M120 Multiservice Edge Router
Quick Start

This document describes how to install the Juniper Networks® M120 Multiservice Edge Router.

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M120 Quick Start Description

This Quick Start contains information you need to install and configure the router quickly. For complete installation instructions, see the M120 Multiservice Edge Router Hardware Guide at http://www.juniper.net/techpubs/.

WARNING: This Quick Start contains a summary of safety warnings in “Safety Warnings” on page 24. For a complete list of warnings for this router, including translations, see the M120 Multiservice Edge Router Hardware Guide at http://www.juniper.net/techpubs/.

The router is shipped in a cardboard box strapped securely to a wood pallet. Plastic straps secure the top and bottom in place. The router chassis is bolted to this pallet. Quick Start installation instructions and a cardboard accessory box are also included in the shipping container.
Step 1: Prepare the Site for M120 Installation

- M120 Rack-Mounting Requirements on page 4
- Tools Required to Unpack and Prepare the M120 Router for Installation on page 5

M120 Rack-Mounting Requirements

- You can install the router in a four-post rack or cabinet or an open-frame rack.

- The rack rails must be spaced widely enough to accommodate the router chassis's external dimensions: 20.75 in. (52.71 cm) high, 24.3 in. (61.7 cm) deep, and 17.43 in. (44.3 cm) wide. The outer edges of the mounting brackets extend the width to 19 in. (48.3 cm).

- The rack must be strong enough to support the weight of the fully configured router, up to 225 lb (102.1 kg). If you stack four fully configured routers in one rack, it must be capable of supporting about 900 lb (408.4 kg).

- For service personnel to remove and install hardware components, there must be adequate space at the front and back of the router. Allow at least 24 in. (61.0 cm) both in front of and behind the router.

- The rack or cabinet must have an adequate supply of cooling air.

- Ensure that the cabinet allows the chassis hot exhaust air to exit from the cabinet without recirculating into the router.

- The router must be installed into a rack that is secured to the building structure.

- The router should be mounted at the bottom of the rack if it is the only unit in the rack.

- When mounting the router in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
Tools Required to Unpack and Prepare the M120 Router for Installation

To unpack the router and prepare for installation, you need the following tools:

- A mechanical lift—recommended
- Phillips (+) screwdrivers, numbers 1 and 2
- 2.5 mm flat-blade (−) screwdriver
- 3/8-in. nut driver
- 1/2-in. or 13-mm open-end or socket wrench to remove bracket bolts from the shipping pallet
- Electrostatic discharge wrist strap
- Antistatic mat
Step 2: Install the Mounting Hardware

To install the mounting hardware in a four-post rack or cabinet or an open-frame rack, perform one of the following procedures:

- Install the Mounting Hardware in a Four-Post Rack or Cabinet on page 6
- Install the Mounting Hardware in an Open-Frame Rack or Cabinet on page 8

Install the Mounting Hardware in a Four-Post Rack or Cabinet

To install the mounting shelves and spacer bars:

1. On the front rack rails, install cage nuts in the holes specified in the M120 Multiservice Edge Router Hardware Guide for the large shelf and the spacer bars.
2. On the front of each front rack rail, partially insert a mounting screw into the hole containing the lowest cage nut.
3. Install the large shelf on the front rack rails. Rest the bottom slot of each ear on a mounting screw.
4. Partially insert a mounting screw into the top hole in each ear of the large shelf.
5. Tighten all the screws completely.
6. The router is shipped with each spacer bar attached to the rear of each front-mounting flange. Remove each spacer bar by removing the five screws that fasten the spacer bar to the front-mounting flange.

7. Place one of the spacer bars over an ear of the installed large shelf. Position the spacer bar so that its lower edge is just above the installed screw holding the large shelf.

8. Insert a mounting screw into each of the nonthreaded holes in the recesses of the spacer bar to secure the spacer bar. Each hole should have a cage nut behind it.

9. Repeat Steps 7 and 8 for the other spacer bar.

10. Tighten all the screws completely.

11. On the rear rack rails, install cage nuts, if necessary.

12. On the back of each rear rack rail, partially insert a mounting screw into the hole containing the lowest cage nut.

13. Install the small shelf on the back rack rails. Rest the bottom slot of each ear on a mounting screw. The small shelf installs on the back of the rear rails, extending toward the center of the rack. The bottom of the small shelf should align with the bottom of the large shelf.

