



# Quick Start Guide

## MX10016 Universal Routing Platform Quick Start Guide

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## Quick Start Description

This Quick Start contains information you need to install and configure the MX10016 router. For complete installation instructions, see the [MX10016 Universal Routing Platform Hardware Guide](https://www.juniper.net/documentation/) at <https://www.juniper.net/documentation/>.



**WARNING:** This guide contains a subset of MX10016 safety information. For the complete list of safety warnings for the MX10016 see the MX10016 Hardware Guide. See [MX10016 Universal Routing Platform Hardware Guide](https://www.juniper.net/documentation/) at <https://www.juniper.net/documentation/>.

# Step 1–Preparing the Site for an MX10016

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MX10016 is a rigid sheet-metal router-chassis that houses field replaceable units (FRUs) such as control boards, Switch fabric boards (SFBs), power supplies, fan trays, and line cards. The router chassis ships in a cardboard box that has a two-layer wooden pallet base. The router chassis is bolted to the pallet base. You can install an MX10016 router in a standard 19 in. (48.26 cm) equipment rack by using the supplied rack-mounting kit and the front-mounting bracket that is attached to the chassis.

Before you install an MX10016, make sure the site meets all the power, cooling, and clearance requirements. See the site preparation guidelines and power requirements in the [MX10016 Universal Routing Platform Hardware Guide](#)

## Rack-Mounting Requirements

The MX10016 router chassis is designed to be installed in standard 19-in. wide four-post racks that are spaced at 1 U (1.75 in. or 4.45 cm) increments.

You can stack one MX10016 chassis at the bottom of a four-post rack if:

- The rack is 42 U or greater.
- The rack meets the strength requirements to support the weight.
- The facility can provide adequate power and cooling.

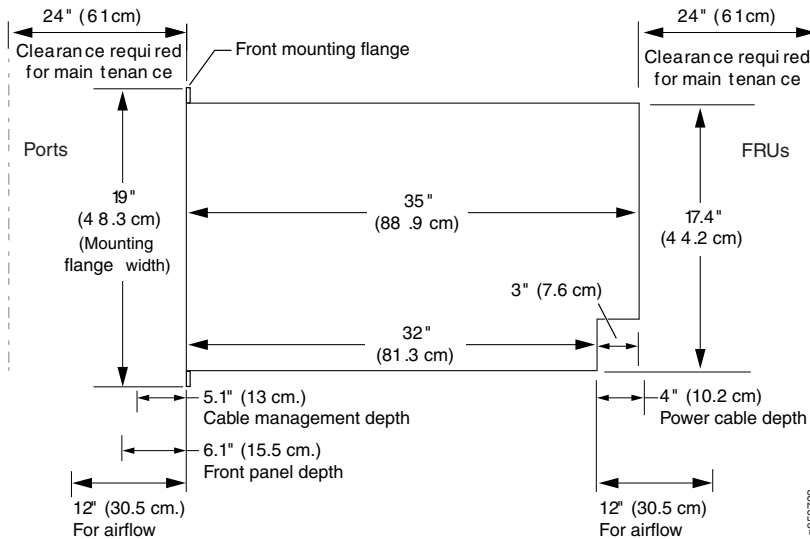
Before installing the chassis, ensure that:

- The rack rails are spaced widely enough to accommodate the router chassis' external dimensions. The outer edges of the front-mounting brackets extend the chassis width to 19 in. (48.26 cm).
- The rack is strong enough to support the weight of the router and cabling.
- The spacing of rails and adjacent racks allows for proper clearance around the router and rack.

## Clearance Requirements

For the cooling system to function properly, the airflow around the chassis must be unrestricted. You must allow sufficient clearance around the installed chassis for cooling and maintenance (see [Figure 1](#)).

**Figure 1: Clearance Requirements for Airflow and Hardware Maintenance for an MX10016**



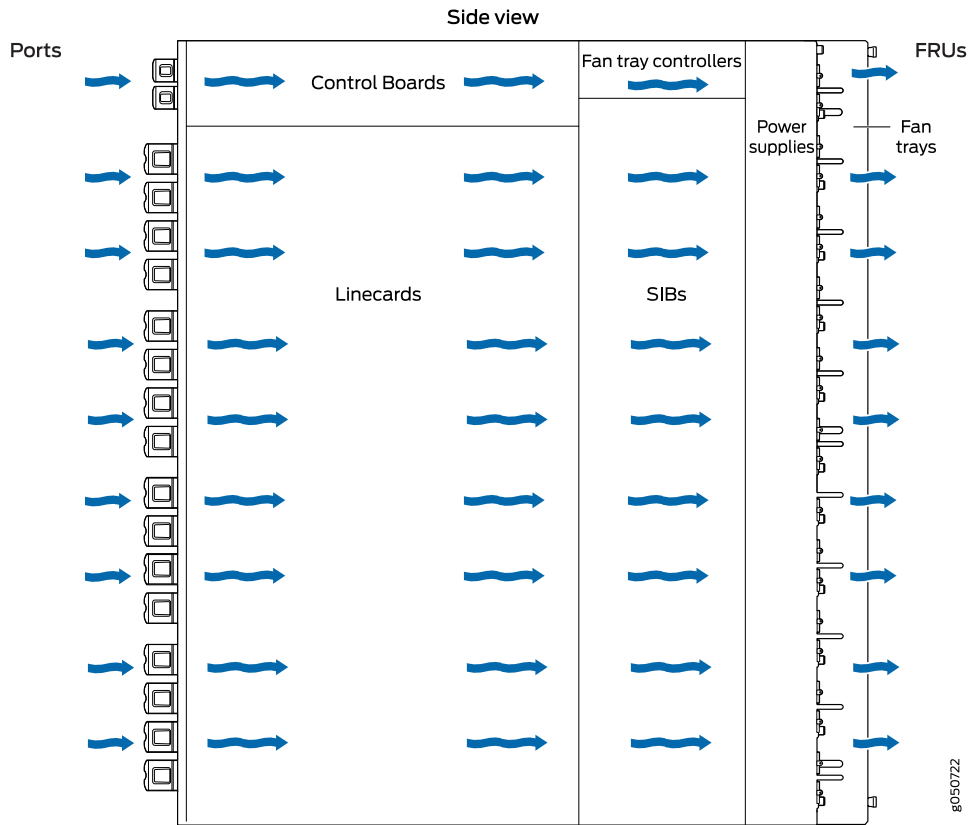
If you are mounting an MX10016 in a rack with other equipment, ensure that the exhaust from other equipment does not blow into the intake vents of the chassis.

## Cooling and Airflow Requirements

The cooling system in an MX10016 chassis consists of dual fan trays and dual fan tray controllers. There is no air filter in an MX10016.

The air intake to cool the chassis is located on the port (line card) side of the chassis. Air flows into the chassis from the ports in the control boards and line cards, through the Switch Fabric Boards (SFBs), and exits from the fan trays and the power supplies. This airflow is called port-to-FRU cooling or airflow out (AFO). See [Figure 2](#).

Figure 2: Airflow Through an MX10016



Follow these guidelines:

- For the cooling system to function properly, the airflow around the chassis must be unrestricted.
- If you are mounting an MX10016 in a rack with other equipment, ensure that the exhaust from other equipment does not blow into the intake vents of the chassis.
- Leave at least 24 in. (61 cm) both in front of and behind the MX10016 for service personnel to remove and install hardware components. To be NEBS GR-63 compliant, allow at least 30 in. (76.2 cm) in front of the rack and 24 in. (61 cm) behind the rack.

## Step 2–Unpacking the MX10016

**NOTE:** The chassis is maximally protected inside the shipping box. Do not unpack it until you are ready to begin installation.

