



SRX550 Services Gateway Hardware Guide



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SRX550 Services Gateway Hardware Guide

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- Requesting Technical Support on page xvi

Documentation and 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/>.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

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Supported Platforms

For the features described in this document, the following platforms are supported:

- SRX550

Documentation Conventions

Table 1 on page xiv defines notice icons used in this guide.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.
	Tip	Indicates helpful information.
	Best practice	Alerts you to a recommended use or implementation.

Table 2 on page xiv defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the configure command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces or emphasizes important new terms. Identifies guide names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> A policy <i>term</i> is a named structure that defines match conditions and actions. <i>Junos OS CLI User Guide</i> RFC 1997, <i>BGP Communities Attribute</i>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# set system domain-name <i>domain-name</i>

Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
Text like this	Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> To configure a stub area, include the stub statement at the [edit protocols ospf area area-id] hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Encloses optional keywords or variables.	stub <default-metric metric>;
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	broadcast multicast (string1 string2 string3)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[] (square brackets)	Encloses a variable for which you can substitute one or more values.	community name members [community-ids]
Indentation and braces ({ })	Identifies a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop address; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
GUI Conventions		
Bold text like this	Represents graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> In the Logical Interfaces box, select All Interfaces. To cancel the configuration, click Cancel.
> (bold right angle bracket)	Separates levels in a hierarchy of menu selections.	In the configuration editor hierarchy, select Protocols>Ospf .

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can provide feedback by using either of the following methods:

- Online feedback rating system—On any page of the Juniper Networks TechLibrary site at <http://www.juniper.net/techpubs/index.html>, simply click the stars to rate the content, and use the pop-up form to provide us with information about your experience. Alternately, you can use the online feedback form at <http://www.juniper.net/techpubs/feedback/>.

- E-mail—Send your comments to techpubs-comments@juniper.net. Include the document or topic name, URL or page number, and software version (if applicable).

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 Partner Support Service support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- 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/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- 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, see <http://www.juniper.net/support/requesting-support.html>.

PART 1

Overview

- [System Overview on page 3](#)
- [Hardware Component Overview on page 11](#)
- [Chassis Description on page 13](#)
- [Interface Module Description on page 23](#)
- [Cooling System Description on page 27](#)
- [Power System Description on page 29](#)

CHAPTER 1

System Overview

- [SRX550 Services Gateway Description on page 3](#)
- [SRX550 Services Gateway Hardware Features on page 4](#)
- [SRX550 Services Gateway Software Features and Licenses on page 4](#)
- [SRX550 Services Gateway Power over Ethernet on page 8](#)
- [Accessing the SRX550 Services Gateway on page 10](#)

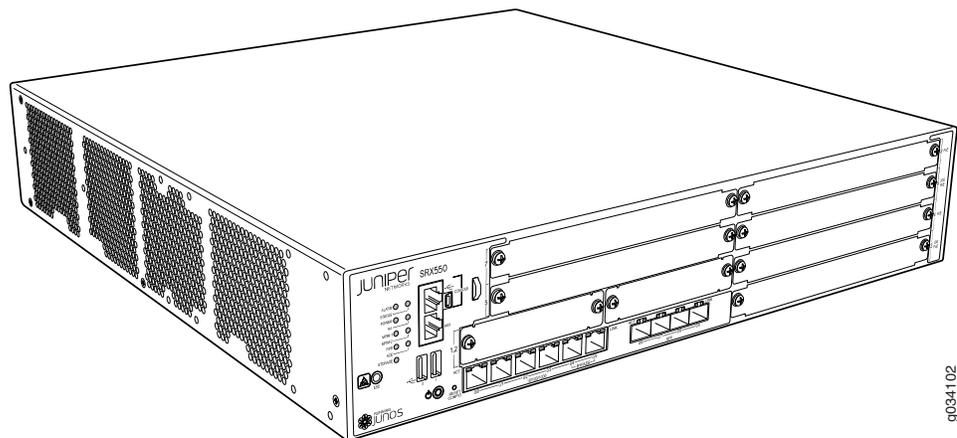
SRX550 Services Gateway Description

The SRX550 Services Gateway is a mid-range dynamic services gateway that consolidates network infrastructure and security applications for regional offices, large branch offices, and small to medium enterprises. The services gateway provides cost-effective, scalable integration of routing, security, and other mid-range applications for these sites.

The SRX550 Services Gateway has a modular 2U chassis that fits a 19-inch rack with a depth of approximately 18.1 inches.

