



# Juniper NETWORKS ACX7024 Cloud Metro Router User Guide

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## Juniper NETWORKS ACX7024 Cloud Metro Router



## Product Information

### Specifications

- **Model:** ACX7024
- **Power Supply:** DC
- **Factory Default Settings:** Plug-and-play operation

# Product Usage Instructions

## Step 1: Begin

### Meet the ACX7024

The ACX7024 is a router that supports DC power supplies. Before installing the router, make sure to review the General Safety Guidelines and Warnings.

### Install the ACX7024

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. Position the router in front of the rack. The mounting brackets are preinstalled on the ACX7024 router.
3. Lift the ACX7024 router and position it in the rack. Line up the bottom hole in each mounting bracket with a hole in each rack rail, making sure the ACX7024 router is level.
4. Secure the chassis to the rack using the rack mount screws (not provided). Tighten the screws on the bottom first, then tighten the screws on the top.
5. Check to see that the mounting screws on each side of the rack are lined up and the router is level.

### Power On

#### To connect the ACX7024 to power:

1. Dress the grounding cable and verify that it doesn't touch or block access to router components or drape where people could trip over it.
2. Ensure that the power supplies are fully inserted in the chassis.
3. Verify that the DC power cables are correctly labeled before making connections to the power supply module.  
In a
4. Connect each power supply module to the DC power sources.
5. Replace the terminal block cover. Apply 0.5 N-m of torque to the screws.
6. Close the input circuit breaker. NOTE: The switch powers on as soon as you connect it to power.

## Step 2: Up and Running

### Customize the Basic Configuration

Now that the ACX7024 is powered on, you can customize its basic configuration:

1. If your laptop or desktop PC doesn't have a serial port, use a serial-to-USB adapter (not provided).
2. At the Junos OS Evolved 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.

### FAQ

**Q: What power supply does the ACX7024 support?**

**A:** The ACX7024 supports DC power supplies that are pre-installed at the factory.

**Q: How do I install the ACX7024 in a rack?**

**A:** To install the ACX7024 in a rack, follow these steps:

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. Position the router in front of the rack. The mounting brackets are preinstalled on the ACX7024 router.
3. Lift the ACX7024 router and position it in the rack. Line up the bottom hole in each mounting bracket with a hole in each rack rail, making sure the ACX7024 router is level.
4. Secure the chassis to the rack using the rack mount screws (not provided). Tighten the screws on the bottom first, then tighten the screws on the top.
5. Check to see that the mounting screws on each side of the rack are lined up and the router is level.

## **Quick Start**

### **ACX7024 Quick Start**

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#### **Step 1: Begin**

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In this guide, we provide a simple, three-step path, to quickly get you up and running with your new Juniper Networks® ACX7024 Cloud Metro Router. We've simplified and shortened the installation and configuration steps to make it easy for you to install a DC-powered ACX7024 in a rack, power it up, and configure basic settings. For instructions on installing AC-powered ACX7024, see the [ACX7024 Hardware Guide](#).

#### **Meet the ACX7024**



The ACX7024 Cloud Metro Router is a high-performance access router that addresses the growing demands of metro applications. With a compact 1-U form factor, temperature-hardened design, and advanced timing features, the ACX7024 is well suited to support Ethernet business services, residential access, and 5G mobile deployments. The ACX7024 provides 1GbE to 100GbE port flexibility and a switching capacity of 360 Gbps. It runs Junos OS Evolved and provides several capabilities that include support for the latest protocol and traffic engineering technologies, enhanced security, and precision timing for mobile backhaul applications. You can onboard and manage an ACX7024 router by using either the Junos OS Evolved CLI or Paragon Automation.