Ensure that you have the following parts and tools available to unpack the MX10016:

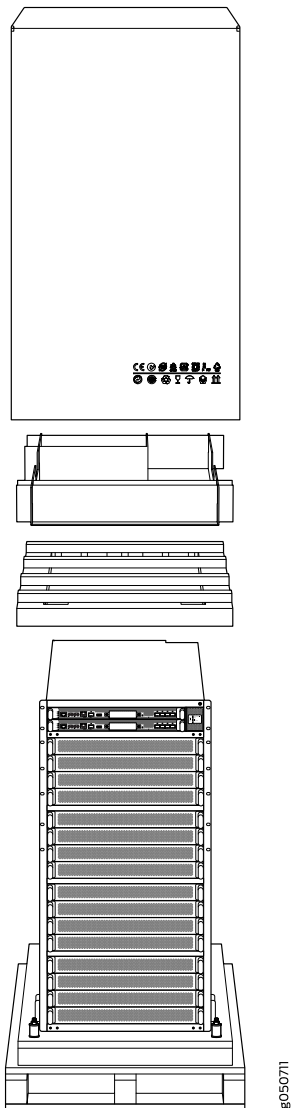
- A 13/32 in. (10 mm) open-end or socket wrench to remove the bracket bolts from the shipping pallet
- A box cutter or packing knife to slice open the nylon straps and tape that seal the crate and boxes

The chassis ships in a cardboard box that has a two-layer wooden pallet base with foam cushioning between the layers. The router chassis is bolted to the pallet base.

The shipper has the option to either ship the front panel separately or to ship along with the chassis. If the front panel arrives with the chassis, set aside the front panel box until you are ready to verify the contents of the order.

To unpack the chassis (see [Figure 3](#)):

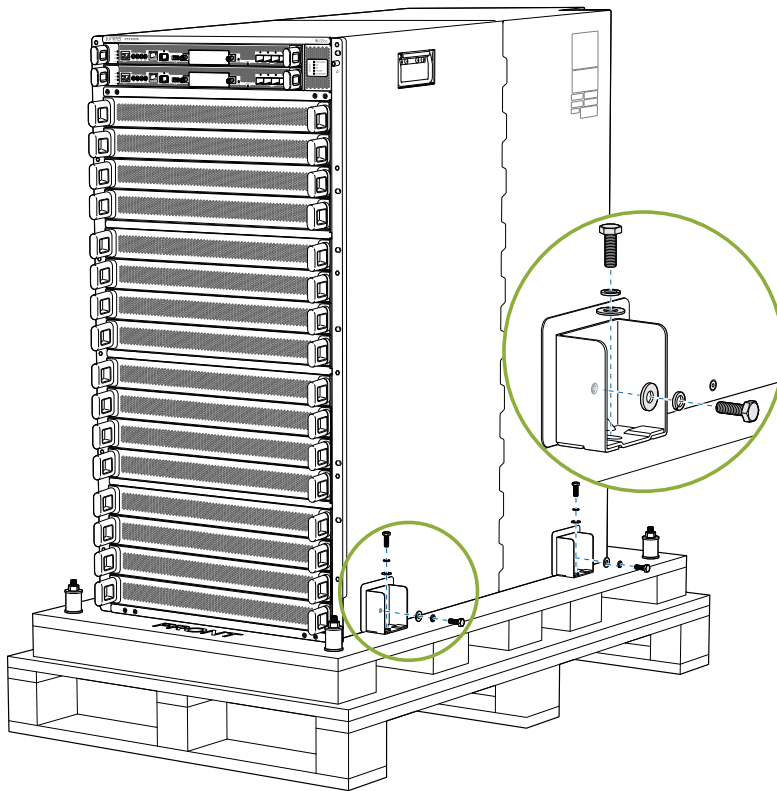
**Figure 3: Shipping Crate and Accessory Box**



1. Move the shipping box to a staging area as close to the installation site as possible. While the chassis is bolted to the pallet, you can use a forklift or pallet jack to move it. Make sure there is enough space to remove components from the chassis.
2. Position the shipping box with the arrows pointing up.

3. Slice the nylon straps with the box cutter that hold the shipping boxes to the pallet.
4. Lift the shipping box off the chassis.
5. Remove the cardboard accessory box.
6. Remove the foam padding from the top of the box.
7. Remove the plastic cover from the router chassis.
8. Use a 13/32 in. (10 mm) open-end or socket wrench to remove the four sets of bracket bolts that secure the chassis to the shipping pallet (see [Figure 4](#)).

**Figure 4: Bracket Bolt Removal**



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9. Unpack the accessory box and lay out the contents so that they are ready for use.
10. Verify that your order includes all appropriate parts.
11. Store the brackets and bolts inside the accessory box.
12. Save the shipping box and packing materials in case you need to move or ship the router at a later time.

## Step 3–Mounting the Router Chassis

### IN THIS SECTION

- [Installing the Mounting Hardware | 7](#)
- [Mounting the MX10016 Using a Mechanical Lift | 9](#)

To install the MX10016, first install the mounting hardware and then use a mechanical lift to load the chassis into the rack.

### Installing the Mounting Hardware

Install the mounting hardware on the rack before installing the router. The MX10016 comes with a four-piece set of mounting brackets that support the chassis in the rack.

**NOTE:** Two-post installation racks are not supported.

The four mounting bracket pieces are:

- 1 left front mounting bracket. The bracket is labeled “LEFT FRONT” on the side of the bracket that faces the interior of the rack, near the holes for attaching the bracket to the rack.
- 1 right front mounting bracket. The bracket is labeled “RIGHT FRONT” on the side of the bracket that faces the interior of the rack, near the holes for attaching the bracket to the rack.
- 2 rear mounting brackets. These brackets are labeled “REAR” on the side of the bracket that faces the interior of the rack, near the holes for attaching the bracket to the rack. The rear brackets are interchangeable; you can use either of the rear brackets with the right or left front-mounting bracket.

Ensure that you have the following parts and tools available to install the mounting brackets:

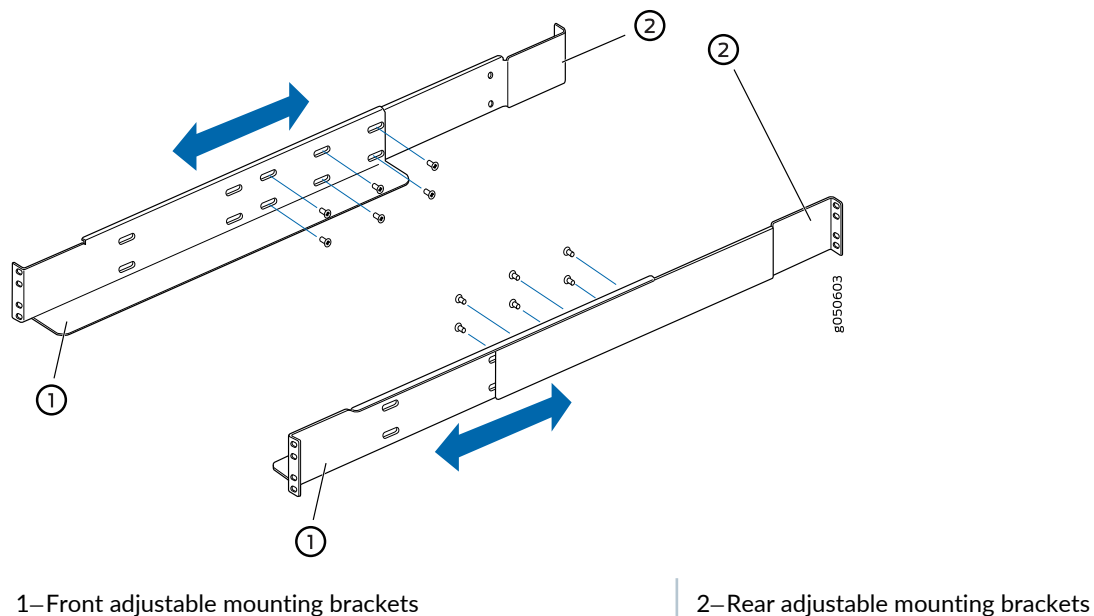
- A Phillips (+) screwdriver, number 1, 2, or 3, depending on the size of your rack-mounting screws
- A Phillips (+) screwdriver, number 2, to install the screws that connect the rear-mounting and front-mounting brackets
- 16 mounting screws appropriate for your rack to attach the 4 mounting bracket pieces to the rack

When you install the mounting brackets, the adjustable portion of the brackets overlap. Use the overlap area to adjust the total bracket length to fit any of the four standard rack sizes: 19 in. (483 mm), 23.62 in. (600 mm), 30 in. (762 mm), or 31.5 in. (800 mm).