[Figure 1 on page 3](#) shows the SRX550 Services Gateway.

Figure 1: SRX550 Services Gateway



Related Documentation

- [SRX550 Services Gateway Chassis on page 13](#)
- [Accessing the SRX550 Services Gateway on page 10](#)

- [SRX550 Services Gateway Software Features and Licenses on page 4](#)

SRX550 Services Gateway Hardware Features

The SRX550 Services Gateway provides the following features:

- Symmetric Multiprocessing-based data forwarding.
- Hardware-based control and data plane separation.
- Six on-board 10/100/1000Base-T Gigabit Ethernet ports.
- Four on-board SFP Gigabit Ethernet ports.
- Support for dual AC or dual DC power supplies with a redundant configuration in the chassis. 645 W AC and DC power supplies with or without Power over Ethernet (PoE) support. The AC and DC power supplies are hot-swappable.
- Junos OS support for advanced security and routing services on the Services and Routing Engine (SRE).
- The services gateway supports Gigabit-Backplane Physical Interface Modules (GPIMs) and also Mini Physical Interface Modules (Mini-PIMs). For details about the supported GPIMs and Mini-PIMs, see the [SRX Series Services Gateways for the Branch Physical Interface Modules Hardware Guide](#).

Related Documentation

- [SRX550 Services Gateway Description on page 3](#)
- [Accessing the SRX550 Services Gateway on page 10](#)
- [SRX550 Services Gateway Software Features and Licenses on page 4](#)
- [SRX550 Services Gateway Chassis on page 13](#)
- [Physical Interface Modules](#)

SRX550 Services Gateway Software Features and Licenses

The services gateway provides the software features listed in [Table 3 on page 5](#).



NOTE: Some software features require the purchase of a separate license.

For information about features that require a license on this services gateway, see the [Installation and Upgrade Guide for Security Devices](#).

Table 3: Software Features and Licenses

Feature Category	Feature
Routing	OSPF
	BGP
	Routing Information Protocol version 1 (RIPv1) and version 2 (RIPv2)
	Static routes
	Intermediate System-to-Intermediate System (IS-IS)
	Connectionless Network Service (CLNS): <ul style="list-style-type: none"> • End System-to-Intermediate System (ES-IS) protocol • IS-IS extensions • BGP extensions • Static routes <p>NOTE: CLNS is available only in packet-based mode.</p> <hr/> MPLS: <ul style="list-style-type: none"> • Layer 2 and Layer 3 virtual private networks (VPNs) • VPN routing and forwarding (VRF) table labels • Traffic engineering protocols such as LDP and RSVP • Virtual private LAN service (VPLS) • Multicast VLAN <p>NOTE: MPLS is available in both packet-based mode and selective packet mode.</p>
Internet protocols	<ul style="list-style-type: none"> • IPv4 • IPv6 routing and forwarding
IP address management	<ul style="list-style-type: none"> • Static addresses • Dynamic Host Configuration Protocol (DHCP) 8

Table 3: Software Features and Licenses (*continued*)

Feature Category	Feature
Encapsulation	Ethernet: <ul style="list-style-type: none"> • Media access control (MAC) encapsulation • 802.1p tagging • Point-to-Point Protocol over Ethernet (PPPoE) • Circuit cross-connect (CCC) • Translational cross-connect (TCC) <hr/> Synchronous Point-to-Point Protocol (PPP) <hr/> Frame Relay <hr/> High-Level Data Link Control (HDLC) <hr/> 802.1Q filtering and forwarding <hr/> Multilink Frame Relay (MLFR) <hr/> Multilink PPP
Ethernet switching	Line-rate Ethernet switching provided by XPIMs, including support for VLANs, spanning tree, link aggregation, and authentication

Table 3: Software Features and Licenses (*continued*)

Feature Category	Feature
Security	IPsec VPN for site-to-site or remote access encrypted tunneling
	Antivirus filtering, including full antivirus file-based scanning or Express-AV packet-based scanning
	Antispam and anti-phishing filtering
	Web filtering
	Content filtering based on file types and types of files within HTTP and HTTPS
	Unified threat management (UTM)
	Network attack detection
	Denial of service (DoS) and distributed denial of service (DDoS) protection
	Generic routing encapsulation (GRE), IP-over-IP, and IP Security (IPsec) tunnels
	Advanced Encryption Standard (AES) 128-bit, 192-bit, and 256-bit
	56-bit Data Encryption Standard (DES) and 168-bit 3DES encryption
	MD5 and Secure Hash Algorithm 1 (SHA-1) authentication
	Stateful firewall and stateless packet filters
Network Address Translation (NAT)	
System management	Junos XML protocol XML application programming interface (API)
	The J-Web browser interface—For services gateway configuration and management
	Junos OS command-line interface (CLI)—For services gateway configuration and management through the console through Telnet, or SSH
	Simple Network Management Protocol version 1 (SNMPv1), SNMPv2, and SNMPv3
	Network and Security Manager (NSM)
	J-Flow flow monitoring and accounting

