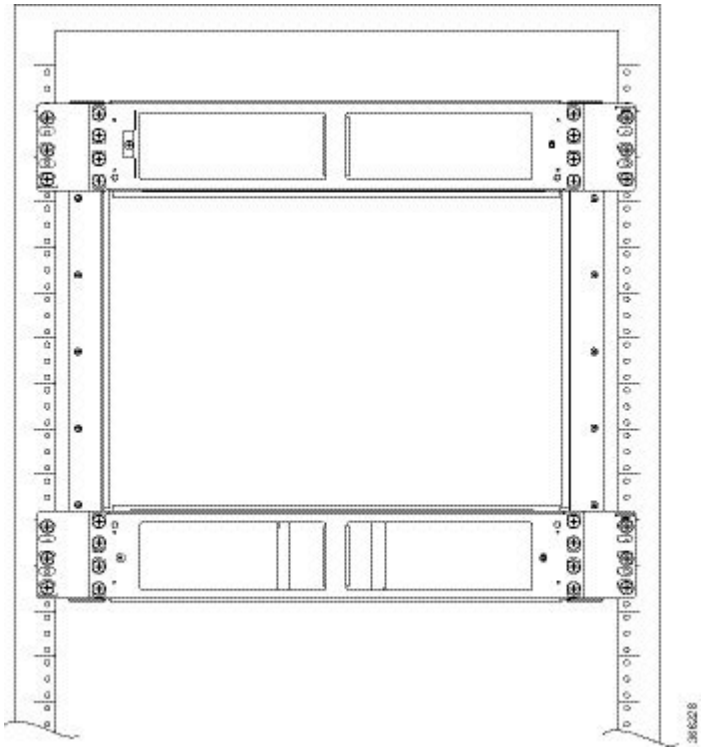


Figure 10: Plenum Assembly to 23-inch Rack



Installing the Chassis in the Air Plenum

Note Ensure that the router is not installed in the Air Plenum while mounting it on the rack.

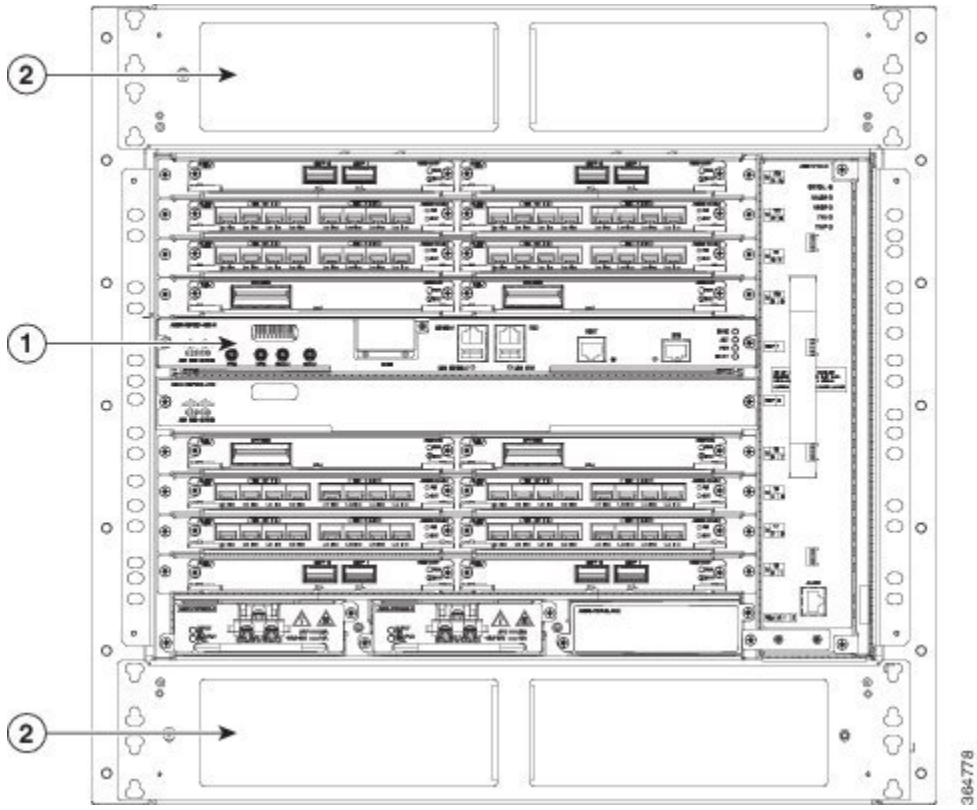
For instructions on mounting the air plenum on the rack.

Procedure

Step 1 Position the chassis so that the rear of the chassis is at the front of the plenum. See the figure below.

Step 2 Slide the chassis into the plenum so that the front of the chassis is in flush with the mounting rails and brackets.

Figure 11: Cisco ASR 907 Chassis with Air Plenum



1	Cisco ASR 907 router	2	Air plenum

Attaching the Cable Management Brackets

The router supports the following brackets:

- A907-CABLE-GUIDE—This guide helps in routing the cables from the interface modules; therefore enabling a proper cable bending radius. See the figure below.

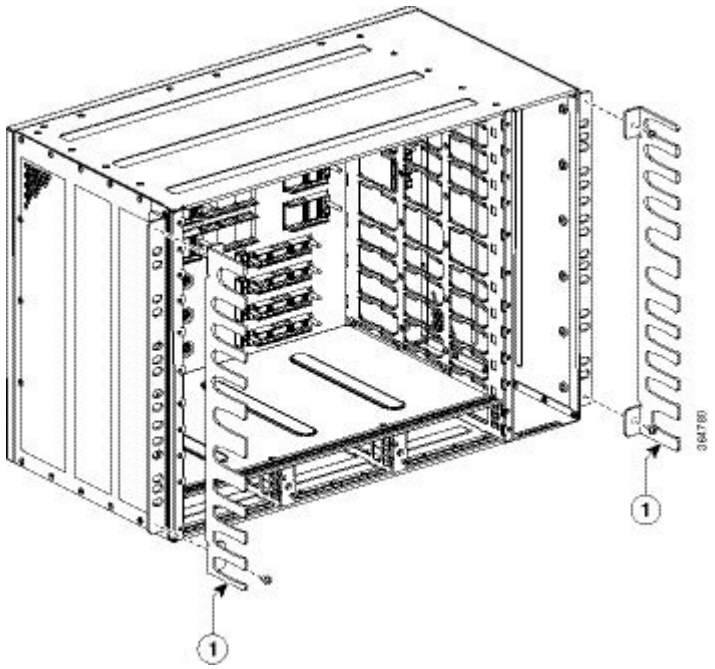
Note The mounting brackets and cable mounting brackets are assembled together. We recommend that the brackets are installed before the chassis is installed in the Air Plenum.

To install the optional cable management brackets, perform these steps:

Procedure

Step 1 Position the cable management brackets against the front of the chassis and align the four screw holes, as shown in the figure below.

Figure 12: Cable Management Bracket (A907-CAB-BRACKET)



1	Cable management guide

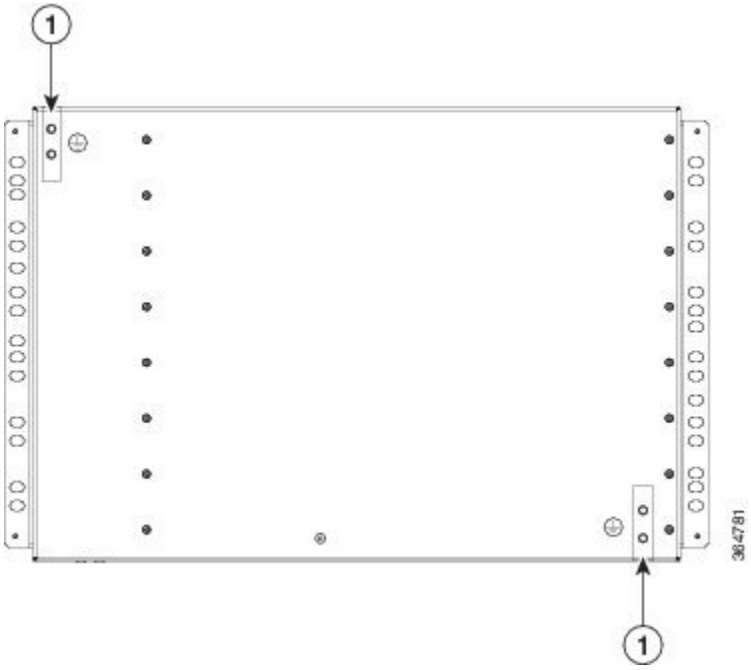
Step 2 Secure the cable management brackets with four M4 screws. The recommended maximum torque is 10 in.-lb (1.12 N-m).

Installing the Chassis Ground Connection

Before you connect the power or turn on the power to the Cisco ASR 907 Router, you must provide an adequate chassis ground (earth) connection to your router.

This section describes how to ground the Cisco ASR 907 Router chassis. The router provides two locations for attaching a 2-hole grounding lug according to the rack-mounting brackets you use to install the router.

Figure 13: Attaching a Grounding Lug to the Rear of the Router



1	Grounding lug

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

Note Use 10 AWG copper wire for the power cord. For more information, see *Connecting DC Power Supply Unit (A900-PWR900-D2)*.

- Ratcheting torque screwdriver with Phillips head that exerts up to 20 in.-lb (2.25 N-m) 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 ground wire
- Wire-stripping tools appropriate to the wire you are using

Caution Before making connections to the Cisco ASR 907 Router, ensure that you disconnect the power at the circuit breaker. Otherwise, severe injury to you or damage to the router may occur.

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

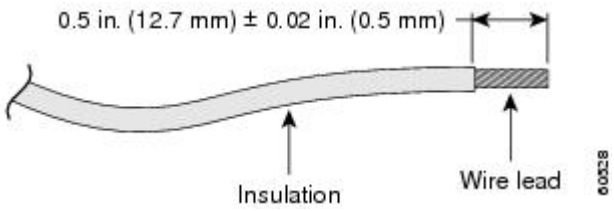
This unit is to be installed in a restrictive access location and must be permanently grounded to minimum 6 AWG copper ground wire.

Perform the following procedure to ground the Cisco ASR 907 Router using a 2-hole lug and the corresponding mounting point. Most carriers require a minimum 6 AWG ground connection. Verify your carrier's requirements for the ground connection.

Procedure

Step 1 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) As shown in the figure below.

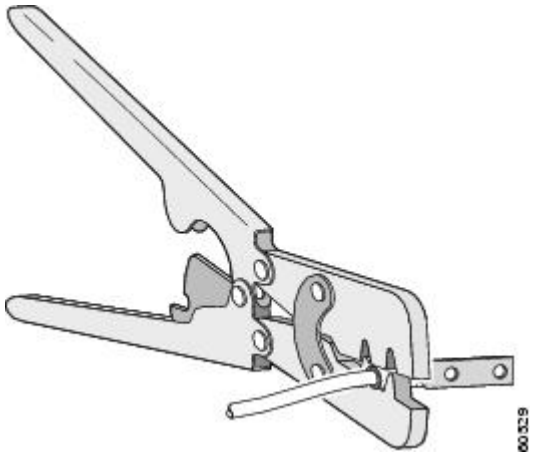
Figure 14: Stripping a Ground Wire



Step 2 Slide the open end of your 2-hole ground lug over the exposed area of the ground wire.

Step 3 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 15: Crimping a Ground Lug onto the Ground Wire



Step 4 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. For a 19-inch EIA rack, attach the 2-hole ground lug to the rear of the router.

Step 5 Connect the other end of the ground wire to a suitable grounding point at your site.

Installing the Fan Tray

The fan tray is a modular unit that provides cooling to the Cisco ASR 907 Router.

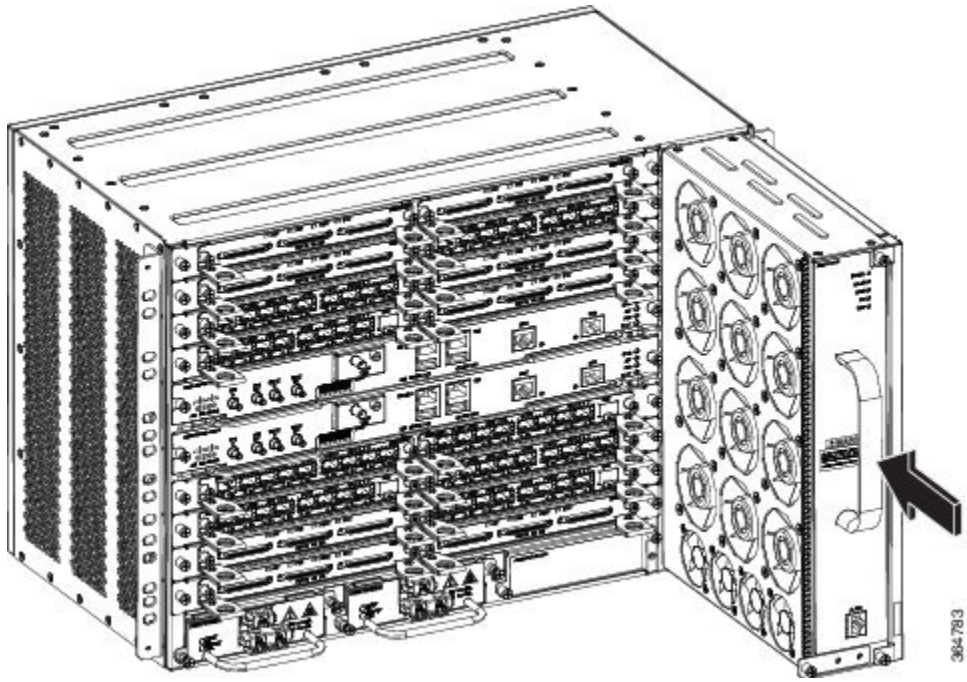
Note Do not introduce body parts or objects in the fan tray slot when installing or removing the fan tray module. Exposed circuitry is an energy hazard.

Follow these steps to install the fan tray in the chassis:

Procedure

Step 1 Orient the fan tray so that the captive screws are on the left side of the fan tray's front panel. The figure below shows how to orient the fan tray.

Figure 16: Installing the Fan Tray



Step 2 Guide the fan tray into the chassis until it is fully seated.

Caution The fans are exposed on the left side of the fan tray. Keep your fingers, clothing, and jewelry away from the fans. Always handle the fan tray by the handle.

Note When installing the cabling to the RSPs, we recommend that you leave a service loop of extra cabling sufficient to allow for fan tray removal.

Step 3 Secure the fan tray to the chassis using the attached captive installation screws. The recommended maximum torque is 5.5 in.-lb (.62 N-m).

This completes the procedure for installing or replacing the fan tray in a Cisco ASR 907 Router.

For a video walk-through of these instructions, see http://www.cisco.com/c/en/us/td/docs/routers/asr907/hardware/video/asr907-fantray.html.

For information about connecting cables to the fan tray alarm port, see Connecting the Fan Tray Alarm Port. For a summary of the LEDs on the fan tray, see LED Summary. For more information about air flow guidelines, see Air Flow Guidelines.

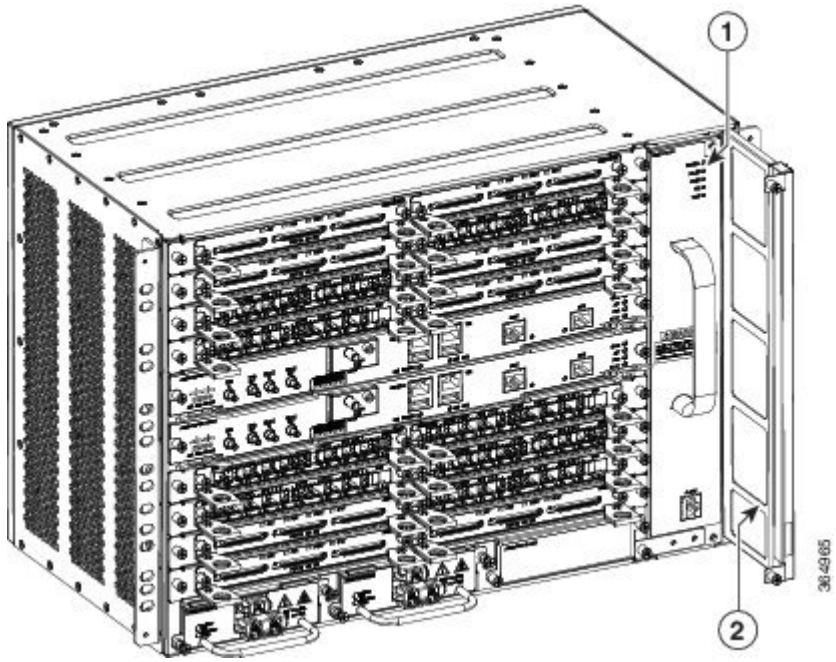
Removing and Replacing the Dust Filter

The chassis is shipped with a blank fan filter cover. To install the dust filter:

Procedure

Step 1 Remove the blank fan filter cover (A907-FAN-F=) by unscrewing the captive installation screws at the top and bottom of the dust filter frame. See the figure below.

Figure 17: Blank Fan Filter

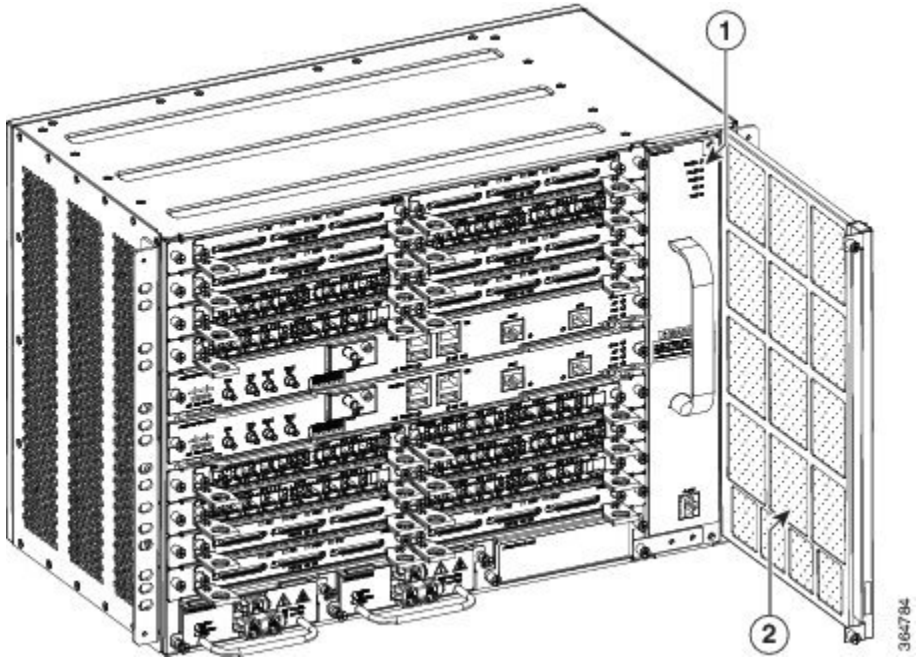


1	LEDs	2	Dummy fan filter

Step 2 Slide the new dust filter (A907-FAN-F) onto the fan tray.

Step 3 Secure the filter with the top and bottom captive screws, in the chassis.

Figure 18: Fan Filter



1	Captive screw	2	Fan filter

Removing the Dust Filter

Remove the dust filter for a replacement.

Note

- The dust filter is a single-use component.
- Use the dust filter (A907-FAN-F) within 6 months of buying as the shelf or storage life is less than 6 months. The ideal storage condition for a filter is a cool, dry, and dark environment. Surroundings that adversely affect the dust filter are high heat, humidity at high temperatures, and ultraviolet light.

Dust Filter Maintenance

A periodic health check of the filter, every 3 months based on the level of dust in the environment, helps in avoiding over clogging of the filters and provides a better life. This product's filter is used as a single-use component. If the product is installed in a controlled environment, check and replace the filter every three months, otherwise replace the filter every month with PID (A907-FAN-F=) or equivalent.

Removing and Replacing the Fan Tray

The fan tray supports online insertion and removal (OIR). There is no need to power down the Cisco ASR 907 Router to remove or replace the fan tray. However, the router will shut down if the fan tray is removed from the chassis for more than 90 seconds at 25º C due to thermal overload condition. Approximately at 25º C the system powers back in 2 minutes.

Note If a fan tray is removed and not replaced within the stipulated time the system will automatically power-off. If the system is powered with PSUs other than 900W DC or 1200W AC and if the system is powered off, then the system should be completely powered off for 30 seconds with all the PSU in the system simultaneously, and then turned on for the system to power on.

Note Do not introduce body parts or objects in the fan tray slot when installing or removing the fan tray module. Exposed circuitry is an energy hazard.

Caution The router can stay active for up to 60 seconds if the temperature is up to 30º C. However, in the event of an overtemperature alarm, the router can shut down in less than 60 seconds. In the event of a critical temperature alarm, the router shuts down immediately.

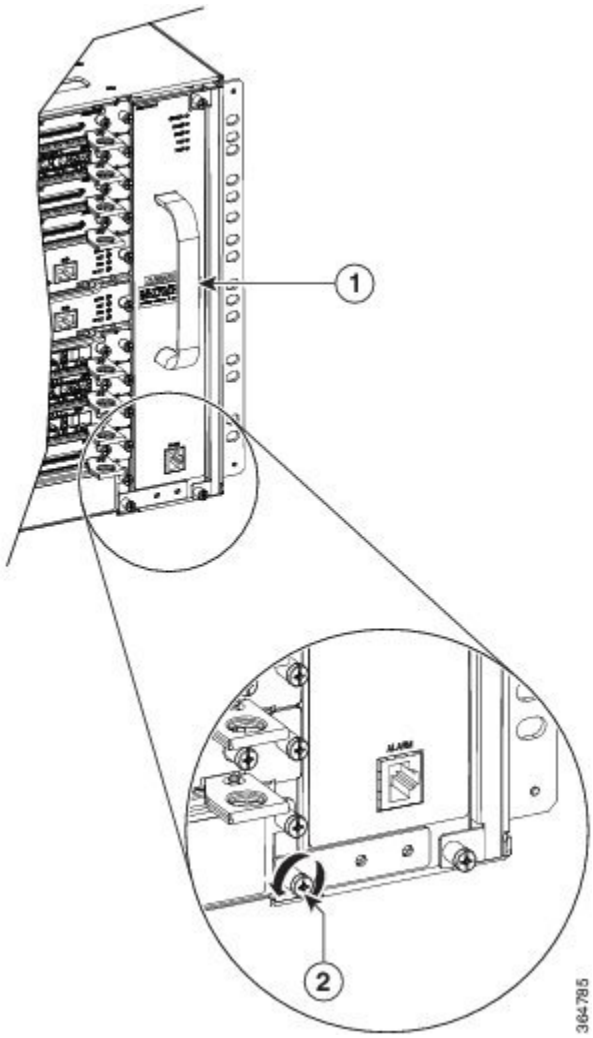
Caution To avoid erroneous failure messages, allow at least 2 minutes for the system to reinitialize after the fan tray has been replaced.

Follow these steps to remove and replace the fan tray on the Cisco ASR 907 Router:

Procedure

Step 1 Using a No. 2 Phillips screwdriver or your fingers, loosen the captive installation screw that secures the fan tray to the chassis. The figure below shows the front of the fan tray, including the captive installation screws.

Figure 19: Detaching the Fan Tray



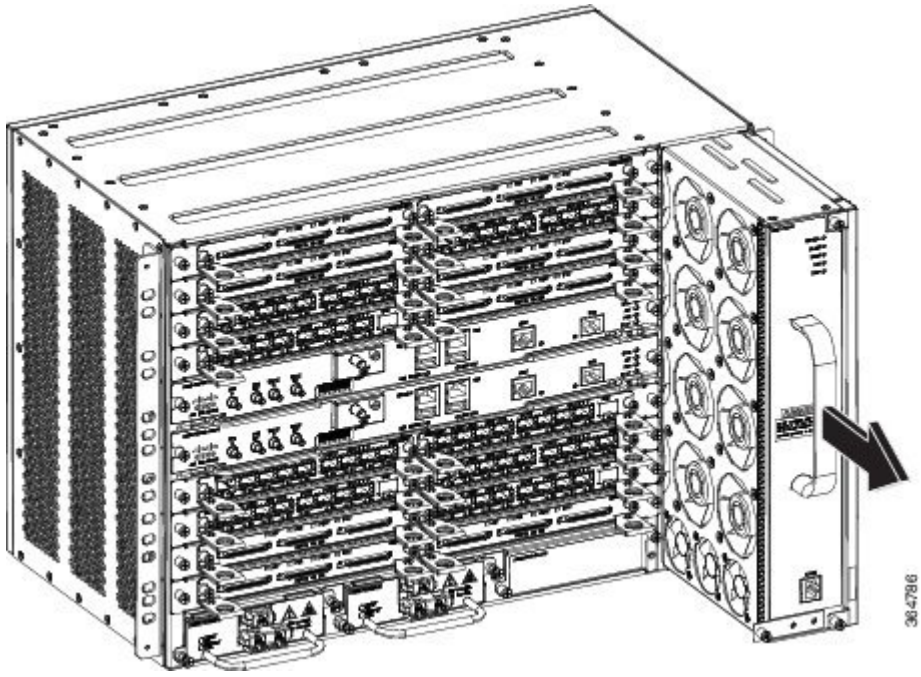
1	Fan tray handle	2	Captive screw

Step 2 Grasp the fan tray handle with one hand and the outside of the chassis with the other hand. The figure above shows the front of the fan tray, including the handle.

Caution The fans are exposed on the left side of the fan tray. Keep your fingers, clothing, and jewelry away from the fans. Always handle the fan tray by the handle.

Step 3 Pull the fan tray toward you no more than 1 inch to disengage it from the power receptacle on the midplane, as shown in the figure below.

Figure 20: Fan Tray Removal



Warning When removing the fan tray, keep your hands and fingers away from the spinning fan blades. Let the fan blades completely stop before you remove the fan tray. Statement 258

Step 4 Wait at least 5 seconds to allow the fans to stop spinning. Then, pull the fan tray backward toward you and out of the chassis.

Note As the fan tray slides out of the chassis, support the bottom of the fan tray with one hand and keep your other hand on the fan tray handle.

This completes the steps for removing the fan tray from the chassis.

Note The chassis must not be allowed to operate without functioning fans for more than 60 seconds.

To install the new fan tray, follow the steps in Installing the Fan Tray .

