



Juniper NETWORKS EX9214 Ethernet Switch User Guide

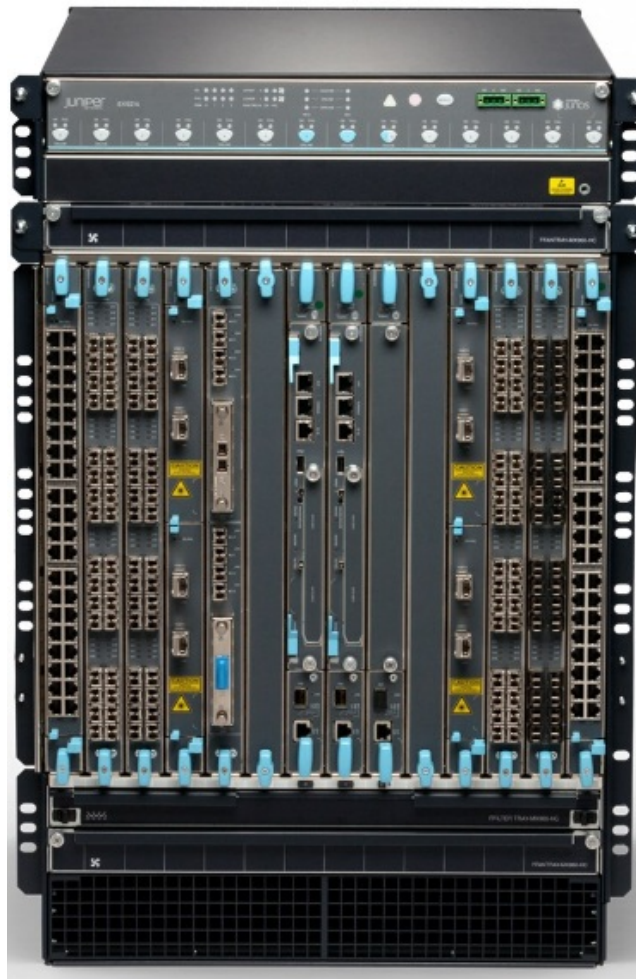
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Juniper NETWORKS EX9214 Ethernet Switch



Product Information

Specifications

- **Model:** EX9214
- **Published:** 2023-10-20

Step 1: Begin

In this section, you will learn how to install the large mounting shelf in an open-frame rack, mount the switch, and connect power to the switch.

Install the Large Mounting Shelf in an Open-Frame Rack

Before front-mounting the router in an open-frame rack, you need to install the large mounting shelf on the rack. The following table specifies the holes in which you insert screws to install the mounting hardware

Holes	Distance Above U Divisions	Large Shelf
X	30	17.26 in. (43.8 cm) 9.86 U
X	27	15.51 in. (39.4 cm) 8.86 U
X	24	13.76 in. (34.9 cm) 7.86 U
X	21	12.01 in. (30.5 cm) 6.86 U
X	18	10.26 in. (26.0 cm) 5.86 U
X	15	8.51 in. (21.6 cm) 4.86 U
X	12	6.76 in. (17.1 cm) 3.86 U
X	9	5.01 in. (12.7 cm) 2.86 U
X	6	3.26 in. (8.3 cm) 1.86 U
X	3	1.51 in. (3.8 cm) 0.86 U
X	2	0.88 in. (2.2 cm) 0.50 U
X	1	0.25 in. (0.6 cm) 0.14 U

To install the large mounting shelf

1. Align the large mounting shelf with the rack's U divisions and attach it using screws.
2. Tighten all the screws completely to ensure a secure installation.

Mount the Switch

When mounting the switch, it is important to note that a fully loaded chassis weighs approximately 350 lb (158.76 kg). Follow these steps to install the switch:

1. Safely remove all components from the chassis, including power supplies, Switch Fabric (SF) module, fan tray, air filter, and line cards.
2. Ensure that the rack is properly secured to the building in its permanent location and allows adequate clearance for airflow and maintenance. Refer to the Complete Hardware Guide for EX9214 Switches for detailed instructions.
3. Make sure that the mounting shelf is installed to support the weight of the switch.
4. Using a mechanical lift, position the switch in front of the rack as close as possible to the mounting shelf.
5. Align the switch to the center of the mounting shelf and lift it approximately 0.75 in. (1.9 cm) above the shelf.
6. Slowly lower the switch onto the mounting shelf, ensuring it rests securely.

