Juniper Networks | Engineering Simplicity

Day One+

PTX10016

IN THIS GUIDE

- Step 1: Begin | 1
- Step 2: Up and Running | 12
- Step 3: Keep Going | 15

Step 1: Begin

IN THIS SECTION

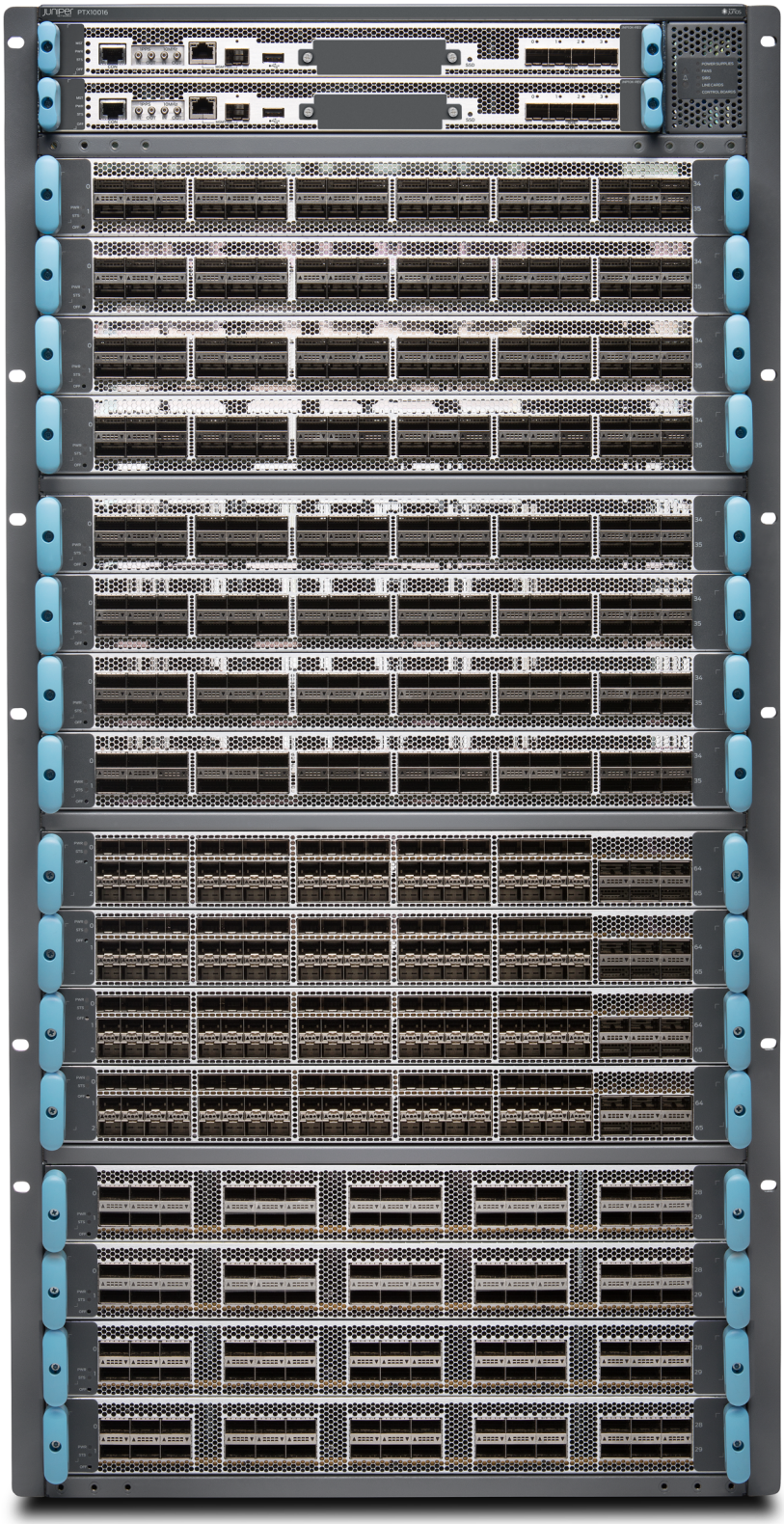
- Meet the PTX10016 Packet Transport Routers | 1
- Install the PTX10016 | 4
- Power On | 9

