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PTX10001-36MR Quick Start

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RELEASE

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PTX10001-36MR Fixed Packet Transport Router Overview

IN THIS SECTION

Juniper Networks PTX10001-36MR is a fixed-configuration router that features 36 network ports that provide high density and cost efficient 100-Gigabit and 400-Gigabit Ethernet (GbE) ports in a low-profile 1-U form factor. With 9.6 Tbps of throughput, the PTX10001-36MR is optimally designed for peering, core routing, and infrastructure edge routing roles in cloud provider, service provider and content provider networks. The high-speed ports support a wide variety of port configurations that include speeds of 400 Gbps, 100 Gbps, 40 Gbps, 25 GPS and 10 Gbps.

For more information about the PTX10001-36MR hardware, see the PTX10001-36MR Packet Transport Router Hardware Guide.

For information about features supported on PTX Series routers, see Feature Explorer.

Register Products—Mandatory for Validating SLAs

Register all new Juniper Networks hardware products and changes to an existing installed product using the Juniper Networks website to activate your hardware replacement service-level agreements (SLAs).

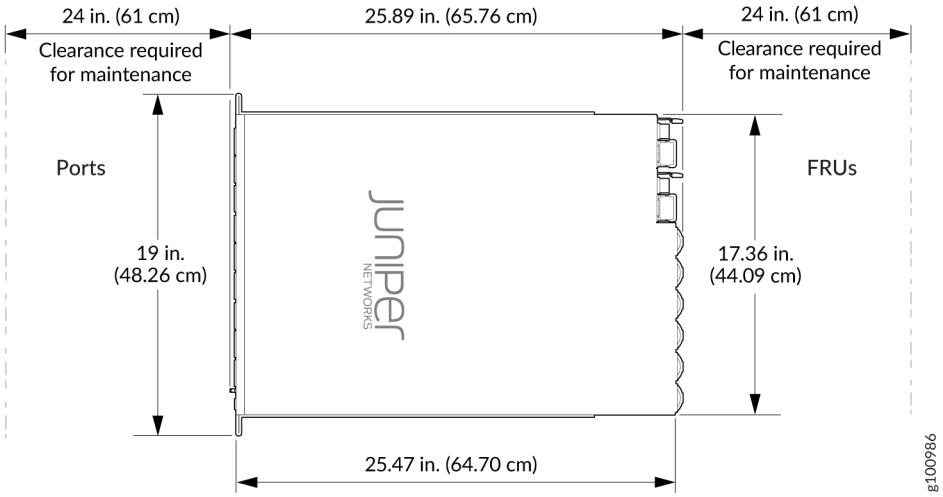
CAUTION: Register product serial numbers on the Juniper Networks website and update the installation base data if there is any addition or change to the installation base or if the installation base is moved. Juniper Networks will not be held accountable for not meeting the hardware replacement service-level agreement for products that do not have registered serial numbers or accurate installation base data.

Register your product(s) at https://tools.juniper.net/svcreg/SRegSerialNum.jsp.
Update your installation base at https://www.juniper.net/customers/csc/management/updateinstallbase.jsp.

PTX10001-36MR Clearance Requirements for Airflow and Hardware Maintenance

When planning the site for a PTX10001-36MR installation, you must allow sufficient clearance around the installed chassis (see Figure 1 on page 2).

Figure 1: Clearance Requirements for Airflow and Hardware Maintenance for a PTX10001-36MR



Follow these guidelines:

- For the cooling system to function properly, the airflow around the chassis must be unrestricted. See *PTX10001-36MR Cooling System* for more information about the airflow through the chassis.
- If you are mounting a PTX10001-36MR in a rack with other equipment, ensure that the exhaust from other equipment does not blow into the intake vents of the chassis.

- You must leave at least 24 in. (61 cm) both in front of and behind the PTX10001-36MR for service personnel to remove and install hardware components. You must leave adequate space at the front and back of the PTX10001-36MR. NEBS GR-63 recommends that you allow at least 30 in. (76.2 cm) in front of the rack or cabinet and 24 in. (61 cm) behind the rack.