Table 3: Software Features and Licenses (*continued*)

Feature Category	Feature
Traffic analysis	Packet capture
	Real-time performance monitoring (RPM)
	System log
Activity logging and monitoring	The J-Web interface event viewer
	Traceroute
	Supports the following external administrator databases: <ul style="list-style-type: none"> • RADIUS/AAA • TACACS+
Administration	Autoinstallation
	Configuration rollback
	Button-operated configuration rescue (the CONFIG button)
	Confirmation of configuration changes
	Software upgrades
	Supports the following features for automating network operations and troubleshooting: <ul style="list-style-type: none"> • Commit scripts • Operation scripts • Event policies
Hot-swappable	GPIMs and XPIMs are not hot-swappable on the SRX550 Services Gateway.
Bypass ports	LAN bypass ports are not supported on the SRX Series Services Gateways.

- Related Documentation**
- [SRX550 Services Gateway Description on page 3](#)
 - [SRX550 Services Gateway Hardware Features on page 4](#)

SRX550 Services Gateway Power over Ethernet

Power over Ethernet (PoE) supports the implementation of the IEEE802.3 af and IEEE802.3 at standards, which allow both data and electric power to pass over a copper Ethernet LAN cable.

The SRX550 Services Gateway provides PoE ports, which supply electric power over the same ports that are used to connect network devices. PoE ports allow you to plug in devices that require both network connectivity and electric power, such as Voice over IP (VoIP) and IP phones and wireless access points.

The PoE ports for the SRX550 Services Gateway reside on the individual XPIMs. The SRX550 Services Gateway supports the following XPIMs with PoE:

- 16-Port Gigabit Ethernet XPIM
- 24-Port Gigabit Ethernet XPIM

The Services and Routing Engine (SRE) manages the overall system PoE power. You can configure the services gateway to act as power sourcing equipment to supply the power to the GPIMs connected on the designated PoE ports.

[Table 4 on page 9](#) lists the SRX550 Services Gateway PoE specifications.

Table 4: SRX550 Services Gateway PoE Specifications

Power Management Schemes	Values
Supported standards	<ul style="list-style-type: none"> • IEEE802.3 af • IEEE802.3 at • Legacy
Supported slots	<p>PoE is supported on the following front panel slots:</p> <ul style="list-style-type: none"> • 3 • 4 • 6 • 8 <p>For more information, see “SRX550 Services Gateway Front Panel” on page 14.</p>
Total PoE power sourcing capacity	<p>The 645 W AC and 645 W DC power supplies support the following capacities:</p> <ul style="list-style-type: none"> • 255 W PoE on a single power supply, or with redundancy using the two power supply option • 510 W PoE using the two power supply option operating as nonredundant
Per-port power limit	31.2 W
Power management modes	<ul style="list-style-type: none"> • Static: Power allocated for each interface can be configured • Class: Power allocation for interfaces is decided based on the class of powered device connected

For details about the GPIMs and XPIMs, see the [SRX Series Services Gateways for the Branch Physical Interface Modules Hardware Guide](#).

- Related Documentation**
- [SRX550 Services Gateway Gigabit-Backplane Physical Interface Modules on page 23](#)
 - [SRX550 Services Gateway Power Supply on page 29](#)
 - [SRX550 Services Gateway Back Panel on page 20](#)
 - [Physical Interface Modules](#)

Accessing the SRX550 Services Gateway

The services gateway runs Junos OS. You can use two user interfaces to monitor, configure, troubleshoot, and manage the services gateway:

- The J-Web interface: A Web-based graphical interface that allows you to operate a services gateway without commands. The J-Web interface provides access to all Junos OS functionality and features.
- Junos OS command-line interface (CLI): Juniper Networks command shell that runs on top of a UNIX-based operating system kernel. The CLI is a straightforward command interface. On a single line, you type commands that are executed when you press the Enter key. The CLI provides command help and command completion.