RSP Installation

Follow these steps on handling an RSP module in the Cisco ASR 907 Router:

Installing an RSP Module

To install an RSP module in the router chassis, perform the following steps:

Procedure

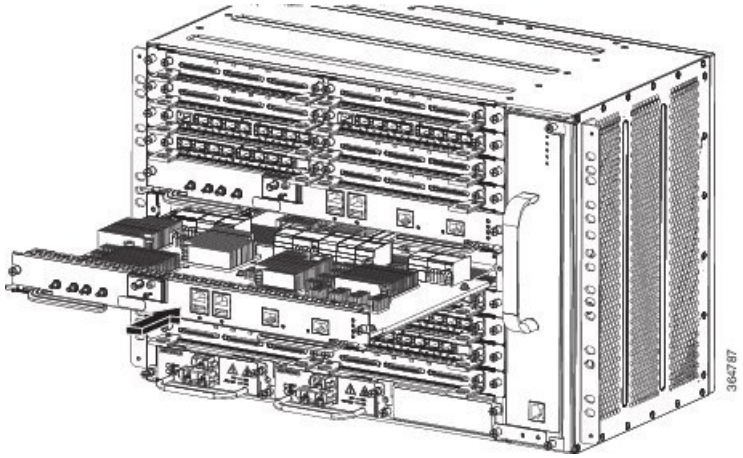
Step 1 Choose a slot for the module. Make sure that there is enough clearance to accommodate any equipment that will be connected to the ports on the module. If a blank module filler plate is installed in the slot in which you plan to install the module, remove the plate by removing its 2 Phillips pan-head screws.

Step 2 Fully open both the ejector levers on the new module, as shown in the figure below.

Caution To prevent ESD damage, handle modules by carrier edges only.

Step 3 Position the module in the slot. Make sure that you align the sides of the module with the guides on each side of the slot, as shown in the figure below.

Figure 21: Cisco ASR 907 Router RSP Installation



Step 4 Carefully slide the module into the slot until the EMI gasket on the module makes contact with the module in the adjacent slot and both the ejector levers have closed to approximately 45 degrees with respect to the module faceplate.

Caution If the top slot already has an RSP module installed, and you install a second RSP module in the slot below it, be careful not to damage the EMI gasket of the bottom RSP module against the ejector levers of the top RSP during insertion.

Step 5 While pressing down, simultaneously close both the ejector levers to fully seat the module in the backplane connector. The ejector levers are fully closed when they are flush with the module faceplate.

Step 6 Tighten the two captive installation screws on the module. The recommended maximum torque is 5.5 in.-lb (.62 N-m).

Note Make sure that the ejector levers are fully closed before tightening the captive installation screws.

Step 7 Verify that the captive installation screws are tightened on all of the modules installed in the chassis. This step ensures that the EMI gaskets on all the modules are fully compressed in order to maximize the opening space for the new or replacement module.

Note If the captive installation screws are loose, the EMI gaskets on the installed modules will push adjacent modules toward the open slot, which reduces the size of the opening and makes it difficult to install the new module.

Caution Blank module filler plates (Cisco part number A90X-RSPA-BLANK-W) should be installed in any empty chassis slots to keep dust out of the chassis and to maintain consistent airflow through the chassis.

Note When installing the cabling to an RSP, we recommend that you leave a service loop of extra cabling sufficient to allow for fan tray removal.

Note Close all unused RJ-45 and USB ports on the RSP module using the appropriate dust caps to prevent dust from accumulating inside the cage. For information on dust caps, see Installing Dust Caps.

Removing an RSP Module

Before you remove an RSP from the router, you should save the current configuration on a TFTP server or an external USB flash drive, using the **copy running-config** {**ftp** | **tftp** | **bootflash:**} command. This saves you time when bringing the module back online.

If the module is running Cisco IOS software, save the current running configuration by entering the **copy running-config startup-config** command.

Warning Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing. Statement 1034

Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

To remove an RSP module, perform the following steps:

Procedure

Step 1 Disconnect any cables attached to the ports on the module.

Step 2 Verify that the captive installation screws on all the modules in the chassis are tight. This step ensures that the space created by the removed module is maintained.

Note If the captive installation screws are loose, the EMI gaskets on the installed modules will push the modules toward the open slot, which in turn reduces the size of the opening and makes it difficult to remove the module.

Step 3 Loosen the two captive installation screws on the module you plan to remove from the chassis.

Step 4 Place your thumbs on the ejector levers (see) and simultaneously rotate the ejector levers outward to unseat the module from the backplane connector.

Step 5 Grasp the front edge of the module and slide the module straight out of the slot. If the chassis has horizontal slots, place your hand under the module to support its weight as you slide it out from the slot. Do not touch the module circuitry.

Caution To prevent ESD damage, handle modules by the carrier edges only.

Step 6 Place the module on an antistatic mat or antistatic foam, or immediately reinstall the module in another slot.

Step 7 Install blank module filler plates (Cisco part number A90X-RSPA-BLANK-W) in empty slots, if any.

Warning Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place. Statement 1029

Hot-Swapping an RSP Module

The Cisco ASR 907 Router provides a feature that allows you to remove and replace a redundant RSP module without powering down the router. This feature, called hot-swapping or OIR, allows you to remove and replace a redundant module without disrupting router operation.

When two redundant modules are installed in the router, only one of the modules is active. The other one runs in standby mode, ready to take over processing if the active module fails.

When you remove or insert a redundant module while the router is powered on and running, the router does the following:

1. Determines if there is sufficient power for the module.
2. Scans the backplane for configuration changes.
3. Initializes the newly inserted module. In addition, the system notes any removed modules and places those modules in the administratively shutdown state.
4. Places any previously configured interfaces on the module back to the state they were in when they were removed. Any newly inserted interfaces are put in the administratively shutdown state as if they were present (but unconfigured) at boot time. If you insert the same type of module into a slot, its ports are configured and brought online up to the port count of the original module.

The router runs diagnostic tests on any new interfaces and the test results indicate the following:

- If the tests pass, the router is operating normally.
- If the new module is faulty, the router resumes normal operation but leaves the new interfaces disabled.
- If the diagnostic tests fail, the router stops operating, which usually indicates that the new module has a problem in the bus and should be removed.

Use the following guidelines when performing an OIR on an IM:

- Allow at least 2 minutes for the system to reinitialize before inserting a new IM.
- Avoid inserting a new IM during bootup until the active and standby RSPs have reached an OK state.
- When inserting multiple IMs into the chassis, wait until each IM reaches an OK state before inserting the next IM.

Installing the Interface Module Carrier

Note It is recommended that you always install the IM carrier (A9XX-2IMA-CARRIER) in the lower slot before installing the carrier in the upper slot.

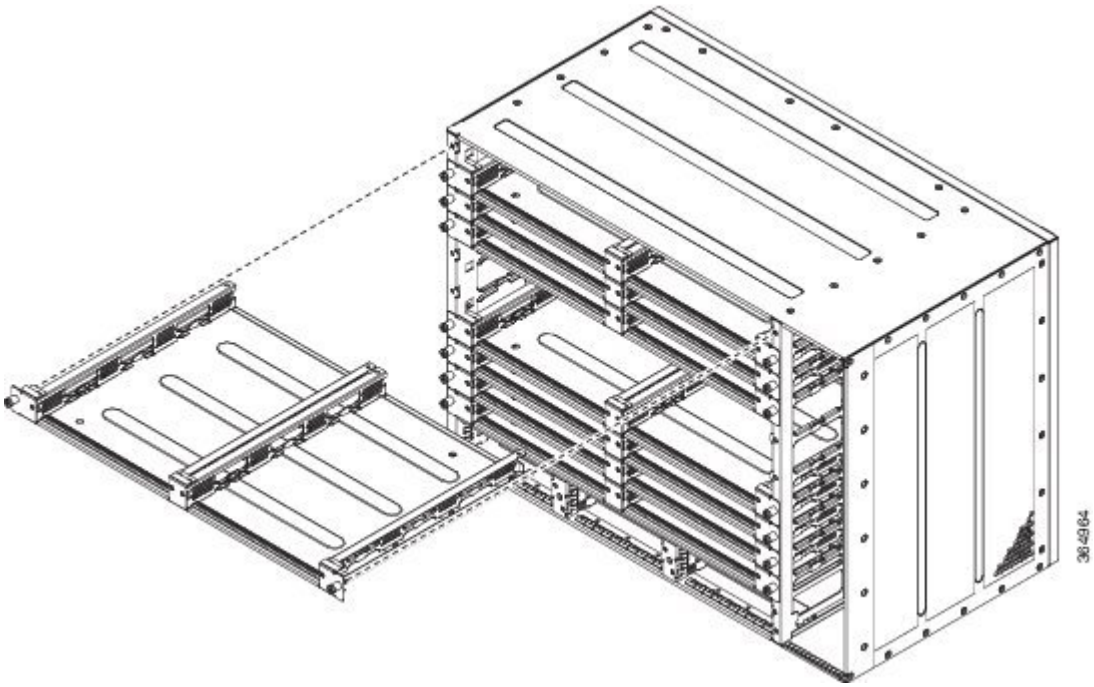
Procedure

Step 1 Before inserting an IM carrier, make sure that the chassis is grounded.

Step 2 To insert the IM carrier, carefully align the edges of the IM carrier between the upper and lower edges of the router slot.

Step 3 Carefully slide the IM carrier into the router slot until the IM carrier makes contact with the backplane. See the figure below.

Figure 22: Installing the IM Carrier



Interface Module Installation

The following sections describe the various tasks of associated with interface module installation on the Cisco ASR 907 Router:

Installing an Interface Module

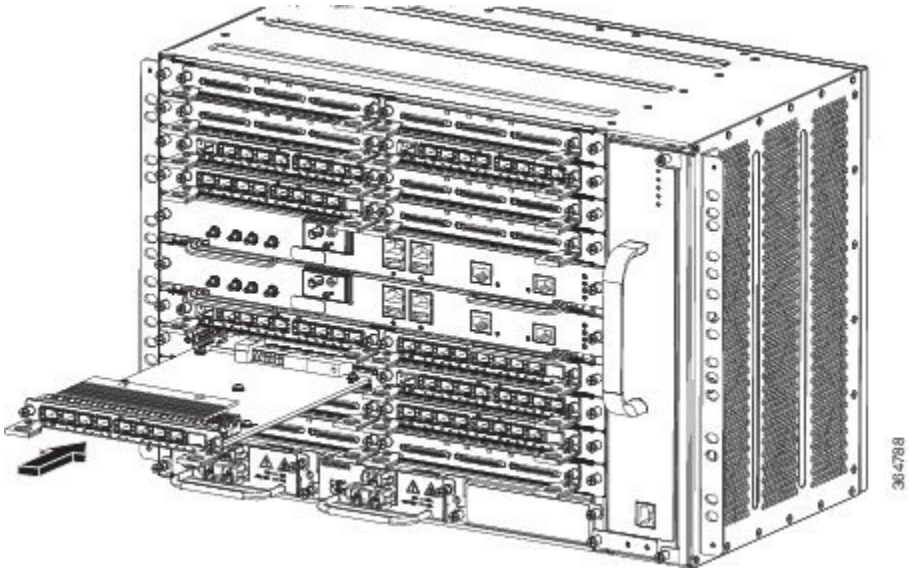
Procedure

Step 1 Before inserting an interface module, make sure that the chassis is grounded.

Step 2 To insert the interface module, carefully align the edges of the interface module between the upper and lower edges of the router slot.

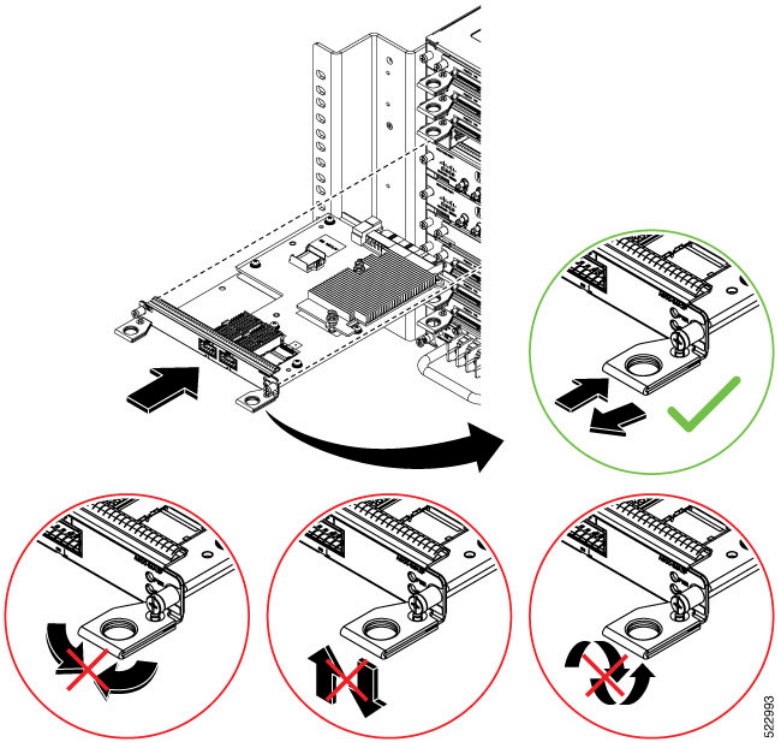
Step 3 Carefully slide the interface module into the router slot until the interface module makes contact with the backplane. The figure below shows how to install the interface module.

Figure 23: Inserting an Interface Module



Caution Use the pull tab on the interface module only to insert and pull the card out straightly. Don't use the pull tab to turn on its axis or bend it up or down, which can deform or damage the pull tab.

Figure 24: Using the Pull Tab



Step 4 Tighten the locking thumbscrews on both sides of the interface module. The recommended maximum torque is 5.5 in.-lb (.62 N-m).

Step 5 Connect all the cables to each interface module.

What to do next

Caution Do not use interface module and power supply ejector handles to lift the chassis; using the handles to lift the chassis can deform or damage the handles.

Note Close all unused RJ-45, SFP, XFP, and QSFP ports on the interface module using the appropriate dust caps to prevent dust from accumulating inside the cage. For information on dust caps, see Installing Dust Caps .

Removing an Interface Module

Procedure

Step 1 To remove an interface module, disconnect all the cables from each interface module.

Step 2 Loosen the locking thumbscrews on both sides of the interface module.

Step 3 Slide the interface module out of the router slot by pulling on the handles. If you are removing a blank filler plate, pull the blank filler plate completely out of the router slot using the captive screws.

Hot-Swapping an Interface Module

The Cisco ASR 907 Router provides a feature that allows you to remove and replace an interface module without powering down the router. This feature, called hot-swapping or OIR, allows you to remove and replace a redundant module without disrupting router operation.

Note The Cisco ASR 907 Router does not support hot-swapping an interface module with another module of a different type. For example, you cannot swap an SFP Gigabit Ethernet module with a copper Gigabit Ethernet module without disrupting router operation.

Note If the TDM interface module is swapped with the Gigabit Ethernet module in the same slot or vice-versa, the router must be reloaded.

Note If you perform OIR on an interface module and move the module to a different slot, the router does not retain the module configuration; you must reconfigure the interface module. Replacing a configured interface module with a different interface module in the same slot is not supported on the router.

Note Always refer to the interface module compatibility matrix tables in the Data Sheet before you swap any IM.

Table 1: Supported Hot Swapping Combinations

Interface Modules	A900-RSP3C-400-W
8-port Gigabit Ethernet SFP Interface Module (8X1GE)	Swapping allowed on all Ethernet interface modules
8-port Gigabit Ethernet RJ45 (Copper) Interface Module (8X1GE)	
SFP Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet (1X10GE)	
Copper Combo IM—8-port Gigabit Ethernet (8X1GE) + 1-port 10 Gigabit Ethernet Interface Module(1X10GE	
1-port 10 Gigabit Ethernet XFP Interface Module (1X10GE)	
2-port 10 Gigabit Ethernet Interface Module(2X10GE)	
8-port 10 Gigabit Ethernet Interface Module (8X10GE)	
1-port 100 Gigabit Ethernet Interface Module (1X100GE)	
2-port 100 Gigabit Ethernet (QSFP) Interface Module (2X100GE)[1]	
2-port 40 Gigabit Ethernet QSFP Interface Module (2X40GE)	
8/16-port 1 Gigabit Ethernet (SFP/SFP) + 1-port 10 Gigabit Ethernet (SFP+) / 2-port 1 Gigabit Ethernet (CSFP) Interface Module	
1-port OC48/ STM-16 or 4-port OC-12/OC-3 / STM-1/STM-4 + 12-Port T1/E1 + 4-Port T3/E3 CEM Interface Module	
16 x T1/E1 Interface Module	No support
32 x T1/E1 Interface Module	
8 X T1/E1 Interface Module	
1-Port OC-192 or 8-Port Low Rate CEM Interface Module	
48 x T1/E1 Interface Module	
48 X T3/E3 Interface Module	
4-Port OC3/STM-1 (OC-3) or 1-Port OC12/STM-4 (OC-12) Interface Module	4-Port OC3/STM-1 (OC-3) or 1-Port OC12/STM-4 (OC-12) Interface Module

[1] Supported since 16.10.1 release.

When you remove or insert a redundant module while the router is powered on and running, the router does the following:

1. Determines if there is sufficient power for the module.

2. Scans the backplane for configuration changes.
3. Initializes the newly inserted module. In addition, the system notes any removed modules and places those modules in the administratively shutdown state.
4. Places any previously configured interfaces on the module back to the state they were in when they were removed.

The router runs diagnostic tests on any new interfaces and the test results indicate the following:

- If the tests pass, the router is operating normally.
- If the new module is faulty, the router resumes normal operation but leaves the new interfaces disabled.
- If the diagnostic tests fail, the router stops operating, which usually indicates that the new module has a problem in the bus and should be removed.

Caution To avoid erroneous failure messages, note the current configuration of all interfaces before you remove or replace an interface module, and allow at least 2 minutes for the system to reinitialize after a module has been removed or replaced. This time is recommended in order to allow for synchronization between components within the interface module and for synchronization with the standby RSP.

Installing the Power Supply

The Cisco ASR 907 router provides the choice of two different power supplies:

Attention The RSP3-400-W requires only two PSUs (either AC or DC). We recommended you to use only two PSUs with RSP3-400-W in any of the two slots of ASR 907 router.

- 1200 W DC power: - 40.8VDC to -72VDC

  The DC power supply uses 3 position terminal block-style connector with positive latching or securing and labeled connections for 48V, GRD, 48V. The terminal block connector is of suitable size to carry the appropriate AWG wire size to handle the input current of the power supply. No ON/OFF switch is provided.

- AC power: 85VAC to 264VAC

  The AC power supply has an IEC-320-C21-type power receptacle and a 20-A service connector. You can use standard right angle power cords with the AC power supply. The power supply includes a power cord retainer. No ON/OFF switch is provided.

Caution The power supply must be wired before plugging the power supply in the chassis. Ensure that the branch circuit breaker is turned off. Only after installing the power supply in the chassis, should the branch circuit breaker be turned on. The branch circuit breaker must be turned off before unplugging the power supply.

Each power supply provides a single primary input power connection. You can install dual power supplies for redundancy.

Warning Read the installation instructions before connecting the system to the power source. Statement 10

Note Products that have an AC power connection are required to have an external surge protective device (SPD) provided as part of the building installation to comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety.

Caution Do not use the interface module and power supply ejector handles to lift the chassis. Using the handles to lift the chassis can deform or damage the handles.

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 like the Cisco ASR 907 Router, which can have substantial current draw fluctuations due to bursty data traffic patterns.

Use the information in the DC Power Supply Specifications table to estimate the power requirements and heat dissipation of a Cisco ASR 907 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.

Power Connection Guidelines

This section provides guidelines for connecting the Cisco ASR 907 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

Note The above statement is applicable only to the AC power supplies.

Warning This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations. Statement 1045

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.

Guidelines for AC-Powered Systems

Basic guidelines for AC-powered systems include the following:

- Each chassis power supply should have its own dedicated branch circuit.
- The circuit breaker should be sized according to the power supply input rating and local or national code requirements.
- The AC power receptacles used to plug in the chassis must be the grounding type. The grounding conductors that connect to the receptacles should connect to protective earth ground at the service equipment.

Installing the DC Power Supply

The following sections describe how to install a DC power supply in the Cisco ASR 907 Router:

Note This equipment is suitable for installation in Network Telecommunications Facilities and locations where the NEC applies.

Note This equipment is suitable for installations utilizing the Common Bonding Network (CBN).

Note 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.

Installing the DC Power Supply Module

Perform the following procedure to install the power supply module:

Procedure

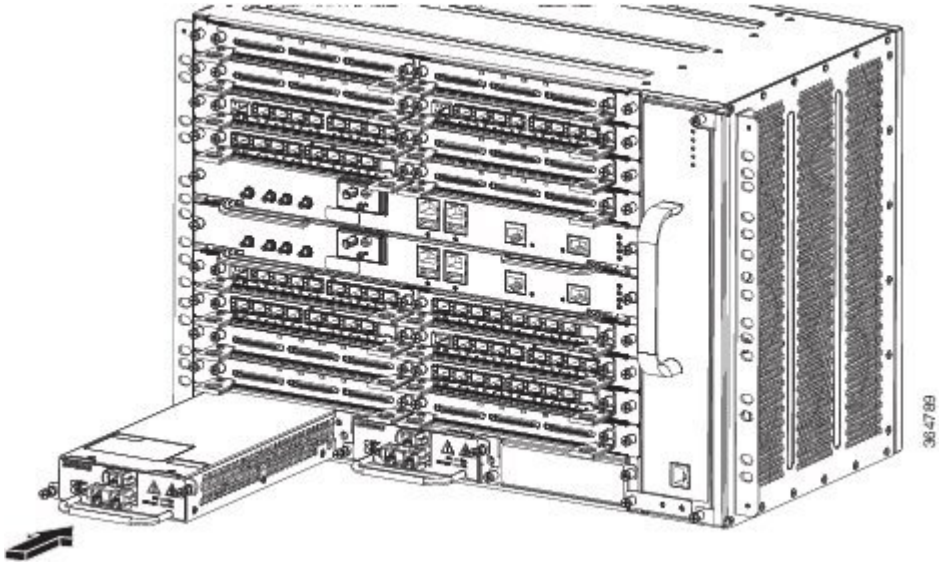
Step 1 Ensure that the system (earth) ground connection has been made. For ground connection installation instructions, see theInstalling the Chassis Ground Connection .

Step 2 If necessary, remove the blank power supply filler plate from the chassis power supply bay opening by loosening the captive installation screws.

Step 3 Verify that power to the DC circuit connected to the power supply you are installing is off. To ensure that power has been removed from the DC circuits, locate the circuit breakers for the DC circuits, switch the circuit breakers to the OFF position, and tape the circuit-breaker switches in the OFF position.

Step 4 Grasp the power supply handle with one hand. Place your other hand underneath the power supply, as shown in the figure below. Slide the power supply into the power supply bay. Make sure that the power supply is fully seated in the bay.

Figure 25: Installing the DC Power Supply



Step 5 Tighten the captive installation screws of the power supply. The recommended maximum torque is 5.5 in.-lb (.62 N-m).

If you are installing a redundant DC power supply, repeat these steps for the second power source.

Connecting DC Power Supply Unit (A900-PWR900-D2)

A900-PWR900-D2 is a dual feed 900W DC PSU. The DC power supply accepts a dual-hole type lug. The lug must be a UL listed, CSA certified and rated to accept the 8 AWG cable. The lug is assembled on the unit with two nuts.

Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit.

Tools and Equipment

- Dual-hole lugs
- Double barrel with inspection hole
- Hole spacing is 5/8 in.
- Lug tab width max 0.46 in.
- Nuts
- PSU can accommodate 10 – 6 AWG
- Number 2 Phillips Screwdriver
- 7 mm nut driver or 7 mm socket on a torque wrench

Procedure

Step 1 Locate the terminal block on the power supply unit.

Step 2 Flap open the front protective cover on the power supply unit.

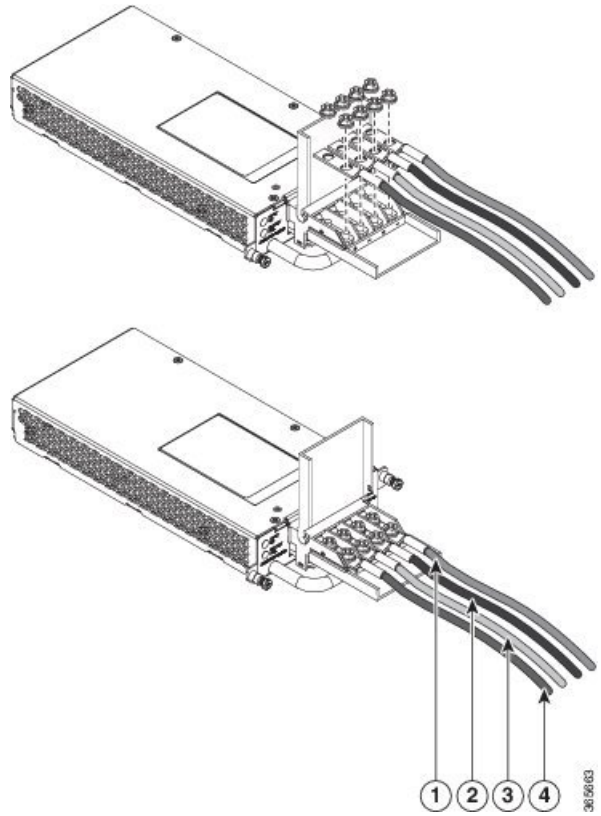
Step 3 Use a wire-stripping tool to strip the ends of each of the two wires coming from the DC-input power source as recommended by the lug manufacturer.

Note Stripping more than the recommended amount of wire can leave behind exposed wire from the terminal block after installation.

Step 4 Identify the positive and negative feed positions for the terminal block. The recommended wiring sequence is as in the figure below.

Step 5 Attach the lugs on the terminal block, see the figure below.

Figure 26: Power Supply with Lead Wires



1, 3	Negative (-) lead wire	2, 4	Positive (+) lead wire

Caution Do not overtorque the fasteners of the terminal block. The recommended maximum torque is from 25 in.-lb (2.82 N-m).

Step 6 Use a tie wrap to secure the wires to the rack, so that the wires are not pulled from the terminal block by casual contact. Make sure the tie wrap allows for some slack in the wire.

Activating the DC Power Supply

Perform the following procedure to activate the DC power supply:

Procedure

Step 1 Remove the tape from the circuit-breaker switch handle, and restore power by moving the circuit-breaker switch handle to the On (|) position.

Step 2 Verify power supply operation by checking if the power supply front panel LEDs are in the following states:

- INPUT OK LED is green
- OUTPUT FAIL LED is green

If the LEDs indicate a power problem, see Troubleshooting.

If you are installing a redundant DC power supply, ensure that each power supply is connected to a separate power source in order to prevent power loss in the event of a power failure.

If you are installing a redundant DC power supply, repeat these steps for the second power source.

Removing and Replacing the DC Power Supply

This section provides information about removing and replacing the DC power supply in the Cisco ASR 907 Router.

Note The Cisco ASR 907 Router power supplies are hot-swappable. If you have installed redundant power supply modules, you can replace a single power supply without interrupting power to the router.

Caution To avoid erroneous failure messages, allow at least 2 minutes for the system to reinitialize after a power supply has been removed or replaced.

Warning When you install the unit, the ground connection must always be made first and disconnected last. Statement 1046

Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit. Statement 1003

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

Warning Installation of the equipment must comply with local and national electrical codes. Statement 1074

Follow these steps to remove and replace the DC power supply on the Cisco ASR 907 Router:

Procedure

Step 1 Before servicing the power supply, switch off the circuit breaker in your equipment area. As an additional precaution, tape the circuit-breaker switch in the Off position.