To install the mounting brackets in a four-post rack:

1. Remove the mounting brackets from the accessory box.
2. Decide where to place the chassis in the rack. If the rack is empty, mount the router in the lowest possible location. See [“Rack-Mounting Requirements” on page 2](#).
3. Position the left front adjustable mounting bracket at the desired position in the left side of the rack and line up its front screw holes with the holes in the rack. Use four mounting screws appropriate for your rack to attach the left front bracket to the rack.
4. Position one of the rear brackets at the left rear of the rack on the same level as the left front bracket, so that the rear bracket overlaps with the left front bracket. The screw holes for connecting the front and rear brackets should overlap. Use four mounting screws appropriate for your rack to attach the rear bracket to the rack.
5. Connect left front and rear brackets (see [Figure 5](#)):
  - a. Insert six of the screws provided with the mounting brackets into the overlapping bracket holes.
  - b. Hand-tighten the screws fully (to 12–16 in.-lb torque) using a number 2 Phillips screwdriver.

**Figure 5: Mounting Brackets for 4-Post Rack Installation**



6. Position the right front adjustable mounting bracket at the desired position in the right side of the rack opposite the installed left front bracket, so that it is on the same rack level as the left bracket. If the right and left front brackets are not on the same level, the chassis will rest at an angle in the rack instead of resting flat and level. Line up the right bracket's front screw holes with the holes in the rack. Use four mounting screws appropriate for your rack to attach the right front bracket to the rack.



7. Position the other rear bracket at the right rear of the rack on the same level as the right front bracket, so that the rear bracket overlaps with the right front bracket. The screw holes for connecting the front and rear brackets should overlap. Use four mounting screws appropriate for your rack to attach the rear bracket to the rack.
8. Connect the right front and rear brackets (see [Figure 5](#)):
  - a. Insert six of the screws provided with the mounting brackets into the overlapping bracket holes.
  - b. Hand-tighten the screws fully (to 12–16 in.-lb torque) using a number 2 Phillips screwdriver.

## Mounting the MX10016 Using a Mechanical Lift

Because of the router's size and weight, the MX10016 can safely be installed only by using a mechanical lift.



**CAUTION:** Do not install line cards in the chassis until after you mount the chassis securely on a rack or cabinet.



**CAUTION:** Before front-mounting the router on a rack or cabinet, have a qualified technician verify that the rack or cabinet is strong enough to support the router's weight and is adequately supported at the installation site.

Ensure that you have the following parts and tools available to install the router:

- A mechanical lift rated for 1000 lbs. (453.6 kg)
- 12 mounting screws appropriate for your rack
- A Phillips (+) screwdriver, number 2 or number 3, depending on the size of your rack-mounting screws

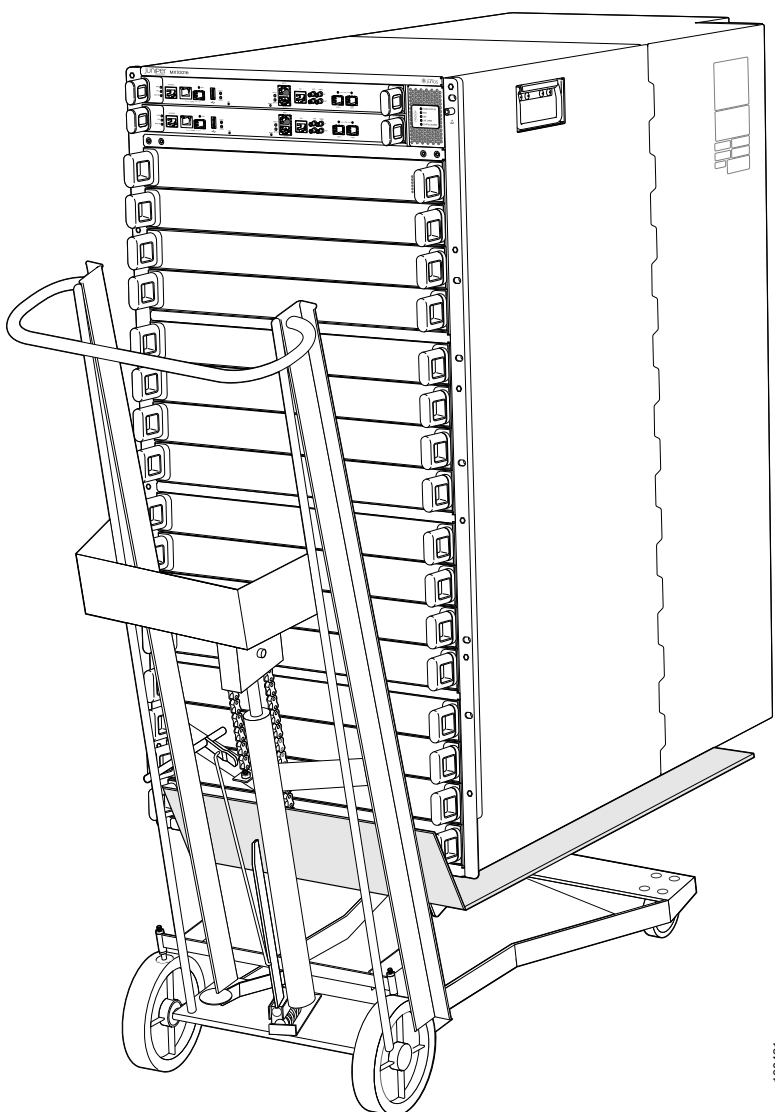


**CAUTION:** If you are installing more than one router in a rack or cabinet, install the first router at the bottom of the rack.

To install the router using a mechanical lift (see [Figure 6](#)):

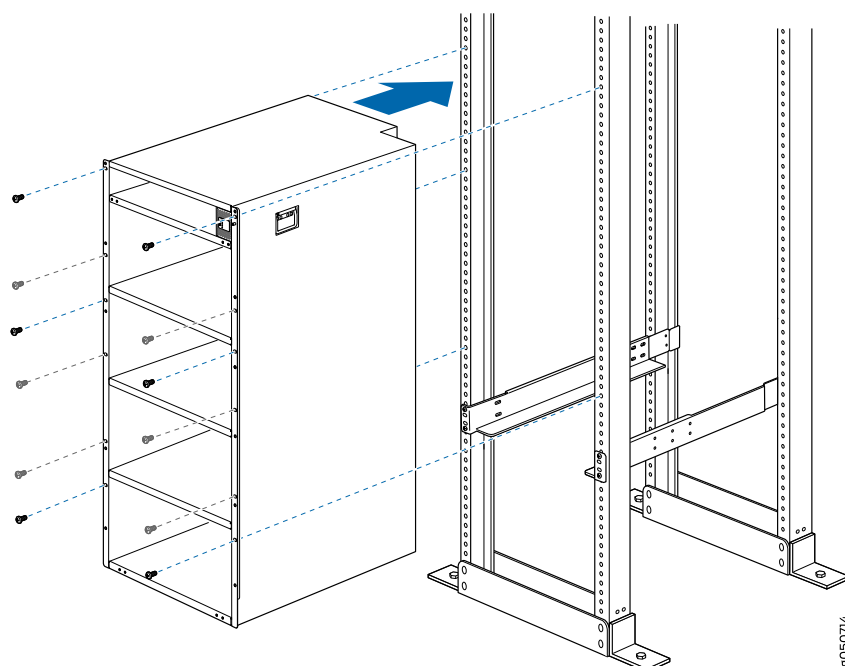
1. Ensure that the rack or cabinet is placed in its permanent location and is secured to the building. Ensure that the installation site allows adequate clearance for both airflow and maintenance. For details, see [“Cooling and Airflow Requirements” on page 3](#).
2. Load the router onto the lift, making sure it rests securely on the lift platform.

Figure 6: Loading the MX10016 into a Rack By Using a Mechanical Lift



3. Using the lift, align the router in front of the rack, centering it in front of the mounting brackets.
4. Lift the chassis approximately 0.75 in. (1.9 cm) above the surface of the mounting brackets. Align the chassis as close as possible to the mounting brackets.
5. Carefully slide the chassis onto the adjustable mounting brackets until the front-mounting brackets attached to the chassis contact the rack rails. The mounting brackets ensure that the holes in the front-mounting brackets align with the holes in the rack rails. See [Figure 7](#).