14. Partially insert screws into the open holes in the ears of the small shelf.

15. Tighten all the screws completely.

Figure 3: Mount Hardware for an Open-Frame Rack
Install the Mounting Hardware in an Open-Frame Rack or Cabinet

To install the mounting shelves:

1. On the rear of each rack rail, partially insert a mounting screw into the highest hole specified in the M120 Multiservice Edge Router Hardware Guide for the large shelf.

2. Install the large shelf on the rack. Hang the shelf over the mounting screws using the keyhole slots located near the top of the large shelf flanges.

3. Partially insert screws into the open holes in the ears of the large shelf.

4. Tighten all the screws completely.
Step 3: Install the M120 Router

Because of the router’s size and weight, we recommend you install the router using a mechanical lift. The procedure for installing the router depends on whether you use a mechanical lift:

- Install the M120 Router Using a Lift on page 9
- Install the M120 Router Without a Mechanical Lift on page 10

Install the M120 Router Using a Lift

Figure 4: Load the Router onto the Lift
1. Ensure the rack is 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 the M120 Multiservice Edge Router Hardware Guide.

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

3. Using the lift, position the router in front of the rack or cabinet, centering it in front of the mounting shelves.

4. Lift the chassis approximately 0.75 in. above the surface of the mounting shelves and position it as close as possible to the shelves.

5. Carefully slide the router onto the mounting shelves so that the bottom of the chassis and the mounting shelves overlap by approximately two inches.

6. Slide the router onto the mounting shelves until the mounting brackets or front-mounting flanges contact the rack rails or spacer bars (depending on your type of installation). The shelves ensure that the holes in the mounting brackets and the front-mounting flanges of the chassis align with the holes in the rack rails.

7. Move the lift away from the rack.

8. If you are installing the router in a four-post rack or cabinet, install a mounting screw into each of the holes aligned with the threaded holes in the spacer bars. If you are installing the router in an open-frame rack, install a mounting screw into each of the open mounting holes aligned with the rack, starting from the bottom.

9. 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 should be aligned with the mounting screws on the opposite side and the router should be level.

**Install the M120 Router Without a Mechanical Lift**

To install the router without a mechanical lift:

1. **Remove Components on page 10**
2. **Lift the M120 Router into the Rack on page 12**
3. **Reinstall Components on page 13**

**Remove Components**

Before lifting the router, you must remove the following components:

- Power supplies
- Cable management system
- Forwarding Engine Boards (FEBs)
- Control Boards (CBs)
- Fan trays
- Flexible PIC Concentrators (FPCs)
- Compact Flexible PIC Concentrators (cFPCs)
To remove the components from the router:

1. Slide each component out of the chassis evenly so that it does not become stuck or damaged.
2. Label each component as you remove it so you can reinstall it in the correct location.
3. Immediately store each removed component in an electrostatic bag.
4. Do not stack removed components. Lay each one on a flat surface.

**NOTE:** For complete instructions on removing router components, see "Install the Router Without a Mechanical Lift" in the *M120 Multiservice Edge Router Hardware Guide.*

Figure 5: Components to Remove from the Router
Lift the M120 Router into the Rack

Lifting the chassis and mounting it in a rack requires three people. The empty chassis weighs approximately 110 lb (49 kg).

1. Ensure the rack is in its permanent location and is secured to the building.

2. Position the router in front of the rack or cabinet, centering it in front of the mounting shelves. Use a pallet jack if one is available.

3. With one person on each side and one person in the front, hold onto the bottom of the chassis and carefully lift it onto the large and small (if installed) mounting shelves.

4. Slide the router onto the mounting shelves until the mounting brackets or front-mounting flanges contact the rack rails or spacer bars (depending on your type of installation). The shelves ensure that the holes in the mounting brackets and the front-mounting flanges of the chassis align with the holes in the rack rails.

5. If you are installing the router in a four-post rack or cabinet, install a mounting screw into each of the holes aligned with the threaded holes in the spacer bars. If you are installing the router in an open-frame rack, install a mounting screw into each of the open mounting holes aligned with the rack, starting from the bottom.