Prepare for the Installation

To install the PTX10001-36MR, you'll need two people for installation, one person to lift the device into place and another person to attach the device to the rack.

You'll also need to have the following items available (none are provided):

- ESD wrist strap with cable
- Screwdriver appropriate for the rack-mounting screws
- Management host, such as a PC laptop, with a serial port
- Grounding cable—The grounding cable must be 8 AWG (8.4 mm^2), minimum 90° C wire, or as permitted by the local code.

  NOTE: The grounding cable requires a Panduit LCD6-14AH-L or equivalent grounding lug. For DC installations, the grounding lug is provided.

- Two M6 x 10 mm screws and washers.
- Screwdriver appropriate for the M6 x 10 mm screws.

Unpack the PTX10001-36MR

The PTX10001-36MR chassis is a rigid sheet-metal structure that houses the hardware components. The PTX10001-36MR is shipped in a cardboard carton, secured with foam packing material. The carton also contains an accessory kit and the Roadmap card with links to the quick start instructions.

CAUTION: PTX10001-36MR routers are maximally protected inside the shipping carton. Do not unpack the PTX10001-36MR until you are ready to begin installation.

1. Move the shipping carton to a staging area as close to the installation site as possible, but where you have enough room to remove the system components.

2. Position the carton so that the arrows point up.
3. Open the top flaps on the shipping carton.
4. Remove the accessory kit.
5. Pull out the packing material holding the device in place.
6. Verify that the following components are in the box:
   - The chassis with six fan modules and two power supplies installed
   - 4-post rack mount kit—2 side mounting blades and 2 side mounting rails

     NOTE: If you are installing the PTX10001-36MR on a two-post rack, you must order the 2-post rack mount kit separately.

   - Sixteen flathead screws for the mounting brackets (Phillips, M4 x 6 mm)
   - For AC/HVDC installations, two power cords with plugs that are appropriate for your geographical location.

     NOTE: Power cords are not provided for DC installations.

   - For DC installations, four DC power cable lugs
   - RJ45 Y-splitter cable
   - End User License Agreement
   - Roadmap card
7. Save the shipping carton and packing materials in case you need to move or ship the chassis later.

Mount the PTX10001-36MR in a Rack

You can mount a PTX10001-36MR:

- On four posts of a 19-in. rack or a 19-in. cabinet by using the mounting brackets provided with the device.

- On two posts of a 19-in. rack or a 19-in. cabinet. A two-post rack mount kit must be ordered separately.

For four-post rack installation, there are two front mount rails with two matching rear mount blades. This configuration allows either end of the device to be mounted flush with the rack and still be adjustable for racks with different depths. The minimum distance the front and rear rack rails can be spaced apart is 23.6 in. (60 cm) front to back. The maximum distance the front and rear rack rails can be spaced apart is 31.5 in. (80 cm) front to back. (The remainder of this topic uses rack to mean rack or cabinet.)

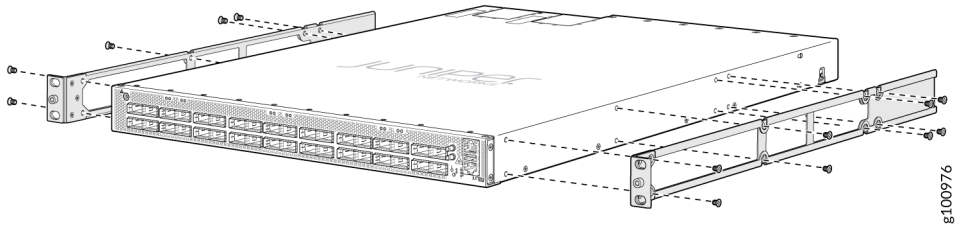
CAUTION: PTX10001-36MR routers require two people for installation, one person to lift the device into place and another person to attach the device to the rack. If you are installing the PTX10001-36MR above 60 in. (152.4 cm) from the floor, you can remove the power supplies and fan modules to minimize the weight before attempting to install the PTX10001-36MR (see *Remove the AC/HVDC Power Supply from the PTX10001-36MR* and *Remove a Fan Module from the PTX10001-36MR*).

