

E-Series SRP Hardware Installation and Software Compatibility Guide

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This document describes installation procedures for the E-Series switch route processor (SRP) modules and their associated I/O modules and software compatibility requirements.

You can also find these installation instructions and complete hardware documentation on the Juniper Networks technical documentation Web page, which is located at <http://www.juniper.net/techpubs/>.

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Overview

Juniper Networks E-series routers contain SRP modules, which perform system management, routing table calculations and maintenance, forwarding table computations, statistics processing, configuration storage, and other control functions. SRP modules are PowerPC-based systems with their own memory and nonvolatile disk storage.

The ERX-7xx and ERX-14xx series routers use one nonredundant or two redundant SRP modules.

To install a replacement or additional SRP module on any chassis, you follow this general process:

1. Save the running configuration if you are installing or replacing a redundant SRP.
2. Halt the appropriate SRP.
3. Replace the SRP I/O module in the chassis, if needed.
4. Install or replace the SRP module in the chassis.
5. Restore the saved JUNOS software configuration or load a fresh configuration.

The following section provides specific instructions on how to install an SRP module.

Installing or Replacing E-Series SRP Modules and SRP I/O Modules

This section describes how to install additional or replacement SRP modules and SRP I/O modules for the E-series routers. Follow the procedure that applies to your configuration:

1. Installing a replacement SRP I/O module if needed (a new I/O module automatically ships with SRPs that require one). See “Replacing the SRP I/O Module” on page 3
2. Installing a redundant SRP, for configurations where you are adding an additional, redundant SRP. See “Installing a Redundant SRP ” on page 5 .
3. Replacing a single or redundant SRP, for configurations where you are swapping out a single, non-redundant SRP or swapping out a redundant SRP. See “Replacing a Redundant or Nonredundant SRP” on page 7 .

Prepare for the installation by assembling the following items:

- Flathead screwdriver
- Phillips screwdriver
- Antistatic wrist strap
- Antistatic containers for removed components
- The new SRP I/O module (if shipped) and the new SRP module

Replacing the SRP I/O Module

Some SRP modules ship with a new SRP I/O module. If you received an SRP I/O, install it before installing the new SRP. Follow these procedures to replace your existing SRP I/O module.

Removing the Original SRP I/O Module

To remove an SRP I/O module, follow this procedure:

1. Issue the `halt` command.



CAUTION: Powering down or removing an SRP or SRP I/O module without first issuing the `halt` command can corrupt data on the system's nonvolatile storage (NVS) card.

2. Attach the antistatic wrist strap to your wrist and connect it to one of the ESD grounding jacks on the router, located inside the front bezel and in the upper-right corner on the rear of the chassis.