- Related Documentation**
- [SRX550 Services Gateway Description on page 3](#)
 - [SRX550 Services Gateway Hardware Features on page 4](#)
 - [SRX550 Services Gateway Software Features and Licenses on page 4](#)

CHAPTER 2

Hardware Component Overview

- [SRX550 Services Gateway Boot Devices and Dual-Root Partitioning Scheme on page 11](#)

SRX550 Services Gateway Boot Devices and Dual-Root Partitioning Scheme

By default, the SRX550 Services Gateway boots from the following storage media (in order of priority):

1. Internal CompactFlash card (default; always present)
2. USB storage key (alternate)



NOTE: When you explicitly boot the services gateway using the CLI and the services gateway has two USBs installed (one in slot 0 and the second in slot 1), if the USB in slot 0 fails, the booting sequence will not boot from the second USB installed in slot 1. Instead, the device will boot using the next storage media in its storage media booting priority list, the internal CompactFlash card.

The dual-root partitions allow the services gateways to remain functional if there is file system corruption and facilitate easy recovery of the corrupted file system.

The dual-root partitioning scheme keeps the primary and backup Junos OS images in two independently bootable root partitions. If the primary root partition is corrupted, the system will be able to boot from the backup Junos OS image located in the other root partition and remain fully functional.

When the services gateway powers up, it tries to boot Junos OS from the default storage media. If the device fails to boot from the default storage media, it tries to boot from the alternate storage media. With the dual-root partitioning scheme, the device first tries to boot Junos OS from the primary root partition and then from the backup root partition on the default storage media. If both primary and backup root partitions of a media fail to boot, then the device tries to boot Junos OS from the next available type of storage media. The services gateway remains fully functional even if it boots the Junos OS from the backup root partition of storage media.

Related Documentation

- [Installation Overview for the SRX550 Services Gateway on page 61](#)

- [Required Tools and Parts for Installing the SRX550 Services Gateway on page 62](#)
- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)

CHAPTER 3

Chassis Description

- [SRX550 Services Gateway Chassis on page 13](#)
- [SRX550 Services Gateway Front Panel on page 14](#)
- [SRX550 Services Gateway Front Panel LEDs on page 17](#)
- [SRX550 Services Gateway Back Panel on page 20](#)

SRX550 Services Gateway Chassis

The SRX550 Services Gateway chassis is a rigid sheet metal structure that houses all the other hardware components.

[Table 5 on page 13](#) provides information about the physical specifications for the services gateway.

Table 5: Physical Specifications for the SRX550 Services Gateway

Physical Specification	Value
Chassis height	2 rack units (U)
Chassis width	17.5 in. (44.4 cm)
Chassis depth	18.2 in. (46.2 cm)
Chassis weight (includes one power supply without any GPIMs or Mini-PIMs)	21.96 lb (9.96 kg)



CAUTION: Before removing or installing components of a functioning services gateway, attach an electrostatic discharge (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 device.

The services gateway must be connected to earth ground during normal operation. The protective earthing terminal on the side of the chassis is provided to connect the services gateway to ground. Additional grounding is provided to an AC-powered services gateway when you plug its power supply into a grounded AC power receptacle.

- Related Documentation**
- [SRX550 Services Gateway Description on page 3](#)
 - [SRX550 Services Gateway Front Panel on page 14](#)
 - [SRX550 Services Gateway Back Panel on page 20](#)
 - [Grounding the SRX550 Services Gateway on page 78](#)
 - [General Electrical Safety Guidelines and Warnings on page 183](#)

SRX550 Services Gateway Front Panel

Figure 2 on page 14 shows the front panel of the SRX550 Services Gateway.

Figure 2: SRX550 Services Gateway Front Panel

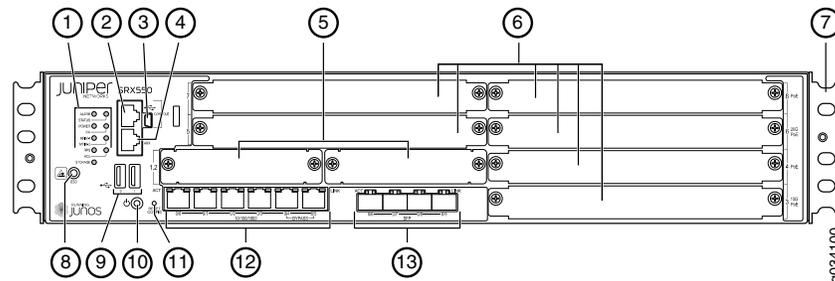


Table 6 on page 14 provides information about the front panel components of the services gateway with reference to Figure 2 on page 14.