Figure 7: Attaching Front-Mounting Brackets



6. Move the lift away from the rack.
7. Install a mounting screw into each of the open front-mounting holes aligned with the rack, starting from the bottom.
8. Visually inspect the alignment of the router. If the router is installed properly in the rack, all the mounting screws on one side of the rack are aligned with the mounting screws on the opposite side and the router is level.
9. After ensuring that the router is aligned properly, tighten the screws.

## Step 4–Installing Line Cards

MX10016 line cards are field-replaceable units (FRUs) that can be installed in any of the line card slots on the front of the chassis. The line cards are hot-insertable and hot-removable: You can remove and replace them without powering off the router or disrupting router functions.

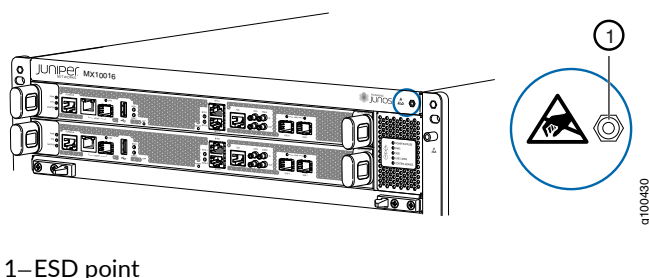
- Ensure that you have the following parts and tools available to install a line card in the router:
  - ESD grounding strap

- Phillips (+) screwdriver, number 2

To install a line card in the router chassis:

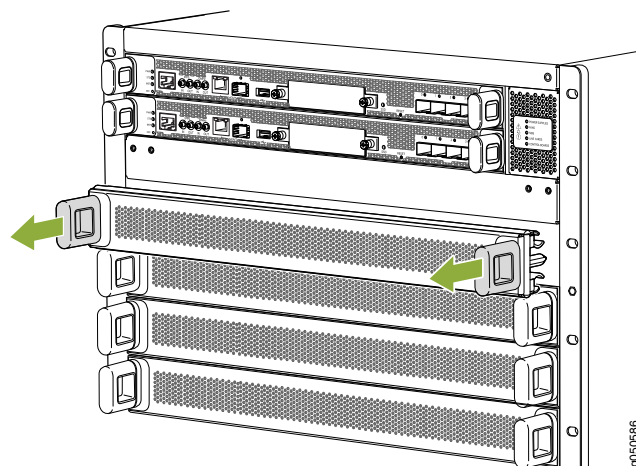
1. Attach the ESD grounding strap to your bare wrist and connect the strap to the ESD point on the router chassis. The ESD point is located above the status LED panel on the front of the router chassis. See [Figure 8](#).

**Figure 8: ESD Point on Chassis Front**



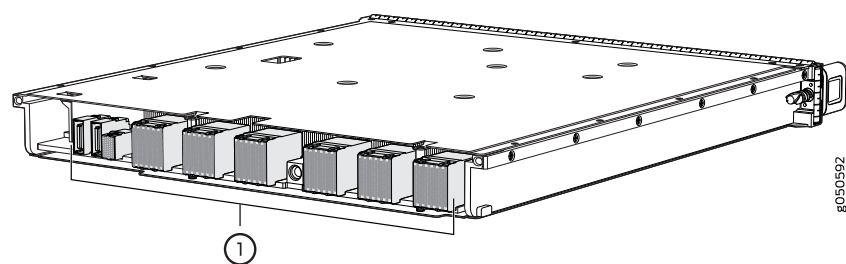
2. Remove the cover panel by grasping the handles and pulling straight out to expose the slot for the line card. See [Figure 9](#).

**Figure 9: Removing the Cover Panel for a Line Card**



**CAUTION:** Do not lift the line card by holding the edge connectors or the handles on the faceplate. Neither the handles or the edge connectors can support the weight of the line card. Lifting the line card by the handles or edge connectors might bend them, which would prevent the line cards from being properly seated in the chassis. See [Figure 10](#).

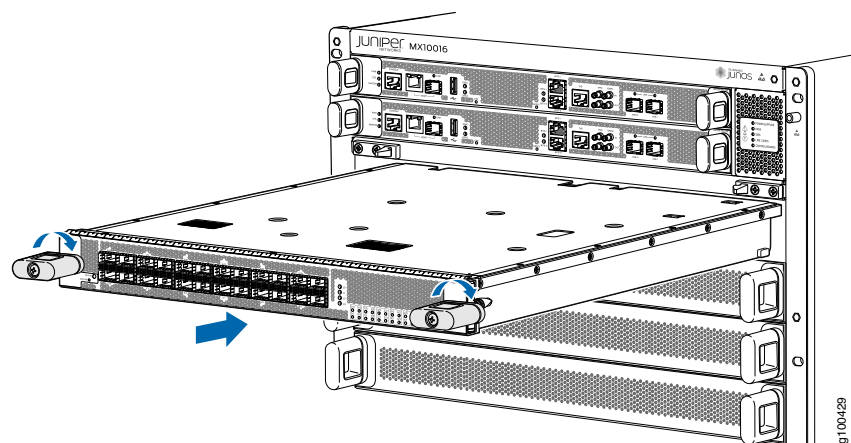
Figure 10: Line Card Connectors



1—Connectors

3. Remove the line card from the electrostatic bag and inspect it for any damage before installing it into the chassis.
4. Grasp and lift the line card by the sides.
5. Slide the line card all the way into the slot until the handle holes align. See [Figure 11](#).

Figure 11: Inserting a Line Card into the Slot and Rotating the Handles



6. Screw the line card into the chassis by rotating the handles until the card is fully seated and the handles are vertical.
7. Bring the line card online:

```
user@router> request chassis fpc slot slot-number online
```

You can install the optional cable management kit after the card is installed.

## Step 5–Installing the Front Panel

The front panel is required on the MX10016 to protect fiber optic cabling and to provide additional protection from electromagnetic interference (EMI). The front panel can be installed with or without the optional cable management system.

Ensure that you have the following tools and parts before you begin:

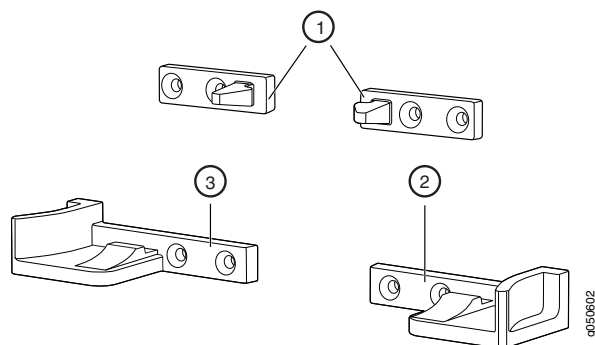
- A Phillips (+) screwdriver, number 2
- Front panel (provided with the router chassis)
- Right base bracket (provided)
- Left base bracket (provided)
- 2 interchangeable latch brackets (provided)
- 8 Phillips flat head mounting screws (provided)

To install the front panel:

1. Remove the plastic bag that is taped to the front panel, which holds the brackets and screws.
2. Use the Phillips screwdriver to attach two mounting screws to the left base bracket at the bottom left side of the chassis frame. The base brackets are larger than the latch brackets.