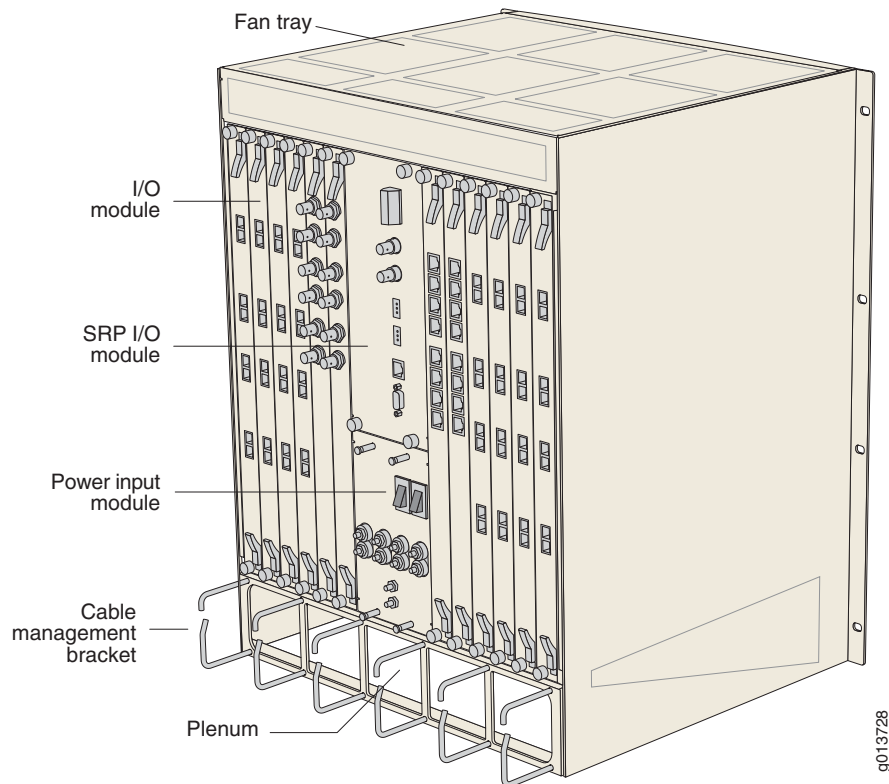
WARNING: Do not insert any metal object, such as a screwdriver, or place your hand into an open slot or the backplane when the E-series router is on. Remove jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. These actions prevent electric shock and serious injuries.



CAUTION: When handling modules, use an antistatic wrist strap connected to the router's ESD grounding jack, and hold modules by their edges. Do not touch the components, pins, leads, or solder connections. These actions help to protect the module from damage by electrostatic discharge.

3. Disconnect cable connectors from the I/O module. See Figure 1.

Figure 1: SRP I/O Module



4. Use a screwdriver to loosen the thumbscrews located at the top and bottom of the module panel.
5. Carefully slide the module out of the chassis.
6. Place the module in an antistatic bag.

Installing a New SRP I/O Module

To install a new SRP I/O module, follow this procedure:

1. Attach the antistatic wrist strap to your wrist and connect it to one of the ESD grounding jacks on the router, located inside the front bezel and in the upper-right corner on the rear of the chassis.



WARNING: Do not insert any metal object, such as a screwdriver, or place your hand into an open slot or the backplane when the E-series router is on. Remove jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. These actions prevent electric shock and serious injuries.



CAUTION: When handling modules, use an antistatic wrist strap connected to the router's ESD grounding jack, and hold modules by their edges. To not touch the components, pins, leads, or solder connections. These actions help to protect the module from damage by electrostatic discharge.

2. Remove the new SRP I/O module from its antistatic bag.
3. Slide the new module into the same slot from which you removed the original SRP I/O module. Push the module all the way into the chassis until the ejectors are flush with the front of the chassis.
4. Tighten the module's captive screws using a Phillips screwdriver. Alternate tightening each screw until all are secure and the module is securely seated.
5. Reconnect the cables for the timing and console ports.
6. Continue to "Installing a Redundant SRP " on page 5 or "Replacing a Redundant or Nonredundant SRP" on page 7 .

Installing a Redundant SRP

To newly install a redundant SRP, follow this procedure:



NOTE: If you are replacing an existing, redundant SRP, refer to the next section.

1. Attach the antistatic wrist strap to your wrist and connect it to one of the ESD grounding jacks on the router, located inside the front bezel and in the upper-right corner on the rear of the chassis.



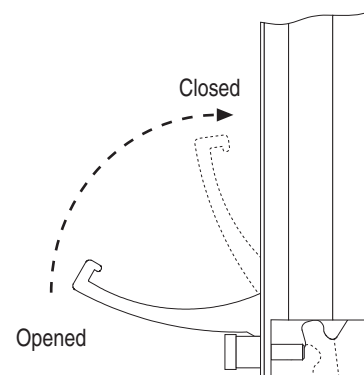
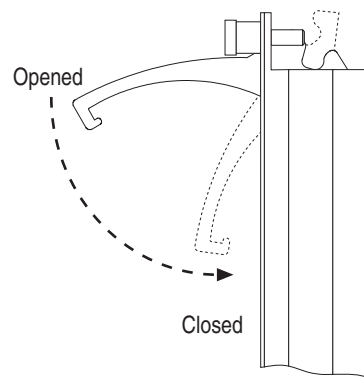
WARNING: Do not insert any metal object, such as a screwdriver, or place your hand into an open slot or the backplane when the E-series router is on. Remove jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. These actions prevent electric shock and serious injuries.