In this guide, we provide a simple, three-step path, to quickly get you up and running with your new AC-powered router. We've simplified and shortened the installation and configuration steps, and included how-to videos. You'll learn how to install the PTX10016 in a rack, power it up, and configure basic settings.

Meet the PTX10016 Packet Transport Routers

The Juniper Networks® PTX10016 packet transport router is a next-generation modular router that offers ultra-high system capacity in a 21 U platform. It provides 230.4 Tbps per chassis. The PTX10016 has 16 slots for line cards, allowing for a smooth transition from 10 GbE, 40 GbE, and 100 GbE networks to 400 GbE high-performance networks.

The PTX10016 routers come with either JNP10016-SF Switch Interface Boards (SIBs) or JNP10016-SF3 SIBs. If your PTX10016 has JNP10016-SF SIBs, it will come preinstalled with Junos® operating system (Junos OS). If your PTX10016 has JNP10016-SF3 SIBs, it will come preinstalled with Junos OS Evolved.


juniper PTX10016
junos

Install the PTX10016

IN THIS SECTION

- What's in the Box? | 4
- What Else Do I Need? | 4
- Install the PTX10016 in a Four-Post Rack | 5

What's in the Box?

- PTX10016 router preinstalled with Routing Control Boards (RCBs), Switch Interface Boards (SIBs), fan trays, fan tray controllers, power supplies, and cover panels for the empty line card slots
- AC power cords appropriate for your geographical location
- Rack mount kit that consists of one mounting tray, two mounting blades, one safety restraint, and 12 Phillips 8-32 x .375 in. flat-head screws
- Front door kit that consists of one front door, one right base bracket, one left base bracket, two interchangeable latch brackets, eight Phillips flat-head mounting screws, and side EMI deflectors

> **NOTE:** This guide does not cover how to install the line cards or the front door. For instructions, see the PTX10016 Packet Transport Router Hardware Guide.

- Cover panels for the empty line card slots
- An electrostatic discharge (ESD) grounding strap
- Protective earthing terminal lug

What Else Do I Need?

- A mechanical lift rated for 1000 lb (453.6 kg)
- 20 rack mount screws appropriate for your rack to secure the mounting tray to the rack
- 12 rack mount screws appropriate for your rack to secure the chassis to the rack
- Number 1, 2, or 3 Phillips (+) screwdriver, depending on the size of your rack screws
- Number 2 Phillips (+) screwdriver
- Management host such as a laptop or desktop PC
- Serial-to-USB adapter (if your laptop or desktop PC doesn't have a serial port)
- Grounding cable: 6 AWG (13.3 mm^2), minimum 90° C wire, or as permitted by the local code

CAUTION: Ensure that a licensed electrician has attached the grounding lug to the grounding cable that you supply. Using a grounding cable with an incorrectly attached lug can damage the router.

Install the PTX10016 in a Four-Post Rack

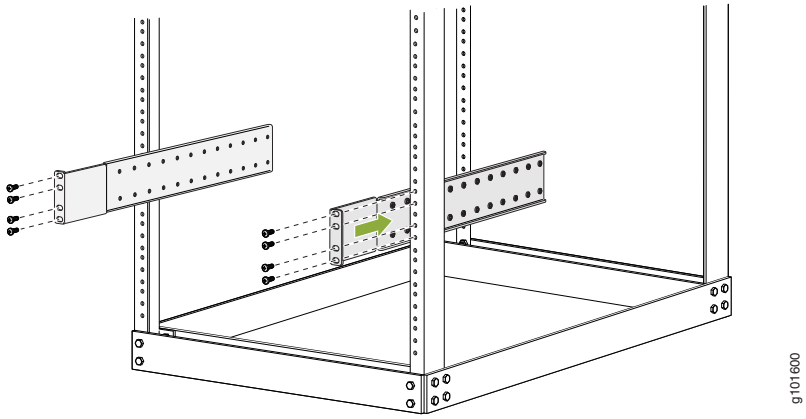
Before you start the installation, be sure to review the PTX10016 Site Preparation Overview, General Safety Guidelines and Warnings, and PTX10016 Chassis Lifting Guidelines. You must install the PTX10016 router in a restricted-access location.