6. 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 should be aligned with the mounting screws on the opposite side and the router should be level.
Reinstall Components

1. Slide each component into the chassis evenly so that it does not become stuck or damaged.

2. Tighten the captive screws for each component.

NOTE: Make sure that all empty slots are covered with a blank panel before operating the router.
Step 4: Connect the Grounding Cable

To ground the router:

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to an approved site ESD grounding point. See the instructions for your site.
2. Verify that a licensed electrician has attached the cable lug provided with the router to the grounding cable.
3. Make sure that grounding surfaces are clean and brought to a bright finish before grounding connections are made.
4. Connect the grounding cable to a proper earth ground.
5. Place the grounding cable lug over the grounding points on the bottom rear of the chassis. The left pair is sized for M6 bolts, and the right pair is sized for UNC 1/4-20 bolts.
6. Secure the grounding cable lug to the chassis, first with the washers, then with the bolts.
7. Verify that the grounding cabling is correct, that the grounding cable does not touch or block access to router components, and that it does not drape where people could trip on it.
Step 5: Connect External Devices and PIC Cables

To connect external devices and PIC cables, perform the following procedures:

- Connect a Management Console on page 15
- Connect to a Network for Out-of-Band Management on page 15
- Connect the PIC Cable on page 15

Connect a Management Console

1. Turn off the power to the management device.
2. Plug one end of the RJ-45 Ethernet cable into the appropriate CONSOLE or AUX port on the craft interface.
3. Plug the female DB-9 end into the device's serial port.

Connect to a Network for Out-of-Band Management

**NOTE:** Before you can use the Ethernet management port to connect to a network for out-of-band management, you must perform the initial Junos OS configuration after the router has been powered on. See “Step 8: Perform Initial Software Configuration” on page 21.

1. Turn off the power to the management device.
2. Plug one end of the RJ-45 Ethernet cable into the Ethernet management port labeled ETHERNET on the craft interface.
3. Plug the other end of the cable into the network device.

Connect the PIC Cable

1. Have ready a length of the type of cable used by the PIC. For cable specifications, see the M120 Multiservice Edge Router Interface Module Reference.
2. If the PIC cable connector port is covered by a rubber safety plug, remove the plug.

**WARNING:** Do not look directly into a fiber-optic transceiver or into the ends of fiber-optic cables. Fiber-optic transceivers and fiber-optic cable connected to a transceiver emit laser light that can damage your eyes.

**CAUTION:** Do not leave a fiber-optic transceiver uncovered except when inserting or removing cable. The safety cap keeps the port clean and prevents accidental exposure to laser light.
3. Insert the cable connector into the cable connector port on the PIC faceplate.

4. Arrange the cable in the cable management system to prevent it from dislodging or developing stress points. Secure the cable so that it is not supporting its own weight as it hangs to the floor. Place excess cable out of the way in a neatly coiled loop in the cable management system. Placing fasteners on the loop helps to maintain its shape.

CAUTION: Avoid bending fiber-optic cable beyond its minimum bend radius. An arc smaller than a few inches in diameter can damage the cable and cause problems that are difficult to diagnose.

CAUTION: Do not let fiber-optic cable hang free from the connector. Do not allow fastened loops of cable to dangle, which stresses the cable at the fastening point.

Figure 6: Connect External Devices and PIC Cables
Step 6: Connect Power to the Router

Depending on your configuration, your router uses either AC or DC power supplies. Perform the appropriate procedures for each power supply in your router.

- Connect Power to a AC-Powered M120 Router on page 17
- Connect Power to a DC-Powered M120 Router on page 18

Connect Power to a AC-Powered M120 Router

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. See the M120 Multiservice Edge Router Hardware Guide.
2. Move the power switch on the power supply faceplate to the standby position.
3. Insert the appliance coupler end of each power cord into the appliance inlet on the power supply faceplate.
4. Remove the cable restraint from the lower edge of the power supply faceplate by removing its retainer screw.
5. Wrap the cable restraint around the power cord, then slide it along the power cord to a position that enables you to reinstall it in the power supply faceplate.
6. Reinstall the cable restraint by tightening its retainer screw part of the way into the power supply faceplate.
7. Carefully pull the AC power cords through the cable restraint until you have the desired amount of slack in the power cord.
8. Tighten the cable restraint retainer screw to hold the power cords in place.
9. Insert the power cord plugs into an AC power source receptacle. Verify that the power cord does not block access to router components or drape where people could trip on it.