CAUTION: When handling modules, use an antistatic wrist strap connected to the router's ESD grounding jack, and hold modules by their edges. To not touch the components, pins, leads, or solder connections. These actions help to protect the module from damage by electrostatic discharge.

2. Install the SRP module into the chassis.
 - Install the SRP module in slot 6 or slot 7 only.
 - Ensure that the ejectors are in the open position as shown in Figure 2.
 - Slide the module in between the guides at the top and bottom of the slot.
 - Push the module all the way into the chassis until the ejectors are flush with the front of the chassis. The module reboots after you insert it.

Figure 2: Positioning Ejectors Before Installing a Module



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CAUTION: If the module does not slide all the way into the chassis, do not force it. Carefully remove it and make sure that you are installing it in slot 6 or slot 7 and that the module is between the slot's metal guides.

3. Press the ejectors into their closed position as shown in Figure 2.
4. Tighten the module's captive screws using a Phillips screwdriver. Alternate tightening each screw until all are secure and the module is securely seated.
5. When the redundant SRP module has rebooted, issue the `synchronize` command to synchronize the two SRPs.

The `synchronize` command copies all new or changed files, including release (*.rel) and configuration (*.cnf) files, from the NVS card onto the newly installed redundant SRP module. This maintains the current JUNOS release and configuration running on the router.

6. Issue the `show hardware` command to check that the new SRP is available to the router.
7. To ensure that the contents of both modules' NVS cards are synchronized after the reboot, issue the `synchronize` command again.

Replacing a Redundant or Nonredundant SRP

To replace an existing redundant or nonredundant SRP module, follow this procedure:

1. Optionally, save the configuration currently running on the router to a configuration file on remote FTP server using the .cnf extension. For example:

```
host1#copy running-configuration erx1440conf.cnf
```
2. Halt the SRP module installed in the router by issuing the `halt` command. The OK and FAIL LEDs lights start to blink on the module.
3. Attach the antistatic wrist strap to your wrist and connect it to one of the ESD grounding jacks on the router, located inside the front bezel and in the upper-right corner on the rear of the chassis.



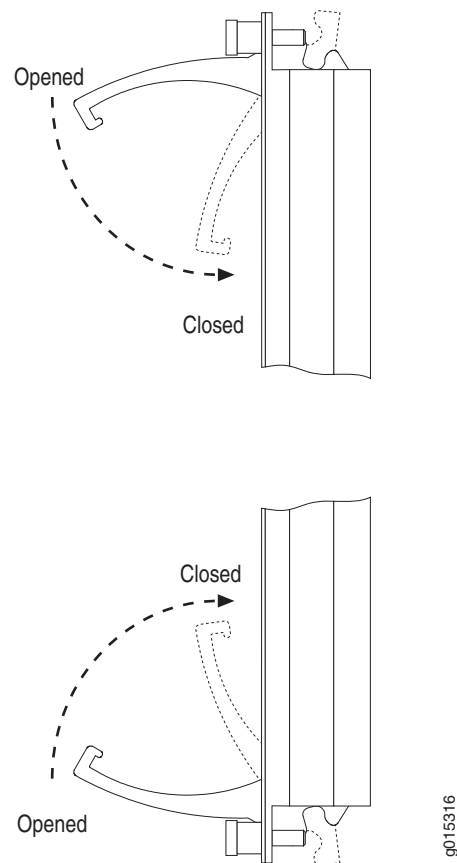
WARNING: Do not insert any metal object, such as a screwdriver, or place your hand into an open slot or the backplane when the E-series router is on. Remove jewelry (including rings, necklaces, and watches) before working on equipment that is connected to power lines. These actions prevent electric shock and serious injuries.