Let's get going and start the installation!

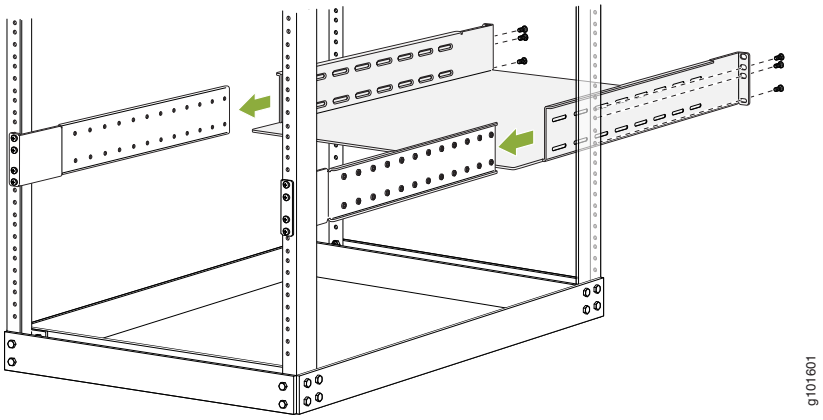
1. Wrap and fasten one end of the ESD grounding strap around your bare wrist, and connect the other end to a site ESD point.

   CAUTION: If you're mounting multiple units on a rack, mount the heaviest unit at the bottom of the rack and mount the other units from the bottom of the rack to the top in decreasing order of the weight of the units.

2. Attach the mounting blades to the front rack posts by using eight rack mount screws appropriate for your rack and a screwdriver.

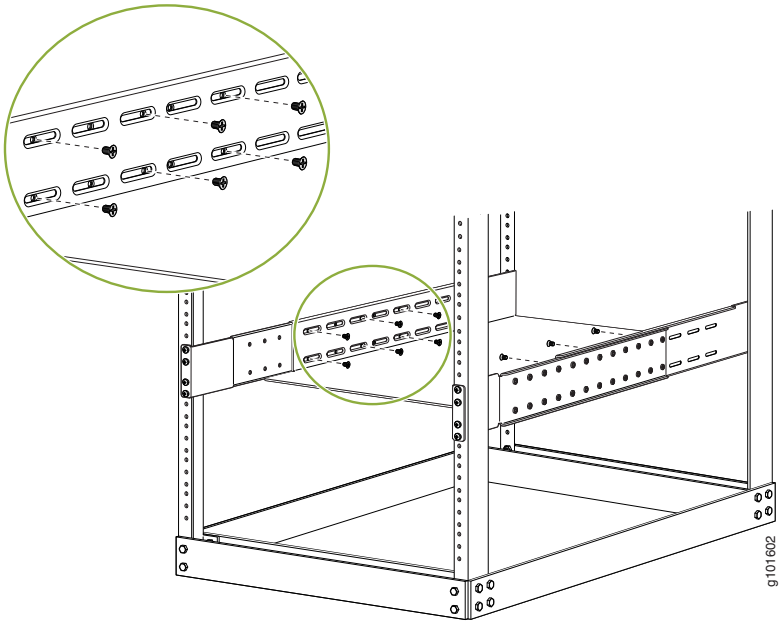


3. From the rear of the rack, slide the mounting tray into the rear posts of the rack such that the mounting blades slide into the grooves on the mounting tray. Attach the tray to the rear rack posts by using six rack mount screws appropriate for your rack and a screwdriver.