Table 6: SRX550 Services Gateway Front Panel Components

Number	Component	Location	Description
1	Front panel LEDs	Left side of the front chassis panel	Indicate the current status of the services gateway. See "SRX550 Services Gateway Front Panel LEDs" on page 17 for detailed information about the front panel LEDs.
2	Serial Console Port	Left side of the front chassis panel	Connects a laptop to the services gateway for CLI management. The port uses an RJ-45 serial connection, is configured as data terminal equipment (DTE), and supports the RS-232 (EIA-232) standard.
3	USB Console Port	Left side of the front chassis panel	Connects a laptop to the services gateway for CLI management through a USB interface. The port accepts a Mini-B type USB cable plug. A USB cable with Mini-B and Type A USB plugs is supplied with the services gateway. To use the USB console port, you must download a USB driver to the management station from the Juniper Networks website.

Table 6: SRX550 Services Gateway Front Panel Components (*continued*)

Number	Component	Location	Description
4	AUX Port	Left side of the front chassis panel	NOTE: The Auxiliary port is not supported on the SRX550 Services Gateway.
5	Electrostatic discharge (ESD) outlet	Left side of the front chassis panel	While working on the services gateway, use the ESD outlet to plug in an ESD grounding strap to prevent your body from sending static charges to the services gateway, which will damage the device.
6	USB 0 and USB 1 ports	Left side of the front chassis panel	<p>The services gateway has two USB ports, labeled USB 0 and USB 1, that accept a USB storage device. These USB ports accept USB flash drives with Type A plugs. When the USB drive is installed and configured, it automatically acts as the secondary boot device if the primary CompactFlash card fails on startup.</p> <p>NOTE: You must install Junos OS on the USB storage device to use it as the secondary boot device. The services gateway supports the following USB devices:</p> <ul style="list-style-type: none"> • Lexar 2 GB • Juniper Networks 2 GB <p>Depending on the capacity of the USB drive, you can also configure it to receive core files generated during a failure.</p>
7	Power button	Left side of the front chassis panel	<p>Use the Power button to shut down the services gateway.</p> <p>On a services gateway that has been previously shut down using the Power button, when the power button is pressed again the services gateway starts up.</p> <p>WARNING: The Power button does not shut off power to the power supplies or the midplane. You must remove the power cables or power cords to completely shut down the services gateway. The DC OK LED light on the power supply unit (PSU) changes from green to amber indicating that the software has stopped running. After the software has stopped running, you can safely remove any GPIMs or Mini-PIMs from the services gateway.</p>
8	RESET CONFIG Button	Left side of the front chassis panel	Returns the services gateway to the rescue configuration or the factory default configuration. For more information, see “Resetting the SRX550 Services Gateway” on page 136 .

Table 6: SRX550 Services Gateway Front Panel Components (*continued*)

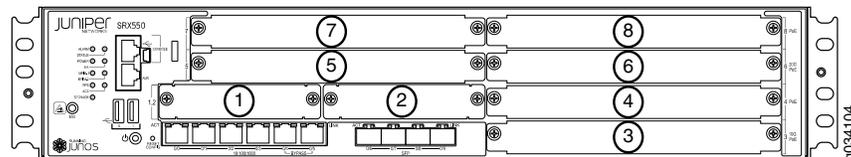
Number	Component	Location	Description
9	<p>6 fixed Gigabit Ethernet ports:</p> <ul style="list-style-type: none"> • Port labeled 0/0 • Port labeled 0/1 • Port labeled 0/2 • Port labeled 0/3 • Port labeled 0/4 • Port labeled 0/5 <p>Provides link speeds of 10/100/1000 Mbps.</p>	Left side of the front chassis panel, lower edge	<p>The Gigabit Ethernet ports have the following characteristics:</p> <ul style="list-style-type: none"> • Use an RJ-45 connector. • Operate in full-duplex and half-duplex modes. • Support flow control. • Support autonegotiation. <p>The Gigabit Ethernet ports can:</p> <ul style="list-style-type: none"> • Function as front-end network ports. • Provide LAN and WAN connectivity to hubs, switches, local servers, and workstations. • Forward incoming data packets to the services gateway. • Receive outgoing data packets from the services gateway. <p>NOTE: LAN bypass is not supported on the services gateway.</p>
10	<p>4 SFP Ethernet ports:</p> <ul style="list-style-type: none"> • Port labeled 0/6 • Port labeled 0/7 • Port labeled 0/8 • Port labeled 0/9 <p>Provides link speeds of 10/100/1000 Mbps.</p>	Middle of the front chassis panel, lower edge	<p>The SFP Ethernet ports have the following characteristics:</p> <ul style="list-style-type: none"> • Operate in full-duplex and half-duplex modes. • Support flow control. • Support autonegotiation. <p>The SFP Ethernet ports can:</p> <ul style="list-style-type: none"> • Function as front-end network ports. • Provide LAN and WAN connectivity to hubs, switches, local servers, and workstations. • Forward incoming data packets to the services gateway. • Receive outgoing data packets from the services gateway.
11	2 Mini-PIM slots numbered 1 and 2	Left side of the front chassis panel	Both slots support Mini-PIMs.