**NOTE:** The right and left base brackets cannot be interchanged (see [Figure 12](#)).

**Figure 12: Front Panel Mounting Hardware**



1–Latch brackets

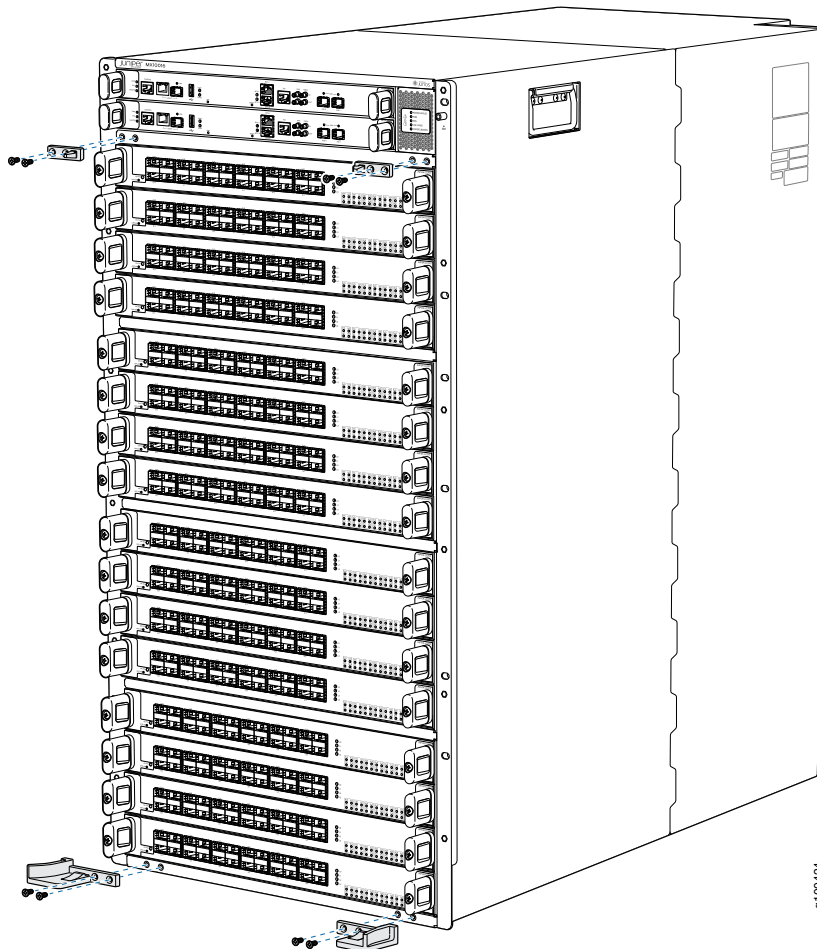
2–Right base bracket

3–Left base bracket

3. Use the Phillips screwdriver to attach two mounting screws to the right base bracket at the bottom right side of the chassis frame.

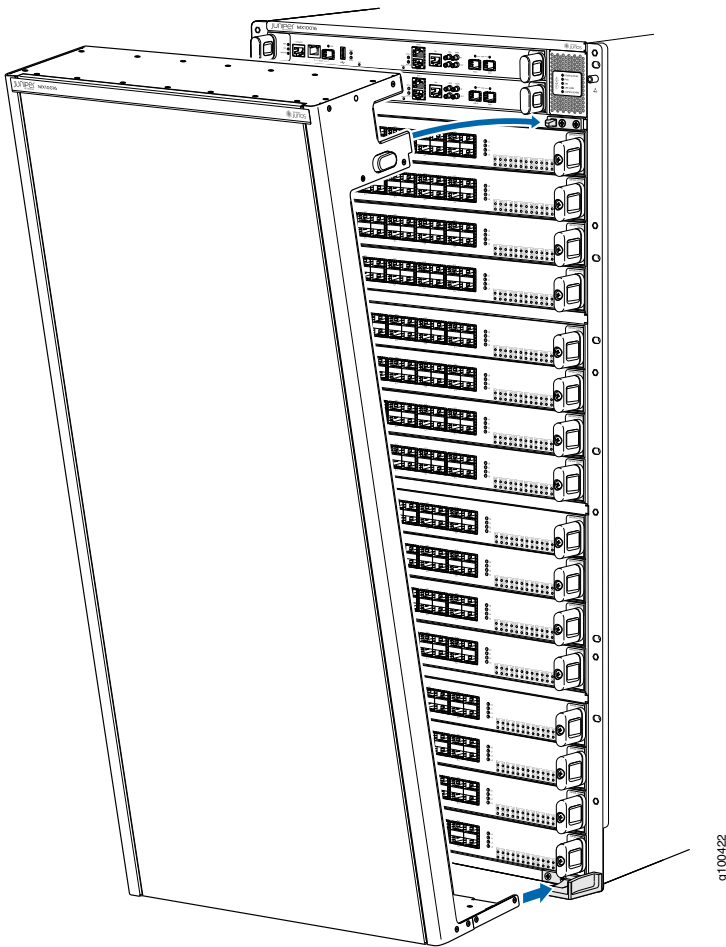
4. Use the Phillips screwdriver to attach two mounting screws to the latch bracket at the top left of the chassis frame (see [Figure 13](#)).

Figure 13: Attaching Front Panel Brackets



5. Use the final two mounting screws to attach a latch bracket to the top right of the chassis frame so there are brackets on all four corners of the front of the chassis.
6. Lift the front panel and rest it on the two bottom brackets.
7. Slide the panel back on the bracket glides until it engages on the two ramps.
8. Tilt the panel toward the chassis until it is vertical with the chassis. The blue release buttons on the side of the panel clicks into place (see [Figure 14](#)).

Figure 14: Front Panel Installation



## Step 6–Connecting Power to the Chassis

### IN THIS SECTION

- [Ground the Chassis | 17](#)
- [Install AC Power Supplies | 19](#)
- [Install DC Power Supplies | 22](#)

Before supplying power to the MX10016, ensure that you complete these tasks:



## Ground the Chassis

To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, you must connect the chassis to earth ground before you connect it to power.

For installations that require a separate grounding conductor to the chassis, you must attach a protective earthing terminal bracket on the chassis. There are mounting holes for the terminal bracket on the left-rear side of the chassis to connect to the earth ground (see [Figure 16](#)).

Before you connect earth ground to the protective earthing terminal of an MX10016, ensure that a licensed electrician has attached an appropriate grounding lug to the grounding cable.



**CAUTION:** Using a grounding cable with an incorrectly attached lug can damage the router.

Ensure that you have the following parts and tools available:

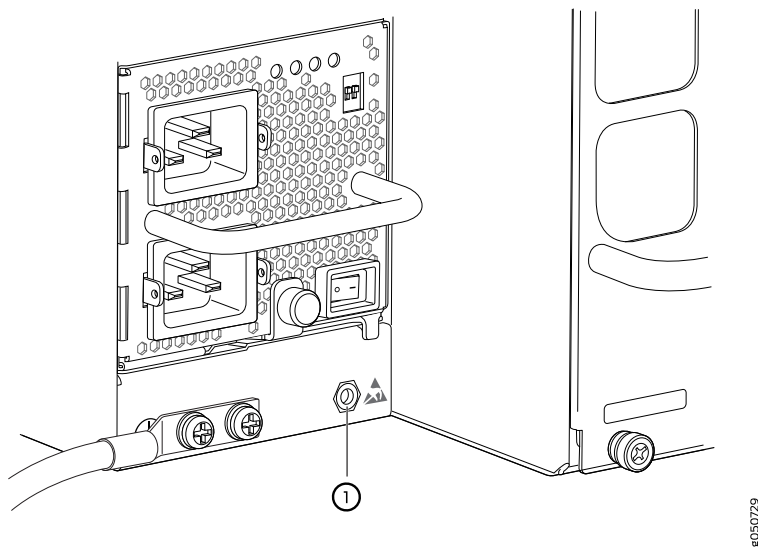
- An electrostatic discharge (ESD) grounding strap (provided)
- Protective earthing terminal lug (provided)
- Grounding cable for your MX10016 (not provided)—The grounding cable must be 6 AWG (13.3 mm<sup>2</sup>), minimum 90° C wire, or as permitted by the local code.
- Grounding lug for your grounding cable (provided)—This bracket attaches to the lower left corner of the MX10016 router chassis next to PSU 9, providing a protective earthing terminal for the router. The grounding lug required is a Panduit LCD6-10A-L or equivalent.
- A Phillips screwdriver to tighten the two screws that are mounted on the chassis.

An AC-powered MX10016 gains additional grounding when you plug the power supply in the router into a grounded AC power outlet by using an AC power cord appropriate for your geographical location.

To connect earth ground to an MX10016:

1. Verify that a licensed electrician has attached the cable lug (provided in the accessory kit) to the grounding cable.
2. Connect the other end of the grounding cable to a proper earth ground, such as the rack in which the router is mounted.
3. Attach an ESD grounding strap to your bare wrist and connect the strap to the ESD grounding point next to the earthing posts (see [Figure 15](#)).