Step 2 Slip on the ESD-preventive wrist strap that was included in the accessory kit.

Step 3 Switch the power supply circuit-breaker switch to the Off (O) position.

Step 4 Pull the terminal block plug connector out of the terminal block head in the power supply.

Step 5 Loosen the captive screws on the DC power supply.

Step 6 Grasping the power supply handle with one hand, pull the power supply out from the chassis while supporting it with the other hand.

Step 7 Replace the DC power supply within 5 minutes. If the power supply bay is to remain empty, install a blank filler plate (Cisco part number A900-PWR-BLANK) over the opening, and secure it with the captive installation screws.

Installing the AC power Supply

Warning This product requires short-circuit (over current) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations.

Installing the AC Power Supply Module for A900-PWR1200-A (1200 W)

Follow these steps to install the power supply module:

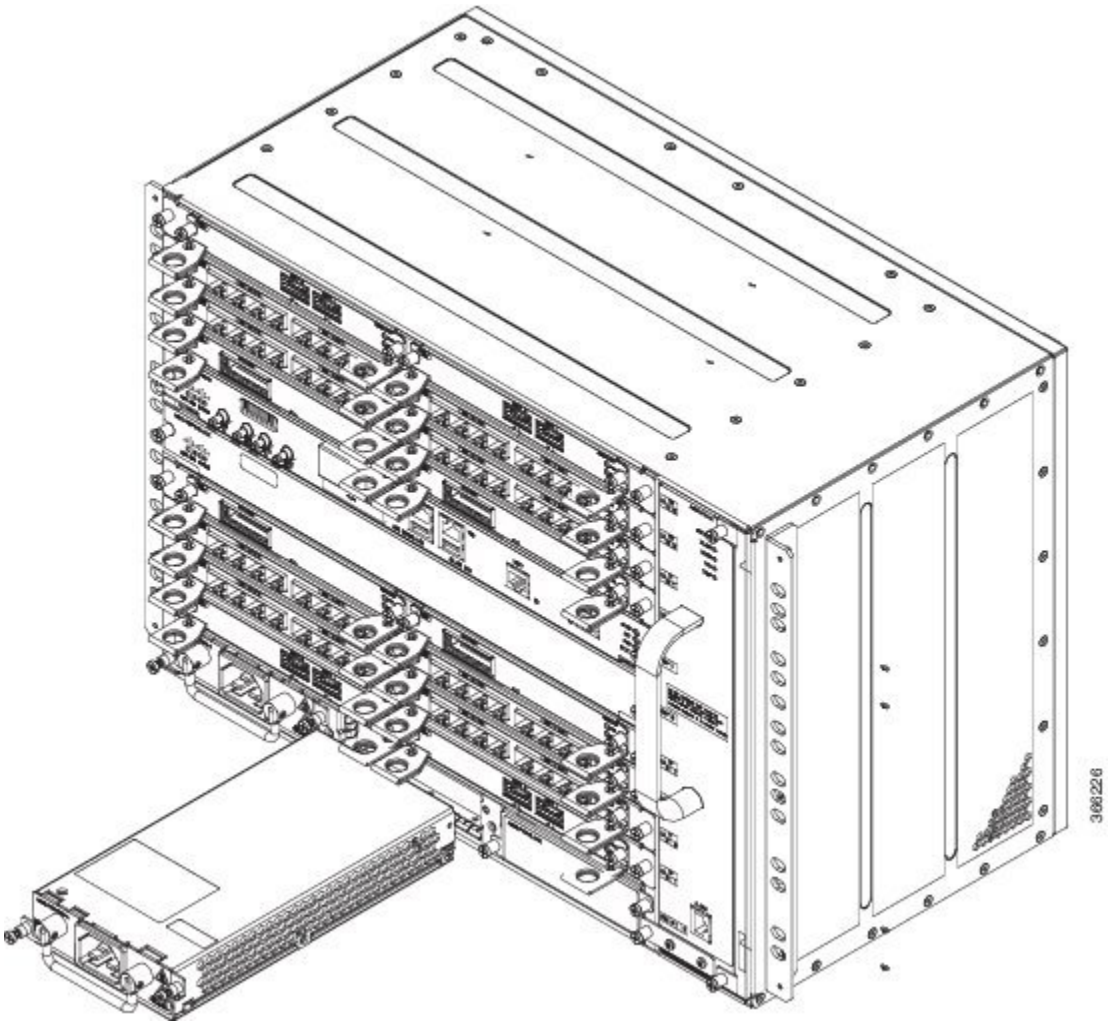
Procedure

Step 1 Ensure that the system (earth) ground connection has been made. For ground connection installation instructions, see theInstalling the Chassis Ground Connection.

Step 2 If necessary, remove the blank power supply filler plate from the chassis power supply bay opening by loosening the captive installation screws.

Step 3 Grasp the power supply handle with one hand. Place your other hand underneath the power supply, as shown in the figure below. Slide the power supply into the power supply bay. Make sure that the power supply is fully seated in the bay.

Figure 27: Installing the 1200 Watts AC Power Supply



Step 4 Tighten the captive installation screws of the power supply. The recommended maximum torque is 5.5 in.-lb (.62 N-m).

Warning Power supply captive installation screws must be tight to ensure protective grounding continuity.

Recommended Power Cables

We recommend the following power cables for Cisco ASR 907 routers:

Table 2: Power Cable PIDs for A900-PWR1200-A (1200 W)

PID	Description
PWR-CAB-AC-USA520	US AC Power Cord for Cisco ASR 900, NEMA 5-20
PWR-CAB-AC-USA	Power Cord for AC V2 Power Module (USA), NEMA L6-20P

PID	Description
PWR-CAB-AC-AUS	Power Cord for AC V2 Power Module (Australia), AS 3112
PWR-CAB-AC-EU	Power Cord for AC V2 Power Module (Europe), CEE 7/7
PWR-CAB-AC-ITA	Power Cord for AC V2 Power Module (Italy), CEI-23-50
PWR-CAB-AC-SA	Power Cord for AC V2 Power Module (South Africa), SABS 164
PWR-CAB-AC-UK	Power Cord for AC V2 Power Module (UK), EN 60309-2
PWR-CAB-AC-ISRL	Power Cord for AC V2 Power Module (Israel), SI 32
PWR-CAB-AC-CHN	Power Cord for AC V2 Power Module (China), GB2099.1/GB1002
PWR-CAB-AC-BRA	Power Cord for AC V2 Power Module (Brazil), NBR 14136
PWR-CAB-AC-SUI	Power Cord for AC V2 Power Module (Swiss), SEV 1011
PWR-CAB-AC-JPN	Power Cord for AC V2 Power Module (Japan), JIS C8303
PWR-CAB-AC-IND	India AC Power Cord for Cisco ASR 900, IS:1293
PWR-CAB-AC-ARG	AC POWER CORD, WIRE HARNESS, Argentina, IRAM 2073, IEC60320 C21, ST, 4M, 30 AWG, STRANDED, 250.0 V, 16.0 A

Activating the AC Power Supply

Follow these steps to activate the AC power supply:

Procedure

Step 1 Plug the power cord into the power supply.

Step 2 Connect the other end of the power cord to an AC-input power source.

Step 3 Verify power supply operation by checking that the power supply LEDs are in the following states:

- INPUT OK LED is green
- OUTPUT FAIL LED is green

Step 4 If the LEDs indicate a power problem, see the Troubleshooting for troubleshooting information.

Step 5 If you are installing a redundant power supply, repeat these steps for the second power source.

Note If you are installing a redundant AC power supply, ensure that each power supply is connected to a separate power source in order to prevent power loss in the event of a power failure.

Removing and Replacing the AC Power Supply

This section describes how to remove and replace the AC power supply.

Note The Cisco ASR 907 Router power supplies are hot-swappable. If you have installed redundant power supply modules, you can replace a single power supply without interrupting power to the router.

Caution To avoid erroneous failure messages, allow at least 2 minutes for the system to reinitialize after a power supply has been removed or replaced.

Warning When you install the unit, the ground connection must always be made first and disconnected last. Statement 1046

Warning Before performing any of the following procedures, ensure that power is removed from the AC circuit. Statement 1003

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

Warning Installation of the equipment must comply with local and national electrical codes. Statement 1074

Follow these steps to remove and replace the AC power supply:

Procedure

Step 1 Disconnect the power cord from the power source. Do not touch the metal prongs on the power cord when it is still connected to the power supply.

Step 2 Remove the power cord from the power connection on the power supply. Do not touch the metal prongs embedded in the power supply.

Step 3 Loosen the captive installation screws.

Step 4 Grasp the AC power supply with one hand, and slide it part of the way out of the chassis. Place your other hand underneath the power supply, and slide it completely out of the chassis.

Step 5 If the power supply bay is to remain empty, install a blank filler plate (Cisco part number A900-PWR-BLANK) over the opening, and secure it with the captive installation screws.

Installing Dust Caps

The following list provides the product IDs (PIDs) for the dust caps that are available for each port type:

- RJ-45—A900-DCAP-RJ45-S= (24 dust caps per package) or A900-DCAP-RJ45-L= (240 caps per package)
- SFP—A900-DCAP-SFP-S= (24 caps per package) or A900-DCAP-SFP-L= (240 caps per package)
- USB—A900-DCAP-USB-S= (12 dust caps per package) or A900-DCAP-USB-L= (120 dust caps per package)
- XFP/QSFP—A900-DCAP-XFP-S= (12 dust caps per package) or A900-DCAP-XFP-L= (120 dust caps per package)

To install the dust cap:

1. Hold the dust cap by its handle.
2. Insert the dust cap in to the appropriate unused ports (RJ-45, SFP, USB, or XFP/QSFP) on the chassis front panel.

Connecting the Cisco ASR 907 Router to the Network

Note When installing the cabling to the RSPs, we recommend that you leave a service loop of extra cabling sufficient to allow for fan tray removal.

Connecting Console Cables

Note You cannot use the USB and RS232 console ports at the same time; if you insert the USB cable into the router, the RS232 port is disabled.

Connecting to the Serial Port using Microsoft Windows

This procedure shows how to connect to the 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 Microsoft Windows USB Device Driver.

Procedure

Step 1 Connect the end of the console cable with the RJ45 connector to the light blue console port on the router. or Connect a USB Type A-to-Type A cable to the USB console port. If you are using the USB serial port for the first time on a Windows-based PC, install the USB driver now according to the instructions in the following sections.

- Installing the Cisco Microsoft Windows XP USB Driver
- Installing the Cisco Microsoft Windows 2000 USB Driver

- Installing the Cisco Microsoft Windows Vista USB Driver

Note You cannot use the USB port and the EIA port concurrently. See Connecting to the Auxiliary Port. When the USB port is used it takes priority over the RJ45 EIA port.

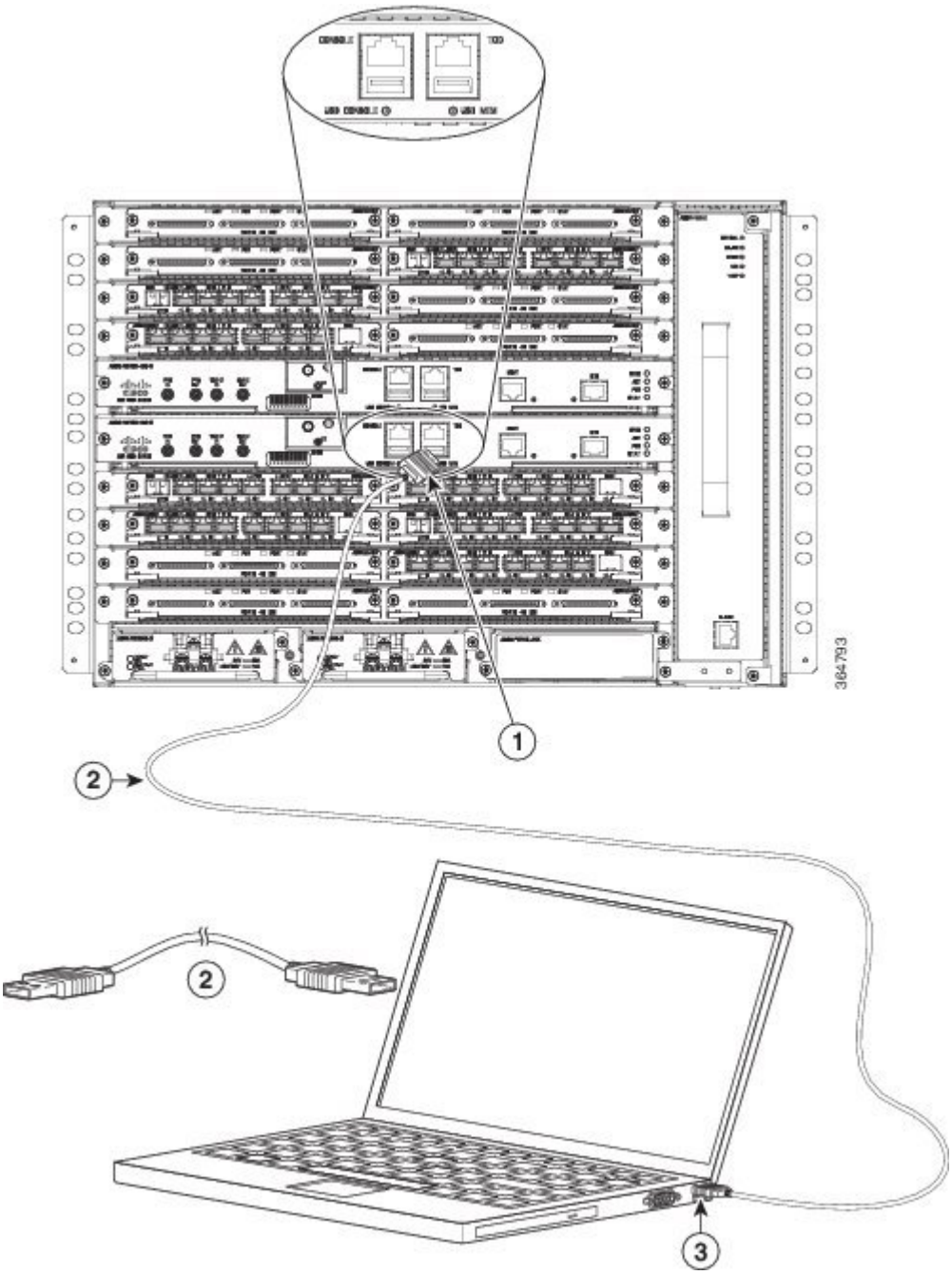
Note The USB Type A-to-Type A cable is not included with the Cisco ASR 907 Router; it is ordered separately.

Step 2 Connect the end of the cable with the DB-9 connector (or USB Type-A) to the terminal or PC. If your terminal or PC has a console port that does not accommodate a DB-9 connector, you must provide an appropriate adapter for that port.

Step 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:

- 9600 baud
- 8 data bits
- no parity
- 1 stop-bit
- no flow control

Figure 28: Connecting the USB Console Cable to the Cisco ASR 907 Router



1	USB Type-A console port	2	USB 5-pin mini USB Type-B to USB Type-A console cable
3	USB Type-A	—	—

Connecting 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.

Procedure

Step 1 Use the Finder to go to Applications > Utilities > Terminal.

Step 2 Connect the OS X USB port to the router.

Step 3 Enter the following commands to find the OS X USB port number:

Example:

```
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$
```

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

Example:

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

To disconnect the OS X USB console from the Terminal window enter **Ctrl-a** followed by Ctrl-\.

Connecting 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.

Procedure

Step 1 Open the Linux Terminal window.

Step 2 Connect the Linux USB port to the router.