CAUTION: When handling modules, use an antistatic wrist strap connected to the router's ESD grounding jack, and hold modules by their edges. To not touch the components, pins, leads, or solder connections. These actions help to protect the module from damage by electrostatic discharge.

4. Use a Phillips screwdriver to loosen the thumbscrews located at the top and bottom of the LED panel on the SRP module.
5. Move the ejector handles located at the top and bottom of the module so that they are in the open position, as shown in Figure 3.

Figure 3: Positioning Ejectors Before Removing a Module



6. Slide the SRP module out of the chassis and rest it on the antistatic mat with memory sockets and NVS card facing up.
7. Install the new SRP module into the chassis:

- Install the SRP module in slot 6 or slot 7 only.
- Ensure that the ejectors are in the open position.
- Slide the module in between the guides at the top and bottom of the slot.
- Push the module all the way into the chassis until the ejectors are flush with the front of the chassis. The module reboots after you install it.



CAUTION: If the module does not slide all the way into the chassis, do not force it. Carefully remove it and make sure that you are installing it in slot 6 or slot 7 and that the module is between the slot's metal guides.

8. Press the ejectors into their closed position as shown in Figure 3.
9. Tighten the module's captive screws using a Phillips screwdriver. Alternate tightening each screw until all are secure and the module is securely seated.
10. Issue the `show hardware` command to check that the new SRP is available to the router.
11. Restore the software configuration, if appropriate, as described in "Restoring the JUNOS Software Configuration" on page 9.
12. If you have a system with redundant SRPs and are replacing both of them, repeat the above procedures for the second SRP.

Restoring the JUNOS Software Configuration

If you saved your configuration file to a remote FTP server before installing a new, non-redundant SRP, you can reload this configuration after the upgrade is complete provided that the new SRP supports the software release you are running. See "Software Compatibility" on page 10 for more information.

To restore the JUNOS software release and configuration follow this procedure:

1. Ensure that:
 - You have the JUNOS software on CD-ROM or other media.
 - You have saved the configuration file to a remote FTP server as described in Step 1 of "Replacing a Redundant or Nonredundant SRP" on page 7.
2. Install the JUNOS software from the CD-ROM to the E-series router.
3. Use the `copy` command or the FTP server to transfer the saved configuration file from the remote router to the local router.

4. Issue the factory default command:

```
host1(config)#boot config factory-defaults
```

5. Issue the `boot` command, specifying the JUNOS release you want to use. In the following example, `x-y-z` represents the release number.

```
host1config#boot system erx40_x-y-z .rel
```

6. Specify that the system should use the previously saved configuration file at the next reboot. In the example, the system will use the file named `erx1440conf.cnf` only at the next reboot; after that time, the system will reboot using the running configuration.

```
host1(config)#boot config erx1440conf.cnf once
```

7. After the system has successfully rebooted, register the new components with Juniper Networks as described in “Registering the SRP” on page 10.

Registering the SRP

Registering your system components ensures that Juniper Networks has accurate information about your current hardware configuration if you need technical support in the future.

For instructions, go to the Juniper Networks Web site at <http://www.juniper.net/support/>.

Software Compatibility

E-series SRPs purchased as spares may have different JUNOS software requirements than the original SRP shipped with the chassis. See Table 1.