CAUTION: If you are mounting multiple units in the rack, mount the heaviest unit at the bottom and mount the others from bottom to top in order of decreasing weight. The PTX10001-36MR weighs approximately 39.7 lb (18.0 kg). fully loaded.

To mount the PTX10001-36MR on four posts in a rack by using the provided mounting kit:

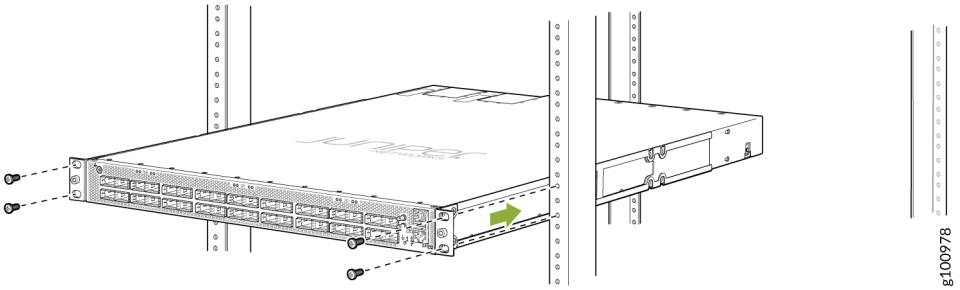
1. Wrap and fasten the ESD grounding strap to your bare wrist and an connect the other end of the strap to the ESD point on the device.
2. Decide whether to place the front (port) end or the back (FRU) end of the PTX10001-36MR at the front of the rack. Position the PTX10001-36MR in such a manner that the **AIR OUT** labels on components are next to the hot aisle.
3. Align the holes in the mounting rail with the screw holes on the side of the chassis. See Figure 2 on page 6 to see the proper alignment for the PTX10001-36MR.

Figure 2: Attach the Front Mounting Rails to the PTX10001-36MR



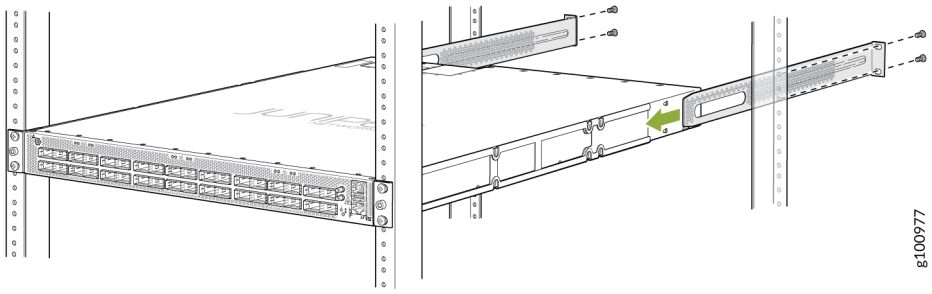
4. Attach the mounting rail to the device using the mounting screws. Tighten the screws.
5. Repeat Step "3" on page 5 and Step "4" on page 6 on the opposite side of the device.
6. Have one person grasp both sides of the device, lift it, and position it in the rack so that the front bracket is aligned with the rack holes.
7. Have a second person secure the front of the device to the rack by using 4 mounting screws (and cage nuts and washers if your rack requires them). Tighten the screws. See Figure 3 on page 6.

Figure 3: Attach the PTX10001-36MR to the Rack



8. Continue to support the PTX10001-36MR while sliding the rear mounting blades into the channel of the side mounting rails and securing the blades to the rack. Use four mounting screws (and cage nuts and washers if your rack requires them) to attach the blade to the rack. Tighten the screws. See Figure 4 on page 7.