## **Install the ACX7024**

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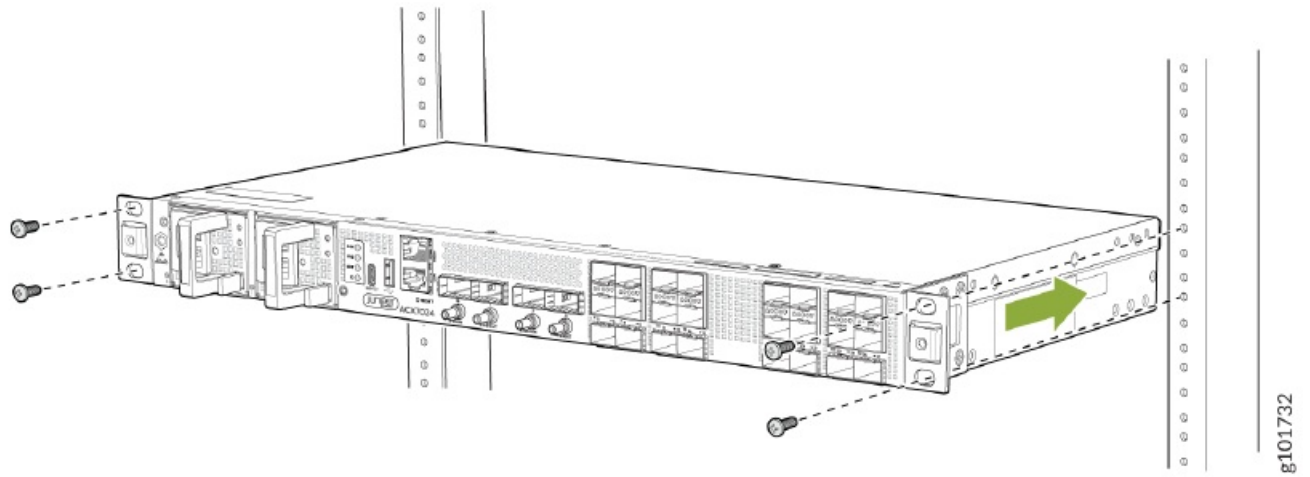
### **Along with your ACX7024 router, you'll also find :**

- Documentation roadmap card
- Two-post rack mounting brackets that are preinstalled on the router
- Two #10-32 grounding screws to secure the grounding lug
- An LCD6 2-hole grounding lug

### **What Else Do I Need?**

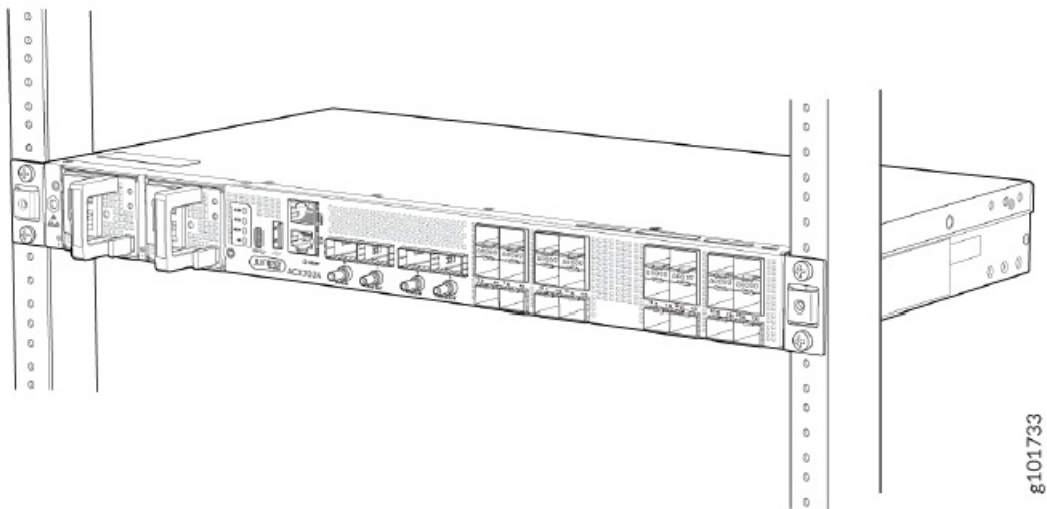
- Someone to help you secure the router to the rack
- An electrostatic discharge (ESD) grounding wrist strap
- Four rack mount screws appropriate for your rack to secure the router to the rack 2
- A #2 Phillips (+) screwdriver
- A management host such as a laptop or desktop PC
- A serial-to-USB adapter (if your laptop or desktop PC doesn't have a serial port)
- A grounding cable: 6 AWG, 90°C stranded copper wire
- A 12 AWG and 75°C temperature-rated or 14 AWG and 90°C temperature-rated stranded copper wire to connect the DC source to the router.
- A customer-site 2-pole circuit breaker rated for 30A and 80V, or as required by local electrical code.