NOTE: Each AC power supply has two AC appliance inlets. Each power supply must be connected to a dedicated AC power feed. For 100-120 VAC, both inlets are used. For 200-240 VAC, only the top inlet is used. For information about connecting to AC power sources, see the M120 Multiservice Edge Router Hardware Guide.
Connect Power to a DC-Powered M120 Router

Table 1: DC Power System Input Voltage

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC input voltage</td>
<td>Operating range: −40.0 to −72 VDC</td>
</tr>
</tbody>
</table>

NOTE: If the input voltage from the DC power source drops below -37.5 to -39.5 VDC, the routing platform automatically shuts down. During automatic shutdown, the circuit remains active. When the input voltage returns to −43.0 to −44.00 VDC, the router automatically starts up again and the system returns to normal operation within 30 minutes. No operator intervention is required.

Figure 7: Connect DC Power Cables

1. Ensure that the voltage across the DC power source cable leads is 0 V and that there is no chance that the cable leads might become active during installation.

2. Attach the power cable lugs to the terminal studs on the power supply faceplate. Secure the power cable lugs to the terminal studs, first with the flat washer, then with the nut. Apply between 12 lb-in. (1.4 Nm) and 15 lb-in. (1.7 Nm) of torque to each nut.
   a. Attach the positive (+) DC source power cable lug to the RETURN (return) terminal.
   b. Attach the negative (−) DC source power cable lug to the −48V (input) terminal.

NOTE: For information about connecting to DC power sources, see the M120 Multiservice Edge Router Hardware Guide.

3. Loosen the captive screw on the cable restraint on the lower edge of the power supply faceplate.

4. Connect each DC power cable to the appropriate external DC power source.
NOTE: For information about connecting to external DC power sources, see the M120 Multiservice Edge Router Hardware Guide.

5. Switch on the external circuit breakers to provide voltage to the DC power source cable leads.
Step 7: Powering On the M120 Router

To power on the router:

1. Verify that the power supplies are fully inserted in the chassis and that the captive screws on their faceplates are tightened.

2. For each power supply on an AC-powered router, verify that the source power cord is securely inserted into the appliance inlet. For each power supply on a DC-powered router, verify that the source power cables are connected to the appropriate terminal: the positive (+) source cable to the return terminal (labeled RETURN) and the negative (–) source cable to the input terminal (labeled –48V).

3. Verify that an external management device is connected to one of the Routing Engine ports on the craft interface (AUX or CONSOLE).

4. Turn on the power to the external management device.

5. For the DC power supply, switch the circuit breaker on one of the power supplies to the on position (I). For the AC power supply, move the power switch to the standby position and observe the output status LED on the power supply faceplate. If the power supply is correctly installed and functioning properly, the status LED on the power supply faceplate blinks, then lights steadily approximately one minute after you switch the power supply on.

6. Repeat Step 5 for the second power supply.

**NOTE:** If any of the output status LEDs does not light steadily, repeat the power connection and power on procedures.

7. On the external management device connected to the Routing Engine, monitor the startup process to verify that the system has booted properly.
Step 8: Perform Initial Software Configuration

The M120 Multiservice Edge Router is shipped with the Junos OS preinstalled and ready to be configured when the M120 router is powered on. These procedures connect a router to the network but do not enable it to forward traffic. For complete information about enabling the router to forward traffic, including examples, see the Junos OS configuration guides.

NOTE: These procedures enable you to use the Ethernet management port labeled ETHERNET on the craft interface. For the initial configuration, use a device attached to the CONSOLE port on the craft interface.

For more information about the commands in this procedure see the Junos OS Administration Library for Routing Devices.

1. Entering Configuration Mode on page 21
2. Configuring User Accounts and Passwords on page 21
3. Configuring System Attributes on page 22
4. Committing the Configuration on page 23

Entering Configuration Mode

1. Verify that the network device is powered on.
2. Log in as the root user. There is no password.
   
   Amnesiac <ttyd0>
   login: root

3. Start the CLI.
   
   root@% cli
   root>

4. Enter configuration mode.
   
   root> configure
   Entering configuration mode.
   [edit]
   root#

Configuring User Accounts and Passwords

For information about using an encrypted password or an SSH public key string (DSA or RSA), see authentication.