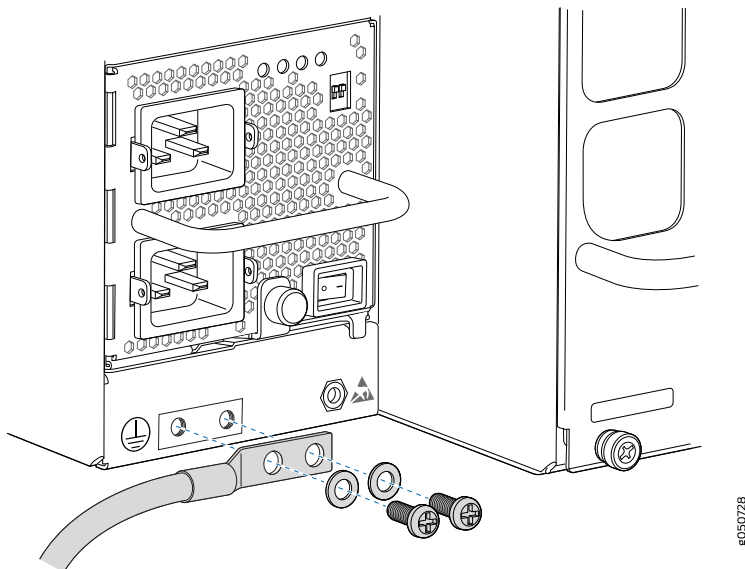
**Figure 15: ESD Point for the Chassis Rear**



1—ESD point

4. Remove the two screws on the chassis by using a Phillips screwdriver.
5. Place the chassis grounding lug and cable over the PEM nuts with the cable connection pointing to the left. See [Figure 16](#).

**Figure 16: Connecting a Grounding Cable to the MX10016**



6. Place the two screws over the grounding lug and grounding cable.

7. Tighten the two 10-32 screws using a Phillips screwdriver and apply torque between of 30.1 in.-lb (3.4 N-m) and 42.04 in.-lb (4.75 N-m).
8. Dress the grounding cable and ensure that it does not touch or block access to other device components and that it does not drape where people can trip over it.

## Install AC Power Supplies

MX10016 power supplies are hot-insertable and are field-replaceable units (FRUs). You can install up to 10 power supplies in an MX10016. The power supplies install in the rear of the chassis in the slots provided along the left side.



**CAUTION:** Do not mix AC and DC power supplies in the same chassis.

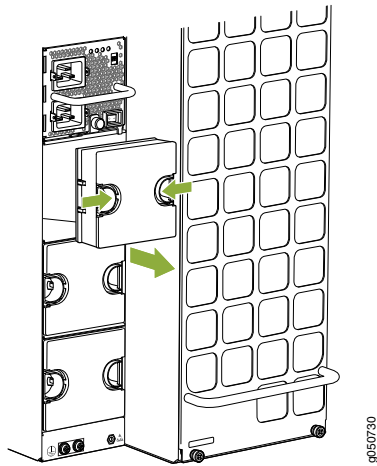
Before you install an AC power supply in the router, ensure that you have the following parts and tools available to install an AC power supply in an MX10016:

- Electrostatic discharge (ESD) grounding strap
- Phillips (+) screwdriver, number 1
- Power cords appropriate for your geographical location
- Power cord retainer clips

To install an AC power supply in an MX10016 :

1. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis. There is an ESD point located next to the protective earthing terminal and below **PSU 9** on the rear panel.
2. If the power supply slot has a cover panel on it, insert your thumb and forefinger into the finger holes, squeeze and pull the cover out of the slot. Save the cover panel for later use. See [Figure 17](#).

Figure 17: Removing the PSU Cover Panel

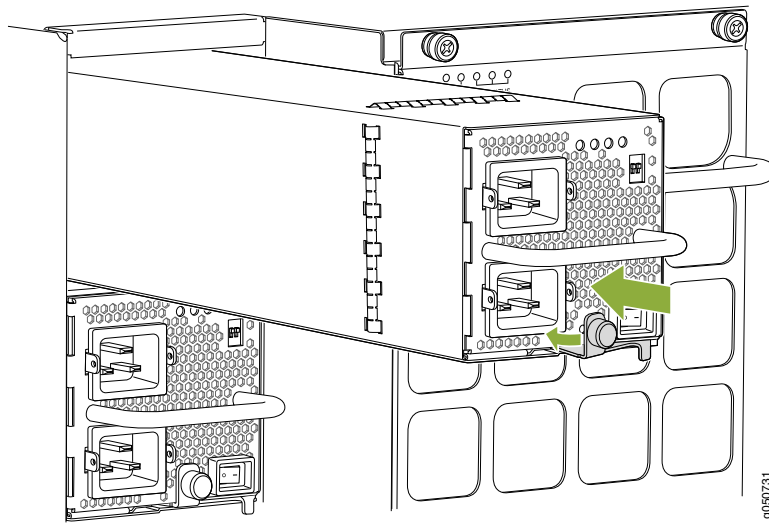


3. Taking care not to touch power supply connections, remove the power supply from its bag.
4. Peel back and remove the protective plastic wrap that covers all four sides of the power supply.
5. Ensure that the power switch is set to the standby (O) position. This switch turns off the output voltage; it does not interrupt AC.
6. Unscrew the captive screw in the counterclockwise direction by using the Phillips (+) screwdriver, number 1.
7. Rotate the captive screw away from the faceplate of the power supply to release the latch.

**NOTE:** You can install the power supplies in any slot labeled **PSU 0** through **PSU 9** (top to bottom).

8. Using both hands, place the power supply in the power supply slot on the rear of the system. Slide the power supply straight into the chassis until the power supply is fully seated in the slot. Ensure that the power supply faceplate is flush with any adjacent power supply faceplates or power supply cover panels (see [Figure 18](#)).
9. Push the captive screw into the power supply faceplate. Ensure that the screw is seated inside the corresponding hole on the faceplate.
10. Tighten the captive screw by turning it clockwise by using the Phillips (+) screwdriver, number 1. When the screw is completely tight, the latch locks into the router chassis.

Figure 18: Installing an AC Power Supply



11. Locate two power cords shipped with the router; the cords have plugs appropriate for your geographical location.

12. Attach each power cord to a dedicated AC power source outlet.

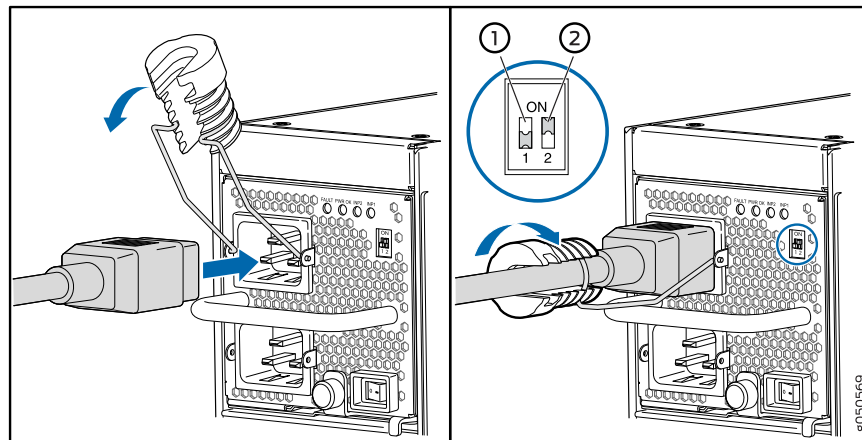
13. Squeeze the two sides of the power cord retainer clip and insert the ends of the clip into the holes in the bracket on each side of the AC appliance inlets on the AC power supply faceplate. See [Figure 19](#).

14. Insert the power cord coupler into the power supply.

Each AC power supply has two independent 16 A-rated AC inlets on the faceplate. Each inlet must be connected to a dedicated AC power feed to achieve 2N source redundancy. If redundancy is not a requirement, use the default input **INP1** for a single connection.

15. Fasten the cord retainer by lowering the clip over the cord and pushing the cord into the adjustment nut of the cord retainer. Rotate the nut until it is tight against the base of the cord. See [Figure 19](#).

Figure 19: Power Cord and Retainer Clip



1–Enable router for INP1

2–Enable router for INP2



**WARNING:** Ensure that the power cords do not block access to router components or drape where people can trip on them.

16. If the AC power source outlets have a power switch, set them to the on (I) position.
17. Move the enable switches for input 1 and input 2 to the **ON** position.
18. Verify that the **INP1** and **INP2** LEDs on the power supply faceplate are lit and are on steadily.
19. Press the power switch to the on (I) position.