Step 2: Up and Running

In this step, you will learn how to set parameter values and perform the initial configuration of the EX9214 switch.

• Set Parameter Values

Before performing the initial configuration, you may need to set specific parameter values based on your network requirements. Refer to the product documentation for detailed information on parameter settings.

• Perform the Initial Configuration

Once the parameter values are set, you can proceed with the initial configuration of the EX9214 switch. Follow the instructions provided in the product documentation to complete this step.

- **Step 3: Keep Going**

In this step, you will find safety warnings and contact information for Juniper Networks.

- **Safety Warnings Summary**

Ensure that you read and understand all safety warnings provided in the product documentation before using the EX9214 switch. These warnings are essential for the safe operation of the device.

- **Power Cable Warning (Japanese)**

If you are using a power cable for the EX9214 switch, make sure to follow the specific warnings and instructions provided in the product documentation. The power cable should be handled with caution to prevent any potential hazards.

- **Contacting Juniper Networks**

If you have any questions, concerns, or need further assistance with the EX9214 switch, you can contact Juniper Networks for support. Refer to the contact information provided in the product documentation.

FAQ

- **Q: Is a DB-9 to RJ-45 cable included in the device package?**

A: No, a DB-9 to RJ-45 cable or a DB-9 to RJ-45 adapter with a CAT5E copper cable is no longer included in the device package. If you require a console cable, you can order it separately with the part number JNP-CBL-RJ45-DB9.

Begin

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To install and perform initial configuration of a Juniper Networks EX9214 Ethernet Switch, you need:

- One large mounting shelf (provided)
- Mounting screws. The following mounting screws are provided:
 - Eight 12-24, ½-in. screws to mount the large mounting shelf on the rack
 - Sixteen 10-32, ½-in. screws to mount the switch on the rack
 - Two ¼-20, ½-in. screws to attach the grounding cable lug to the switch
- Phillips (+) screwdrivers, numbers 1 and 2 (not provided)
- 7/16-in. (11-mm) torque-controlled driver or socket wrench (not provided)
- One mechanical lift (not provided)
- Electrostatic discharge (ESD) wrist strap with cable (provided)
- 2.5-mm flat-blade (–) screwdriver (not provided)
- Power cord with a plug appropriate for your geographical location for each power supply (not provided)
- Ethernet cable with an RJ-45 connector attached (not provided)

- RJ-45 to DB-9 serial port adapter (not provided)
- Management host, such as a PC, with an Ethernet port (not provided)

NOTE: We no longer include a DB-9 to RJ-45 cable or a DB-9 to RJ-45 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 (DB-9 to RJ-45 adapter with a CAT5E copper cable).

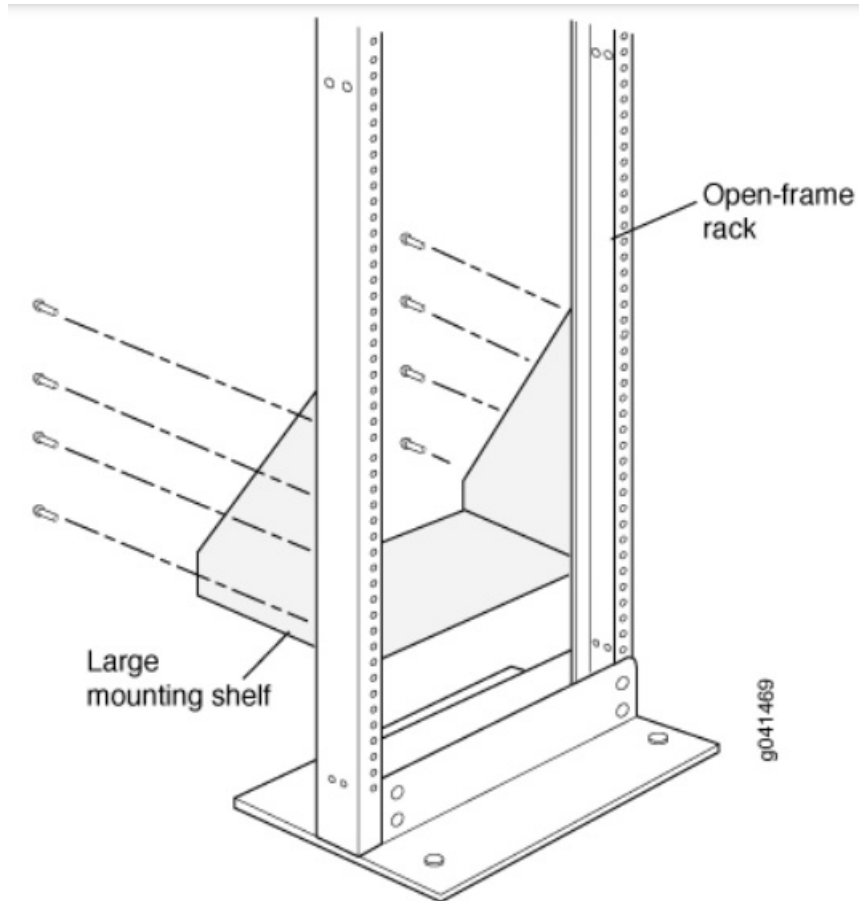
Install the Large Mounting Shelf in an Open-Frame Rack