1. Add a password to the root administration user account. Enter a clear-text password.
   
   [edit]
   root# set system root-authentication plain-text-password
   New password: password
   Retype new password: password
2. Create a management console user account.

    [edit]
    root# set system login user user-name authentication plain-text-password
    New Password: password
    Retype new password: password

3. Set the user account class to super-user.

    [edit]
    root@# set system login user user-name class super-user

Configuring System Attributes

For more information on configuring the backup routing and static routes, see the Junos OS Administration Library for Routing Devices.

1. 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

    NOTE: The DNS server does not use the hostname to resolve to the correct IP address. This hostname is used to display the name of the Routing Engine in the CLI. For example, this hostname shows on the command-line prompt when the user is logged on to the CLI:

    user-name@host-name>

2. Configure the IP address of the DNS server.

    [edit]
    root# set system name-server address

3. Configure the router’s domain name.

    [edit]
    root# set system domain-name domain-name

4. Configure the IP address and prefix length for the router’s management Ethernet interface.

    [edit]
    root # set interfaces fxp0 unit 0 family inet address address/prefix-length

5. Configure the IP address of a backup Routing Engine. The backup Routing Engine is used while the local router is booting and if the routing process fails to start. After the routing process starts, the backup Routing Engine address is removed from the local routing and forwarding tables.

    [edit]
    root# set system backup-router address

6. (Optional) Configure the static routes to remote subnets with access to the management Ethernet port. Access to the management Ethernet port is limited to
the local subnet. To access the management Ethernet port from a remote subnet, you must add a static route to that subnet within the routing table.

```
[edit]
root# set routing-options static route remote-subnet next-hop destination-IP retain no-readvertise
```

7. Configure the telnet service at the `[edit system services]` hierarchy level.

```
[edit]
root# set system services telnet
```

**Committing the Configuration**

1. Display the configuration to verify that it is correct.

```
[edit]
root@# show
system {
  host-name host-name;
  domain-name domain-name;
  backup-router address;
  root-authentication {
    authentication-method (password | public-key);
  }
  name-server {
    address;
  }
}
interfaces {
  fxp0 {
    unit 0 {
      family inet {
        address address/prefix-length;
      }
    }
  }
}
```

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

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

3. Optionally, configure additional properties by adding the necessary configuration statements. Then commit the changes to activate them on the router.

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

4. When you have finished configuring the router, exit configuration mode.

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

This section lists troubleshooting tips for the M120 Multiservice Edge Router.

- If an FPC is mapped to an empty FEB slot, the red alarm LED on the chassis is lit.
  - On startup, the red alarm LED is lit if an FPC slot is filled, but the corresponding FEB slot is empty.
  - The red alarm LED is lit if a FEB is removed before its connected FPCs are remapped either to another FEB or to none.

The FPC mapped to an empty FEB slot (or to a FEB that is offline) comes online, but its Physical Interface Cards (PICs) do not, and the physical interfaces on those PICs are not created.

To eliminate the red alarm LED:

1. Check the status of FEBs and determine whether each FPC is connected to an active FEB by entering the `show chassis fpc-feb-connectivity` command. By default, each FPC is associated with the FEB of the same identifying number; for example, FPC 1 is assigned to FEB 1.

2. If necessary, change the default FPC-FEB connection by using the `fpc-feb-connectivity` statement at the `[edit chassis]` hierarchy level. You can also map an FPC to `none` to specify that the FPC is not mapped to any FEB. (When an FPC is configured not to connect to any FEB, interfaces on that FPC are not created; however, no alarm is triggered.)

3. Verify that the associated physical interfaces are created by entering the `show interfaces terse` command.

For more information about configuring FPC-FEB connectivity, see the Junos OS Administration Library for Routing Devices.

Safety Warnings

**WARNING:** See installation instructions before connecting the router. This is a summary of safety warnings. For a complete list of warnings for this router, including translations, see the M120 Multiservice Edge Router Hardware Guide.

**WARNING:** The intrabuilding port(s) of the router is suitable for connection to intrabuilding or unexposed wiring or cabling only. The intrabuilding port(s) of the router MUST NOT be metalically connected to interfaces that connect to the OSP or its wiring. These interfaces are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports as described in GR-1089-CORE, Issue 4) and require isolation from the exposed OSP cabling. The addition of primary...
protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

**CAUTION:** Before removing or installing components of a router, attach an ESD strap to an ESD point and place the other end of the strap around your bare wrist. Failure to use an ESD strap could result in damage to the router.