## **Rack It**



Before you start the installation, be sure to review the General Safety Guidelines and Warnings. Here's how to install the ACX7024 in a two-post rack:

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. Position the router in front of the rack. The mounting brackets are preinstalled on the ACX7024 router.
3. Lift the ACX7024 router and position it in the rack. Line up the bottom hole in each mounting bracket with a hole in each rack rail, making sure the ACX7024 router is level.



4. Secure the chassis to the rack using the rack mount screws (not provided). Tighten the screws on the bottom first, then tighten the screws on the top.
5. Check to see that the mounting screws on each side of the rack are lined up and the router is level. 3

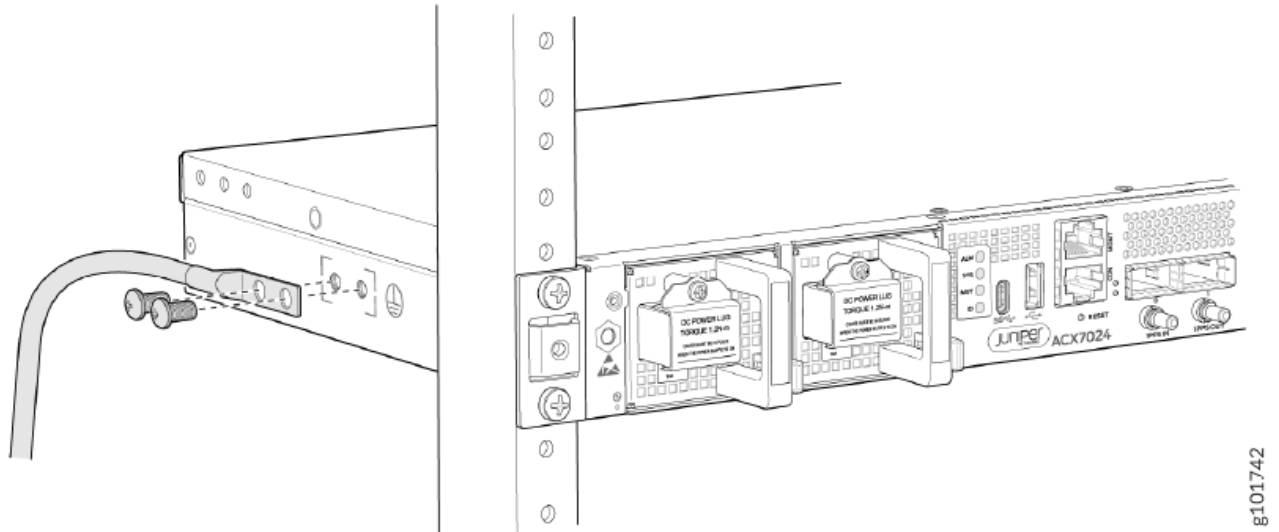
## Power On

Now that you've installed your ACX7024 in the rack, let's connect it to power. The ACX7024 supports DC power supplies that are pre-installed at the factory.

**CAUTION:** The connection between each power source and power supply module must include a circuit breaker. We recommend that you use a customer-site 2-pole circuit breaker rated for 30A and 80V, or as required by local electrical code. Do not connect two sources to a single power supply module because doing so can potentially cause circulating current in feed wires whenever there is any difference in the voltage of the two sources.