Step 3 Enter the following commands to find the Linux USB port number

Example:

```
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#
```

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

Example:

```
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

Installing the Cisco Microsoft Windows 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.

Installing the Cisco Microsoft Windows XP USB Driver

This procedure shows how to install the Microsoft Windows XP USB driver. Download the driver for your router model from the Tools and Resources Download Software site, USB Console Software category, at the following URL:

https://www.cisco.com/c/en/us/support/index.html

Procedure

Step 1 Unzip the file Cisco_usbconsole_driver_X_X.zip (where X is a revision number).

Step 2 If using 32-bit Windows XP double-click the file setup.exe from the Windows_32 folder, or if using 64-bit Windows XP double-click the file setup(x64).exe from the Windows_64 folder.

Step 3 The Cisco Virtual Com InstallShield Wizard begins. Click **Next**.

Step 4 The Ready to Install the Program window appears. Click **Install**.

Step 5 The InstallShield Wizard Completed window appears. Click **Finish**.

Step 6 Connect the USB cable to the PC and router USB console ports. The EN LED for the USB console port turns green, and within a few moments the Found New Hardware Wizard appears. Follow the instructions to complete the installation of the driver.

The USB console is ready for use.

Installing the Cisco Microsoft Windows 2000 USB Driver

This procedure shows how to install the Microsoft Windows 2000 USB driver.

Procedure

Step 1 Obtain the file Cisco_usbconsole_driver.zip from the Cisco.com web site and unzip it.

Step 2 Double-click the file setup.exe.

Step 3 The Cisco Virtual Com InstallShield Wizard begins. Click **Next**.

Step 4 The Ready to Install the Program window appears, Click **Install**.

Step 5 The InstallShield Wizard Completed window appears. Click **Finish**.

Step 6 Connect the USB cable to the PC and router USB console ports. The EN LED for the USB console port turns green, and within a few moments a series of Found New Hardware Wizard windows appear. Follow the instructions to complete the installation of the driver.

The USB console is ready for use.

Installing the Cisco Microsoft Windows Vista USB Driver

Procedure

Step 1 Obtain the file Cisco_usbconsole_driver.zip from the Cisco.com web site and unzip it.

Step 2 If using 32-bit Windows Vista double-click the file setup.exe from the Windows_32 folder, or if using 64-bit Windows Vista double-click the file setup(x64).exe from the Windows_64 folder.

Step 3 The Cisco Virtual Com InstallShield Wizard begins. Click **Next**.

Step 4 The Ready to Install the Program window appears, Click **Install**.

Note If a User Account Control warning appears, click "Allow - I trust this program..." to proceed.

Step 5 The InstallShield Wizard Completed window appears. Click **Finish**.

Step 6 Connect the USB cable to the PC and router USB console ports. The EN LED for the USB console port turns green, and within a few moments a pop up window stating "Installing device driver software" appears. Following the instructions to complete the installation of the driver.

Step 7 The USB console is ready for use.

Uninstalling the Cisco Microsoft Windows USB Driver

This section provides instructions for how to uninstall the Cisco Microsoft Windows USB device driver.

Uninstalling the Cisco Microsoft Windows XP and 2000 USB Driver Using the Add Remove Programs Utility

Note Disconnect the router console terminal before uninstalling the driver.

Procedure

Step 1 Click **Start** > **Control Panel** > **Add or Remove Programs**.

Step 2 Scroll to Cisco Virtual Com and click **Remove**.

Step 3 When the Program Maintenance window appears, select the **Remove** radio button. Click **Next**.

Uninstalling the Cisco Microsoft Windows XP and 2000 USB Driver Using the Setup.exe Program

Note Disconnect the router console terminal before uninstalling the driver.

Procedure

Step 1 Run the setup.exe for Windows 32-bit or setup(x64).exe for Windows-64bit. Click **Next**.
Step 2 The InstallShield Wizard for Cisco Virtual Com appears. Click **Next**.
Step 3 When the Program Maintenance window appears, select the Remove radio button. Click **Next**.
Step 4 When the Remove the Program window appears, click **Remove**.
Step 5 When the InstallShield Wizard Completed window appears click **Finish**.

Uninstalling the Cisco Microsoft Windows Vista USB Driver

This procedure shows you how to uninstall the Microsoft Windows Vista USB driver.

Note Disconnect the router console terminal before uninstalling the driver.

Procedure

Step 1 Run the setup.exe for Windows 32-bit or setup(x64).exe for Windows-64bit. Click Next.
Step 2 The InstallShield Wizard for Cisco Virtual Com appears. Click Next.
Step 3 When the Program Maintenance window appears, select the Remove radio button. Click Next.
Step 4 When the Remove the Program window appears, click Remove.

Note If a User Account Control warning appears, click “Allow - I trust this program...” to proceed.

Step 5 When the InstallShield Wizard Completed window appears click Finish.

Connecting to the Auxiliary Port

When a modem is connected to the auxiliary port, a remote user can dial in to the router and configure it. Use a light blue console cable and the DB-9-to-DB-25 connector adapter.

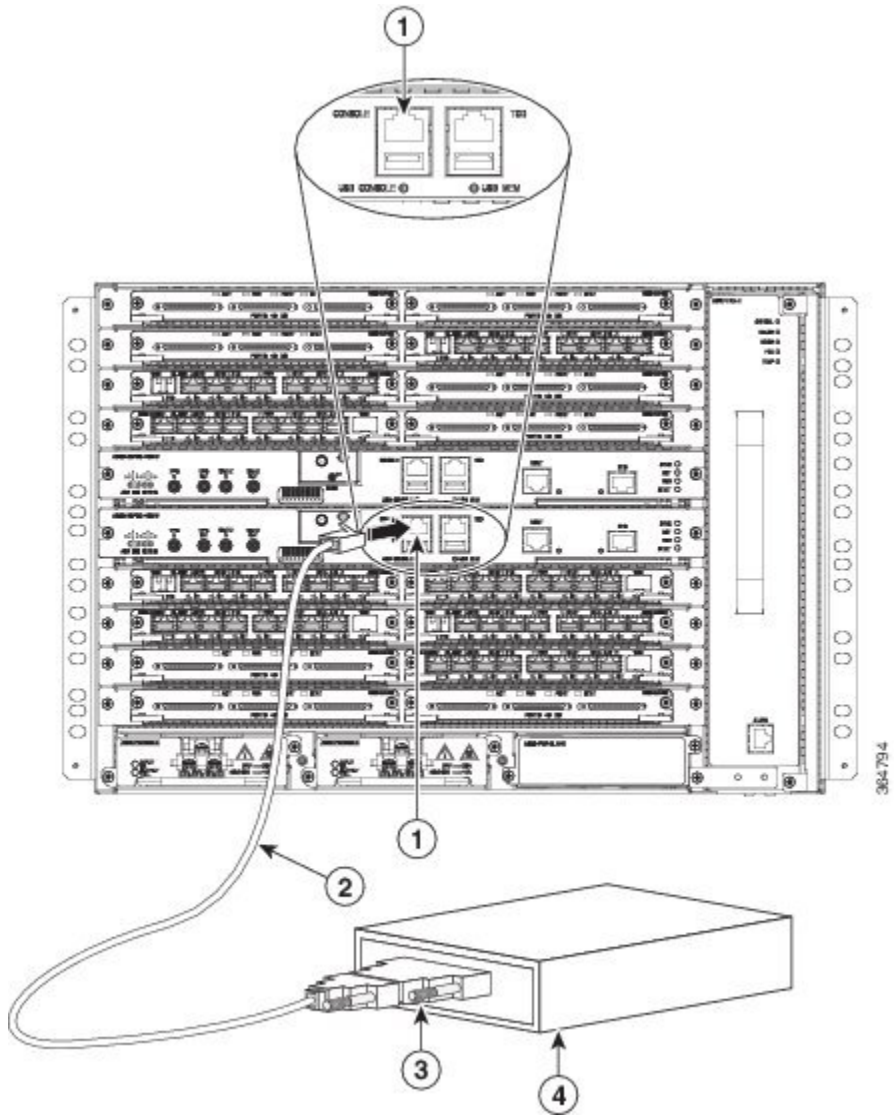
Note The console cable and DB-9-to-DB-25 connector are not included with the Cisco ASR 907 Router; they are ordered separately.

To connect a modem to the router, follow these steps:

Procedure

Step 1 Connect the RJ45 end of the adapter cable to the black AUX port on the router, as shown in the figure below.

Figure 29: Connecting a Modem to the Cisco ASR 907 Router



1	RJ45 AUX port	3	RJ45 to DB-9
2	DB-9 to DB-25 adapter	4	Modem

Step 2 Connect the DB-9 end of the console cable to the DB-9 end of the modem adapter.

Step 3 Connect the DB-25 end of the modem adapter to the modem.

Step 4 Make sure that your modem and the router auxiliary port are configured for the same transmission speed (up to 115200 bps is supported) and for mode control with data carrier detect (DCD) and data terminal ready (DTR) operations.

Connecting a Management Ethernet Cable

When using the Ethernet Management port in the default mode (speed-auto and duplex-auto) the port operates in 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 or 100 Mbps) through command-line interface (CLI) commands, the port is forced to 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