Table 6: SRX550 Services Gateway Front Panel Components (*continued*)

Number	Component	Location	Description
12	6 GPIM slots numbered 3 through 8. For specific GPIM/XPIM slots, see Figure 3 on page 17	Front chassis panel	<ul style="list-style-type: none"> All slots support GPIMs. Slot 3 supports 10-gigabit XPIMs. Slot 6 supports 20-gigabit XPIMs. Slots 3, 4, 6, and 8 support PoE. For more information about PoE, see “SRX550 Services Gateway Power over Ethernet” on page 8. <p>NOTE: SRX550 Services Gateway does not support hot-swappable functionality for GPIMs and XPIMs</p>
13	Mounting brackets	Sides of chassis	<p>Rack-mounting brackets attached when the services gateway is mounted on a rack.</p> <p>The mounting brackets are used to attach the services gateway to a rack or cabinet.</p>

[Figure 3 on page 17](#) shows how the slots on the front panel of the SRX550 Services Gateway are numbered.

Figure 3: SRX550 Services Gateway Slot Numbers



Related Documentation

- [SRX550 Services Gateway Front Panel LEDs on page 17](#)
- [SRX550 Services Gateway Chassis on page 13](#)
- [SRX550 Services Gateway Back Panel on page 20](#)

SRX550 Services Gateway Front Panel LEDs

[Figure 4 on page 18](#) shows the locations of the SRX550 Services Gateway front panel LEDs. [Table 7 on page 18](#) describes the LEDs.

Figure 4: SRX550 Services Gateway Front Panel LED Locations

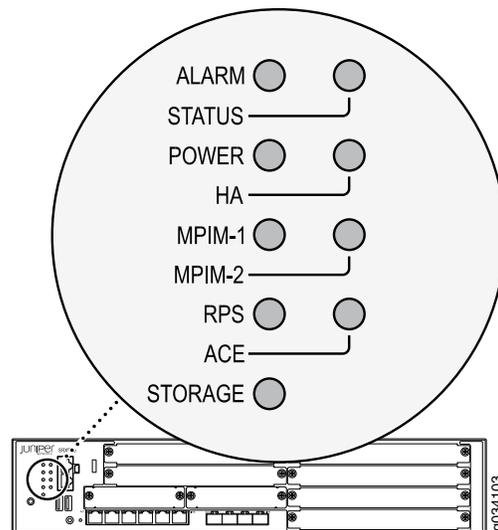


Table 7: SRX550 Services Gateway Front Panel LEDs

LED Label	LED State	LED Color	Description
ALARM	On Steadily	Amber	Indicates a major alarm, such as low Services Processing Unit (SPU) memory (less than 10% remaining), session full, maximum number of VPN tunnels reached, high availability (HA) status changed, or redundant group member not found.
		Red	Indicates a critical alarm, such as a failure of a hardware component or software module.
	Off	Unlit	indicates that the device is starting up. NOTE: When the system is up and running, if the ALARM LED is off, it indicates that no alarms are active on the device.
STATUS	On Steadily	Green	The services gateway is functioning normally.
		Amber	The services gateway is starting up, running diagnostics, or shutting down.
		Red	The services gateway has failed.
	Off	Unlit	The services gateway is powered off.