- Before front-mounting the router in an open-frame rack, install the large mounting shelf on the rack. The following table specifies the holes in which you insert screws to install the mounting hardware in an open-frame rack (an X indicates a mounting hole location). The hole distances are relative to one of the standard U divisions on the rack. For reference, the bottom of all mounting shelves is at 0.04 in. (0.02 U) above a U division.

Holes	Distance Above U Divisions	Large Shelf
30	17.26 in. (43.8 cm) 9.86 U	X
27	15.51 in. (39.4 cm) 8.86 U	X
24	13.76 in. (34.9 cm) 7.86 U	X
21	12.01 in. (30.5 cm) 6.86 U	X
18	10.26 in. (26.0 cm) 5.86 U	X
15	8.51 in. (21.6 cm) 4.86 U	X
12	6.76 in. (17.1 cm) 3.86 U	X
9	5.01 in. (12.7 cm) 2.86 U	X
6	3.26 in. (8.3 cm) 1.86 U	X
3	1.51 in. (3.8 cm) 0.86 U	X
2	0.88 in. (2.2 cm) 0.50 U	X
1	0.25 in. (0.6 cm) 0.14 U	

To install the large mounting shelf:

1. On the rear of each rack-rail, install cage nuts, if needed, in the holes specified in the table.
2. Partially insert a 12-24, ½-in. screw into the highest hole specified in the table.
3. Hang the shelf over the mounting screws using the keyhole slots located near the top of the large shelf flanges.
4. Partially insert screws into the open holes in the flanges of the large shelf.
5. Tighten all the screws completely.



Mount the Switch

- **NOTE:** A fully loaded chassis weighs approximately 350 lb (158.76 kg). We strongly recommend that you use a mechanical lift to lift the chassis, and remove all the components from the chassis before mounting.
- **NOTE:** While mounting multiple units on a rack, mount the heaviest unit at the bottom and mount the other units from the bottom to the top in order of decreasing weight.

To install the switch using a mechanical lift:

1. Safely remove all components—power supplies, Switch Fabric (SF) module, fan tray, air filter, and line cards—from the chassis.
2. Ensure that the rack is properly secured to the building in its permanent location. Ensure that the installation site allows adequate clearance for both airflow and maintenance. For details, see the Complete Hardware Guide for EX9214 Switches.
3. Ensure that the mounting shelf is installed to support the weight of the switch.
4. Load the switch onto the lift, making sure it rests securely on the lift platform.

5. Using the lift, position the switch in front of the rack, as close as possible to the mounting shelf.
6. Align the switch to the center of the mounting shelf, and lift the switch approximately 0.75 in. (1.9 cm) above the surface of the mounting shelf.
7. Carefully slide the switch onto the mounting shelf so that the bottom of the switch and the mounting shelf overlap by approximately 2 in. (5.08 cm).
8. Slide the switch onto the mounting shelf until the mounting brackets or front-mounting flanges contact the rack-rails. The shelf ensures that the holes in the mounting brackets and the front-mounting flanges of the switch align with the holes in the rack-rails.
9. Move the lift away from the rack.
10. Install a 10-32, ½-in. screw into each of the open mounting holes aligned with the rack, starting from the bottom. Ensure that all the mounting screws on one side of the rack are aligned with the mounting screws on the opposite side and the chassis is level.
11. Tighten the screws.
12. Visually inspect the alignment of the switch. If the switch is installed properly in the rack, all the mounting screws on one side of the rack are aligned with the mounting screws on the opposite side and the switch is level.
13. Connect the ground wire to the grounding points.
14. Reinstall the switch components. Ensure that all empty slots are covered with a blank panel.