Figure 4: Slide Mounting Blades into Mounting Rail

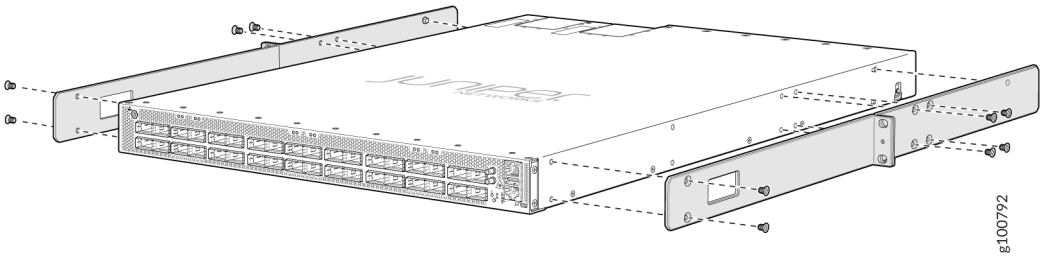


9. Ensure that the PTX10001-36MR chassis is level by verifying that all the screws on the front of the rack are aligned with the screws at the back of the rack.

To mount the PTX10001-36MR on two posts in a rack by using the two-post mounting kit that you purchased separately:

1. Wrap and fasten the ESD grounding strap to your bare wrist and an connect the other end of the strap to the ESD point on the device.
2. Decide whether to place the front (port) end or the back (FRU) end of the PTX10001-36MR at the front of the rack. Position the PTX10001-36MR in such a manner that the **AIR OUT** labels on components are next to the hot aisle.
3. Align the hooks and the screw holes on the mounting bracket with the screw holes on the side of the chassis. See Figure 5 on page 7 to see the proper alignment for the PTX10001-36MR.

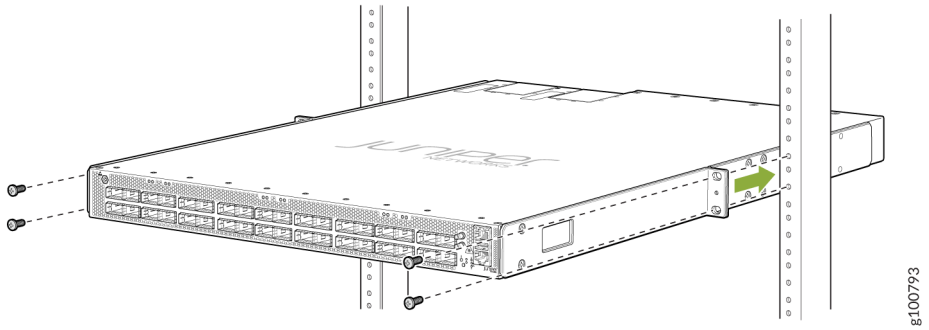
Figure 5: Attach the Two Post Mounting Brackets to the PTX10001-36MR



4. Attach the mounting bracket to the device using the mounting screws. Tighten the screws.
5. Repeat Step "3" on page 7 and Step "4" on page 7 on the opposite side of the device.
6. Have one person grasp both sides of the device, lift it, and position it in the rack so that the bracket is aligned with the rack holes.

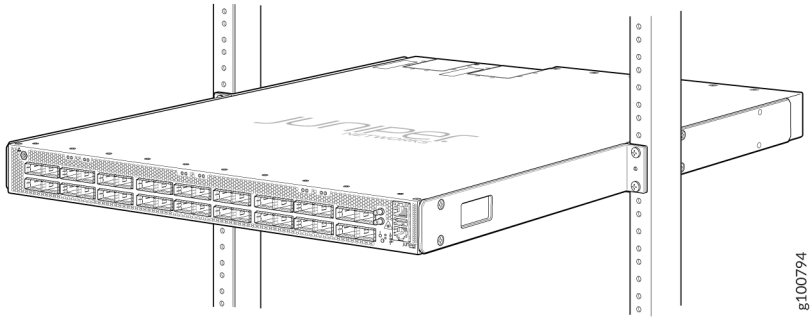
7. Have a second person secure the device to the rack by using the appropriate mounting screws (and cage nuts and washers if your rack requires them). Tighten the screws. See Figure 6 on page 8.