Table 7: SRX550 Services Gateway Front Panel LEDs (*continued*)

LED Label	LED State	LED Color	Description
POWER	Steadily on	Green	The services gateway is functioning normally and that the services gateway and all power supply units (PSUs) are receiving power.
		Red	At least one PSU has failed.
		Amber	The Power button has been pressed and that the services gateway is shutting down.
	Off	Unlit	The services gateway is not receiving power.
HA	Steadily on	Green	All configured high availability links are available.
		Red	High availability links are not working as expected and a cluster member might be missing or unreachable.
		Amber	Some configured high availability links are down, but enough links are still active for full high availability functionality. In this situation, performance might be reduced, current bandwidth could cause packet drops, or a single point of failure might now exist.
	Off	Unlit	High availability is not enabled.
MPIM-1, MPIM-2	On Steadily	Green	The Mini-PIM in the corresponding slot is functioning normally.
		Red	The Mini-PIM hardware in the corresponding slot has failed or its anti-counterfeit check failed.
	Off	Unlit	There is no Mini-PIM in the corresponding slot, or that the Mini-PIM is not detected by the device.
RPS	On Steadily	Green	The redundant power supply is operating normally
		Red	One of the following conditions has occurred: <ul style="list-style-type: none"> The primary power supply has failed, and the device is being powered by the redundant power supply. The redundant power supply has been installed, but is not connected to a power source.
	Off	Unlit	The redundant power supply is not installed.
ACE	NOTE: The ACE LED is not functional.		

Table 7: SRX550 Services Gateway Front Panel LEDs (*continued*)

LED Label	LED State	LED Color	Description
STORAGE	Blinking	Green	The services gateway is transferring data to or from the optional storage device.
	On Steadily	Green	The optional storage device is installed but no data is being transferred to or from it.
	Off	Unlit	The optional storage device is not installed.

- Related Documentation**
- [SRX550 Services Gateway Front Panel on page 14](#)
 - [SRX550 Services Gateway Chassis on page 13](#)
 - [SRX550 Services Gateway Back Panel on page 20](#)

SRX550 Services Gateway Back Panel

Figure 5 on page 20 shows the back panel of the SRX550 Services Gateway.

Figure 5: SRX550 Services Gateway Back Panel

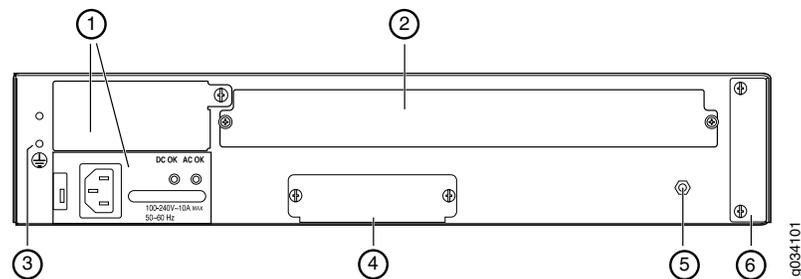


Table 8 on page 21 describes the components on the back panel of the SRX550 Services Gateway with reference to Figure 5 on page 20.

Table 8: SRX550 Services Gateway Back Panel Components

Number	Component	Location	Description	Usage
1	Two power supply slots. Each power supply contains a power cord outlet. One 645 W AC power supply is provided with the services gateway.	Left side of back panel	<p>The power supply provides power to the services gateway and its components. When the services gateway is equipped with the two power supply option, they work together to provide redundancy and load-sharing.</p> <p>The following power supplies are available:</p> <ul style="list-style-type: none"> • 645 W AC power supply with PoE power • 645 W DC power supply with PoE power 	<p>Power supplies are hot-swappable and support single- or dual-redundant power supply versions.</p> <p>If you need to power off the services gateway after it finishes booting, first use the CLI to halt the device.</p>
2	ACE Slot	Top center of the back panel	NOTE: This slot is not used.	
3	Grounding point	Left side of the back panel	Contains two M4 screws that you use to connect the grounding cable to the services gateway chassis.	Connects the services gateway chassis to earth ground.
4	Storage slot	Center of the back panel, lower edge	Slot where you can install an extra data storage device.	Supplements the data storage capacity of the services gateway.
5	Electrostatic discharge (ESD) outlet	Right side of the back panel	Connector for an ESD wrist band.	While working on the services gateway, use the ESD outlet to plug in an ESD grounding strap to prevent any damage to the services gateway.
6	Air filter cover	Right of the back panel	<p>Provides access to the optional air filter.</p> <p>NOTE: The air filter is not currently orderable.</p>	<p>The optional air filter helps keep the services gateway and its components free from dust particles. The air filter is hot-swappable.</p> <p>NOTE: The air filter is required for NEBS compliance.</p>

**Related
Documentation**

- [SRX550 Services Gateway Chassis on page 13](#)
- [SRX550 Services Gateway Front Panel on page 14](#)
- [SRX550 Services Gateway Power Supply on page 29](#)

Interface Module Description

- [SRX550 Services Gateway Gigabit-Backplane Physical Interface Modules on page 23](#)
- [SRX550 Services Gateway Mini-Physical Interface Modules on page 25](#)

SRX550 Services Gateway Gigabit-Backplane Physical Interface Modules

A Gigabit-Backplane Physical Interface Module (GPIM) is a network interface card (NIC) that installs in the front slots of the services gateway to provide physical connections to a LAN or a WAN. The GPIM receives incoming packets from a network and transmits outgoing packets to a network. These modules complement the onboard Ethernet interfaces to extend the types and port counts of network connections for the LAN or WAN.