Connect Power to the Switch

• IN THIS SECTION

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- Connecting EX9214 to DC power 6

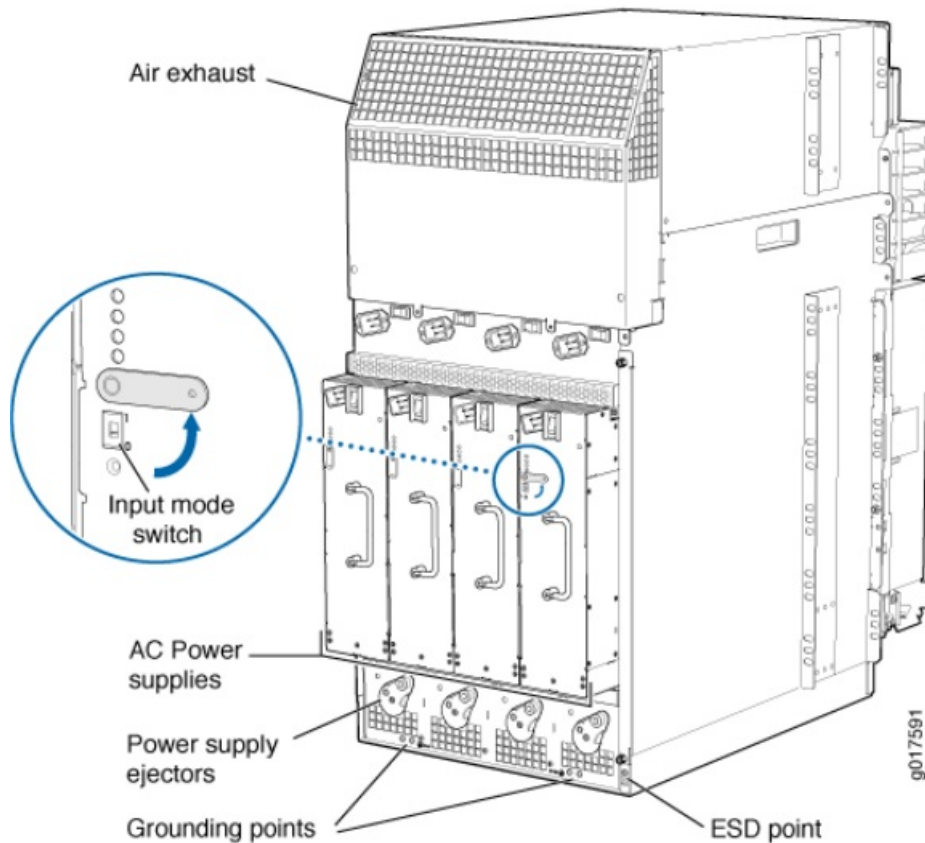
Connecting EX9214 to AC power

- **NOTE:** Do not mix AC and DC power supplies in the same switch.
- **NOTE:** This procedure requires at least two AC nominal 220 VAC 20 amp (A) power cords. See the AC Power Cord Specifications for the EX9214 Switches to identify the power cord with the type of plug appropriate for your geographical location.

1. Attach an ESD wrist strap to your bare wrist, and connect the strap to the ESD points on the chassis.
2. On the power supply, rotate the metal cover away from the input mode switch to expose the switch.
3. Move the input mode switch to position 0 for one feed or position 1 for two feeds.
4. Set the power switch of the AC power supply and the AC input switch above the power supply to the OFF (0) position
5. Plug the power cord into the corresponding appliance inlet located in the chassis directly above the power supply. This is the recommended receptacle when using the power supply in one-feed mode. If you are using the power supply in two-feed mode, plug the second power cord into the receptacle on the power supply.
NOTE: Each power supply must be connected to a dedicated AC power feed and a dedicated customer site circuit breaker.
6. Set the power switch of the AC power source outlet to the ON (I) position.
7. Insert the power cord plug into the power source outlet and switch on the dedicated customer site circuit

breaker.