Figure 6: Attach the PTX10001-36MR to a Two-Post Rack



8. Ensure that the device is level by verifying that all the screws on one side of the rack are aligned with the screws on the other side of the rack.

Figure 7: The PTX10001-36MR Secured in a Two-Post Rack



Connect the PTX10001-36MR to Ground

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, use the protective earthing terminal on the PTX10001-36MR chassis to connect to the earth ground.

NOTE: An AC-powered PTX10001-36MR gains additional grounding when you plug the power supply into a grounded AC power outlet by using an AC power cord appropriate for your geographical location.

⚠ **CAUTION**: Before you connect power to the PTX10001-36MR, a licensed electrician must attach a cable lug to the grounding cables and power cables that you supply. A cable with an incorrectly attached lug can damage the PTX10001-36MR (for example, by causing a short circuit).

NOTE: Mount your device in the rack before attaching the grounding lug to the switch. See *Unpack and Mount the PTX10001-36MR*.

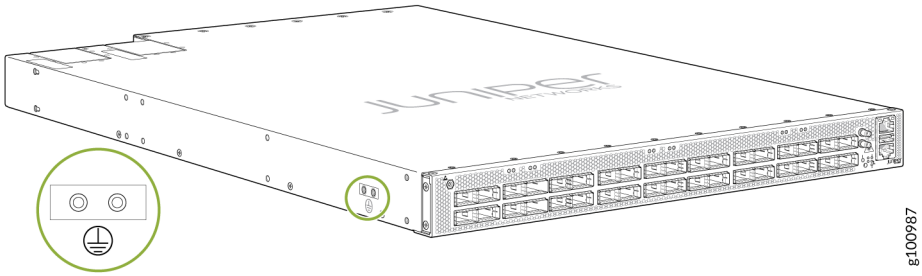
Ensure that you have the following parts and tools available (none are provided):

- Grounding cable—The grounding cable must be 8 AWG (8.4 mm^2), minimum 90° C wire, or as permitted by the local code.
- Grounding lug for your grounding cable—The grounding lug required is a Panduit LCD6-14AH-L or equivalent.
- Two M6 x 10 mm screws and washers.
- Screwdriver appropriate for the M6 x 10 mm screws.

To connect a grounding cable to the PTX10001-36MR:

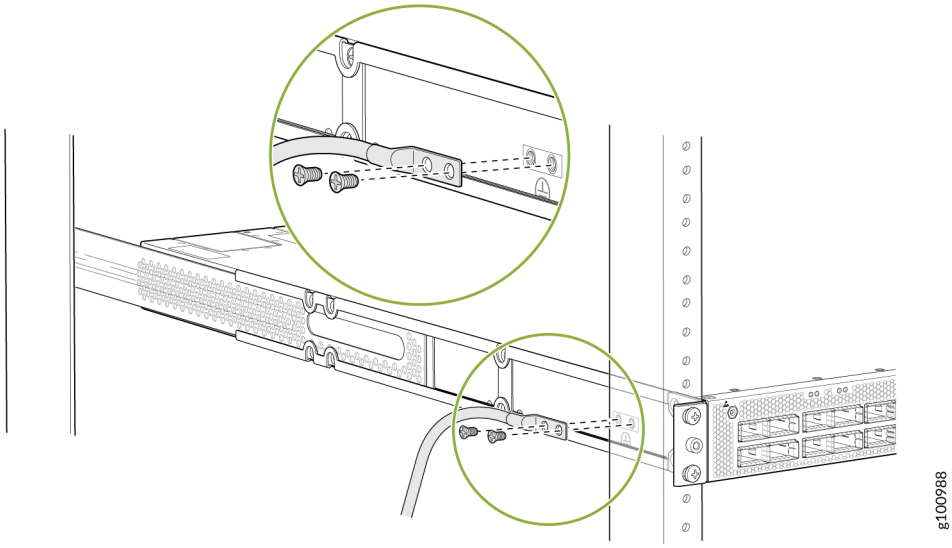
1. Attach a grounding cable to earth ground (such as the rack in which the PTX10001-36MR is mounted) and then attach it to the chassis grounding point. Figure 8 on page 10 shows the location of the chassis grounding point.