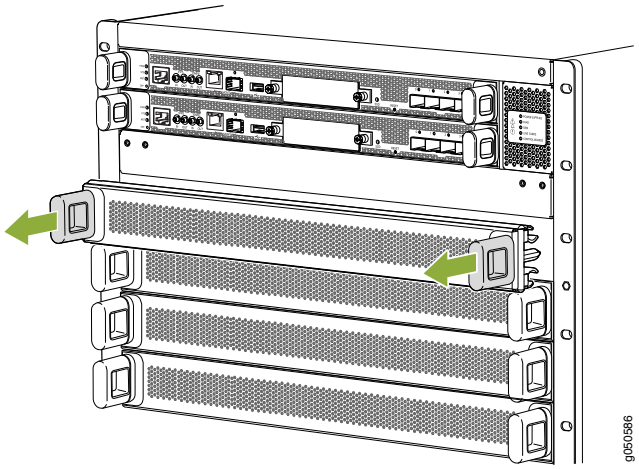
4. Check that the mounting tray is level.

5. Attach the mounting blades to the tray with the 12 Phillips 8-32 x .375 in. flat-head screws.

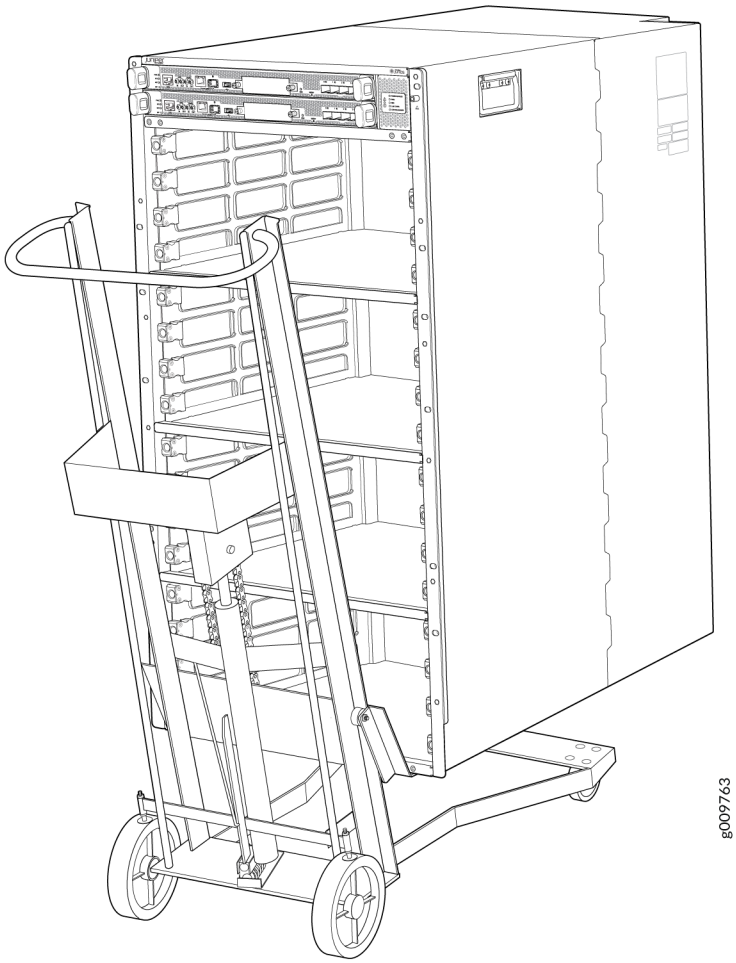


CAUTION: Install line cards and other components in the chassis only after you mount the chassis securely.