The ACX7024 router operates with a DC power supply module that has a single, non-redundant, feed input. For source redundancy, you'll need to install two DC power supplies in the ACX7024. Connect source (A) to one power supply module and source (B) to the second power supply module. This configuration provides the commonly deployed A/B feed redundancy for the system.

To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, you'll need to properly ground the router before connecting it to power. Have a licensed electrician attach the cable lug to the grounding cable.



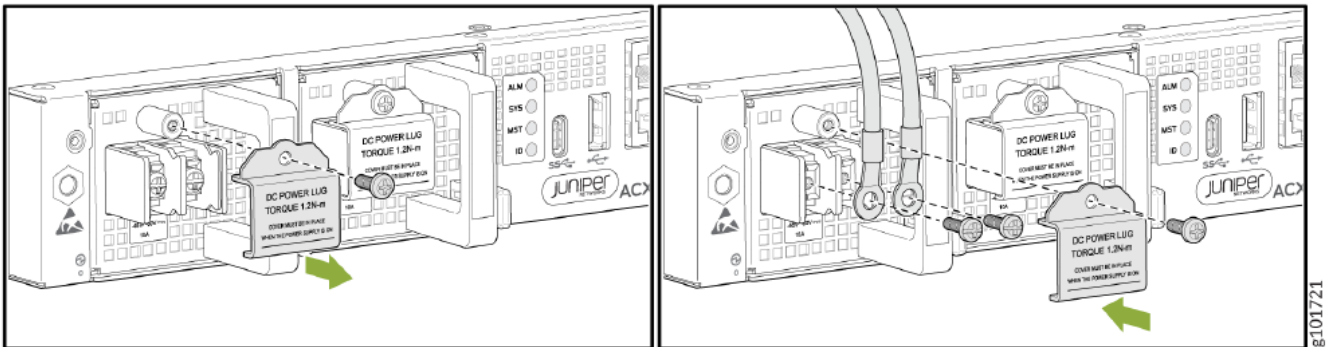
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1. Wrap and fasten one end of the ESD grounding strap around your bare wrist, and connect the other end of the strap to a site ESD point.
2. Connect the grounding cable to a proper earth ground.
3. Place the grounding cable lug over the grounding points on the side of the chassis, and secure it with the grounding screws. Apply 2.5 N-m of torque to the grounding screws.
4. Dress the grounding cable and verify that it doesn't touch or block access to router components, or drape where people could trip over it.
5. Ensure that the power supplies are fully inserted in the chassis.
6. Verify that the DC power cables are correctly labeled before making connections to the power supply module.  
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:
7. The cable with very low resistance (indicating a closed circuit) to chassis ground is positive (+). You install this cable on the V+ (return) DC power input terminal.
8. The cable with very high resistance (indicating an open circuit) to chassis ground is negative (–). You install this cable on the V– (input) DC power input terminal.
  1. **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. The color coding used by the external DC power source at your site determines the color coding for the leads on the power cables that attach to the DC power input terminals on each power supply module.
9. Ensure that the input circuit breaker is open so that the voltage across the DC power source cable leads is 0 V and that the cable leads do not become active while you are connecting DC power.
10. Remove the terminal block cover.

11. Remove the screws on the terminals by using the screwdriver. Save the screws.

- **WARNING:** Ensure that the power cables do not block access to device components or drape where people can trip over them.
- Connect each power supply module to the DC power sources:
- **NOTE:** To connect the DC source to an ACX7024 router, use a 12 AWG and 75°C temperature-rated or 14 AWG and 90°C temperature-rated stranded copper wire. To connect the DC power source to an ACX7024 in a data center or a central office, use a 14 AWG DC wire.
- **a.** Secure the ring lug of the positive (+) DC power source cable to the RTN (return) terminal on the DC power supply module using one of the terminal screws.
- **b.** Secure the ring lug of the negative (–) DC power source cable to the –48V (input) terminal on the DC power supply module using the other terminal screw.
- **c.** Tighten the screws on the power supply module terminals until snug using the Phillips number 2 screwdriver. Do not overtighten—apply 1.2 N-m of torque to the screws.
- **NOTE:** After the input DC wires are crimped to the wiring lugs, cover the lugs and crimped area with a suitable heat shrink sleeve to avoid exposed bare lug or crimped areas.