Figure 8: PTX10001-36MR Grounding Points



2. Secure the grounding lug to the protective earthing terminal with the washers and screws. See Figure 9 on page 10.

Figure 9: Connect a Grounding Cable to a PTX10001-36MR Device



3. 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 could trip over it.

Connect AC/HVDC Power to the PTX10001-36MR

This procedure is for AC/HVDC installations only. For DC installations, see *Connect DC Power to the PTX10001-36MR*.

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

The power supplies automatically detect whether there is AC or HVDC input voltage and manage the power accordingly. Each 3000 W AC/HVDC power supply module has a single AC or HVDC input and provides 12 V of power to the system. The power supply in a PTX10001-36MR is a hot-removable and hot-insertable field-replaceable unit (FRU). After removing the power cord from an individual power supply, you can remove and replace it without powering off the router or disrupting router functions.

Before you begin to connect AC/HVDC power to the PTX10001-36MR:

- Ensure that you have a power cord appropriate for your geographical location available to connect AC power to the router. See *PTX10001-36MR Power Cord Specifications*.
- Read *General Electrical Safety Guidelines and Warnings* and *Action to Take After an Electrical Accident*.
- Ensure that you have taken the necessary precautions to prevent electrostatic discharge (ESD) damage (see *Prevention of Electrostatic Discharge Damage*).
- Ensure that you have connected the PTX10001-36MR chassis to earth ground.
- Ensure that you have an ESD grounding strap.
- If not already installed, install the power supplies in the router. See *Maintain the PTX10001-36MR Power Supplies*.

NOTE: Each power supply must be connected to a dedicated power source outlet.

To connect AC power to a PTX10001-36MR:

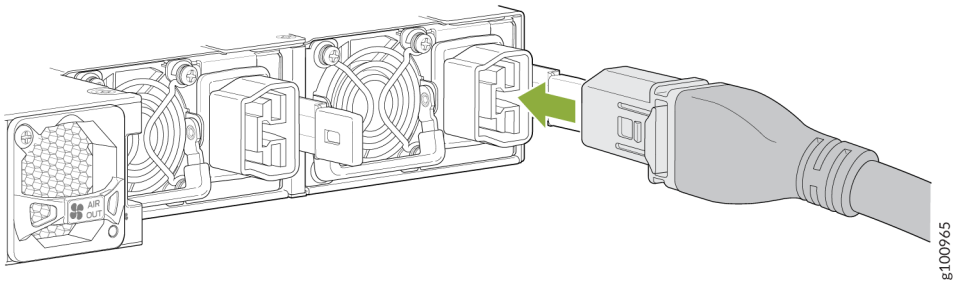
1. Wrap and fasten one end of the ESD wrist strap around your bare wrist, and connect the other end of the strap to the ESD point on the device.
2. Ensure that the power supplies are fully inserted in the chassis and the latches are secure.
3. Locate the power cord or cords shipped with the PTX10001-36MR; the cords have plugs appropriate for your geographical location. See *PTX10001-36MR Power Cord Specifications*.

WARNING: Ensure that the power cord does not block access to router components or drape where people could trip on it.

4. Connect each power supply to the power sources. Insert the coupler end of the power cord into the AC power cord inlet on the AC power supply faceplate (see Figure 10 on page 12).

> **NOTE**: The coupler end of the power cord model is APP-400.

Figure 10: Connect an AC Power Cord to the PTX10001-36MR



5. If the AC power source outlet has a power switch, set it to the off (**O**) position.

> **NOTE**: The device powers on as soon as power is provided to the power supply. There is no power switch on the device.

6. Insert the power cord plug into an AC power source outlet.
7. If the AC power source outlet has a power switch, set it to the on (**|**) position.
8. Verify that the status LEDs on each power supply are lit green.