6. Remove the line card slot covers by grasping the handles and pulling the covers straight out. Store the covers.



7. Load the router onto the lift, making sure it rests securely on the lift platform.

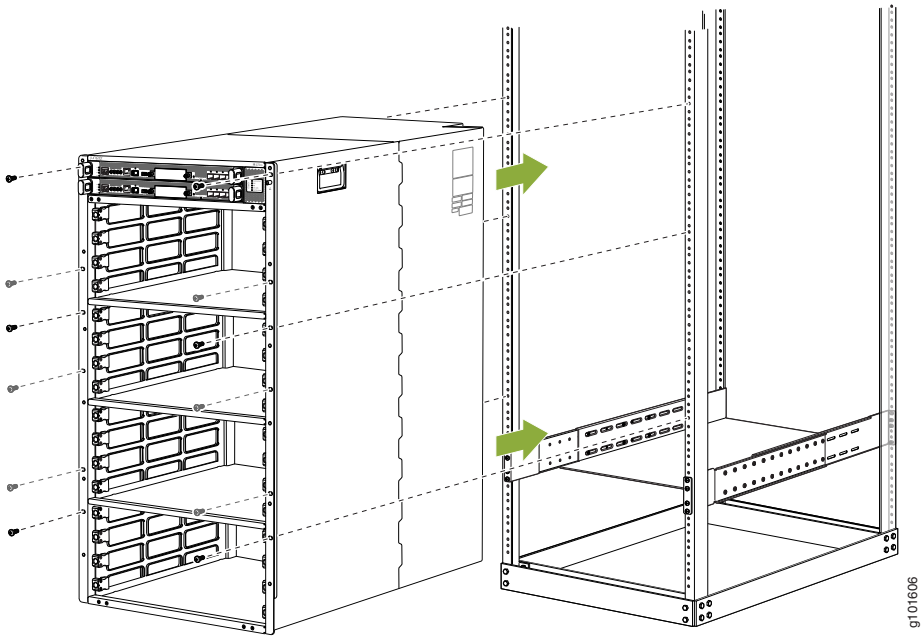


8. Using the lift, align the router in front of the rack, centering it in front of the mounting tray.

9. Lift the chassis approximately 0.75 in. (1.9 cm) above the surface of the mounting tray. Align the chassis as close as possible to the mounting tray.

10. Carefully slide the chassis onto the mounting tray until the chassis flanges contact the rack rails. The mounting blades ensure that the holes in the chassis flanges line up with the holes in the rack rails.

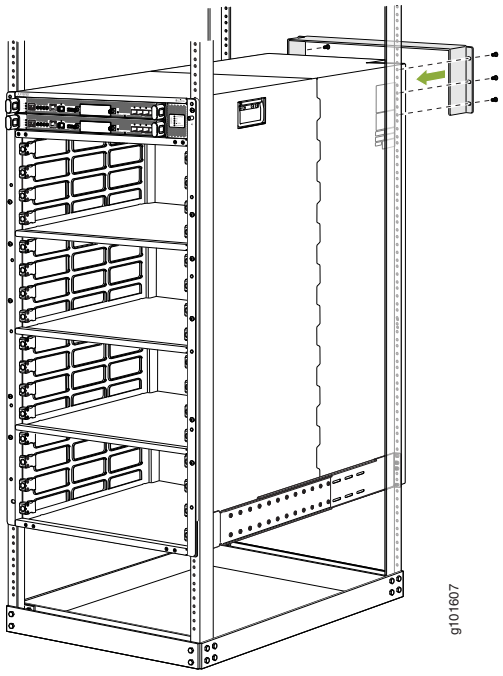
11. Attach the chassis to the rack by installing 12 rack mount screws through each open flange hole and rack hole.



12. Move the lift away from the rack.

13. Check the alignment of the router. The mounting screws on each side of the rack should line up, and the router should be level. Tighten the screws.

14. Insert the safety restraint between the rear posts of the rack. It should rest on the top of the chassis and align with the holes in the rack.



15. Attach the restraint to the rack by installing six rack mount screws through each open flange hole and rack hole. Tighten the screws.