8. Set the power switch of the AC power source outlet to the ON (I) position.
9. Set the AC input switch above the power supply to the ON (I) position. This is the only switch you have to turn on if you are using the power supply in one-feed mode. If using the power supply in two-feed mode, set the power switch on the power supply also to the ON (I) position. Remember to turn on both switches when operating the power supply in two-feed mode.
10. Verify that the AC OK, AC2 OK (two-feed mode only), and the DC OK LEDs are on and steadily lit green, and the PS FAIL LED is not lit.



Connecting EX9214 to DC power

- For each power supply

WARNING: Ensure that the input circuit breaker is open so that the cable leads will not become active while you are connecting DC power.

1. Attach an ESD grounding strap to your bare wrist, and connect the strap to one of the ESD points on the chassis.
2. On the power supply, rotate the metal cover away from the input mode switch to expose the switch.
3. Move the input mode switch to position 0 for one feed or position 1 for two feeds.

NOTE: For a fully redundant configuration in two-feed mode, eight feeds are required. For a nonredundant configuration, four feeds are required.

4. Set the power switch of the DC power supply to the OFF (0) position.
5. Verify that the DC power cables are correctly labeled before making connections to the power supply. In a typical power distribution scheme where the return (RTN) is connected to chassis ground at the battery plant, you can use a multimeter to verify the resistance of the -48 V and RTN DC cables to chassis ground:

- Cable with large resistance (indicating an open circuit) to chassis ground is –48 V.
- Cable with low resistance (indicating a closed circuit) to chassis ground is RTN.

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 terminal studs on each power supply.

- Remove the clear plastic cover from the terminal studs on the faceplate, and remove the nut and washer from each of the terminal studs.
- Secure each power cable lug to the terminal studs, first with the flat washer, then with the split washer, and then with the nut. Apply between 23 lb-in. (2.6 Nm) and 25 lb-in. (2.8 Nm) of torque to each nut. Do not overtighten the nut. (Use a 7/16-in. [11-mm] torque-controlled driver or socket wrench.)
 - On INPUT 0, attach the positive (+) DC source power cable lug to the RTN (return) terminal. Repeat this step for INPUT 1 if using two feeds.
 - On INPUT 0 attach the negative (–) DC source power cable lug to the –48V (input) terminal. Repeat this step for INPUT 1 if using two feeds.
 - **CAUTION:** Ensure that each power cable lug seats flush against the surface of the terminal block as you are tightening the nuts. Ensure that each nut is properly threaded onto the terminal stud. The nut should be able to spin freely with your fingers when it is first placed onto the terminal stud. Applying installation torque to the nut when improperly threaded may result in damage to the terminal stud.
 - **CAUTION:** The maximum torque rating of the terminal studs on the DC power supply is 36 in-lb. (4.0 Nm). The terminal studs may be damaged if excessive torque is applied. Use only a torque-controlled driver or socket wrench to tighten nuts on the DC power supply terminal studs.
- Verify that the power cabling is correct. Ensure that cables do not touch or block access to switch components, and do not drape where people could trip on them.
- Replace the clear plastic cover over the terminal studs on the faceplate
- Secure the grounding cable lug to the grounding points, first with the washers, then with the ¼-20, ½-in. screws.
- Switch on the dedicated customer site circuit breakers.
 - **NOTE:** The DC power supplies in slots PEM0 and PEM1 must be powered by dedicated power feeds derived from feed A, and the DC power supplies in PEM2 and PEM3 must be powered by dedicated power feeds derived from feed B. This configuration provides the commonly deployed A/B feed redundancy for the system. For information about connecting to DC power sources, see DC Power Supply Electrical Specifications for the EX9214 switch
- Verify that the INPUT 0 OK or INPUT 1 OK LEDs on the power supply are lit green steadily. If using two feeds, verify that both INPUT 0 OK and INPUT 1 OK LEDs on the power supply are lit steadily. The INPUT OK is lit amber if the voltage at that input is in reverse polarity. Check the polarity of the power cables to fix the condition.
- Set the power switch of the DC power supply to the ON (I) position.
- Verify that the that the DC OK LED is lit green steadily.