Warning 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.

Installing and Removing SFP and XFP Modules

The Cisco ASR 907 Router supports a variety of SFP and XFP modules, including optical and Ethernet modules. For information on how to install and remove SFP and XFP modules, see the documentation for the SFP or XFP 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

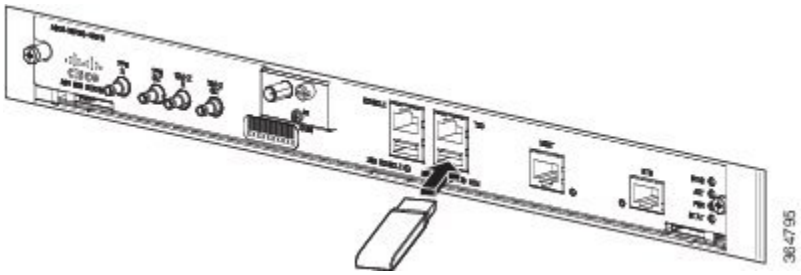
Caution We recommend that you wait 30 seconds between removal and insertion of an SFP on an interface module. This time is recommended to allow the transceiver software to initialize and synchronize with the standby RSP. Changing an SFP more quickly could result in transceiver initialization issues that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

Connecting a USB Flash Device

To connect a USB flash device to the Cisco ASR 907 Router, insert the memory stick in the USB port labeled MEM. The Flash memory module can be inserted in only one way, and can be inserted or removed regardless of whether the router is powered up or not.

The figure below shows the USB port connector on the Cisco ASR 907 Router.

Figure 30: Cisco ASR 907 Router Flash Token Memory Stick



Removing a USB Flash Device

To remove and then replace a USB flash token memory stick from a Cisco ASR 907 Router, follow these steps:

Procedure

Step 1 Pull the memory stick from the USB port.

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

Note You can insert or remove the memory stick whether the router is powered on or not.

This completes the USB Flash memory installation procedure.

Connecting Timing Cables

The following sections describe how to connect timing cables to the Cisco ASR 907 Router:

Note When installing the cabling to the RSPs, we recommend that you leave a service loop of extra cabling sufficient to allow for fan tray removal.

Connecting Cables to the BITS Interface

The following steps describe how to connect a cable to the router BITS port:

Procedure

Step 1 Confirm that the router is powered off.

Step 2 Connect one end of the cable to the BITS port using a straight-through, shielded RJ48C-to-RJ48C cable.

Step 3 Connect the other end to the BTS patch or demarcation panel at your site.

Step 4 Turn on power to the router.

For information about the BITS port pinouts, see Troubleshooting.

Note Use of two BITS sources or a Y-cable is optional. Each BITS input port is routed to both RSPs, so that SETS device on each RSP has visibility to both BITS inputs.

Warning To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the BITS 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.

Connecting Cables to a GNSS Interface

The following sections describe how to connect cables from the Cisco ASR 907 Router to a GPS unit for input or output timing of frequency.

Note A Y-cable is required to connect to a primary and backup RSP in order to ensure that the router continues to transmit timing signals in the event of a network failure. For a mini-coax connection, this Y-cable can be part number CAB-BNC-7INY (7 inch BNC Y-cable). For an Ethernet connection, this Y-cable can be a RJ45 Cat5 1-to-2 splitter (3 female port RJ45 connector).

Note When installing the cabling to the RSPs, we recommend that you leave a service loop of extra cabling sufficient to allow for fan tray removal.

Connecting Cables to the Input 10Mhz or 1PPS Interface

Procedure

Step 1 Connect one end of a mini-coax Y-cable to the GPS unit.

Step 2 Connect one end of the split-side Y-cable mini-coax to the 10Mhz or 1PPS port on the primary RSP of the Cisco ASR 907 Router.

Step 3 Connect the other end of the split-side Y-cable mini-coax to the 10Mhz or 1PPS port on the backup RSP of the Cisco ASR 907 Router.

Connecting Cables to the Output 10Mhz or 1PPS Interface

Procedure

Step 1 Connect one end of a mini-coax Y-cable to the Slave unit.

Step 2 Connect one end of the split-side Y-cable mini-coax to the 10Mhz or 1PPS port on the primary RSP of the Cisco ASR 907 Router.

Step 3 Connect the other end of the split-side Y-cable mini-coax to the 10Mhz or 1PPS port on the backup RSP of the Cisco ASR 907 Router.

Connecting Cables to the ToD Interface

Procedure

Step 1 Connect one end of a straight-through Ethernet cable to the GPS unit.

Step 2 Connect one end of the split-side Y-cable Ethernet to the ToD port on the primary RSP of the Cisco ASR 907 Router.

Step 3 Connect the other end of the split-side Y-cable Ethernet to the ToD port on the backup RSP of the Cisco ASR 907 Router.

Note For instructions on how to configure clocking, see the *Cisco ASR 907 Router Software Configuration Guide*.

Warning To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the ToD 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.

Note For more information about GPS port pinouts, see Troubleshooting.

Connecting a Cable to the GNSS Antenna Interface

Note The GNSS module is not hot swappable.

Procedure

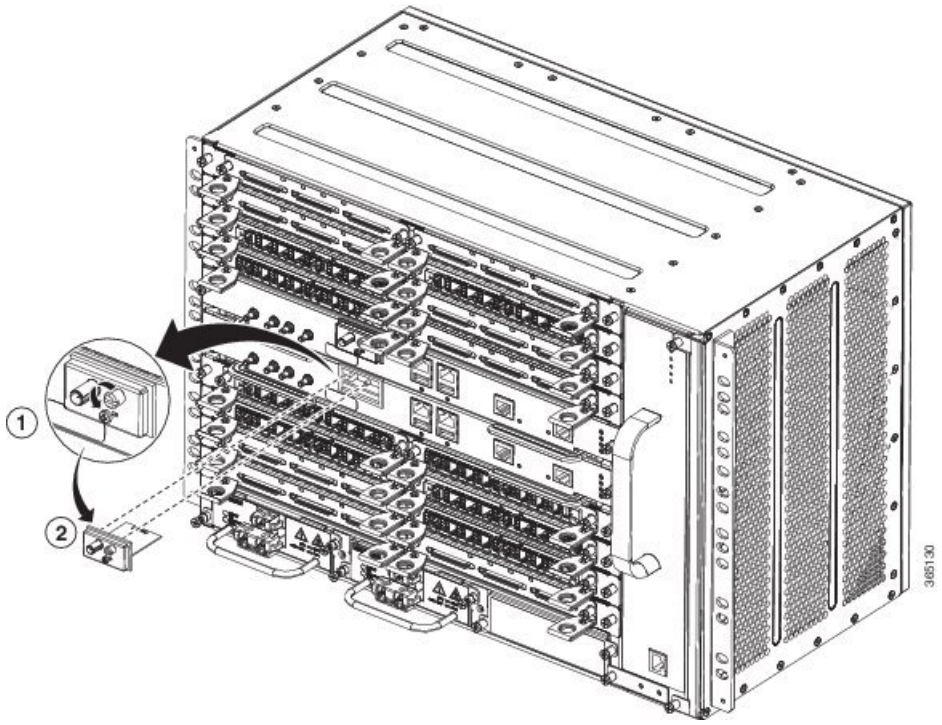
Step 1 Connect one end of a shielded coaxial cable to the GNSS RF IN port.

Step 2 Connect the other end of the shielded coaxial cable to the GNSS antenna after the primary protector.

Note The GNSS RF In port should have a primary protector installed to meet the Local Safety guidelines.

Note The GNSS RF In coaxial cable shield must be connected to the Facility Equipment Ground through the chassis. The chassis must have the ground wire connected to the Facility Equipment Ground.

Figure 31: Installing the GNSS Module in the RSP



1	Screw on the GNSS Module	2	Inserting the GNSS Module

Connecting Ethernet Cables

The Cisco ASR 907 Router interface modules support RJ45 or SFP Ethernet ports. For instructions on how to connect cables to Ethernet SFP ports, see Connecting Cables to SFP Modules .

The RJ45 port supports standard straight-through and crossover Category 5 unshielded twisted-pair (UTP) cables. Cisco Systems does not supply Category 5 UTP cables; these cables are available commercially.

Warning 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.

Note When installing the cabling to the RSPs, we recommend that you leave a service loop of extra cabling sufficient to allow for fan tray removal.

Follow these steps to connect the cable to a copper Gigabit Ethernet port:

Procedure

Step 1 Confirm that the router is powered off.

Step 2 Connect one end of the cable to the Gigabit Ethernet port on the router.