**CAUTION:** An external Surge Protective Device (SPD) should be used at the AC input of the router.

- Only trained and qualified personnel should install or replace the router.
- Perform only the procedures described in this quick start or the M120 Multiservice Edge Router Hardware Guide. Other services should be performed by authorized service personnel only.
- Read the installation instructions before you connect the router to a power source.
- Before installing the router, read the guidelines for site preparation in the M120 Multiservice Edge Router Hardware Guide to make sure that the site meets power, environmental, and clearance requirements for the router.
- For the cooling system to function properly, the airflow around the chassis must be unrestricted. Allow at least 6 in. (15.2 cm) of clearance between side-cooled routers. Allow 2.8 in. (7 cm) between the side of the chassis and any non-heat-producing surface such as a wall.
- When installing the router, do not use a ramp inclined more than 10 degrees.
- Manually installing the router requires three to lift the chassis. Before lifting the chassis, remove components and attach the installation handle as described in the M120 Multiservice Edge Router Hardware Guide. To prevent injury, keep your back straight and lift with your legs, not your back. Do not attempt to lift the chassis by the power supply handles.
- The router should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting the router in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the router in the rack.
- When removing or installing an electrical component, always place it component-side up on a flat antistatic surface or in an electrostatic bag.
- When you install the router, always make the ground connection first and disconnect it last.
• Wire the DC power supply using the appropriate lugs. When connecting power, the proper wiring sequence is ground to ground, +RTN to +RTN, then −48 V to −48 V. When disconnecting power, the proper wiring sequence is −48 V to −48 V, +RTN to +RTN, then ground to ground. Always connect the ground wire first and disconnect it last.

• Do not work on the system 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.

• Failure to observe these safety warnings can result in serious physical injury.

• AC power cable warning (Japan):

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

Compliance Statements for NEBS

• The equipment is suitable for installation as part of the Common Bonding Network (CBN).

• The equipment is suitable for installation in locations where the National Electrical Code (NEC) applies.

• The battery return connection is to be treated as an isolated DC return (i.e. DC-I), as defined in GR-1089-CORE.

• For Juniper systems with AC power supplies, an external surge protective device (SPD) must be used at the AC power source.

Compliance Statements for EMC Requirements

• Canada on page 27
• European Community on page 27
• Israel on page 27
• Japan on page 27
• United States on page 27
Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Community

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Israel

Translation from Hebrew—Warning: This product is Class A. In residential environments, the product may cause radio interference, and in such a situation, the user may be required to take adequate measures.

Japan

Translation from Japanese—This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. VCCI-A

United States

The hardware equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Junos OS Documentation and Release Notes

For a list of related Junos OS documentation, see http://www.juniper.net/techpubs/software/junos/.
If the information in the latest release notes differs from the information in the documentation, follow the Junos OS Release Notes.

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at http://www.juniper.net/techpubs/.

**Requesting Technical Support**

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need postsales technical support, you can access our tools and resources online or open a case with JTAC.

- Product warranties—For product warranty information, visit http://www.juniper.net/support/warranty/.
- JTAC Hours of Operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

**Self-Help Online Tools and Resources**

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: http://www.juniper.net/customers/support/
- Find product documentation: http://www.juniper.net/techpubs/
- Find solutions and answer questions using our Knowledge Base: http://kb.juniper.net/
- Download the latest versions of software and review release notes: http://www.juniper.net/customers/csc/software/
- Search technical bulletins for relevant hardware and software notifications: http://kb.juniper.net/InfoCenter/
- Join and participate in the Juniper Networks Community Forum: http://www.juniper.net/company/communities/
- Open a case online in the CSC Case Management tool: http://www.juniper.net/cm/

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://tools.juniper.net/SerialNumberEntitlementSearch/

**Opening a Case with JTAC**

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at http://www.juniper.net/cm/.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, visit us at http://www.juniper.net/support/requesting-support.html

Revision History


November 2011—530-036101. Revision 1. Corporate rebranding. Updated the grounding and initial configuration procedures.

April 2007—530-021107. Revision 1. Added additional safety information and DC input voltages. Updated the connect DC power procedure.


October 2006—530-016113. Revision 1. Initial release.