Power On

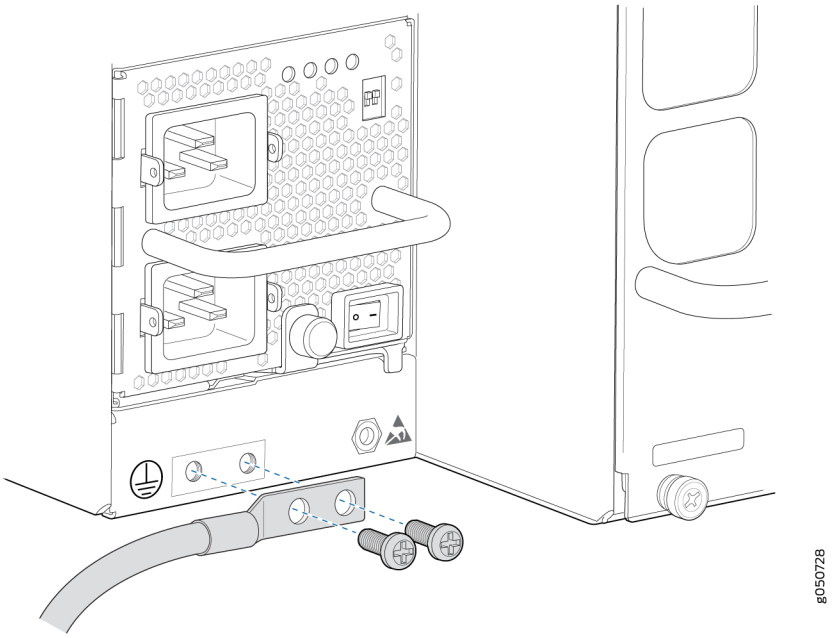
Now that you've installed your PTX10016 in the rack, you're ready to connect it to power.

1. Wrap and fasten one end of the ESD grounding strap around your bare wrist, and connect the other end of the strap to a site ESD point.

2. Connect one end of the grounding cable to a proper earth ground, such as the rack.

3. Remove the two screws over the two-hole protective earthing terminal at the rear of the chassis.

4. Place the grounding lug attached to the grounding cable over the two-hole protective earthing terminal.



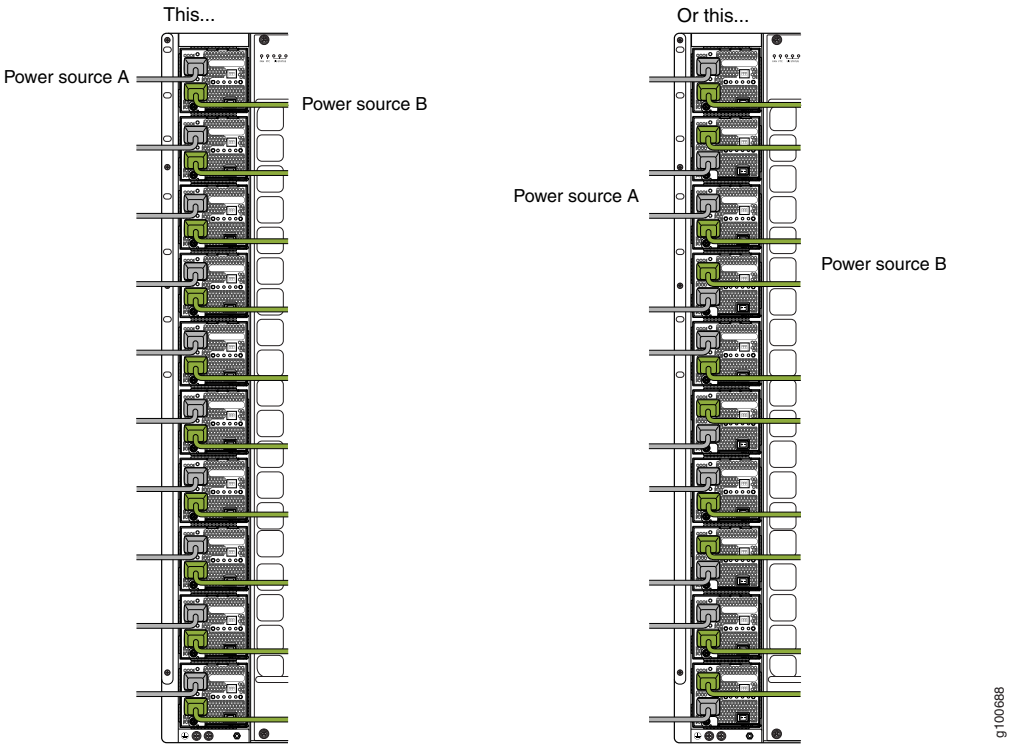
5. Secure the grounding lug to the protective earthing terminal using the screws you removed in step 3.