Step 3 Connect the other end to the BTS patch or demarcation panel at your site.

Connecting 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.

Connecting T1/E1 Cables

The physical layer interface for the Cisco ASR 907 Router T1/E1 port is a customer-installed high-density connector. The high-density connector has thumbscrews which should be screwed into the interface when the cable is installed.

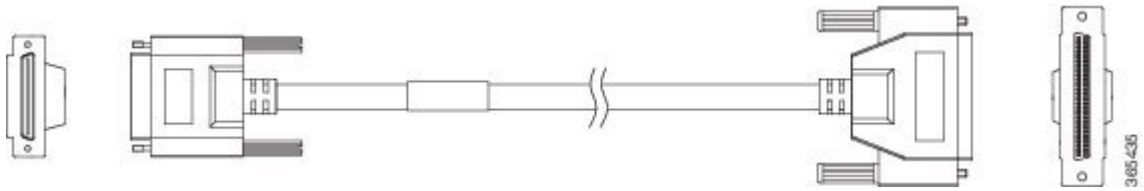
Note Patch panels are required in order to connect the high-density interface connectors to individual T1/E1 lines.

Installing the Cable Connectors

T1/E1 Cable Connectors

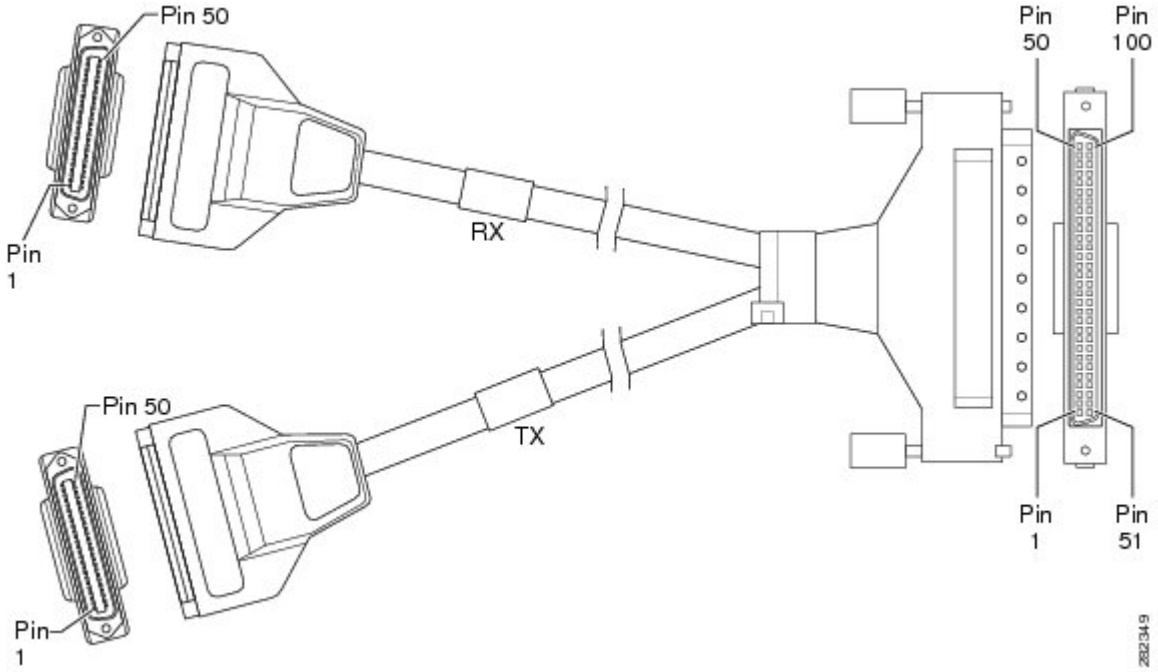
One end of the cable (see the figure above) has a 68-pin connector that plugs into the T1/E1 interface module and the other end of the cable with a 68-pin connector is connected to a RJ48, AMP64 or a DIN patch panel. Use the thumbscrews on either side of the connector to secure the cable to the interface.

Figure 32: T1/E1 Cable Connector



16 x T1/E1 Cable Connectors

Figure 33: 16 x T1/E1 Cable Connector

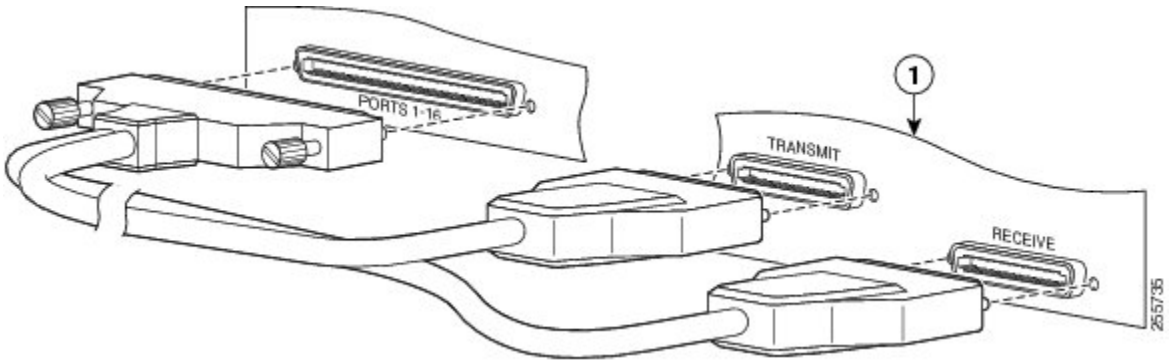


One end of the cable (see the figure above) has a 100-pin connector that plugs into the T1/E1 interface module. Use the thumbscrews on either side of the connector to secure the cable to the interface.

The other end of the cable has two 50-pin Telco connectors that attach to the rear of a 24-port RJ45 patch panel. Both connectors are identical: one is for Transmit (TX) and the other is for Receive (RX).

The figure below shows how the cable is connected between the 16 x T1/E1 interface module and the patch panel.

Figure 34: Cable Installation between 16 x T1/E1 Interface and Patch Panel

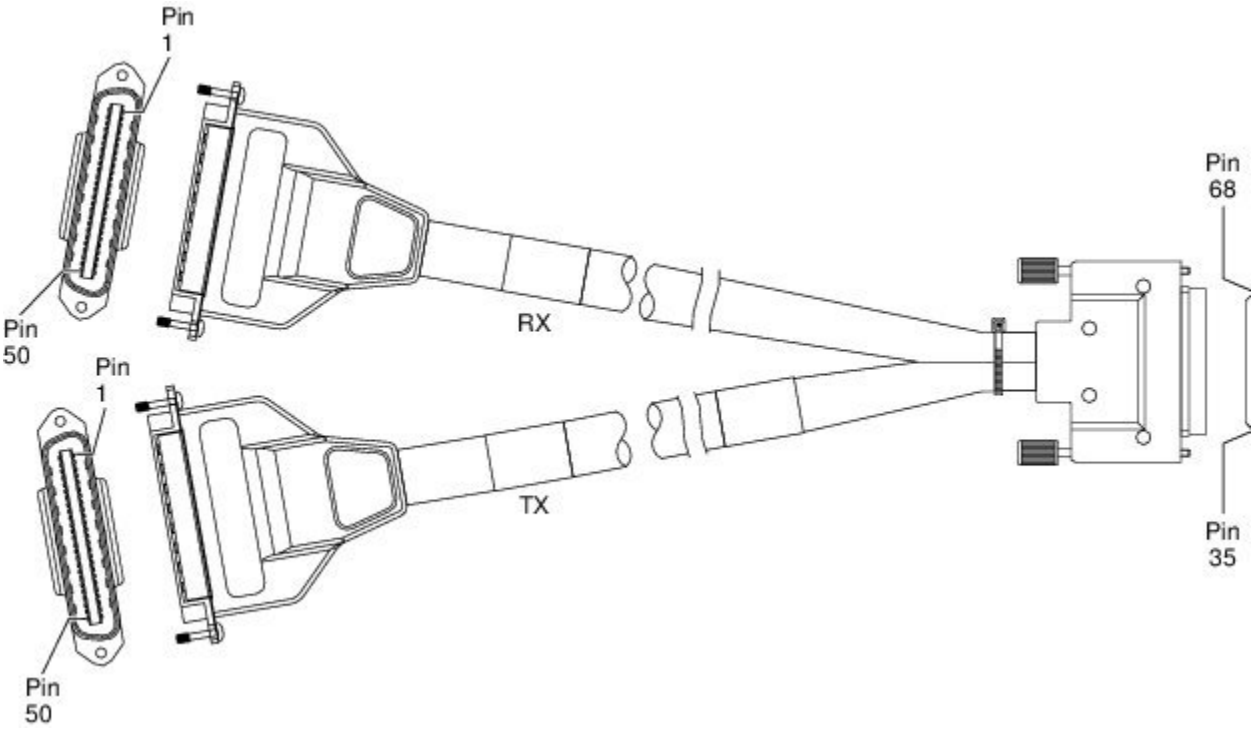


1	Patch panel interfaces

For information about the pinout of the cable connecting the T1/E1 interface to the rear of the patch panel, see the T1/E1 Port Pinout.

32 x T1/E1 Cable Connector

Figure 35: 32 x T1/E1 Cable Connector



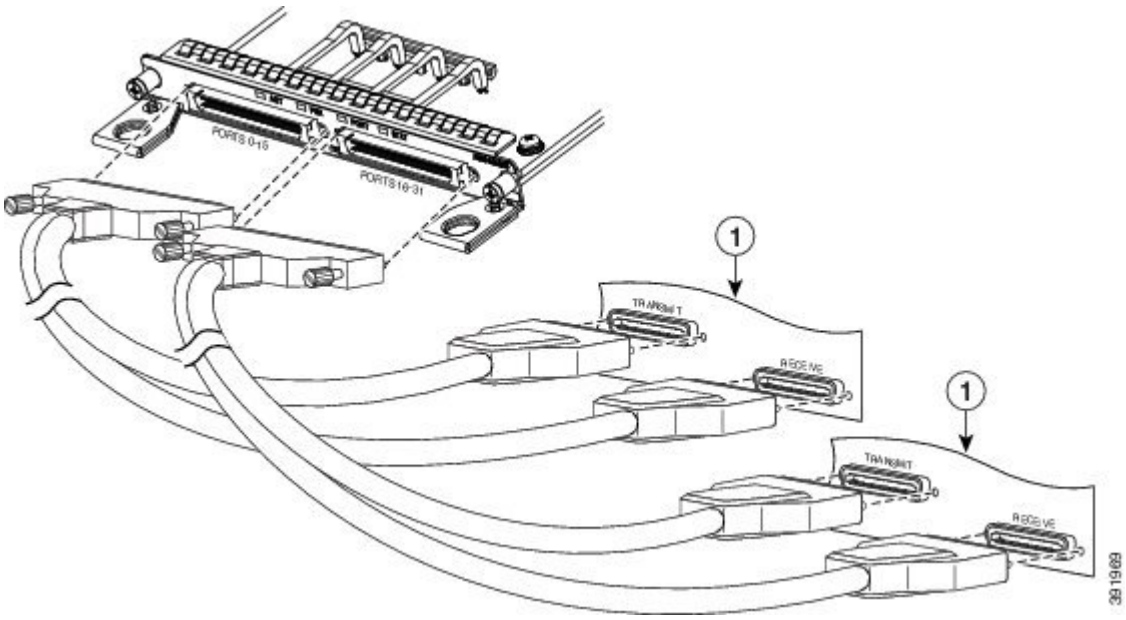
The 32 x T1/E1 interface module requires two patch cables. Each patch cable has a 68-pin connectors that connects with each connector port on the front panel of the 32 x T1/E1 interface module.

Use the thumbscrews on either side of the connectors to secure the cable to the interface.

The other end of the cable has two 50-pin Telco connectors that attach to the rear of a 24-port RJ45 patch panel. Both connectors are identical: one is for Transmit (TX) and the other is for Receive (RX).

The figure below shows how the cable is connected between the 32 x T1/E1 interface module and the patch panel.

Figure 36: Cable Installation between 32 x T1/E1 Interface and Patch Panel



1	Patch panel interfaces

T1/E1 Pinouts

For information about the pinout of the cable connecting the T1/E1 interface to the rear of the patch panel, see the T1/E1 Port Pinout .

RJ45 Cable Pinouts

T1 lines from individual subscribers are attached to RJ45 connectors on the front of the 24-port patch panel. Each RJ45 port accommodates an individual T1 subscriber line.

For the T1/E1 ports, see the T1/E1 Port Pinout .

RJ48 Cable Pinouts

T1 lines from individual subscribers are attached to RJ45 connectors on the front of the 24-port patch panel. Each RJ45 port accommodates an individual T1 subscriber line.

For the T1/E1 ports, see the T1/E1 Port Pinouts (RJ-48) section.

Connecting Cables to the Patch Panel

If you are connecting two T1/E1 interfaces to each other, you must cable both interfaces' patch panels together using a T1 cross-over cable or a T1 straight-through cable. Use shielded cables. The type of cable you use (cross-over or straight-through) depends on how the T1/E1 interfaces are cabled to their patch panels:

- If both T1/E1 interfaces are connected to their patch panels in the same manner (TX to Transmit and RX to Receive, or TX to Receive and RX to Transmit), use a T1 cross-over cable to connect the patch panels.

- If both T1/E1 interfaces are connected to their patch panels in a different configuration (TX to Transmit and RX to Receive on one interface, and TX to Receive and RX to Transmit on the other interface), use a T1 straight-through cable (standard RJ45 patch cable) to connect the patch panels.

Warning To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the T1/E1 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.

Patch Panel Pinout

Given below are the pinout information for the regular crossover and the straight-through cable patch panel.

Table 3: Pinout Details

Pin #	Crossover	Straight-through
1	Receive Tip	Transmit Tip
2	Receive Ring	Transmit Ring
3	—	—
4	Transmit Tip	Receive Tip
5	Transmit Ring	Receive Ring
6	—	—
7	—	—
8	—	—

Patch Panel Cabling for Redundancy

You can connect the patch panels with the interface modules for redundancy, using the Y-cables. The Y-cable stub lengths are reduced, so that the cable does not exceed from the rack spacer. The Y-cables are numbered based on the different stub length. Cable lengths differ for even numbered and odd numbered slots in the chassis.

Note Do not try to interchange the cables as the length may vary based on odd and even slots.

Table 4: Y-Cable for Redundancy

Bundle PID	Y-Cable Hood Marking	Description
CABLE-16TDM-R1EL1	T1/E1-Cable S-3	16-port cable for TDM CEM Interface Module, 42 inches cable length and 10 inches stub length, even slot
	T1/E1 Cable S-2	16-port cable for TDM CEM Interface Module, 42 inches cable length and 7.5 inches stub length, even slot
	T1/E1 Cable S-1	16-port cable for TDM CEM Interface Module, 42 inches cable length and 6.5 inches stub length, even slot
CABLE-16TDM-R1EL2	T1/E1-Cable M-3	16-port cable for TDM CEM Interface Module, 62 inches cable length and 10 inches stub length, even slot
	T1/E1-Cable M-2	16-port cable for TDM CEM Interface Module, 62 inches cable length and 7.5 inches stub length, even slot
	T1/E1-Cable M-1	16-port cable for TDM CEM Interface Module, 62 inches cable length and 6.5 inches stub length, even slot
CABLE-16TDM-R1EL3	T1/E1-Cable L-3	16-port cable for TDM CEM Interface Module, 78 inches cable length and 10 inches stub length, even slot
	T1/E1-Cable L-2	16-port cable for TDM CEM Interface Module, 78 inches cable length and 7.5 inches stub length, even slot
	T1/E1-Cable L-1	16-port cable for TDM CEM Interface Module, 78 inches cable length and 6.5 inches stub length, even slot
CABLE-16TDM-R3EL1	T3/E3-Cable S-3	16-port cable for TDM CEM Interface Module, 42 inches cable length and 10 inches stub length, even slot