12.



Replace the terminal block cover. Apply 0.5 N-m of torque to the screws.

13. Close the input circuit breaker.

**NOTE:** The switch powers on as soon as you connect it to power.

## Step 2: Up and Running

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Now that the ACX7024 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 ACX7024 using the CLI. You can also onboard and manage the ACX7024 by using Paragon Automation. To onboard this device using Paragon Automation, see [Onboard Cloud-Ready Devices with Paragon Automation](#)..

## Plug and Play

The ACX7024 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. Initially, you'll need to make changes through the console port. After you configure the management port, you can access the ACX7024 using SSH and make additional configuration changes. You can always revert to the factory-default configuration whenever you want.

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

## Hostname

- Root authentication password
  - Management port IP address
  - Default gateway IP address
  - IP address and prefix length of remote prefixes
  - (Optional) SNMP read community, location, and contact information
1. Verify that the following default serial port settings are configured on your laptop or desktop PC:
    - Baud Rate—9600
    - Flow Control—None
    - Data—8
    - Parity—None
    - Stop Bits—1
    - DCD State—Disregard
  2. Connect the console port on the ACX7024 to a laptop or desktop PC using the RJ-45 cable and RJ-45 to DB-9 adapter. The console (CON) port is the lower RJ-45 port on the left side of the port panel.
    - **OTE:** If your laptop or desktop PC doesn't have a serial port, use a serial-to-USB adapter (not provided).
  3. At the Junos OS Evolved 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. re0 login: root
  4. Start the CLI.
    - [vrf:none] root@re0:~# cli
  5. Enter configuration mode.
    - root@re0> configure
  6. Stop the chassis auto-upgrade process.
    - [edit]
    - root@re0# delete chassis auto-image-upgrade
  7. Stop zero-touch provisioning (ZTP).
    - [edit]
    - root@re0# delete system commit factory-settings
    - **NOTE:** ZTP is enabled on the ACX7024 in the factory-default configuration. You must stop ZTP before you configure any settings. Until you assign a root password and make an initial commit, you might see ZTPrelated messages on the console. You can safely ignore these messages while you configure the root password.
  8. Add a password for the root administration user account.
    - [edit]
    - root@re0# set system root-authentication plain-text-password



- New password: password
  - Retype new password: password
9. Commit the configuration, and wait for the ZTP process to stop.
- [edit]
  - root@re0# commit
- A message appears on the console, confirming that the ZTP process has stopped.
- [edit]
  - root@# [ 511.430877] ztp.py[13237]: 2021-03-04 05:28:00 INFO: ZTP:(et-0/2/7) DHCP request timed out
  - [ 511.432804] ztp.py[13237]: 2021-03-04 05:28:00 INFO: ZTP: checkZTPAbort: Upgrade detected pending abort
  - [ 511.433586] ztp.py[13237]: 2021-03-04 05:28:00 INFO: ZTP: notifier loop user requested ZTP abort
  - [ 511.485370] ztp.py[13237]: 2021-03-04 05:28:00 INFO: ZTP: exiting
  - [ 511.580800] ztp.py[31898]: Notice: PID found for app ztp in /var/run/pid/ztp.pid is 13237.Executing command: (/usr/sbin/cleanzk -c /var/run/zkid/13237.id;rm /var/run/zkid/13237.id)
  - [ 512.614206] ztp.py[31898]: rm: cannot remove '/var/run/zkid/13237.id': No such file or directory
10. (Optional) Give the router a name. If the name includes spaces, enclose the name in quotation marks (" ").
- [edit]
  - root@re0# set system host-name host-name
11. Configure the default gateway.
- [edit]
  - root@re0# set routing-options static route 0.0.0.0/0 next-hop destination-ip
12. Configure the IP address and prefix length for the management port on the router. On the ACX7024, the management port (MGMT) is the upper RJ-45 port on the left side of the port panel.
- [edit]
  - root@re0# set interfaces re0:mgmt-0 unit 0 family inet address address/prefix-length
13. (Optional) Configure specific static routes to remote prefixes if you do not want the remote prefixes to use the default route.
- [edit]
  - root@re0# set routing-options static route address/prefix-length next-hop destination-ip
14. Enable Telnet service, if required.
- [edit]
  - root@re0# set system services telnet
  - **NOTE:** When Telnet is enabled, you cannot log in to the ACX7024 using root credentials. Root login is allowed only for SSH access.
15. Enable SSH service.
- [edit]
  - root@re0# set system services ssh
16. To allow users to log in to the router as root through SSH, include the root-login statement.
- [edit system services ssh]
  - root@re0# root-login (allow)
  - **NOTE:** By default, users are not allowed to log in to the router as root through SSH.
17. Commit the configuration.
- Your changes become the active configuration for the router.