Up and Running

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Set Parameter Values

Before you begin:

- Ensure that the switch is powered on.
- Set these values in the console server or PC: baud rate—9600; flow control—none; data—8; parity—none; stop bits—1; DCD state—disregard.
- For management console, connect the CON port of the Routing Engine (RE) module to the PC using the RJ-45 to DB-9 serial port adapter (not provided).
- For Out-of-Band management, connect the ETHERNET port of the RE module to the PC using an RJ-45 cable (not provided).

Perform the Initial Configuration

Configure the software:

1. Login as a root user.
2. Start the CLI and enter the configuration mode.
 - root# cli root@> configure
 - [edit]
 - root@#
3. Set the root authentication password.
 - [edit]
 - root@# set system root-authentication plain-text-password
 - **New password:** password
 - Retype new password: password

You can also set an encrypted password or an SSH public key string (DSA or RSA) instead of a clear-text password.
4. Create a management console user account.
 - [edit]
 - root@#set system login user-name authentication plain-text-password
 - **New password:** password
 - Retype new password: password
5. Set the user account class to super-user.
 - [edit]
 - root@# set system login user user-name class super-user
6. Configure the name of the host. If the name includes spaces, enclose the name in quotation marks (" ").
 - [edit]
 - Root@# set system host-namehost-name
7. Configure the host domain name
 - [edit]
 - root@# set system domain-name domain-name
8. Configure the IP address and prefix length for the Ethernet interface on the switch.

- [edit]
 - root@# set interfaces fxp0 unit 0 family inet address address/prefix-length
9. Configure the IP address of a DNS server.
- [edit]
 - root@# set system name-server address
10. (Optional) Configure the static routes to remote subnets with access to the management port.
- [edit]
 - root@# set routing-options static route remote-subnet next-hop destination-IP retain no-readvertise
11. Configure the telnet service at the [edit system services] hierarchy level.
- [edit]
 - root@# set system services telnet
12. (Optional) Configure additional properties by adding the necessary configuration statements.
13. Commit the configuration and exit the configuration mode.

NOTE: To reinstall Junos OS, boot the switch from the removable media. Do not insert the removable media during normal operations. The switch does not operate normally when it is booted from the removable media.

Keep Going

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See the complete EX9214 documentation at https://www.juniper.net/documentation/product/en_US/ex9214.

• Safety Warnings Summary

This is a summary of safety warnings. For a complete list of warnings, including translations, see the EX9208 documentation at https://www.juniper.net/documentation/product/en_US/ex9208.

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

- Before removing or installing components of a switch, attach an ESD strap to an ESD point, and place the other end of the strap around your bare wrist to avoid. Failure to use an ESD strap could result in damage to the switch.
- Permit only trained and qualified personnel to install or replace switch components.
- Perform only the procedures described in this quick start and the EX Series documentation. Other services must be performed only by authorized service personnel.
- Before installing the switch, read the planning instructions in the EX Series documentation to ensure that the site meets power, environmental, and clearance requirements for the switch.
- Before connecting the switch to a power source, read the installation instructions in the EX Series documentation.
- 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 switches. Allow 2.8 in. (7 cm) between the side of the chassis and any non-heat-producing surface such as a wall.


- Installing the EX9208 switch without using a mechanical lift requires three persons to lift the switch onto the mounting shelf. Before lifting the chassis, remove the components. To prevent injury, keep your back straight and lift with your legs, not your back. Do not lift the chassis by the power supply handles.
- Mount the switch at the bottom of the rack if it is the only unit in the rack. When mounting the switch in a partially filled rack, mount the heaviest unit at the bottom of the rack and mount the others from bottom to top in order of decreasing weight.
- When you install the switch, always connect the ground wire 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.
- If the rack has stabilizing devices, install them in the rack before mounting or servicing the switch in the rack.
- Before installing or after removing an electrical component, always place it component-side up on an antistatic mat placed on a flat, stable surface or in an antistatic bag.
- Do not work on the switch 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.

Power Cable Warning (Japanese)

- The attached power cable is only for this product. Do not use this cable for another product.
 - Contacting Juniper Networks
 - For technical support, see:
 - <http://www.juniper.net/support/requesting-support.html>

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Documents / Resources

	<p>Juniper NETWORKS EX9214 Ethernet Switch [pdf] User Guide EX9214, EX9214 Ethernet Switch, Ethernet Switch, Switch</p>
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References

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- [User Manual](#)