	T3/E3-Cable S-2	16-port cable for TDM CEM Interface Module, 42 inches cable length and 7.5 inches stub length, even slot
	T3/E3-Cable S-1	16-port cable for TDM CEM Interface Module, 42 inches cable length and 6.5 inches stub length, even slot

Bundle PID	Y-Cable Hood Marking	Description
CABLE-16TDM-R3EL2	T3/E3-Cable M-3	16-port cable for TDM CEM Interface Module, 62 inches cable length and 10 inches stub length, even slot
	T3/E3-Cable M-2	16-port cable for TDM CEM Interface Module, 62 inches cable length and 7.5 inches stub length, even slot
	T3/E3-Cable M-1	16-port cable for TDM CEM Interface Module, 62 inches cable length and 6.5 inches stub length, even slot
CABLE-16TDM-R3EL3	T3/E3-Cable L-3	16-port cable for TDM CEM Interface Module, 78 inches cable length and 10 inches stub length, even slot
	T3/E3-Cable L-2	16-port cable for TDM CEM Interface Module, 78 inches cable length and 7.5 inches stub length, even slot
	T3/E3-Cable L-1	16-port cable for TDM CEM Interface Module, 78 inches cable length and 6.5 inches stub length, even slot
CABLE-16TDM-R1OL1	T1/E1-Cable S-3	3 x 16-port cables for TDM CEM Interface Module, 42 inches cable length and 10 inches stub length, odd slot
CABLE-16TDM-R1OL2	T1/E1-Cable M-3	3 x 16-port cables for TDM CEM Interface Module, 62 inches cable length and 10 inches stub length, odd slot
CABLE-16TDM-R1OL3	T1/E1-Cable L-3	3 x 16-port cables for TDM CEM Interface Module, 78 inches cable length and 10 inches stub length, odd slot
CABLE-16TDM-R3OL1	T3/E3-Cable S-3	3 x 16-port cables for TDM CEM Interface Module, 42 inches cable length and 10 inches stub length, odd slot
CABLE-16TDM-R3OL2	T3/E3-Cable M-3	3 x 16-port cables for TDM CEM Interface Module, 62 inches cable length and 10 inches stub length, odd slot
CABLE-16TDM-R3OL3	T3/E3-Cable L-3	3 x 16-port cables for TDM CEM Interface Module, 78 inches cable length and 10 inches stub length, odd slot

Recommended Patch Panel

We recommend the following T1/E1 patch panels:

- 48-port T1 RJ45 patch panel (part number DCC4884/25T1-S)
- 16-port E1 BNC patch panel (part number DCC16BNC/25T1-S)

The patch panels are available from Optical Cable Corporation (http://www.occfiber.com). To order a patch panel, contact the Sales and Marketing Support staff at Optical Cable Corporation:

- 800-622-7711 (toll-free in the U.S.A.)
- 540-265-0690 (outside the U.S.A.)

Installing Patch Panel

To install the brackets on the rear of the patch panel, perform these steps:

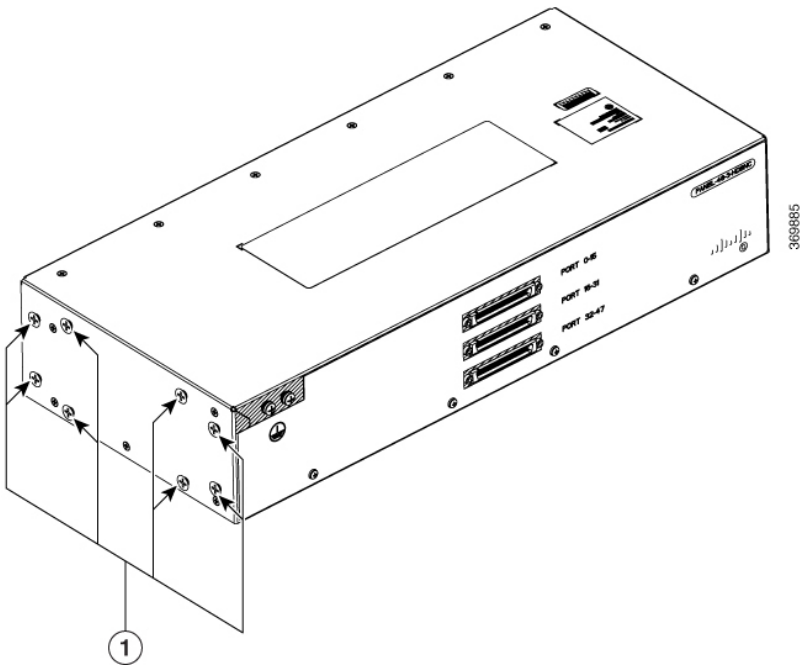
Procedure

Step 1 Remove the larger (M4) rack mount screws (as indicated in the *Rack Mount Screws* figure below) from both sides. To secure the brackets, follow the instructions in Step-3.

Step 2 Remove the patch panel rack-mount brackets from the accessory kit and position them beside the patch panel.

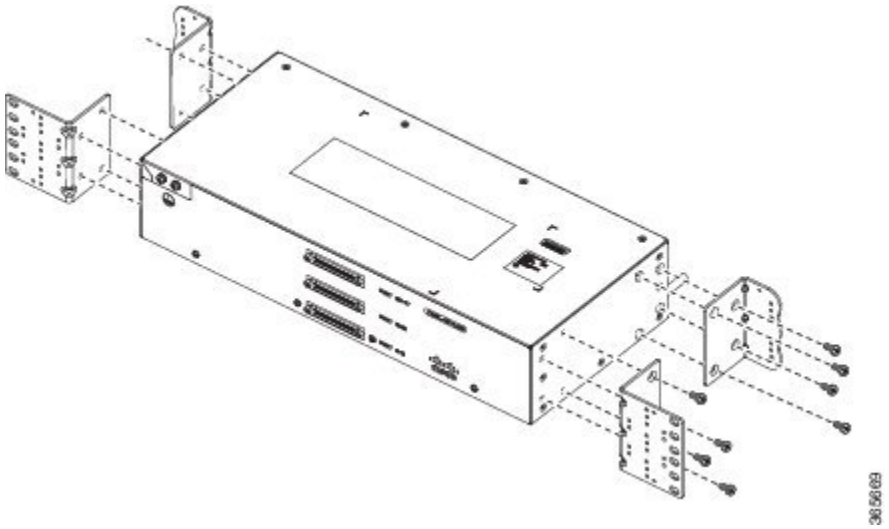
Step 3 Position the brackets against the patch panel sides, and align with the screw holes. Secure the rack mount bracket to patch panel using a torque of 13.2 in.-lb (1.5 N-m) see the figure below.

Figure 37: Rack Mount Screws



(1) Rack mount screws to secure rack mount brackets on both the sides.

Figure 38: Patch Panel Front View with Brackets



Step 4 Position the cable management guides against the mounting brackets on the patch panel, see the figure below.

Figure 39: Patch Panel Front View with Brackets and Guides

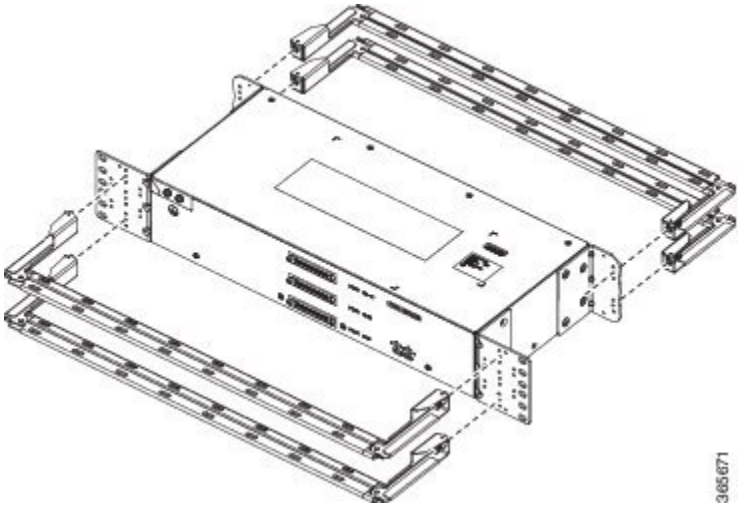
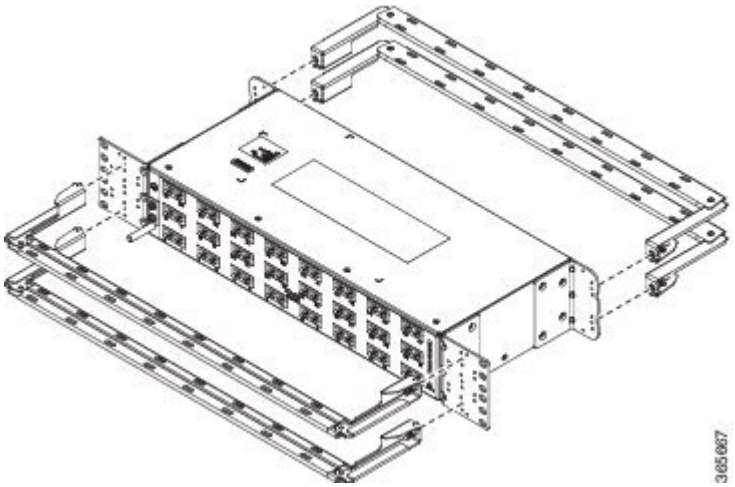


Figure 40: Patch Panel Rear View with Brackets and Guides



Step 5 Secure the guides to the brackets with the screws. The recommended maximum torque is 28 in.-lb (3.16 N-m).

Step 6 **Note** Cable brackets should be assembled according to the PID used as different PIDs have different set and quantity of brackets. Refer figures 110 to 115 for PID and cable bracket details.

Position the patch panel with brackets and guide onto the rack and secure with screws provided. The recommended maximum torque is 28 in.-lb (3.16 N-m), see the figure below.

Figure 41: Patch Panel Front View with Brackets and Guides Installed on Rack

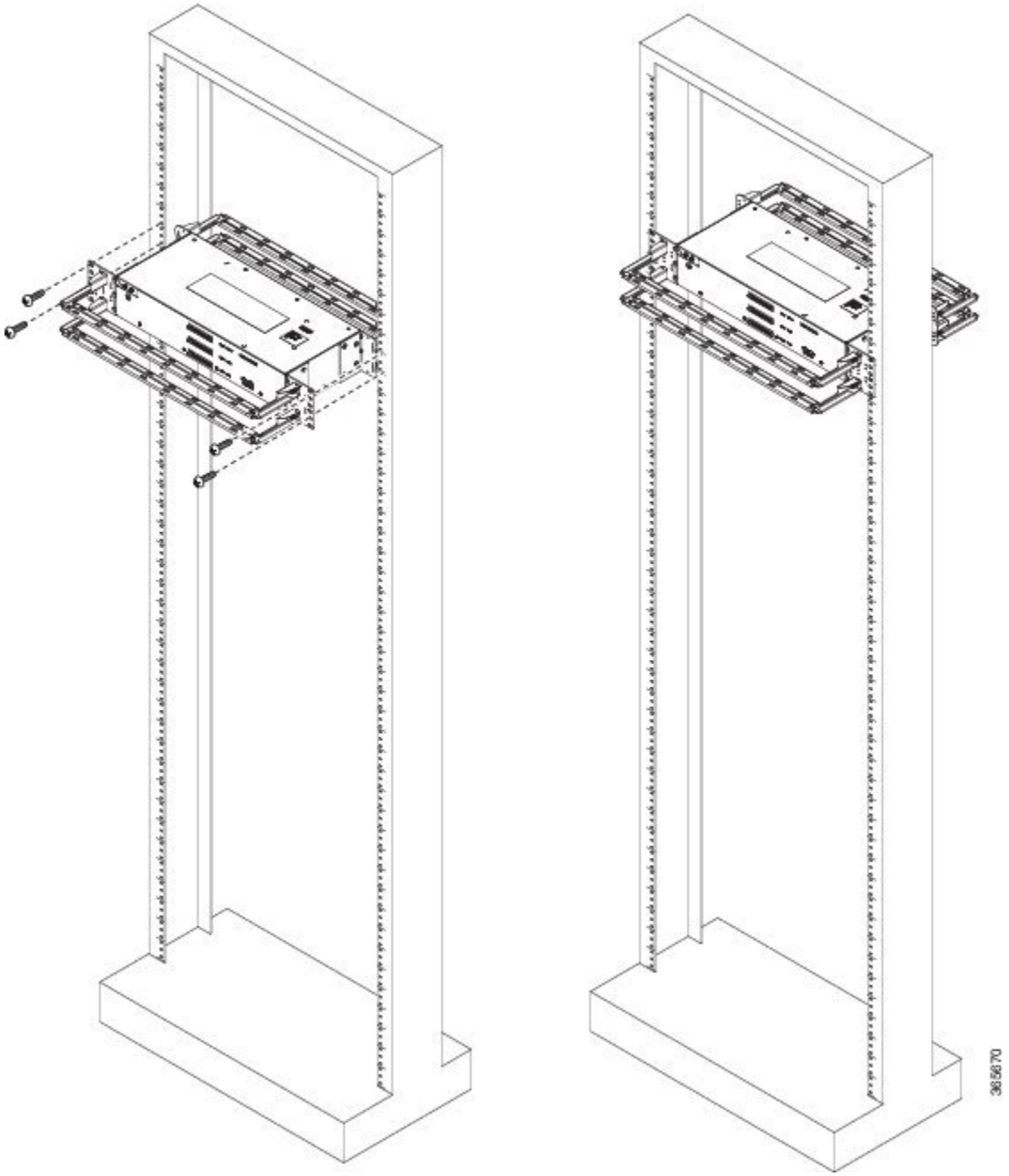


Figure 42: Patch Panel Rear View with Brackets and Guides Installed on Rack

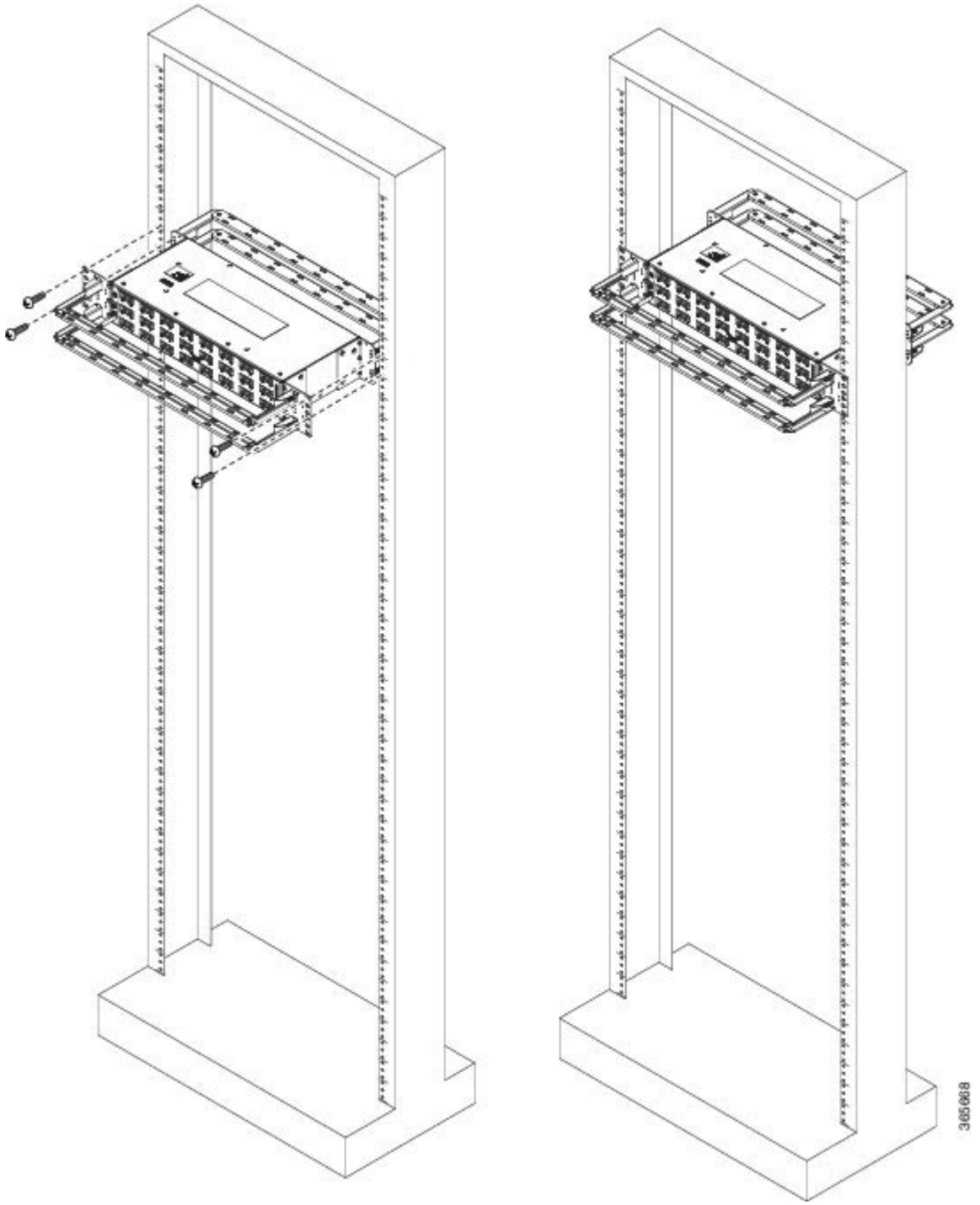


Figure 43: PANEL-16-DIN Patch Panel Mounting Installed on Rack

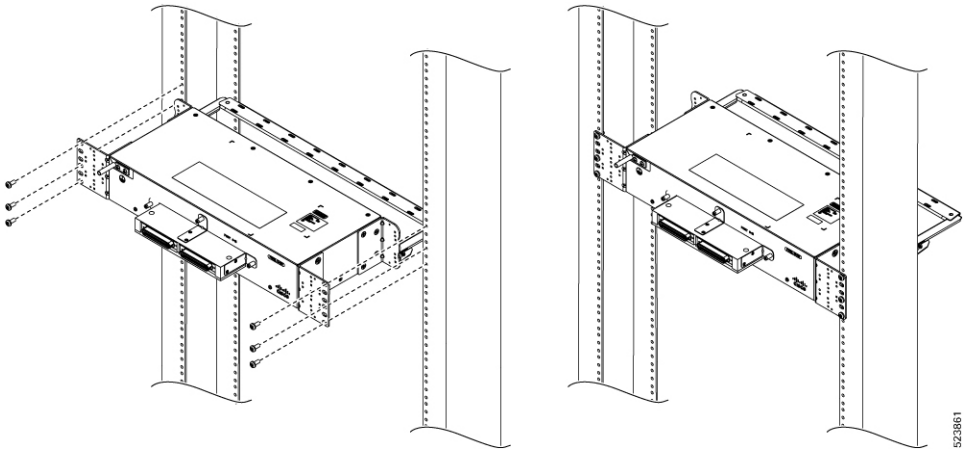


Figure 44: PANEL-48-1-AMP64

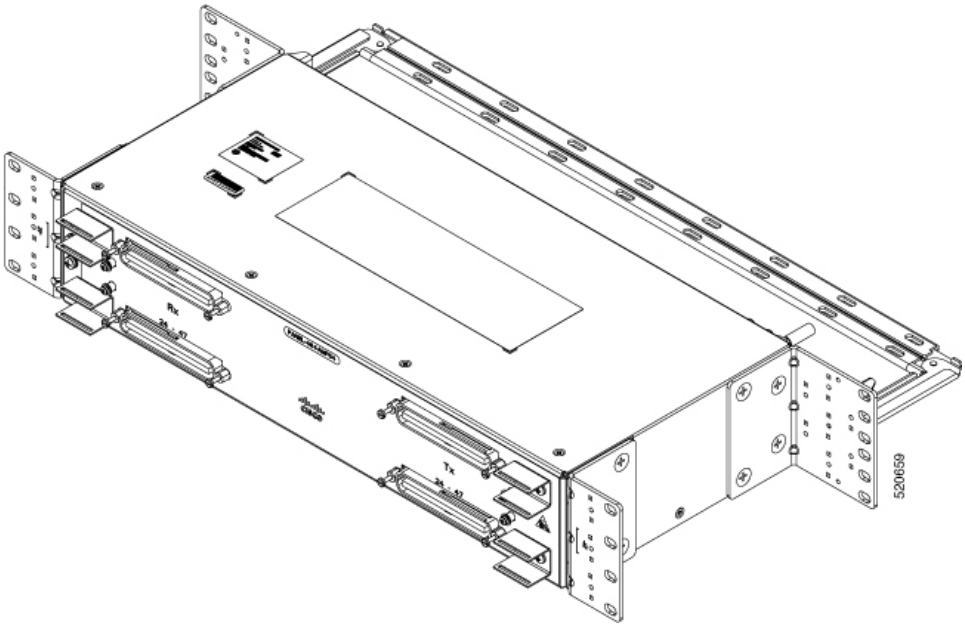


Figure 45: PANEL-48-1-DIN

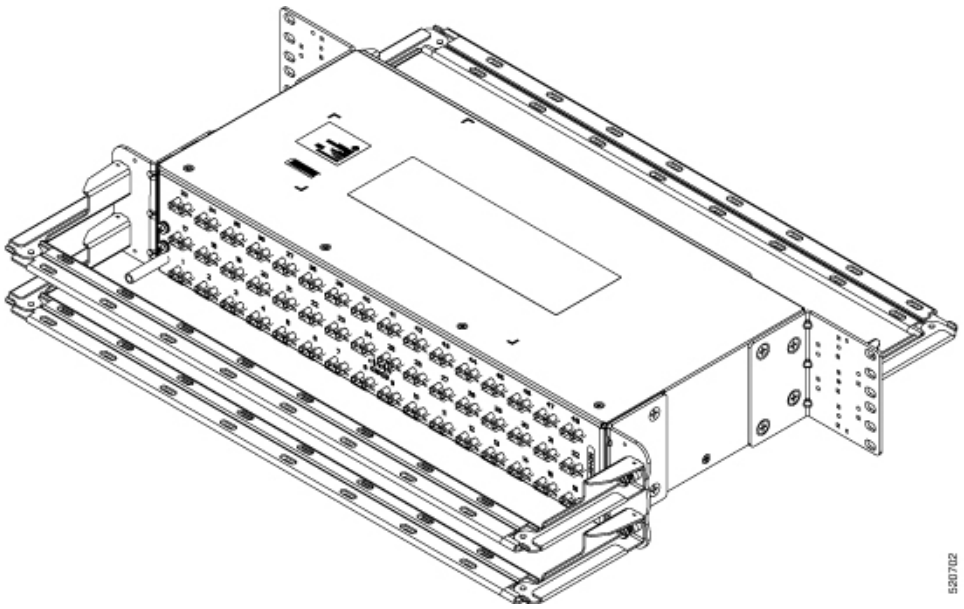


Figure 46: PANEL-48-1-RJ48

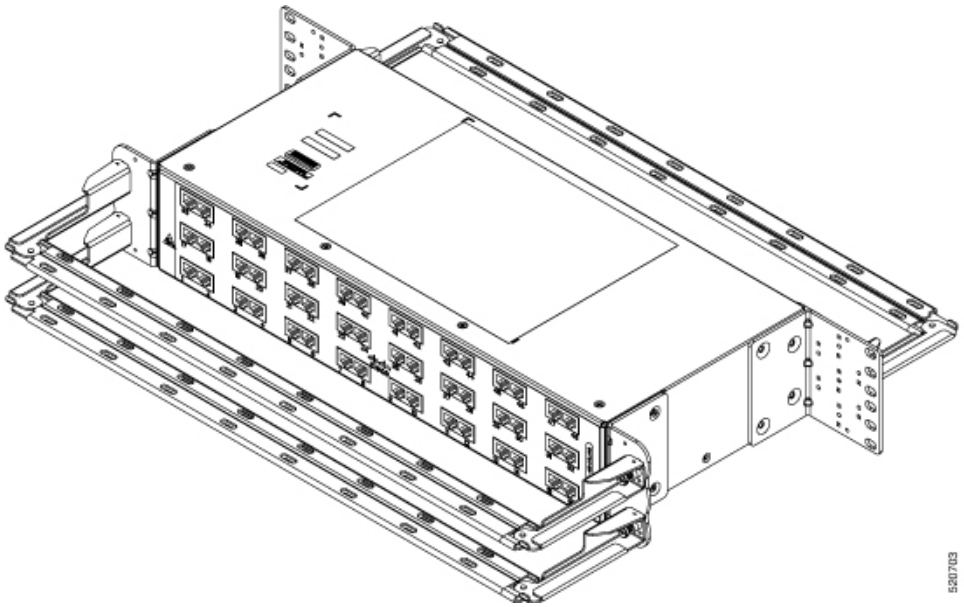
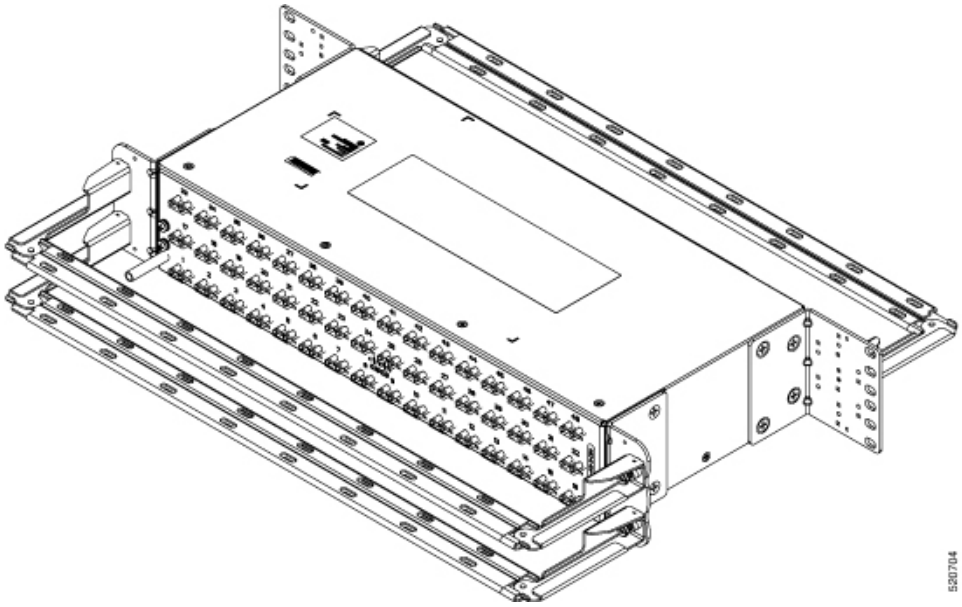


Figure 47: PANEL-48-3-DIN



Note The installation of PANEL-48-1-AMP64, PANEL-48-1-DIN, PANEL-48-1-RJ48, and PANEL-48-3-DIN is similar to the installation steps mentioned above.

Figure 48: PANEL-48-3-HDBNC

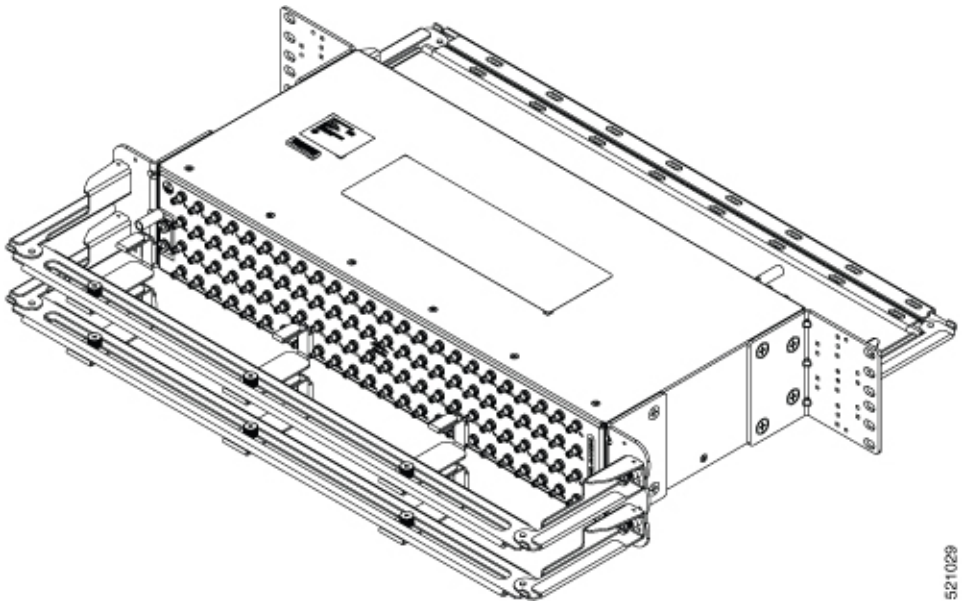


Figure 49: PANEL-144-1-AMP64

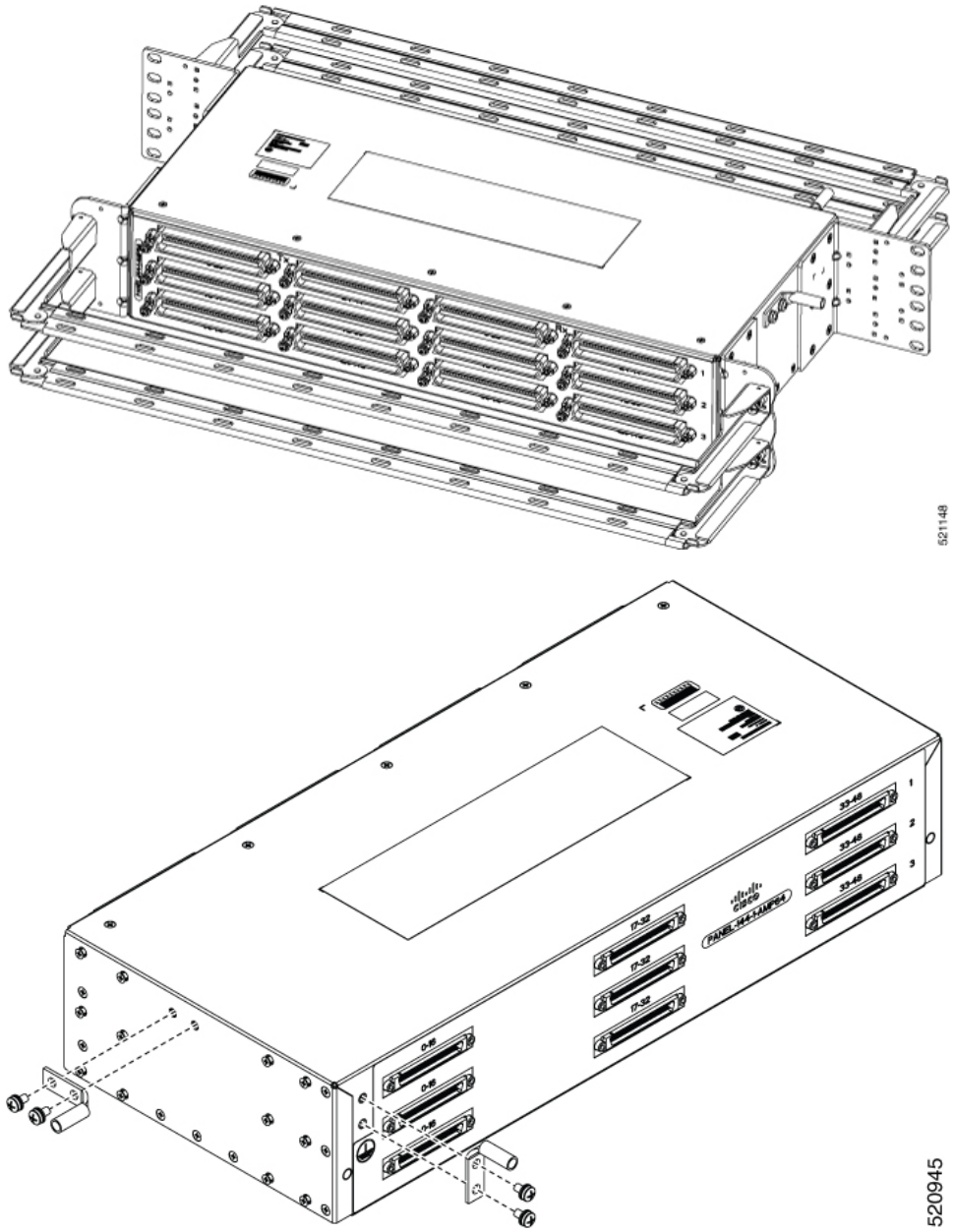
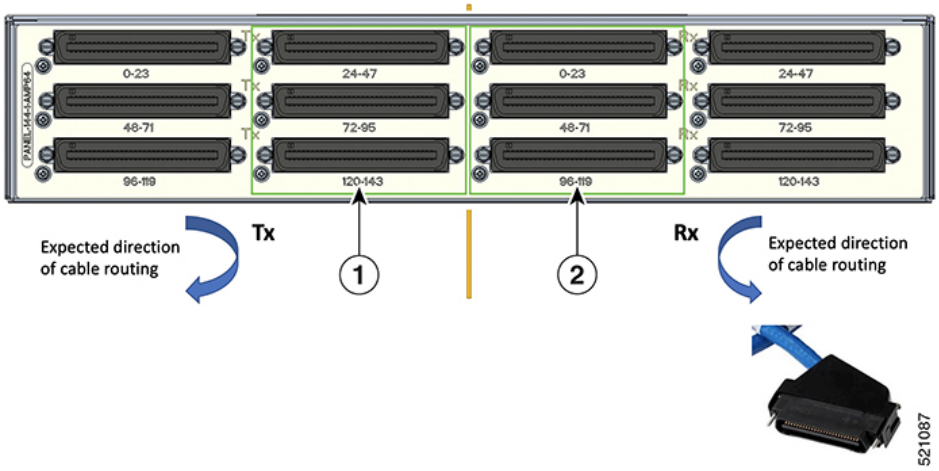


Figure 50: Example of 120° Exit Cable Hood



The following table shows details of the 120° exit cable hood:

Table 5: Cable Routing Recommendation for Panel-144-1-AMP64

1	120° exit cable hood with left routing should be used for centre ports on the Tx side.
2	120° exit cable hood with right routing should be used for centre ports on the Rx side.

Install 3G Patch Panel

You can choose to either set up the Cisco ASR 903 3G patch panel on a rack or wall mount it.

Install Rack Brackets

Procedure

Step 1 Connect the grounding lugs using a crimping tool (as specified by the ground lug manufacturer), crimp the ground lug to the ground wire.

Step 2 Use a 6 AWG ground wire to connect the other end to a suitable grounding point at your site.

Figure 51: Patch Panel Grounding - Single

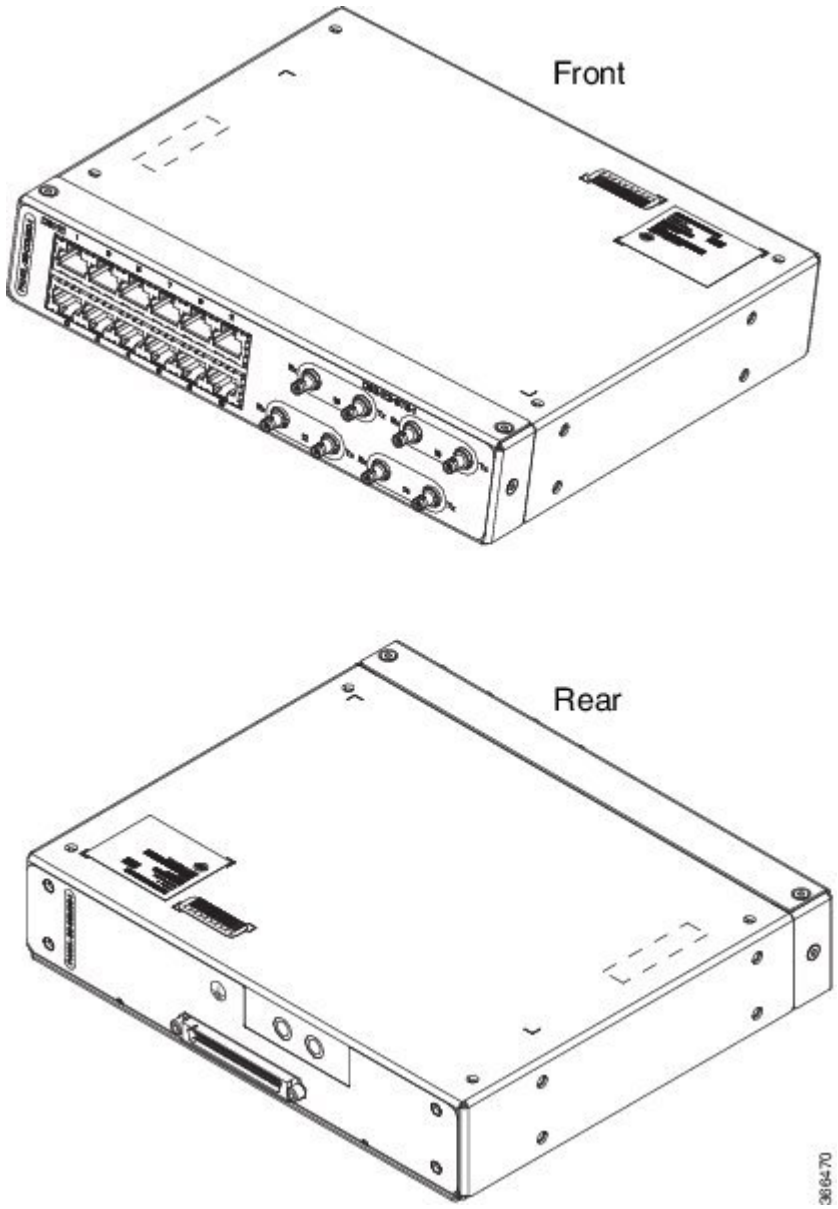
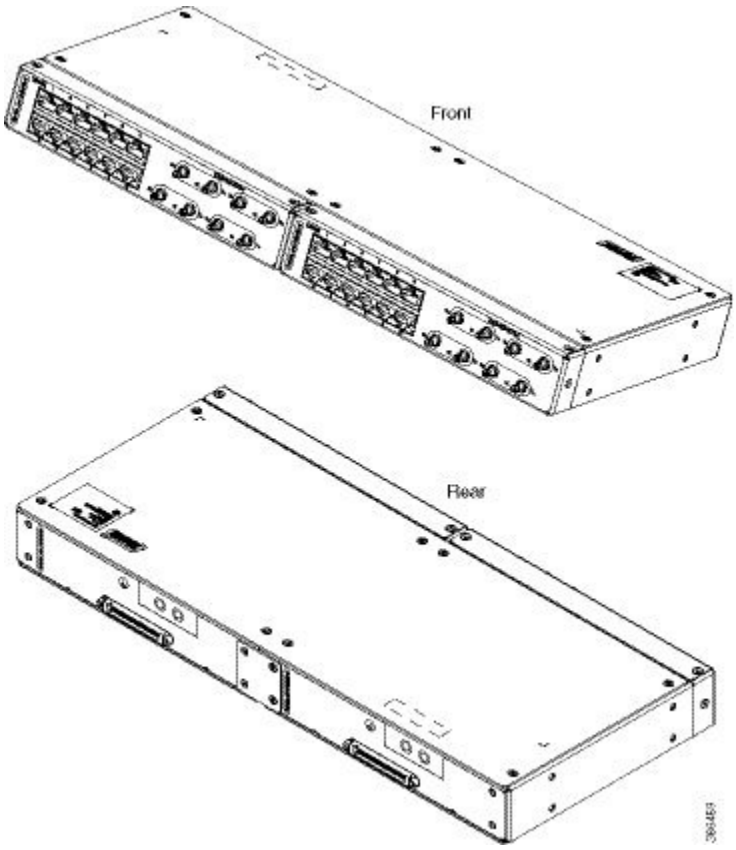


Figure 52: Patch Panel Grounding - Dual



Step 3 Position the patch panel in the rack as follows:

- If the front of the patch panel is at the front of the rack, insert the rear of the chassis between the mounting posts.
- If the rear of the patch panel is at the front of the rack, insert the front of the chassis between the mounting posts.

Step 4 Align the mounting holes in the bracket with the mounting holes in the equipment rack.

Figure 53: Installing the Patch Panel - Single in a 19-inch Rack

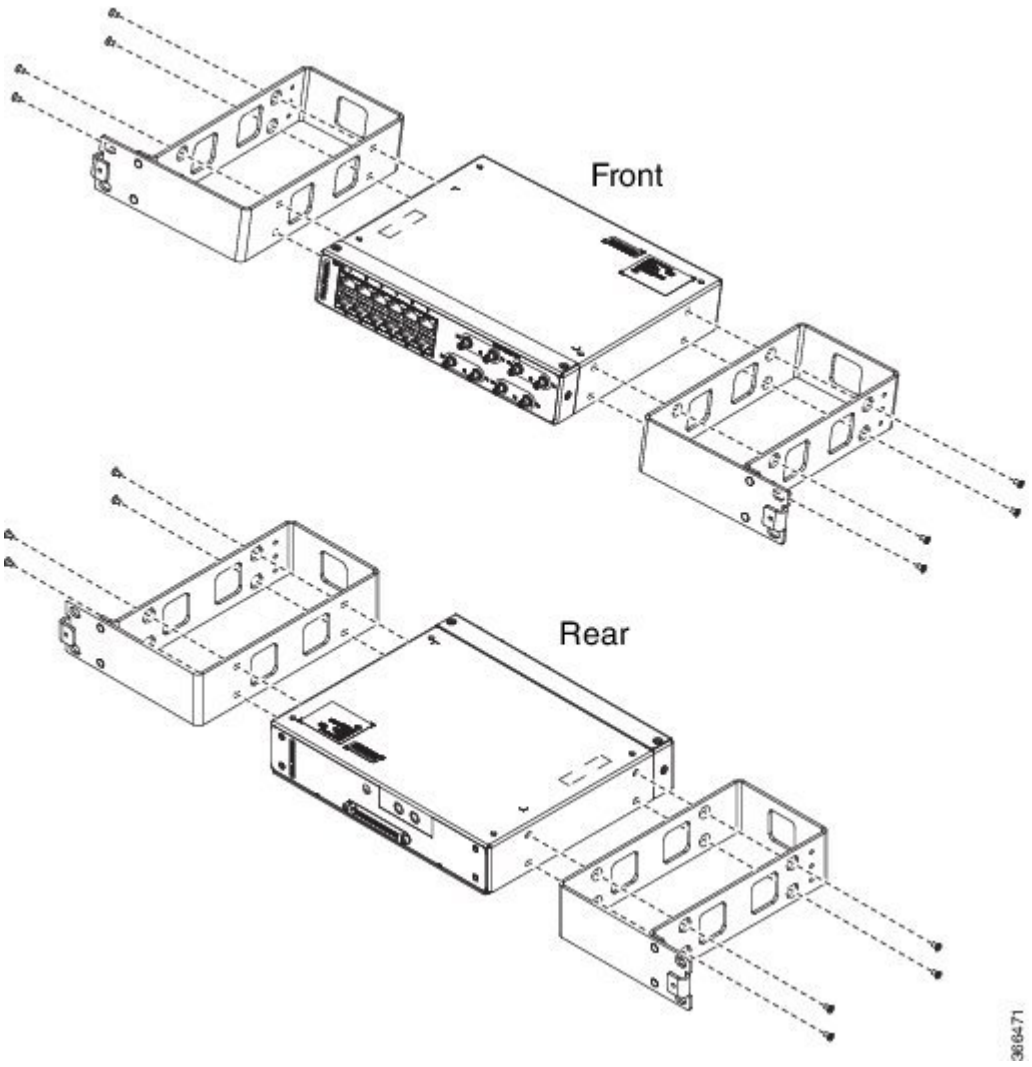


Figure 54: Installing the Patch Panel - Dual in a 19-inch Rack

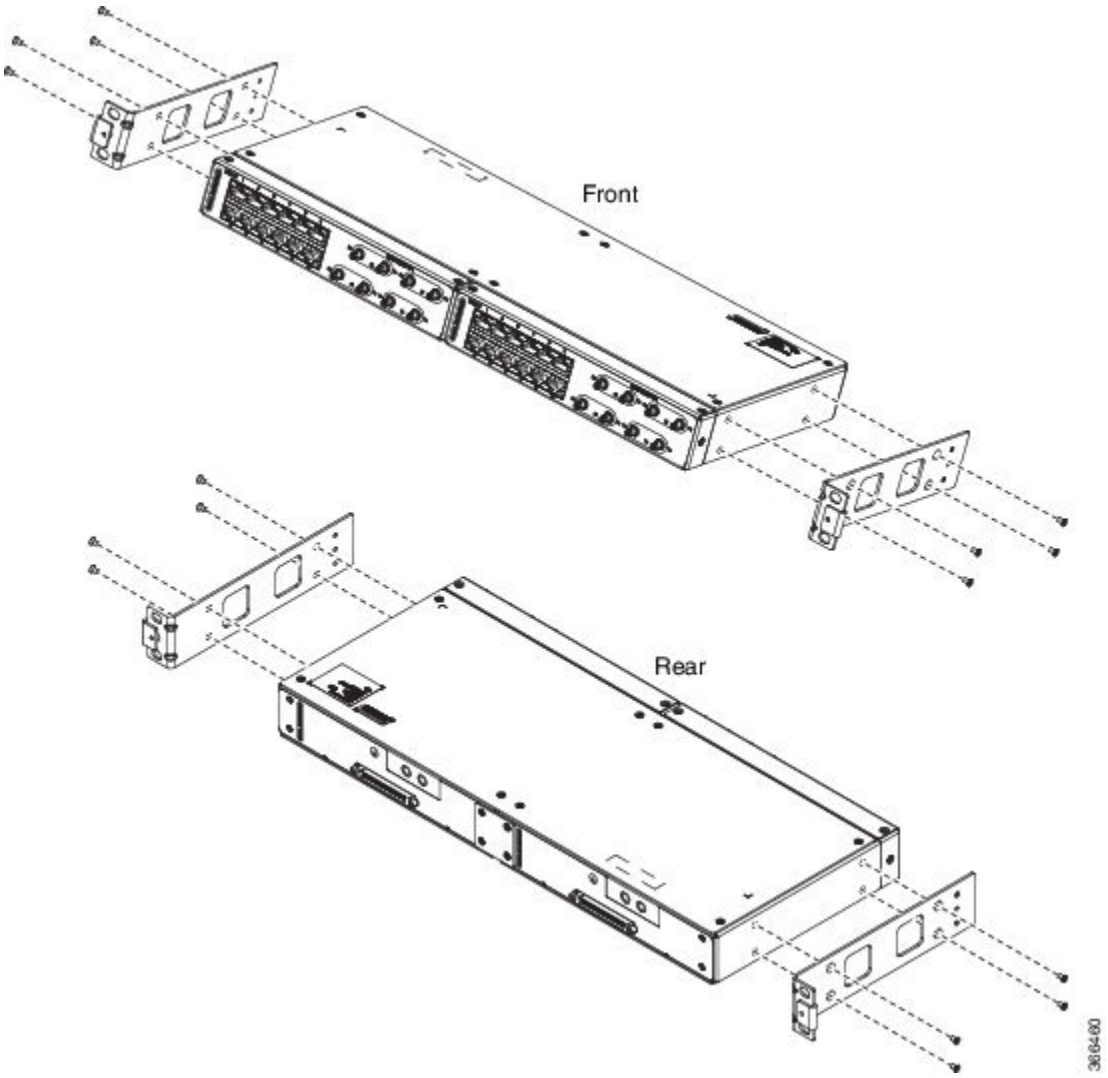


Figure 55: Installing the Patch Panel - Single in a 21-inch Rack

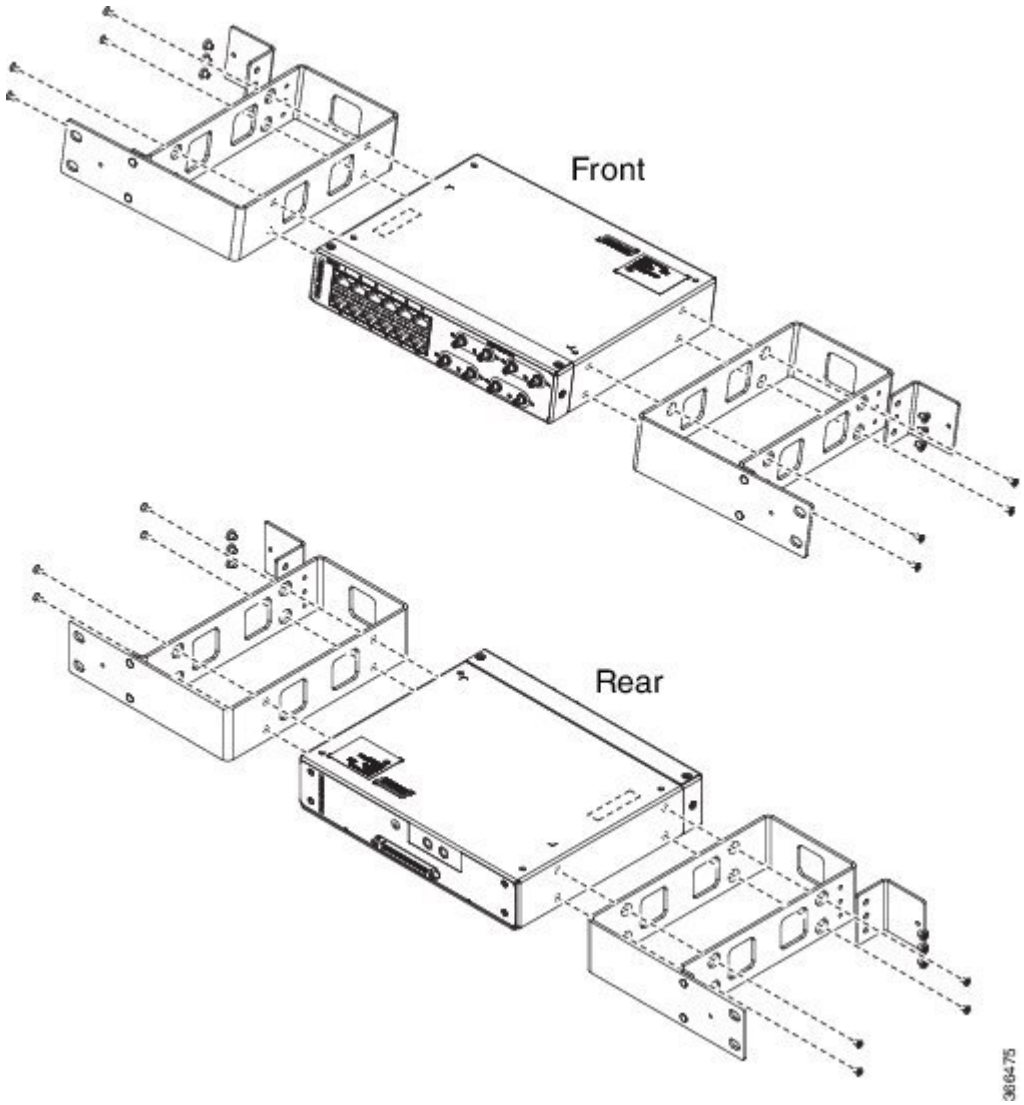