- [edit]
- root@re0# commit

### Step 3: Keep Going

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Congratulations! You've completed the initial steps to get your ACX7024 up and running. Let's keep going and learn more about what you can do with the ACX7024.

#### What's Next

If you want to	Then
Configure the ACX7024 with the Junos OS Evolved CLI	Start with the <a href="#">Day One+ for Junos OS Evolved</a> guide
Install and upgrade Junos OS Evolved and related software	See <a href="#">Junos OS Evolved Software Installation and Upgrade Guide</a>
Activate, and manage your software licenses to unlock additional features for your ACX7024 router	See <a href="#">Activate Junos OS Licenses</a>
Configure, monitor, and troubleshoot various interfaces on the ACX7024	See <a href="#">Ethernet Interfaces User Guide for Routing Devices</a>
Configure essential user access and authentication features for your system	See <a href="#">User Access and Authentication Administration Guide for Junos OS Evolved</a>

Now that you've done the initial configuration, here are some things you might want to do next.

#### General Information

If you want to	Then
See all documentation available for the ACX7024	See the <a href="#">ACX7024</a> Documentation in the Juniper Networks TechLibrary
Stay up-to-date about new and changed features, and known and resolved issues	<a href="#">Junos OS Evolved Release Notes</a>

## Learn With Videos


If you want to	Then
Get short and concise tips and instructions that provide quick answers, clarity, and insight into specific features and functions of Juniper technologies	See <a href="#">Learning with Juniper</a> on Juniper Networks main YouTube page
Learn how to install and configure your Juniper Networks devices	Check out our free Web-based training videos at <a href="#">Hardware Installation and Configuration Videos</a>
View a list of the many free technical trainings we offer at Juniper	Visit the <a href="#">Getting Started</a> page on the Juniper Learning Portal

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

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## Documents / Resources

	<p><b><a href="#">Juniper NETWORKS ACX7024 Cloud Metro Router</a></b> [pdf] User Guide</p> <p>ACX7024 Cloud Metro Router, ACX7024, Cloud Metro Router, Metro Router, Router</p>
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## References

- [J Get Started with Free Juniper Training](#)
- [J Juniper Learning Portal - Home](#)
- [J ACX7024 and ACX7024X Documentation | Juniper Networks](#)
- [J Junos OS Evolved Documentation | Juniper Networks](#)
- [J Junos OS Evolved - TechLibrary - Juniper Networks](#)
- [J ACX7024 and ACX7024X Cloud Metro Router Hardware Guide | Juniper Networks](#)
- [J General Safety Guidelines and Warnings | Juniper Networks](#)
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- [J Ethernet Interfaces User Guide for Routing Devices | Junos OS | Juniper Networks](#)
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