6. Dress the grounding cable. Be sure that the cable doesn't block access to or touch other device components, and that it doesn't drape where people could trip over it.

7. Ensure that the power supplies are fully inserted into the chassis.

8. If the AC power source outlet has a power switch, turn it off.

9. Attach each power cable to a dedicated power source (A and B). Each power supply must be connected to a separate power source.



10. Insert the Anderson connector at the end of each power cord into the power supply. The connector snaps and locks the cord into position.

11. If the AC power source outlet has a power switch, turn it on.

12. Set the three DIP switches on the power supply to indicate the number of input sources and to indicate high or low power. Set both enable switches to the **On** position when using both power source inputs. When not using source redundancy, set the unused source to the off (**O**) position. The LED turns red and indicates an error if a source input is not in use and the enable switch is on (|).

Switch	State	Description
1	On	INP0 is present.
	Off	INP0 is not present.
2	On	INP1 is present.
	Off	INP1 is not present.
3	On	Enabled for 30-A feed; 5000 W for single feed, 5500 W for dual feeds.
	Off	Enabled for 20-A feed; power supply capacity is 3000 W.

13. Verify that the **INP1** and **INP2** LEDs on the power supply faceplate are lit and are on steadily.

14. Press the power switch to the on (|) position.

Step 2: Up and Running

IN THIS SECTION

- Junos Operating Systems | **12**
- Plug and Play | **12**
- Customize the Basic Configuration | **13**

Now that the PTX10016 is powered on, let's do some initial configuration to get it up and running on the network. It's simple to configure and manage the PTX10016 by using the CLI.

Junos Operating Systems

Depending on the type of SIBs installed on your PTX10016 (JNP10016-SF or JNP10016-SF3), you'll use either Junos OS or Junos OS Evolved to configure your router.

Junos OS is the network operating system that powers our broad portfolio of physical and virtual networking and security products. Built for reliability, security, and flexibility, Junos OS reduces the time and effort required to plan, deploy, and operate network infrastructure.

With Junos OS Evolved, you can enable higher availability, accelerate your deployments, innovate rapidly, and operate your network more efficiently. We've aligned Junos OS Evolved with Junos OS so that you can seamlessly continue to manage and automate your network.

Plug and Play

The PTX10016 router ships with factory-default settings that enable plug-and-play operation. These settings load as soon as you power on the router.

Customize the Basic Configuration

You can easily customize the factory-default configuration with just a few commands. When you commit changes to the configuration, a new configuration file is created. This becomes the active configuration. You can always revert to the factory-default configuration whenever you want.