## Install DC Power Supplies

MX10016 power supplies are hot-insertable and are field-replaceable units (FRUs). You can install up to 10 power supplies in an MX10016. The power supplies install in the rear of the chassis in the slots provided along the left side.



**CAUTION:** Do not mix AC and DC power supplies in the same chassis.

1. Before you install a DC power supply in the chassis, ensure that you have followed all safety warnings and cautions:



**WARNING:** Before performing DC power procedures, ensure that power is removed from the DC circuit. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the OFF position, and tape the switch handle of the circuit breaker in the OFF position.



**CAUTION:** Before you connect power to the router, a licensed electrician must attach a cable lug to the grounding and power cables that you supply. A cable with an incorrectly attached lug can damage the router (for example, by causing a short circuit).



**CAUTION:** To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, you must connect MX10016 router to earth ground before you connect them to power. For installations that require a separate grounding conductor to the chassis, use the protective earthing terminal on the router chassis to connect to earth ground. For instructions on connecting an MX10016 router to ground using a separate grounding conductor, see [“Ground the Chassis” on page 17](#).

2. Ensure that you have the following parts and tools available to install a DC power supply in an MX10016:

- Electrostatic discharge (ESD) grounding strap
- DC power source cables (not provided) with the cable lugs (provided) attached

The provided terminal lugs in an MX10016 are sized for 4 AWG (21.1 mm<sup>2</sup>) power source cables. The DC power source cables that you provide must be 4 AWG (21.1 mm<sup>2</sup>), minimum 60°C wire. We recommend that you install heat-shrink tubing insulation around the crimped section of the power cables and lugs.

- 13/32 in. (10 mm) nut driver or socket wrench
- Phillips (+) screwdrivers, numbers 1 and 2
- Multimeter

To install a DC power supply in an MX10016 (see [Figure 22](#)):

1. Attach the electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis. There is an ESD point located next to the protective earthing terminal and below **PSU 9** on the rear panel .
2. Taking care not to touch power supply components, pins, leads, or solder connections, remove the power supply from its bag.
3. Peel back and remove the protective plastic wrap that covers all four sides of the power supply.
4. Ensure the power switch is set to the standby (O) position. This switch turns off the output voltage; it does not interrupt DC.

5. Remove the plastic cable cover from the DC power input terminals by using the Phillips (+) screwdriver, number 2, to loosen the screws.
6. Remove the nuts from each DC power input terminal, using the 13/32 in. (10 mm) nut driver or socket wrench to loosen the nuts.
7. Ensure that the power source circuit breaker is open so that the voltage across the DC power source cable leads is 0 (zero) V and that the cable leads do not become active while you are connecting DC power.
8. Verify that the DC power cables are correctly labeled before making connections to the power supply. In a typical power distribution scheme where the return is connected to chassis ground at the battery plant, you can use a multimeter to verify the resistance of the -48V and RTN DC cables to chassis ground:
  - The cable with very high resistance (indicating an open circuit) to chassis ground is negative (-) and will be installed on the -48V (input) DC power input terminal.
  - The cable with very low resistance (indicating a closed circuit) to chassis ground is positive (+) and will be installed on the RTN (return) DC power input terminal.



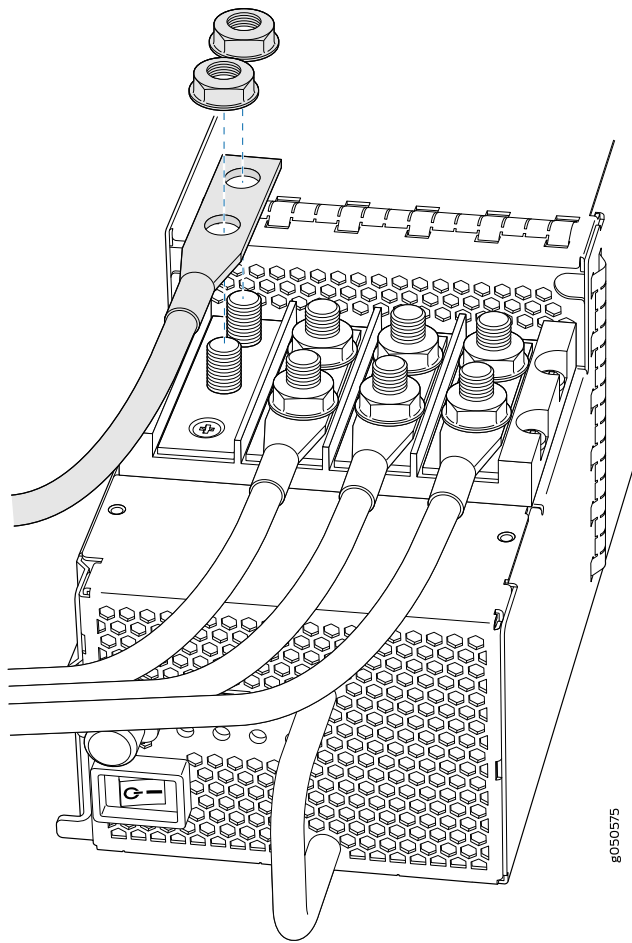
**CAUTION:** You must ensure that power connections maintain the proper polarity. The power source cables might be labeled (+) and (-) to indicate their polarity. There is no standard color coding for DC power cables.

9. Install each power cable lug on the DC power input terminal, securing it with the nut (see [Figure 20](#)). Apply between 24 in.-lb (2.7 Nm) and 25 in.-lb (2.8 Nm) of torque to each nut. (Use the 13/32 in. [10 mm] nut driver or socket wrench.)
  - a. Secure each positive (+) DC source power cable lug to the RTN (return) DC power input terminal.
  - b. Secure each negative (-) DC source power cable lug to the -48V (input) DC power input terminal.

Each power supply has two independent sets of DC power input terminals (**INPUT 1: RTN -48V/-60V:** and **INPUT 2: : RTN -48V/-60V**). For feed redundancy, each power supply must be powered by dedicated power feeds derived from feed *INPUT 1* and feed *INPUT 2*. This configuration provides the commonly deployed *INPUT 1 / INPUT 2* feed redundancy for the router.

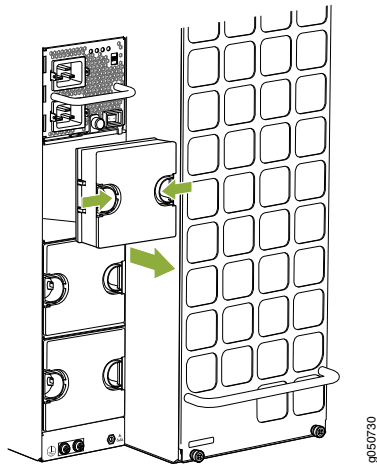


Figure 20: Connecting the DC Power Supply Cables to an MX10016



10. Install the plastic cable cover over each set of power cables by using the Phillips (+) screwdriver, number 2, to tighten the screw.
11. If the power supply slot on the chassis has a cover panel on it, insert your thumb and forefinger into the finger holes, then squeeze and pull the cover out of the slot. Save the cover panel for later use (see [Figure 21](#)).

Figure 21: Removing the PSU Cover Panel

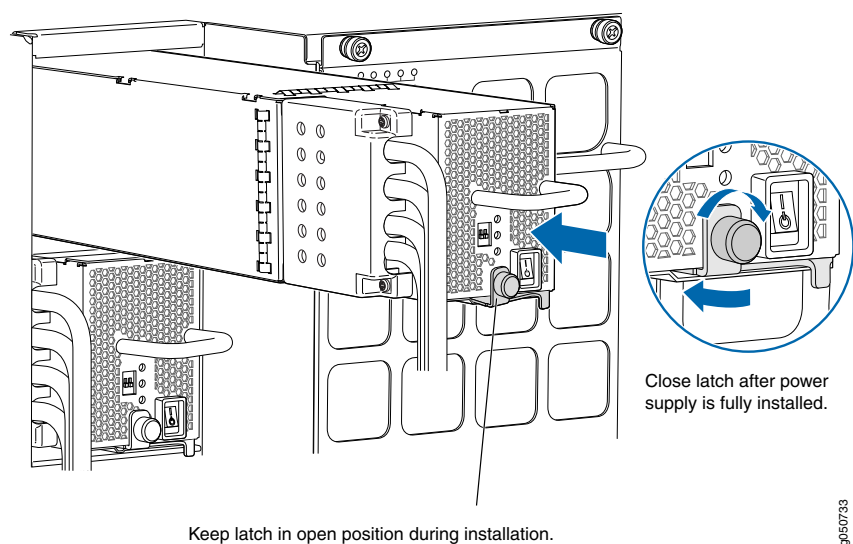


12. Unscrew the captive screw in the counterclockwise direction by using the Phillips (+) screwdriver, number 1.
13. Pull the captive screw away from the faceplate of the power supply to release the latch.