Figure 56: Installing the Patch Panel - Dual in a 21-inch Rack

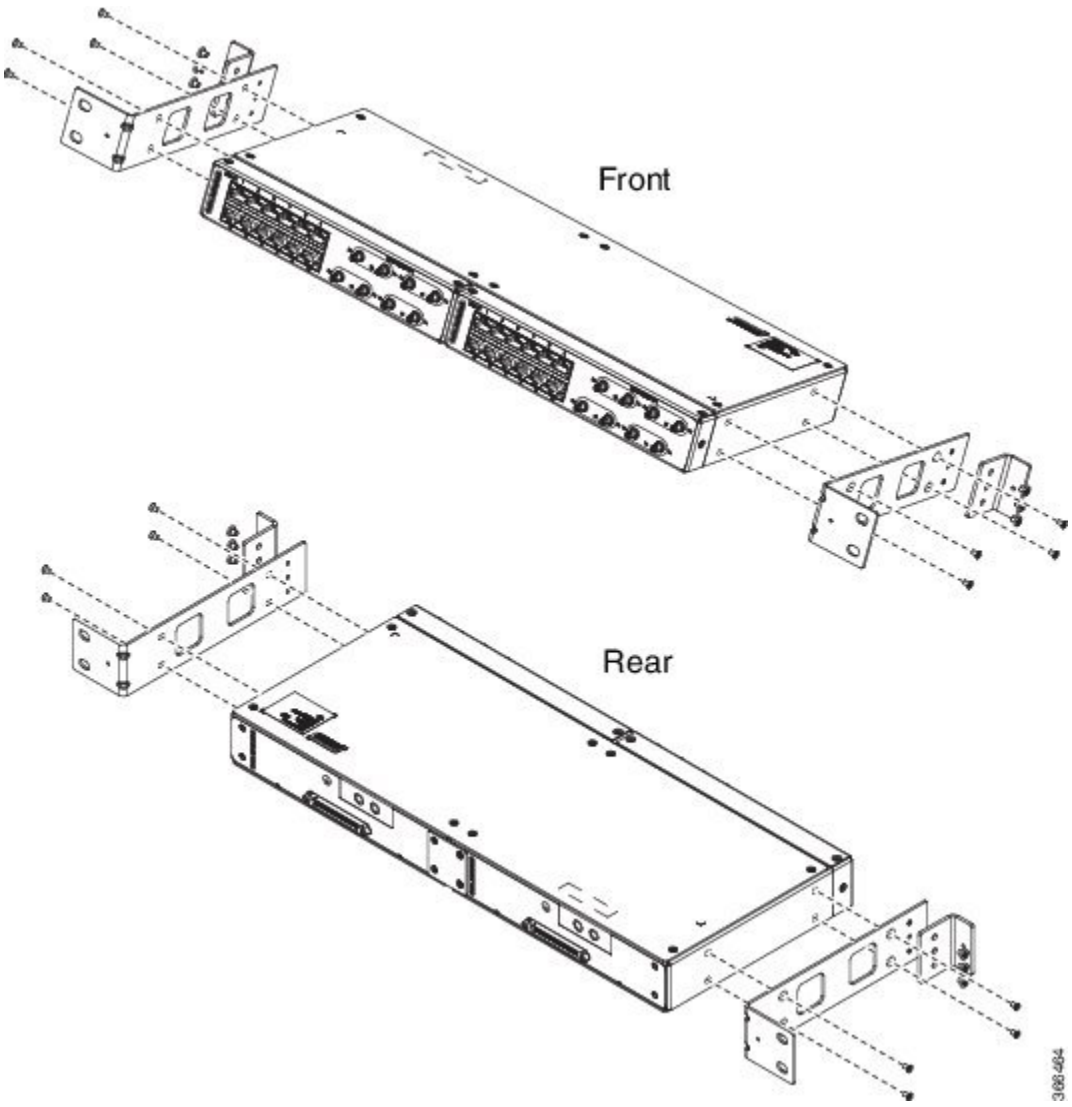


Figure 57: Installing the Patch Panel - Single in a 23-inch Rack

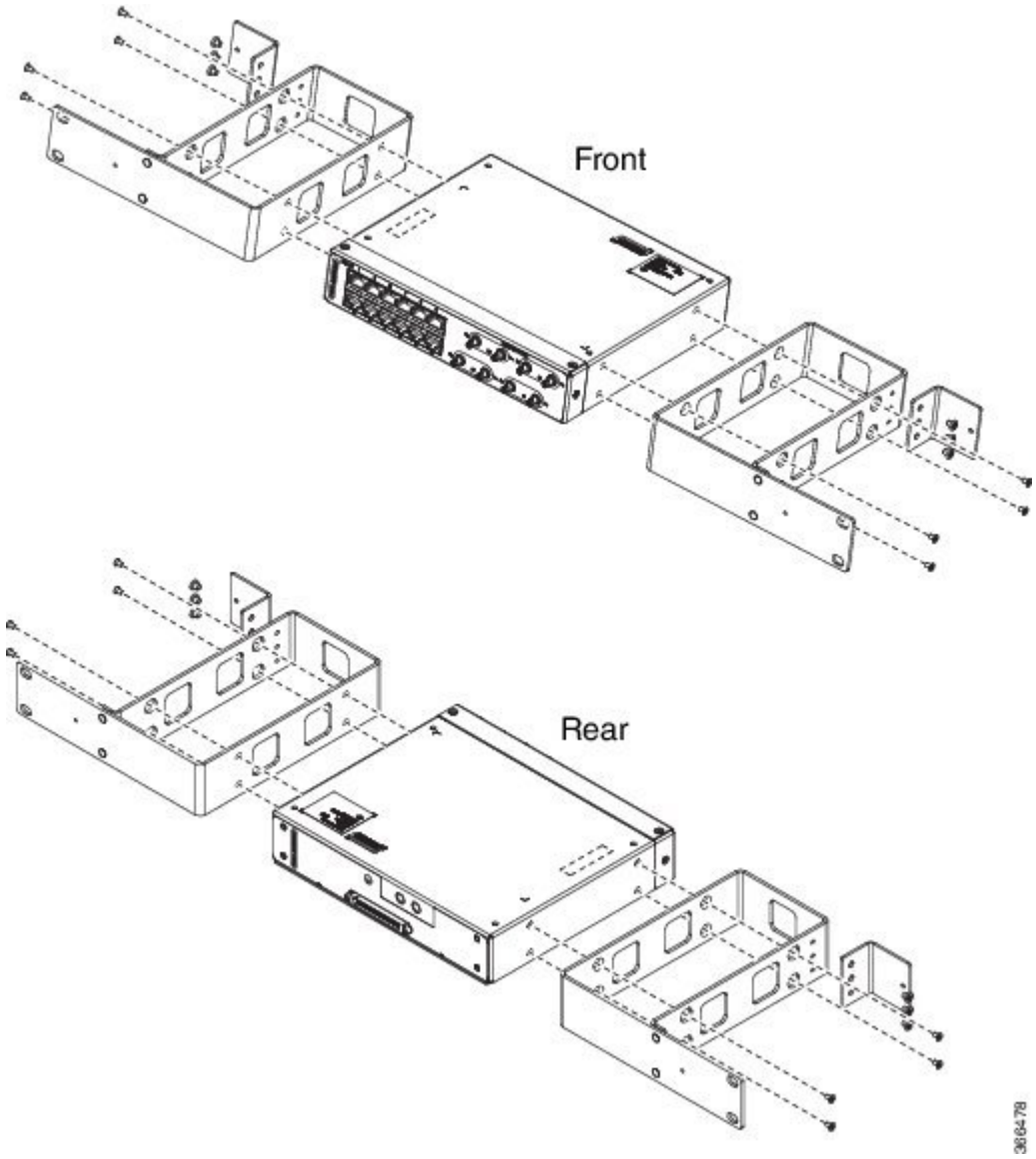
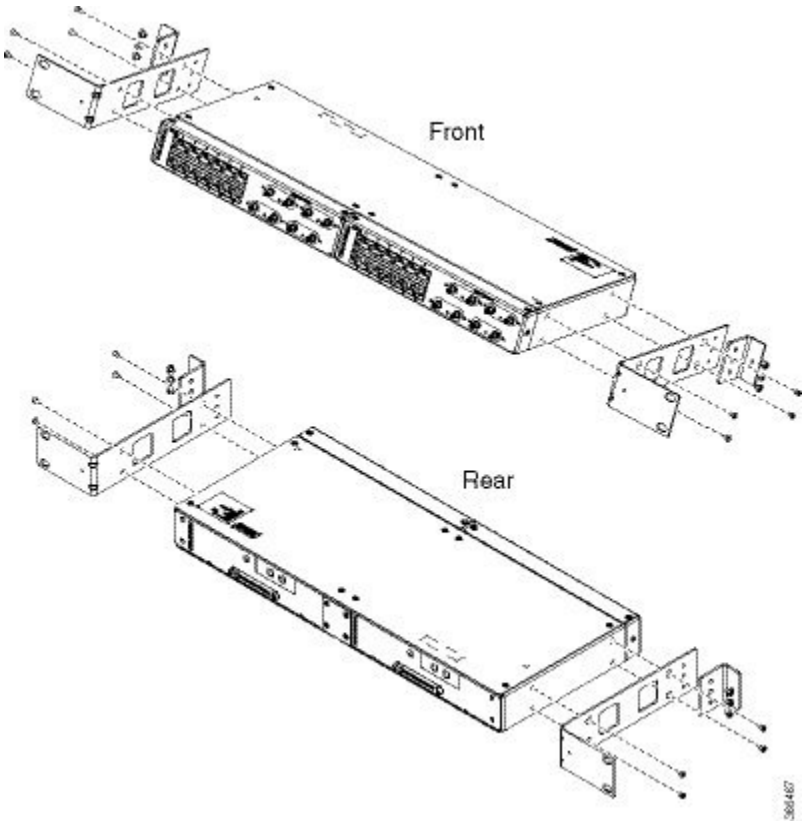


Figure 58: Installing the Patch Panel - Dual in a 23-inch Rack



Step 5 Secure the brackets to the chassis with the screws. The recommended maximum torque is 28 in.-lb (3.16 N-m).

- EIA 19 and 23 inches mounting brackets for both single and double 3G interface module patch panels.
- ETSI 21 inches mounting brackets for both single and double 3G interface module patch panels.

Set up 3G Patch Panel on Rack

To install the optional cable management brackets, perform these steps:

Procedure

Step 1 Position the cable management brackets against the front of the chassis and align the screw holes, as shown in the figure.

Step 2 Secure the cable management brackets with the screws. The recommended maximum torque is 10 in.-lb (1.12 N-m).

Figure 59: Attaching 19-inch Brackets to Patch Panel - Single

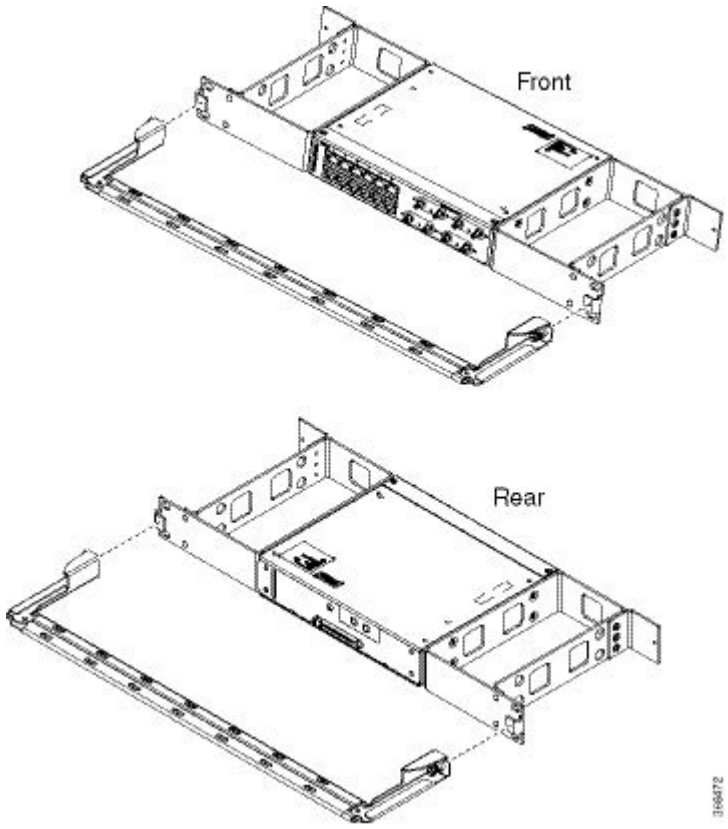


Figure 60: Installing 19-inch Brackets on to Rack - Single

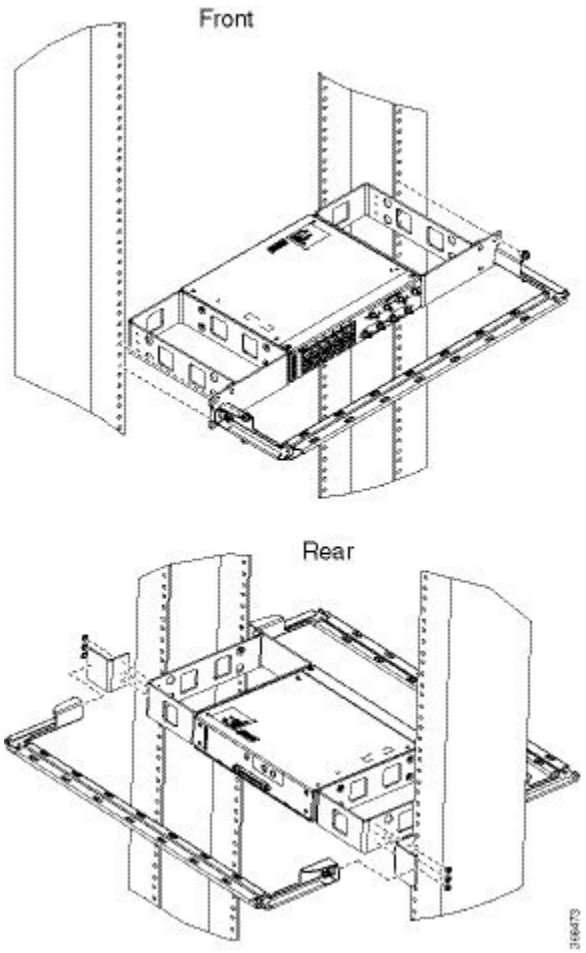


Figure 61: Attaching 19-inch Brackets to Patch Panel - Dual

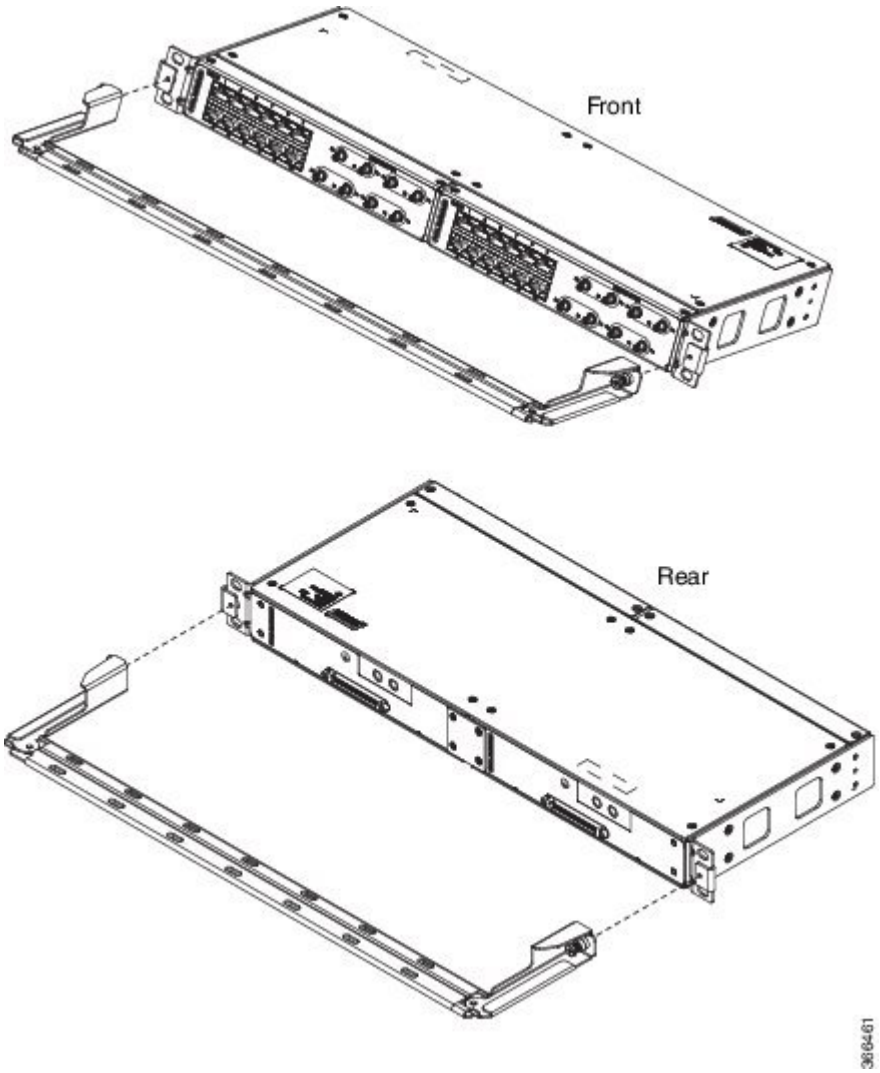


Figure 62: Installing 19-inch Brackets on to Rack - Dual

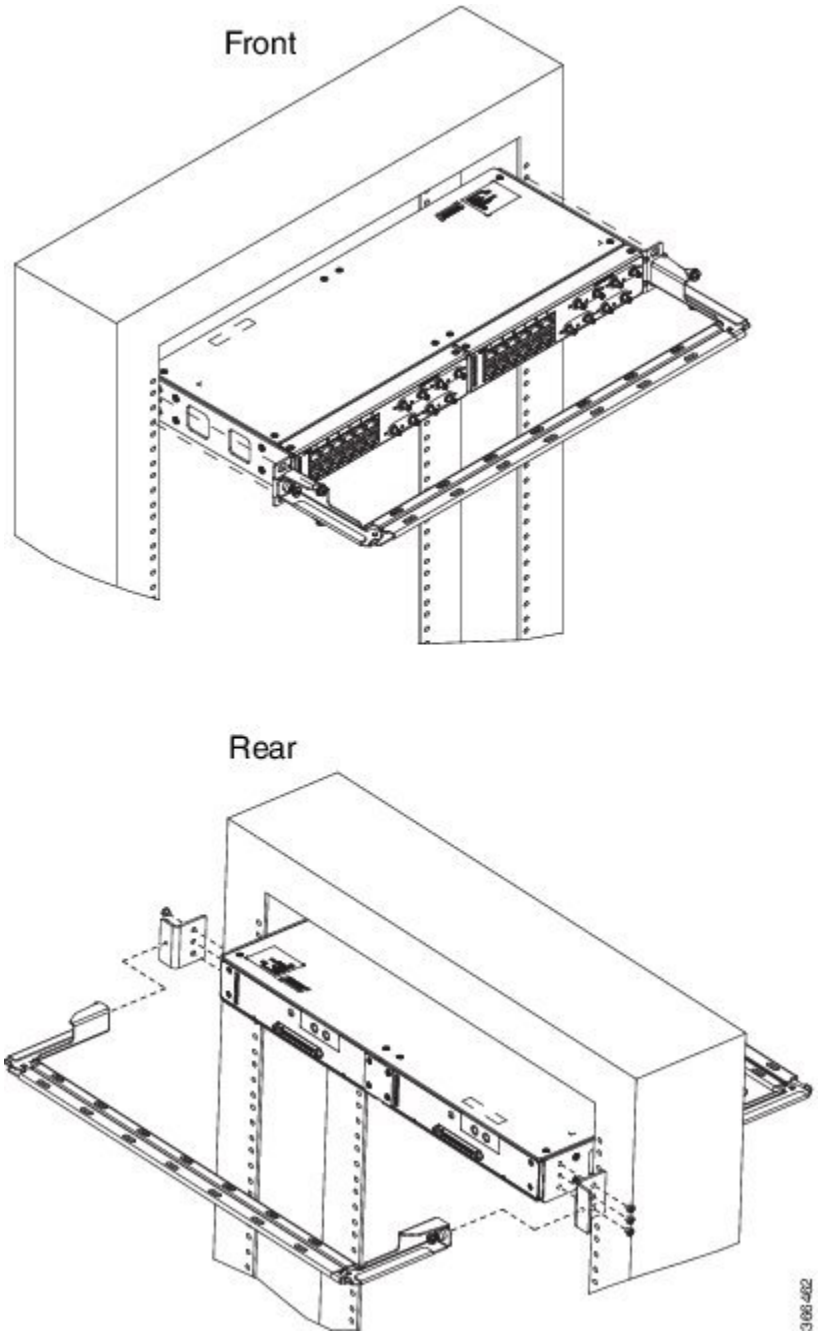


Figure 63: Attaching 21-inch Brackets to Patch Panel - Single

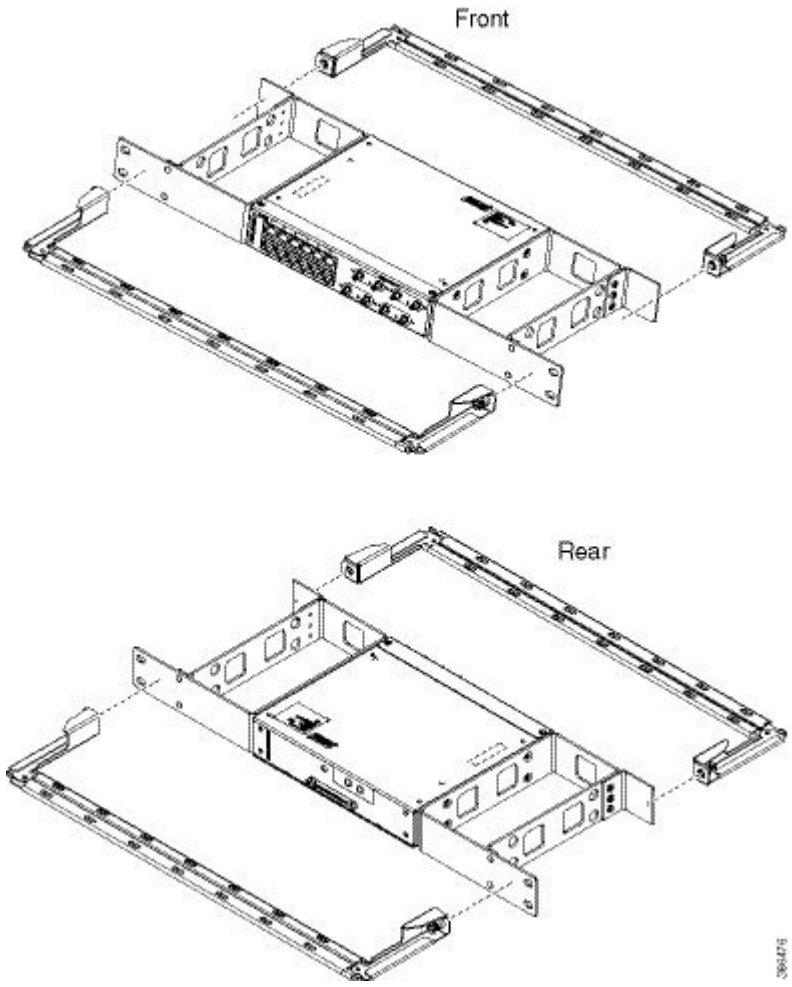


Figure 64: Installing 21-inch Brackets on to Rack - Single

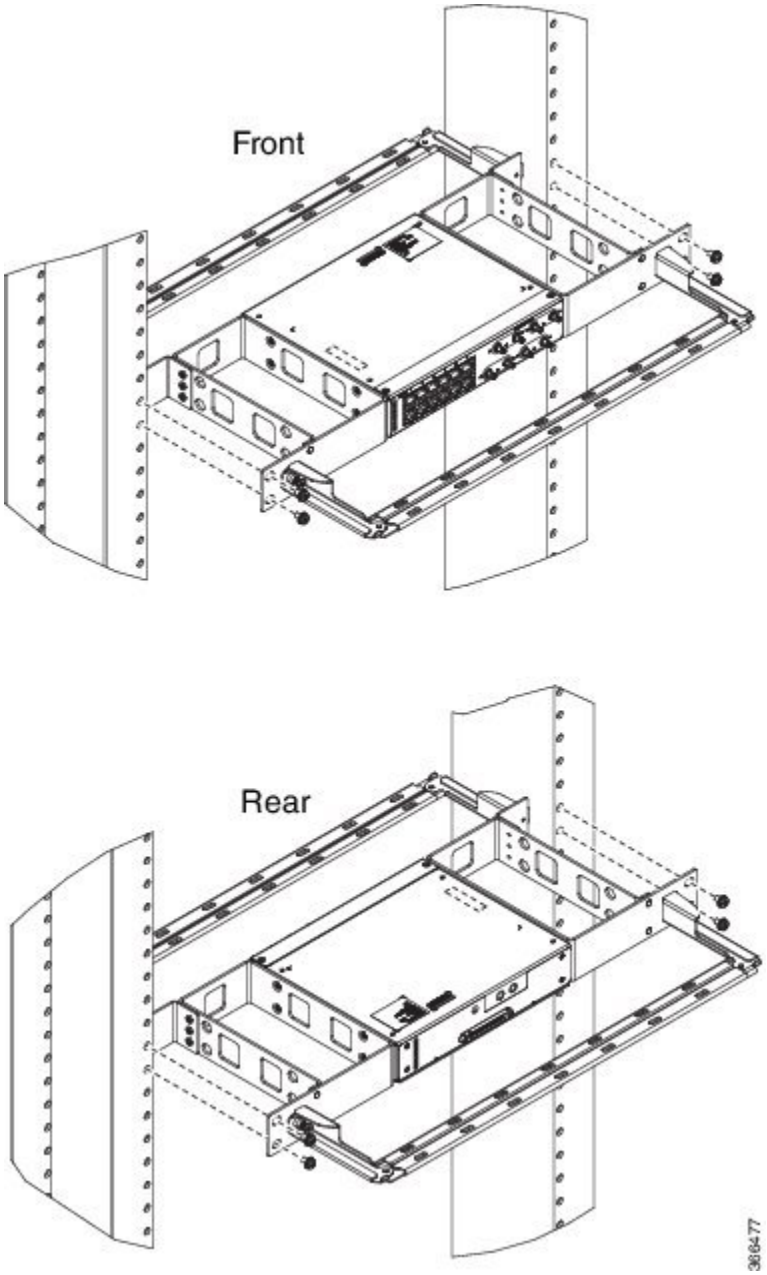


Figure 65: Attaching 21-inch Brackets to Patch Panel - Dual

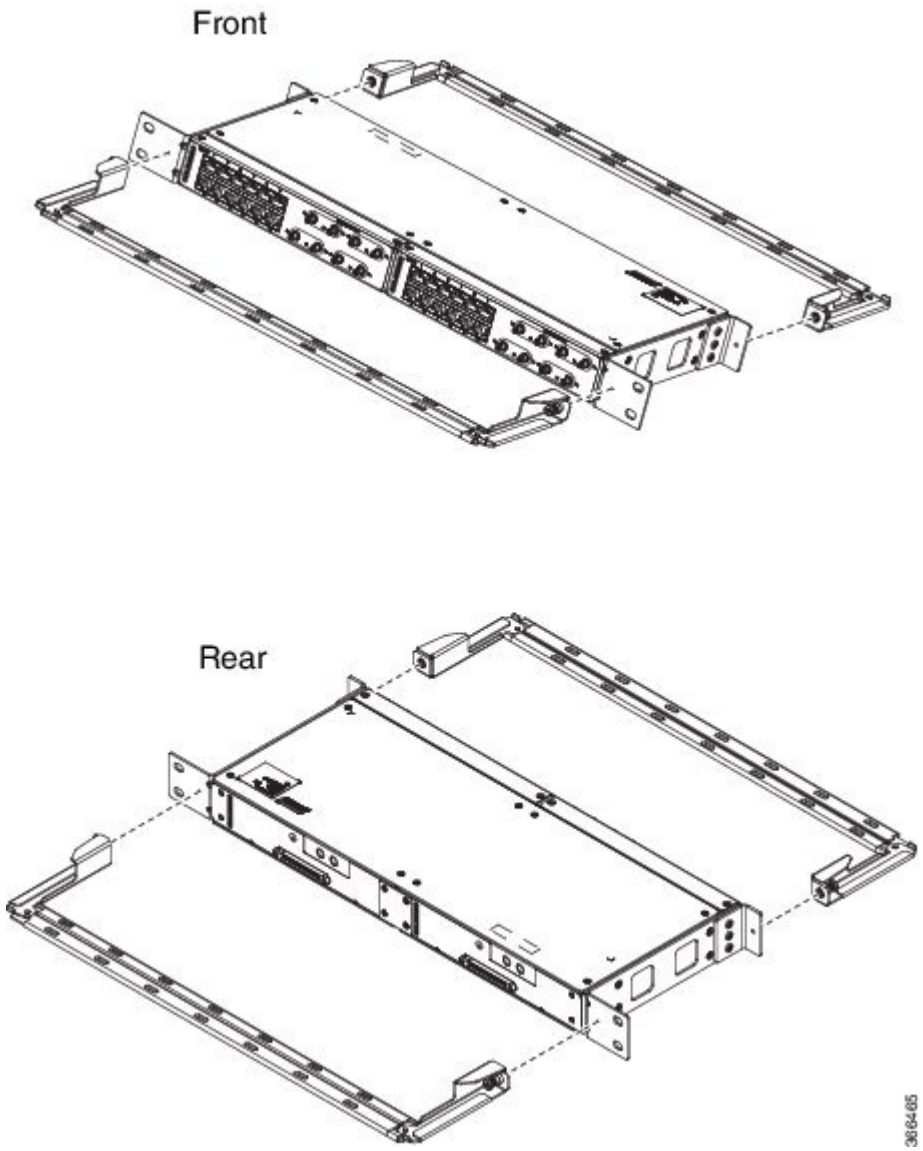


Figure 66: Installing 21-inch Brackets on to Rack - Dual

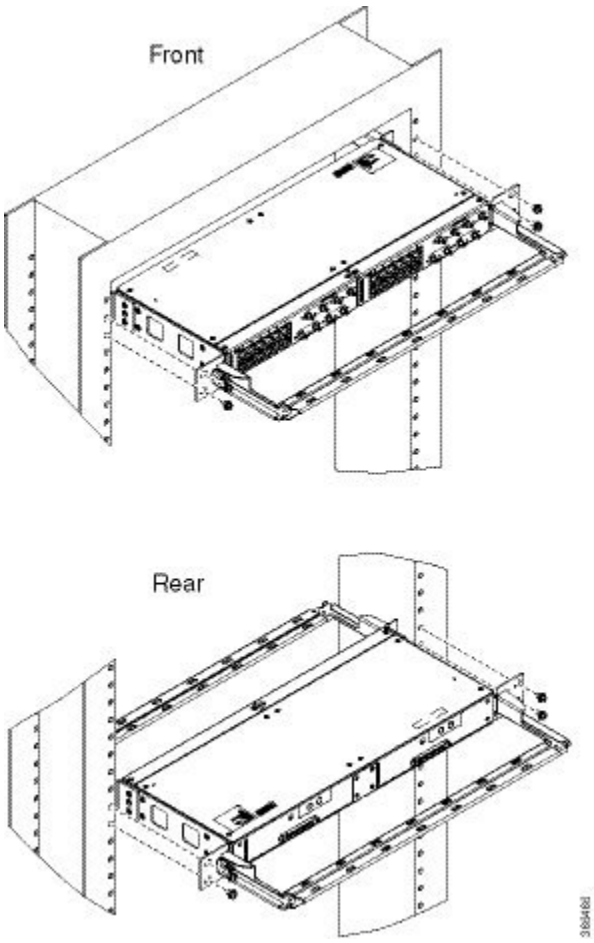


Figure 67: Attaching 23-inch Brackets to Patch Panel - Single

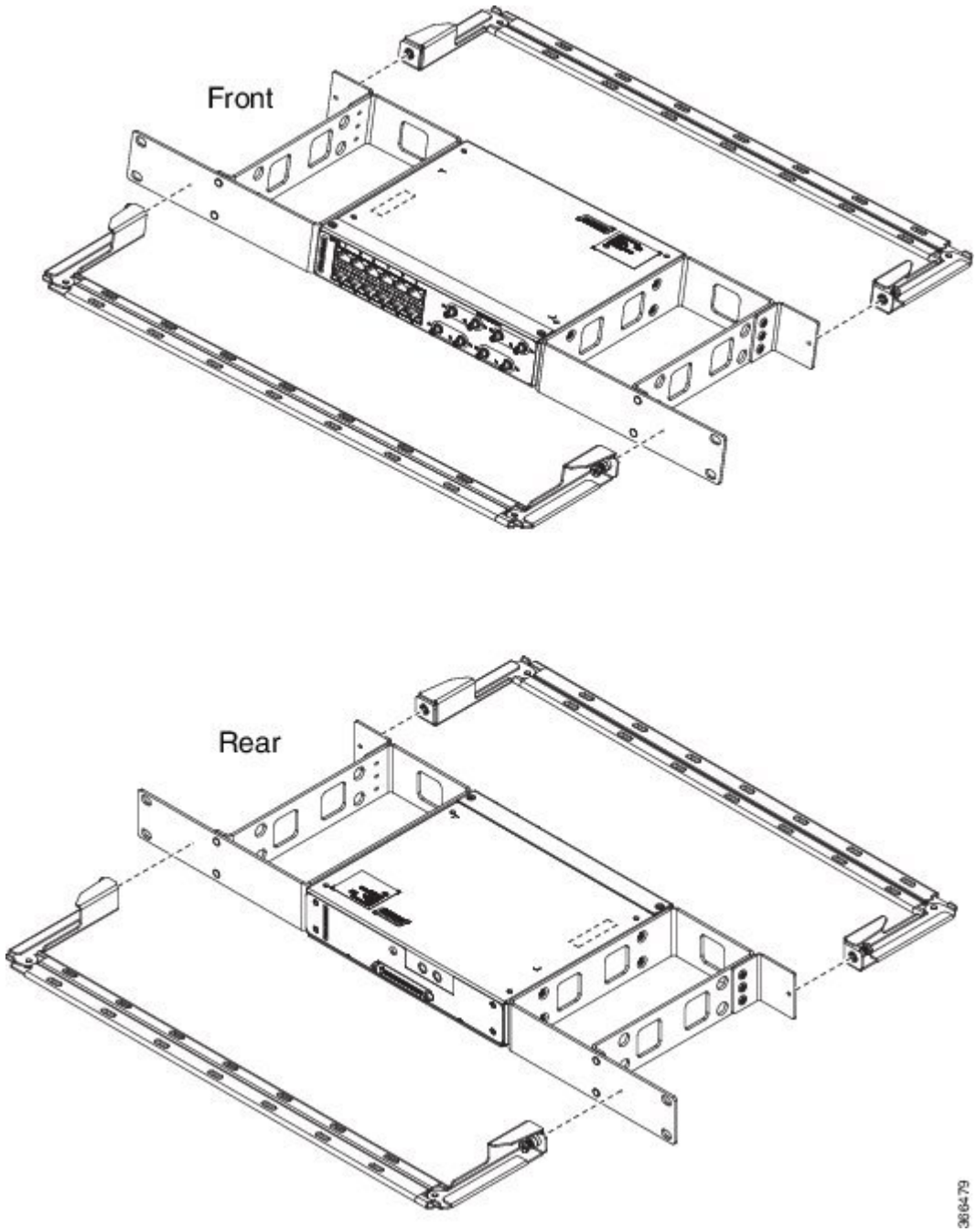


Figure 68: Installing 23-inch Brackets on to Rack - Single

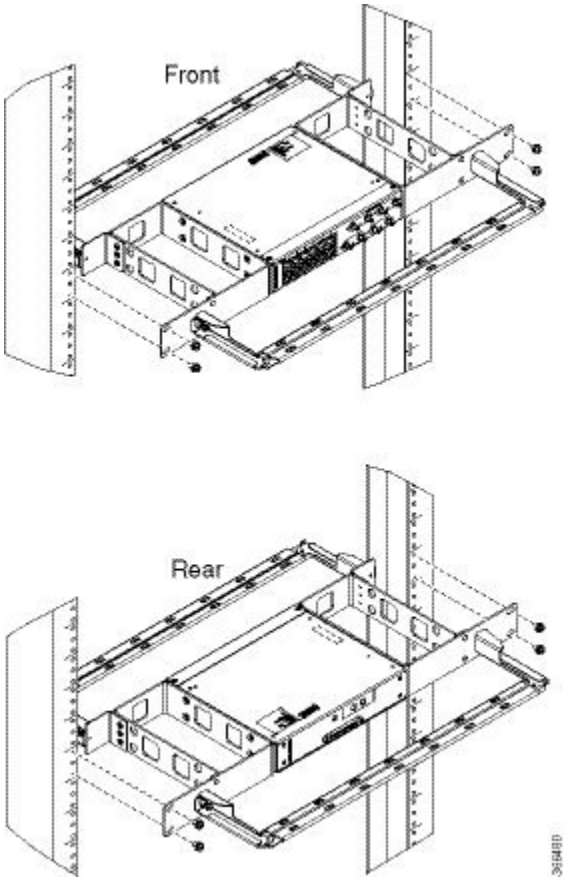


Figure 69: Attaching 23-inch Brackets to Patch Panel - Dual

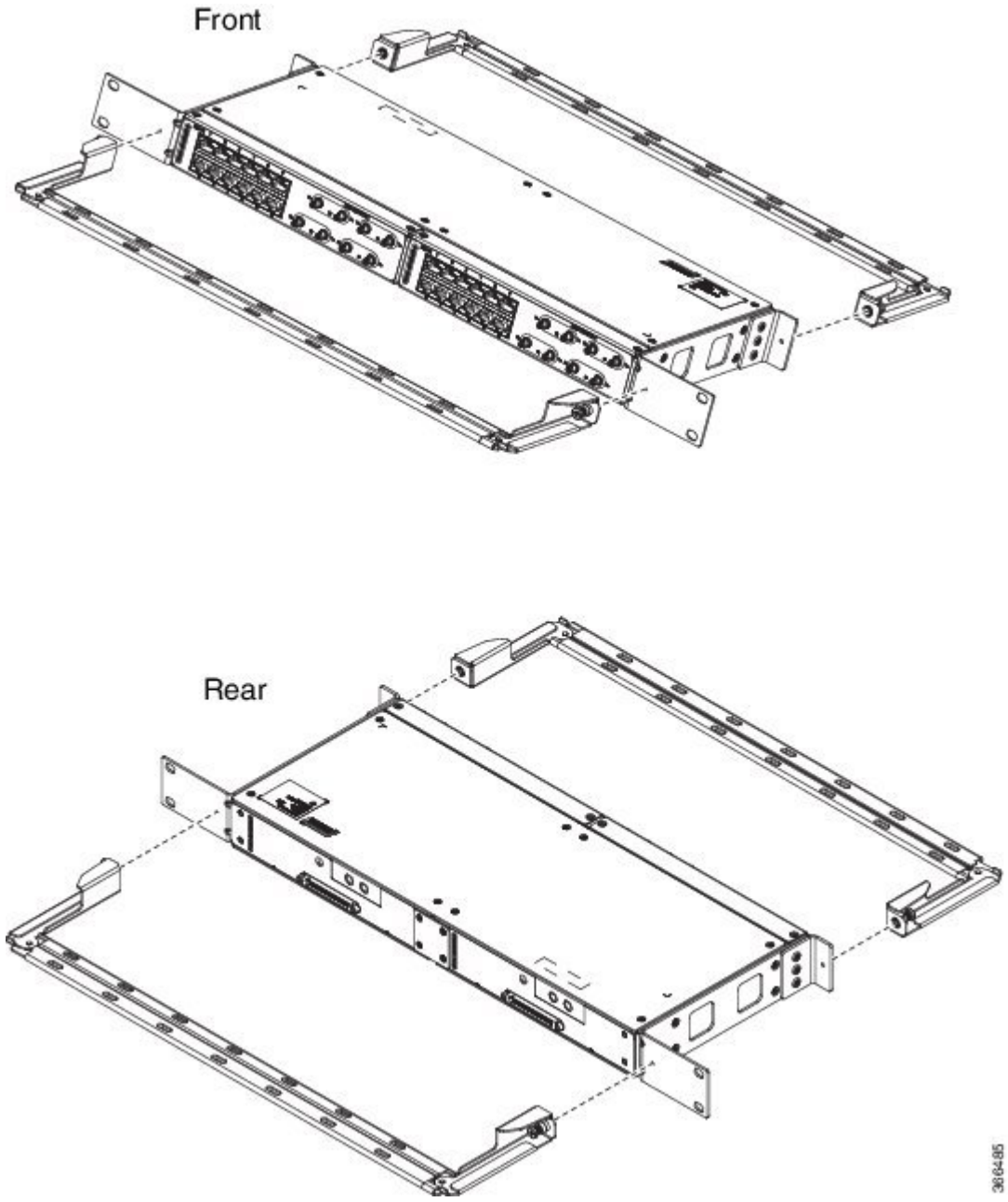
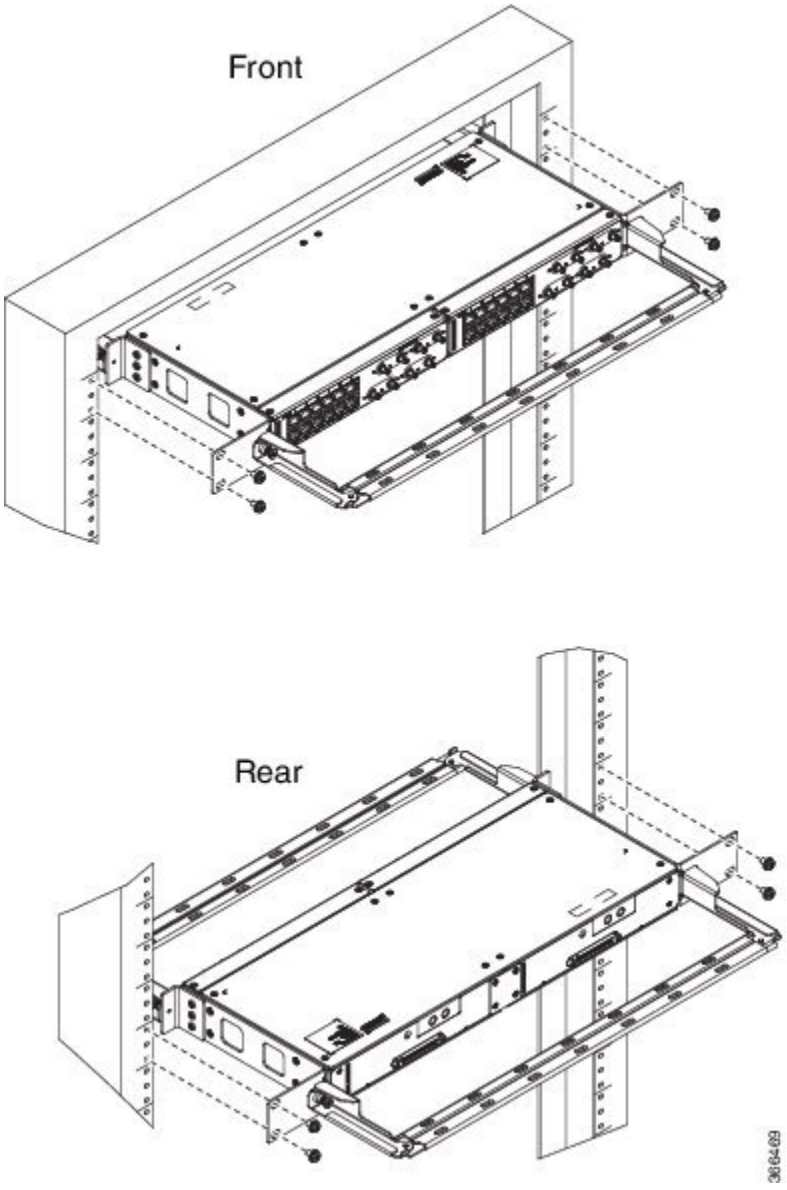


Figure 70: Installing 23-inch Brackets on to Rack - Dual



Wall Mount 3G Patch Panel

Before you begin

You must first install the mounting brackets and cable guides on to the patch panel before you mount it on the wall. You can use the same rack mount brackets (700-113653-01) for wall mount.

Procedure

Step 1 Remove the mounting brackets from the accessory kit and position them beside the device.

Note You can install the brackets as shown in the figure.

Figure 71: Wall Mount - Single

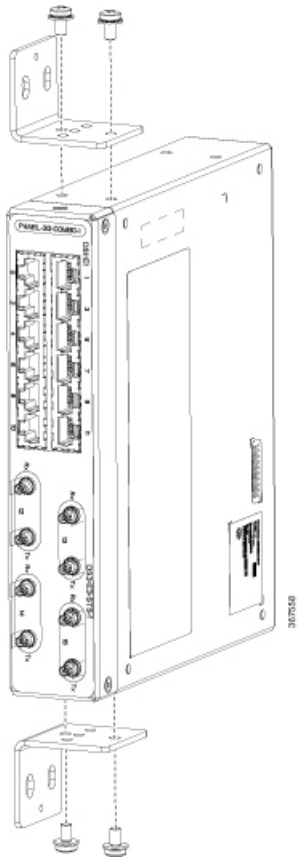
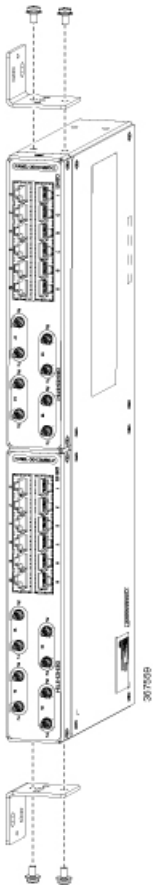


Figure 72: Wall Mount - Dual



Step 2 Secure the bracket to the device with the recommended maximum torque of 10 inch-pounds (1.1 newton meters).

Step 3 Position the device vertically on the wall.

Caution Before mounting the device, ensure that all unused holes at the sides of the device are protected with screws.

Step 4 Use a tape measure and level to verify that the device is installed straight and on level.

Patch Panel Dimensions

Following are the various patch panel dimensions.

Figure 73: Patch Panel Without Brackets

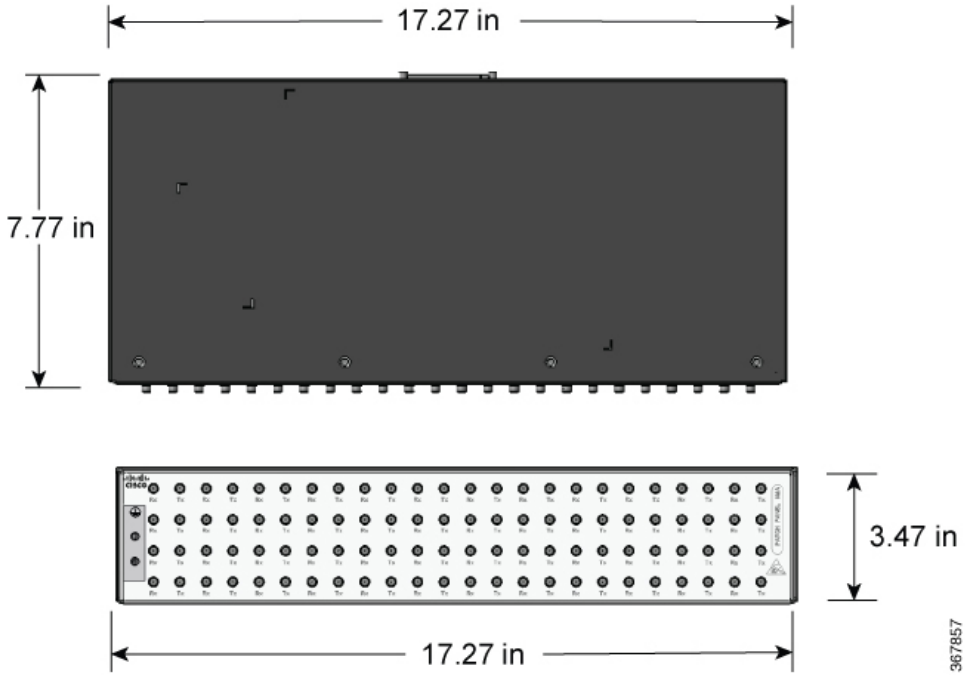


Figure 74: Patch Panel With Brackets

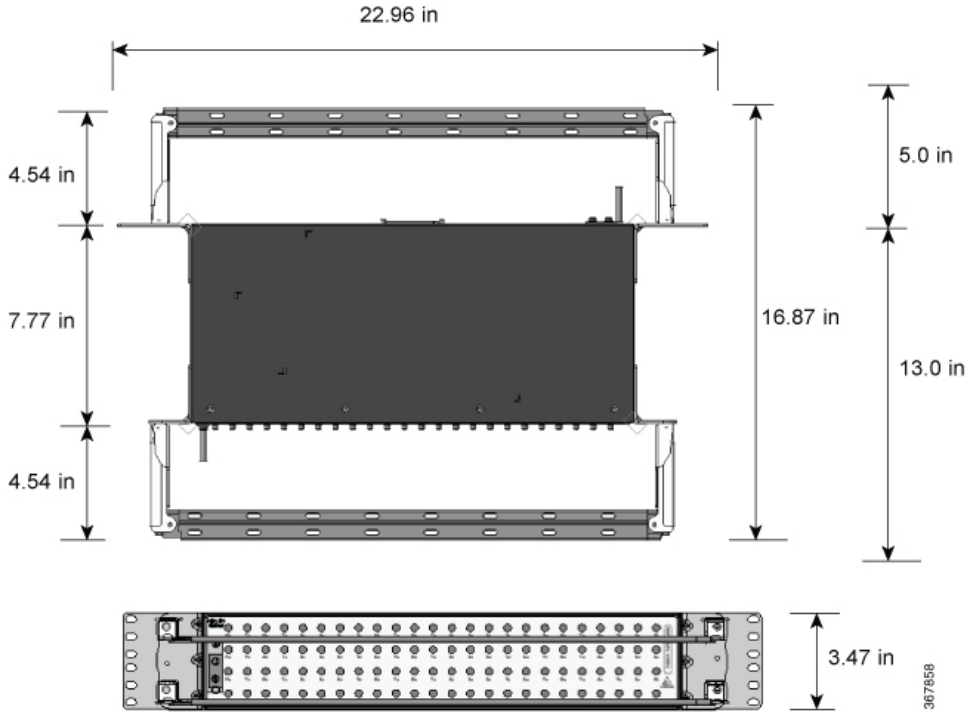


Figure 75: AMP64 Patch Panel With Brackets

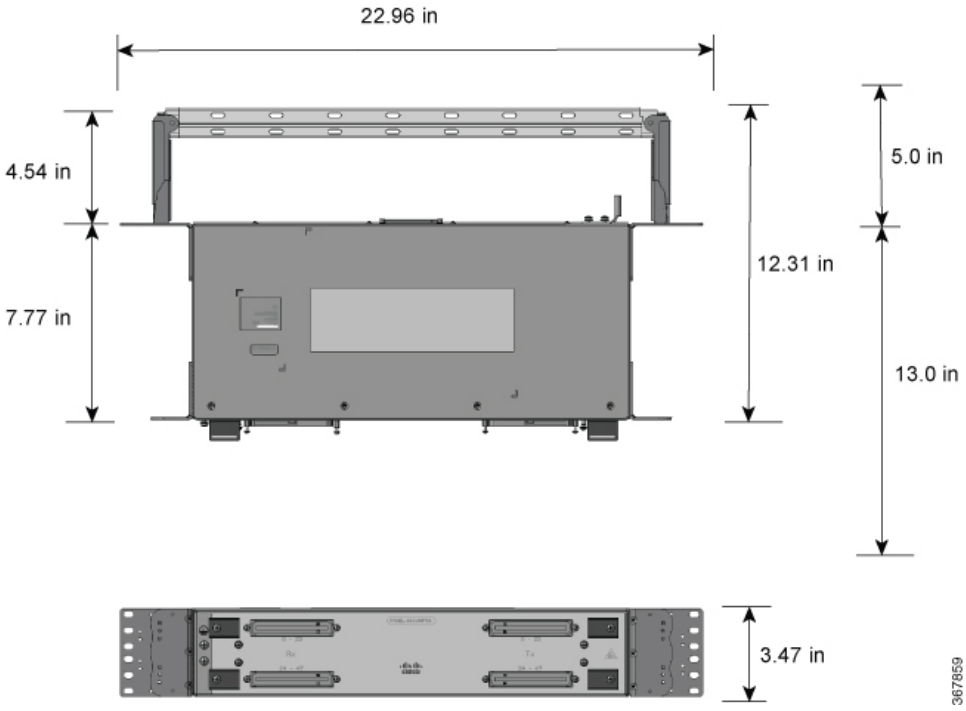


Figure 76: 3G Patch Panel Without Brackets - Single

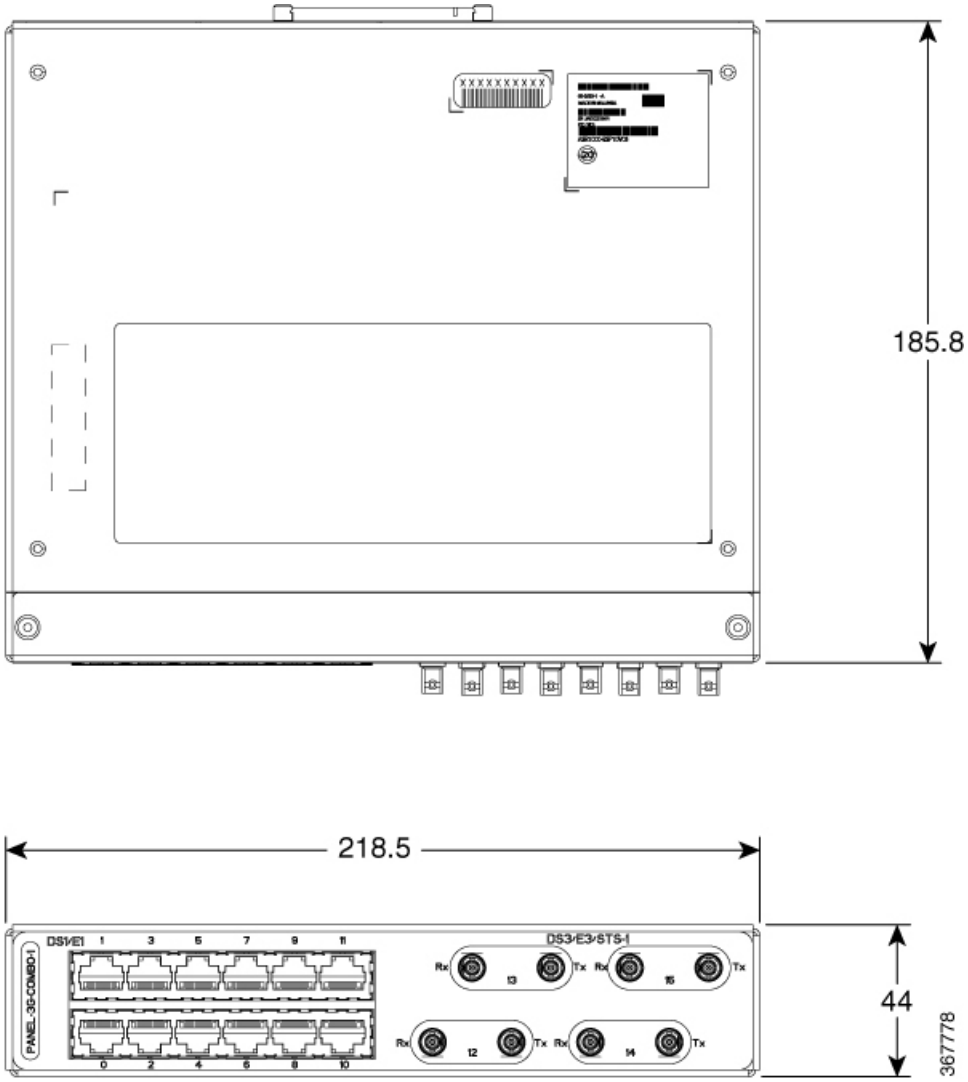
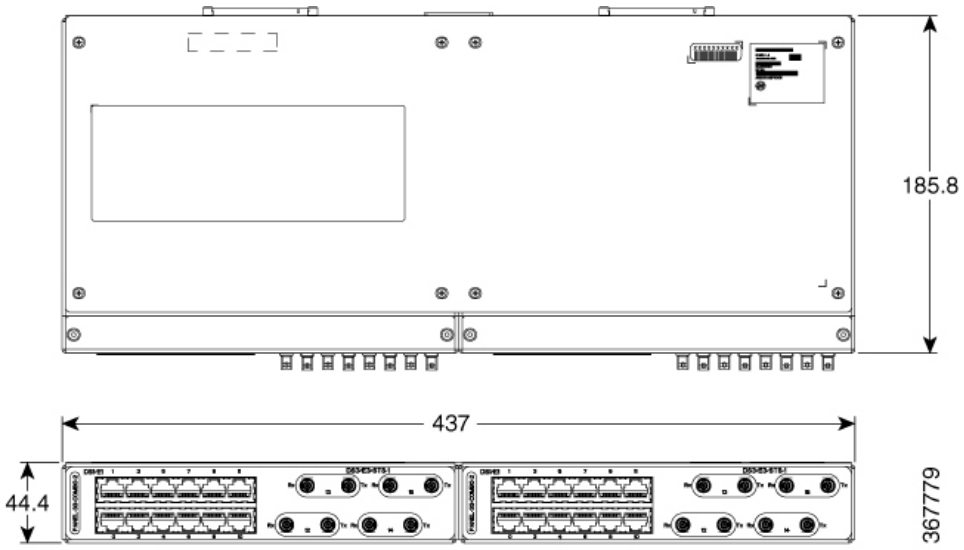


Figure 77: 3G Patch Panel Without Brackets - Dual



Connecting Serial Cables

The figure below shows the supported serial connectors, and the tables detail the supported cables with the Cisco ASR 907 Router.

Caution The Cisco ASR 907 Router currently only supports the EIA/TIA-232 connector.

Note The Cisco ASR 907 Router currently supports only the EIA/TIA-232 connector.

Table 6: Interface Cables for 12-in-1 Connector

Cable Type	Product Number	Length	Male/Female	Connector
V.35 DTE	CAB-SS-V35MT	10 ft.	Male	M34
V.35 DCE	CAB-SS-V35FC	10 ft.	Female	M34
EIA/TIA-232 DTE	CAB-SS-232MT	10 ft.	Male	DB-25
EIA/TIA-232 DCE	CAB-SS-232FC	10 ft.	Female	DB-25
EIA/TIA-449 DTE	CAB-SS-449MT	10 ft.	Male	DB-37
EIA/TIA-449 DCE	CAB-SS-449FC	10 ft.	Female	DB-37
X.21 DTE	CAB-SS-X21MT	10 ft.	Male	DB-15
X.21 DCE	CAB-SS-X21FC	10 ft.	Female	DB-15

Cable Type	Product Number	Length	Male/Female	Connector
EIA/TIA-530 DTE	CAB-SS-530MT	10 ft.	Male	DB-25
EIA/TIA-530 DTE	CAB-SS-530FC	10 ft.	Female	DB-25

Table 7: Interface Cables for 68-Pin Connector

Cable Type	Product Number	Length	Male/Female	Connector
4-port EIA-232 DTE	CAB-HD4-232MT	10 ft.	Male	DB-25
4-port EIA-232 DCE	CAB-HD4-232FC	10 ft.	Female	DB-25
4-port EIA-232 DTE	CAB-QUAD-ASYNC-F	10 ft.	Female	RJ-45
4-port EIA-232 DTE	CAB-QUAD-ASYNC-M	10 ft.	Male	RJ-45
4-port EIA-232 DTE	CAB-9AS-M	10 ft.	Male	DB-9

For more information on cable specifications and pinouts, see Troubleshooting.

Connecting the Fan Tray Alarm Port

The fan tray includes an alarm port that maps to 4 dry contact alarm inputs.

The pins on the alarm port are passive signals and can be configured as Normally Open (an alarm generated when current is interrupted) or Normally Closed (an alarm is generated when a circuit is established) alarms. You can configure each alarm input as critical, major, or minor. An alarm triggers alarm LEDs and alarm messages. The relay contacts can be controlled through any appropriate third-party relay controller. The open/close configuration is an option controlled in IOS.

Warning To comply with the Telcordia GR-1089 NEBS standard for electromagnetic compatibility and safety, connect the alarm 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.

Only Pins 1, 2, 4, 6, and 8 are available for customer use. The remaining pins are for Cisco manufacturing test, and should not be connected. Use a shielded cable for connection to this port for EMC protection. To understand the pinouts on the alarm port in Troubleshooting.

Procedure

Step 1 Attach an RJ45 cable to the alarm port.

Step 2 Attach the other end of the RJ45 cable to the relay controller.

What to do next

For information about how to map alarm inputs to critical, major, and minor alarm conditions, see the Cisco ASR 907 Router *Software Configuration Guide* .

Connector and Cable Specifications

For more information on cable specifications and pinouts, see *Troubleshooting* chapter.