Table 1: Software Compatibility

Model Number	Description	Required Software Release
ERX-5G1GECC-SRP SVC-ERX-1GSRP5-UPG SVC-ERX-1GSRP5R-UPG	1-GB SRP-5G + SRP	<i>Release:</i> <ul style="list-style-type: none"> ■ 4.1.3 or later ■ 5.0.4 or later ■ 5.1.2 or later
ERX-10G1GECC-SRP SVC-ERX-1GSRP10-UPG SVC-ERX-1GSRP10R-UPG	1-GB SRP-10G SRP	
ERX-5G2GECC-SRP ERX-2GSRP5R-UPG ERX-2GSRP5-UPG SVC-ERX-2GSRP5-UPG SVC-ERX-2GSRP5E-UPG	2-GB SRP-5G + SRP	
ERX-10G2GECC-SRP ERX-2GSRP10-UPG ERX-2GSRP10R-UPG ERX-5SRP102-UPG ERX-5SRP10R2-UPG SVC-ERX-2GSRP10-UPG SVC-ERX-2GSRP10R-UPG	2-GB SRP-10G SRP	
ERX-40G2GEC1-SRP	2-GB SRP-40 SRP	<i>Release:</i> <ul style="list-style-type: none"> ■ 4.0.3p0-3 and later ■ 4.1.1 and later ■ 5.0.0p0-1 and later

List of Technical Publications

Table 2 lists and describes the E-series document set. A complete list of abbreviations used in this document set, along with their spelled-out terms, is provided in the *JUNOS System Basics Configuration Guide, Appendix A, Abbreviations and Acronyms*.

Table 2: Juniper Networks E-series Technical Publications

Document	Description
<i>E-series Hardware Guide</i>	Provides the necessary procedures for getting the router operational, including information on installing, cabling, powering up, configuring the router for management access, and general troubleshooting. Describes SRP modules, line modules, and I/O modules available for the E-series routers.
<i>E-series Module Guide</i>	Provides detailed specifications for line modules and I/O modules, and information about the compatibility of these modules with JUNOS software releases. Lists the layer 2 protocols, layer 3 protocols, and applications that line modules and their corresponding I/O modules support. Provides module LED information.
<i>JUNOS System Basics Configuration Guide</i>	Describes planning and configuring your network, managing the router, configuring passwords and security, configuring the router clock, and configuring virtual routers. Includes a list of references that provide information on the protocols and features supported by the router.
<i>JUNOS Physical Layer Configuration Guide</i>	Describes configuring physical layer interfaces.
<i>JUNOS Link Layer Configuration Guide</i>	Describes configuring link layer interfaces.
<i>JUNOS Routing Protocols Configuration Guide, Vol. 1</i>	Provides information about configuring routing policy and configuring IP, IP routing, and IP security.
<i>JUNOS Routing Protocols Configuration Guide, Vol. 2</i>	Describes BGP routing, MPLS, BGP-MPLS VPNs, and encapsulation of layer 2 services.
<i>JUNOS Policy and QoS Configuration Guide</i>	Provides information about configuring policy management and quality of service (QoS).
<i>JUNOS Broadband Access Configuration Guide</i>	Provides information about configuring remote access.
<i>JUNOS Command Reference Guide A to M</i>	Together comprise the <i>JUNOS Command Reference Guide</i> . Contain important information about commands implemented in the system software. Use to look up command descriptions, command syntax, a command's related mode, or a description of a command's parameters. Use with the JUNOS configuration guides.
<i>JUNOS Command Reference Guide N to Z</i>	
Release Notes	
<i>JUNOS Release Notes</i>	<p>In the <i>Release Notes</i>, you will find the latest information about features, changes, known problems, resolved problems, and system maximum values. If the information in the Release Notes differs from the information found in the documentation set, follow the Release Notes.</p> <p>Release notes are included on the corresponding software CD and are available on the Web.</p>

Requesting Support

For technical support, open a support case using the Case Manager link at <http://www.juniper.net/support/> or call 1-888-314-JTAC (within the United States) or 1-408-745-9500 (outside the United States).

For documentation issues, fill out the bug report form located at <http://www.juniper.net/techpubs/docbug/docbugreport.html>.

Revision History

15 October 2004—Revision 1

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