**NOTE:** You can install the power supplies in any slot labeled **PSU 0** through **PSU 9** (top to bottom).

14. Using both hands, place the power supply in the power supply slot on the rear of the router. Slide the power supply straight into the chassis until the power supply is fully seated in the slot. Ensure that the power supply faceplate is flush with any adjacent power supply faceplates or power supply cover panels (see [Figure 22](#)).
15. Push the captive screw into the power supply faceplate. Ensure that the screw is seated inside the corresponding hole on the faceplate.
16. Tighten the captive screw by turning it clockwise by using the Phillips (+) screwdriver, number 1. When the screw is completely tight, the latch locks into the router chassis.

Figure 22: Installing an MX10016 DC Power Supply



1—Source input 1 enable switch

2—Source input 2 enable switch

17.

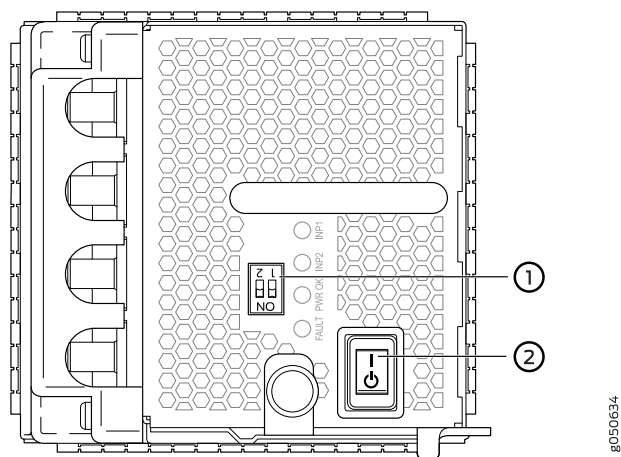


**WARNING:** Ensure that the power cords do not block access to router components or drape where people can trip on them.

18. Set the enable switches for input 1 and input 2 (see [Figure 23](#)).

Set both enable switches to the **I** (on) position when using both source inputs. When not using source redundancy, set the unused source to the **O** (off) position. The LED turns red and indicates an error if a source input is not in use and the enable switch is **I** (on).

Figure 23: Setting the Enable Switches for the Power Source



19. Verify that the input 1 and 2 LEDs on the power supply faceplate are lit and are on steadily.
20. Press the power switch to the on (I) position.

## Step 7—Connecting to the Network

You can configure and manage the chassis by using a dedicated console. Every control board has a console port with an RJ-45 connector. Use the console port to connect the device to the management console or to a console server. The console port accepts a cable with an RJ-45 connector.

Ensure that you have an Ethernet cable with an RJ-45 connector available. An RJ-45 cable and an RJ-45 to DB-9 serial port adapter are supplied with the device.

**NOTE:** If your laptop or PC does not have a DB-9 male connector pin and you want to connect your laptop or PC directly to the device, use a combination of the RJ-45 to DB-9 female adapter supplied with the device and a USB to DB-9 male adapter. You must provide the USB to DB-9 male adapter.

To connect the chassis to the network using the console port:

1. Connect one end of the Ethernet cable into the console port labeled **CON** on the control board.
2. Connect the other end of the Ethernet cable into the console server.

Figure 24: Connecting a Router to a Management Console Through a Console Server

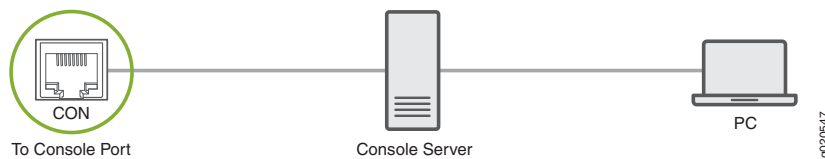


Figure 25: Connecting a Router Directly to a Management Console



## Step 8—Performing Initial Configuration

You must perform the initial configuration of an MX10016 router through the console port using the CLI.

Before you begin connecting and configuring the router, set the following parameter values on the console server or PC:

- Baud Rate—9600
- Flow Control—None
- Data—8
- Parity—None
- Stop Bits—1
- DCD State—Disregard

To connect and configure the router from the console:

1. Connect the console port to a laptop or PC using the supplied RJ-45 cable and RJ-45 to DB-9 adapter. The console (CON) port is located on the port panel of the router.
2. Log in as **root**. There is no password. If the software booted before you connected to the console port, you might need to press the Enter key for the prompt to appear.

```
login: root
```

3. Start the CLI.

```
root@% cli
```

4. Enter configuration mode.

```
root> configure
```

5. Add a password to the root administration user account.

```
[edit]
root@# set system root-authentication plain-text-password
New password: password
Retype new password: password
```

6. (Optional) Configure the name of the router. If the name includes spaces, enclose the name in quotation marks (" ").

```
[edit]
root@# set system host-name host-name
```

7. Configure the default gateway.

```
[edit]
```

```
root@# set routing-options static route default next-hop address
```

8. Configure the IP address and prefix length for the router management interface.

```
[edit]
```

```
root@# set interfaces em0 unit 0 family inet address address/prefix-length
```



**CAUTION:** Although the CLI permits you to configure two management Ethernet interfaces within the same subnet, only one interface is usable and supported.

**NOTE:** The management ports, **em0** (MGMT for RJ-45 connections) and **em1** (also labeled MGMT for fiber connections) are found on each of the control boards of the MX10016.

9. (Optional) Configure the static routes to remote prefixes with access to the management port.

```
[edit]
```

```
root@# set routing-options static route remote-prefix next-hop destination-ip retain no-readvertise
```

10. Enable Telnet service.

```
[edit]
```

```
root@# set system services telnet
```

**NOTE:** When Telnet is enabled, you cannot log in to an MX10016 through Telnet using root credentials. Root login is allowed only for SSH access.

11. Commit the configuration to activate it on the router.

```
[edit]
```

```
root@# commit
```

## Safety Warnings Summary

This is a summary of safety warnings. For a complete list of warnings, including translations, see the [MX10016 Universal Routing Platform Hardware Guide](https://www.juniper.net/documentation/) at <https://www.juniper.net/documentation/>.



**WARNING:** Failure to observe these safety warnings can result in personal injury or death.

- Permit only trained and qualified personnel to install or replace router components.
- Perform only the procedures described in this quick start guide and the MX10016 router documentation. Other services must be performed only by authorized service personnel.
- Before installing the router, read the planning instructions in the MX10016 router documentation to make sure that the site meets power, environmental, and clearance requirements for the router.
- Before connecting the router to a power source, read the installation instructions in the MX10016 router documentation.
- A base configuration is about 533 lb (241.77 kg) and redundant configurations can weigh 596 lb (270.34 kg). Installing the MX10016 router in a rack or cabinet requires either a mechanical lift or three people to lift the router and another person to secure it to the rack. To prevent injury, keep your back straight and lift with your legs, not your back.
- If the rack or cabinet has stabilizing devices, install them in the rack before mounting or servicing the router in the rack or cabinet.
- Before installing or after removing an electrical component, always place it component-side up on a flat antistatic mat or in an electrostatic bag.
- Do not work on the router or connect or disconnect cables during electrical storms.
- Before working on equipment that is connected to power lines, remove jewelry, including rings, necklaces, and watches. Metal objects heat up when connected to power and ground and can cause serious burns or become welded to the terminals.



**CAUTION:** Do not place a copper transceiver in an access port directly above or below another copper transceiver. Damage to the access ports will occur.

## Power Cable Warning (Japanese)

The attached power cable is only for this product. Do not use this cable for any other product. For technical support, see <https://www.juniper.net/support/requesting-support.html>.

### 注意

付属の電源コードセットはこの製品専用です。  
他の電気機器には使用しないでください。