Have the following information ready before you begin customizing the router:

- Password you'll set for the root user
- Name on the system that the PTX10016 will be known as (host name)
- IP address and prefix of the default gateway router
- IP address and prefix length information for the Ethernet interface
- IP address and prefix length of remote prefixes

1. Verify that the serial port settings for your laptop or desktop PC are set to the default values:
   - Baud Rate—9600
   - Data—8
   - Flow Control—None
   - Parity—None
   - Stop Bits—1
   - DCD State—Disregard
2. Connect the console port (labeled **CONSOLE** or **CON**) on the RCB on the PTX10016 router to a serial port on your laptop or desktop PC using the Ethernet cable and RJ-45 to DB-9 adapter. If your laptop or desktop PC doesn't have a serial port, use a serial-to-USB adapter (not provided).
3. At the login prompt, type **root** to log in. You don't need to enter a password. If the software boots before you connect your laptop or desktop PC to the console port, you might need to press the Enter key for the prompt to appear.

   ```
   login: root
   ```

4. Start the CLI.

   ```
   root@% cli
   ```

5. Enter configuration mode.

   ```
   root> configure
   [edit]
   root@#
   ```

6. Add a password to the root administration user account. Enter a plain-text password, an encrypted password, or an SSH public key string. In this example, we show you how to enter a plain-text password.

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

7. Configure the default gateway.

   - For Junos OS:

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

   - For Junos OS Evolved:

```
[edit]
root@# set system management-instance
root@# set routing-instances mgmt_junos routing-optins static route prefix/prefix-length next-hop default-gateway-ip-address
```

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

   - For Junos OS:

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

   - For Junos OS Evolved:

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

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

NOTE: The management port (labeled **MGMT**) is on the RCB on the PTX10016 router.

9. Configure the SSH service.

```
[edit]
```

```
root@# set system services ssh root-login allow
```

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

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

11. When you've finished configuring the router, exit configuration mode.

```
[edit]
root@# exit
root>
```

Step 3: Keep Going

IN THIS SECTION

- What's Next? | 15
- General Information | 16
- Learn With Videos | 16

Congratulations! Your PTX10016 is configured and ready to go. Here are some things you can do next.

What's Next?

If you want to	Do this
Change configuration settings, get another device up and running, or both, install RCBs, SIBs, fan trays, fan tray controllers, and power supplies	See the PTX10016 Packet Transport Router Hardware Guide
Manage software upgrades on your PTX10016	See Junos OS Software Installation and Upgrade Guide and Junos OS Evolved Software Installation and Upgrade Guide

If you want to	Do this
See, automate, and protect your network with Juniper Security	Visit the Security Design Center

General Information

If you want to	Do this
Download, activate, and manage your software licenses to unlock additional features for your PTX series router	See Activate Junos OS Licenses in the Juniper Licensing Guide
See all documentation available for the PTX10016	Visit the PTX10016 Documentation for Junos OS or PTX10016 Documentation for Junos OS Evolved page in the Juniper TechLibrary
Configure the PTX10016 with the Junos OS or Junos OS Evolved CLI	Start with the Day One+ for Junos OS guide or the Day One+ for Junos OS Evolved
Stay up-to-date on new and changed features and known and resolved issues	See the Junos OS Release Notes and Junos OS Evolved Release Notes

Learn With Videos

Our video library continues to grow! We've created many, many videos that demonstrate how to do everything from installing your hardware to configuring advanced Junos OS network features. Here are some great video and training resources that will help you expand your knowledge of Junos OS.

If you want to	Then
View a Web-based training video which provides an overview of the PTX10016 and describes how to install and configure it	PTX10016 Modular Packet Transport Router Overview and Deployment (WBT)
Get short and concise tips and instructions that provide quick answers, clarity, and insight into specific features and functions of Juniper technologies	See Learning with Juniper on Juniper Networks main YouTube page
View a list of the many free technical trainings we offer at Juniper	Visit the Getting Started page on the Juniper Learning Portal

Juniper Networks, the Juniper Networks logo, Juniper, and Junos are registered trademarks of Juniper Networks, Inc. in the United States and other countries. All other trademarks, service marks, registered marks, or registered service marks are the property of their respective owners. Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice. Copyright © 2021 Juniper Networks, Inc. All rights reserved. Rev. 01, December 2021.