   If the status LED is lit amber, remove power from the power supply, and replace the power supply (see *Maintain the PTX10001-36MR Power Supplies*). Do not remove the power supply until you have a replacement power supply ready.

Perform the Initial Software Configuration

You'll need to perform the initial configuration of the PTX10001-36MR through the console port using the CLI or through zero-touch provisioning (ZTP). To provision the PTX10001-36MR using ZTP, you'll need access to a Dynamic Host Control Protocol (DHCP) server and a File Transfer Protocol (anonymous FTP), Hypertext Transfer Protocol (HTTP), or Trivial File Transfer Protocol (TFTP) server on which the software image and configuration files are stored.

Before you begin connecting and configuring a PTX10001-36MR, set the following parameter values on the management console or console server:

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

To connect and configure the PTX10001-36MR using the CLI:

1. Connect the console port to a laptop or PC by using the RJ45 cable and RJ45 to DB9 adapter (not provided). The console port (labeled **CON/ToD**) is located on the management panel of the PTX10001-36MR (see *Connect the PTX10001-36MR to a Management Console*).

   NOTE: We no longer include a DB9 to RJ45 cable or a DB9 to RJ45 adapter with a CAT5E copper cable as part of the device package. If you require a console cable, you can order it separately with the part number JNP-CBL-RJ45-DB9 (DB9 to RJ45 adapter with a CAT5E copper cable).

2. Log in as **root**. There is no password. If the software boots 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 PTX10001-36MR. 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 0.0.0.0/0 next-hop address
```

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

```
[edit]
root@# set interfaces re0:mgmt-0 unit 0 family inet address address/prefix-length
```

9. (Optional) Configure more specific static routes to remote prefixes with access to the management port, if you prefer that these prefixes not use the default route.

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

10. Enable the SSH service.

```
[edit]
root@# set system services ssh root-login allow
```

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

```
[edit]
root@# commit
```

Safety Warnings Summary

This is a summary of safety warnings. For a complete list of warnings, including translations, see the PTX10001-36MR Packet Transport Router Hardware Guide.

The following guidelines help ensure your safety and protect the device from damage. The list of guidelines might not address all potentially hazardous situations in your working environment, so be alert and exercise good judgment at all times.

- Perform only the procedures explicitly described in the hardware documentation for this device. Make sure that only authorized service personnel perform other system services.
- Keep the area around the device clear and free from dust before, during, and after installation.
- Keep tools away from areas where people could trip over them while walking.
- Do not wear loose clothing or jewelry, such as rings, bracelets, or chains, which could become caught in the device.
- Wear safety glasses if you are working under any conditions that could be hazardous to your eyes.
- Do not perform any actions that create a potential hazard to people or make the equipment unsafe.
- Never attempt to lift an object that is too heavy for one person to handle.
- Never install or manipulate wiring during electrical storms.
- Never install electrical jacks in wet locations unless the jacks are specifically designed for wet environments.
- Operate the device only when it is properly grounded.
- Ensure that the separate protective earthing terminal provided on this device is permanently connected to earth.
- Replace fuses only with fuses of the same type and rating.
- Do not open or remove chassis covers or sheet-metal parts unless instructions are provided in the hardware documentation for this device. Such an action could cause severe electrical shock.

- Do not push or force any objects through any opening in the chassis frame. Such an action could result in electrical shock or fire.
- Avoid spilling liquid onto the chassis or onto any device component. Such an action could cause electrical shock or damage the device.
- Avoid touching uninsulated electrical wires or terminals that have not been disconnected from their power source. Such an action could cause electrical shock.
- Some parts of the chassis, including AC and DC power supply surfaces, power supply unit handles, SFB card handles, and fan tray handles might become hot. The following label provides the warning of the hot surfaces on the chassis:

- Always ensure that all modules, power supplies, and cover panels are fully inserted and that the installation screws are fully tightened.

Power Cable Warning (Japanese)

WARNING: The attached power cable is only for this product. Do not use this cable for another product.

注意

附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。

Contact Juniper Networks

For technical support, see: https://www.juniper.net/support/requesting-support.html.