Interface Module Terminology:

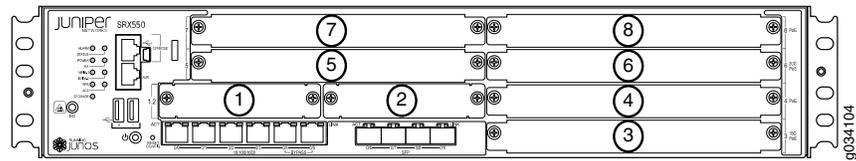
- GPIM—The Gigabit-Backplane Interface Module (GPIM) includes standard GPIMs that can be installed in a single-high, single-wide GPIM slot that has gigabit connectivity to the system backplane.
- XPIM—The XPIM can be installed only in the 10-gigabit GPIM slot 3 or in the 20-gigabit GPIM slot 6. It could be:
 - A single-high, single-wide LAN switch XPIM that uses one slot
 - A double-high, single-wide LAN switch XPIM that uses two standard slots vertically
 - A double-high, double-wide LAN switch XPIM that uses two standard slots vertically and two standard slots horizontally



NOTE: When installing the 24-Port Gigabit Ethernet XPIM, which uses four slots, you must install it in the 20-gigabit GPIM slot 6, which refers to the top four slots 5 through 8.

[Figure 6 on page 24](#) shows how the slots on the front panel of the SRX550 Services Gateway are numbered.

Figure 6: SRX550 Services Gateway Slot Numbers



CAUTION: SRX550 Services Gateway does not support hot-swappable functionality for GPIMs.

For more information about supported GPIMs and the minimum supported Junos OS release, see *SRX Series Services Gateway Interface Modules and Compatibility*

For details about the supported GPIMs and XPIMs, see the [SRX Series Services Gateways for the Branch Physical Interface Modules Hardware Guide](#).

Figure 7 on page 24, Figure 8 on page 24, and Figure 9 on page 24 show the three form factors for the services gateway GPIMs.

Figure 7: Example of a Standard GPIM (Installs in One Standard Slot)

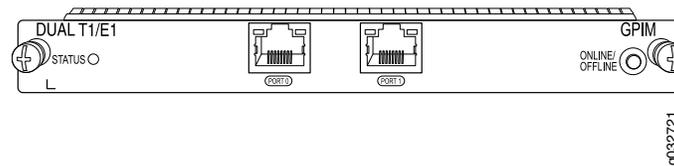


Figure 8: Example of a Double-High, Single-Wide XPIM

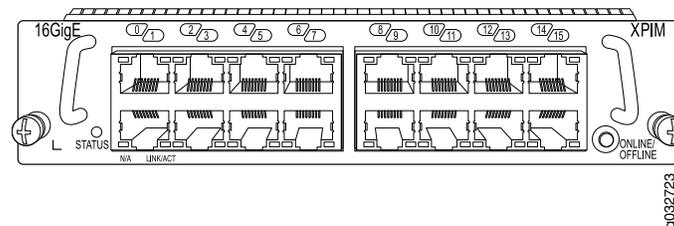
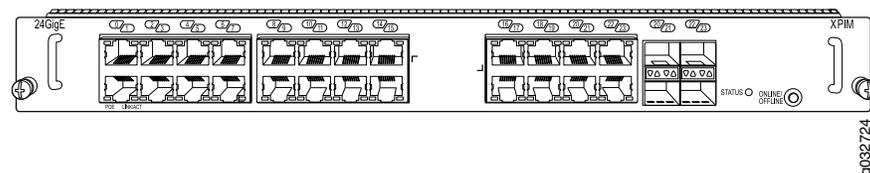


Figure 9: Example of a Double-High, Double-Wide XPIM



Because the services gateway GPIMs communicate with the backplane at various performance levels, you must install them in the correct slots.



NOTE: Remove the GPIM adapter before you install double-high, double-wide XPIM.

- Related Documentation**
- [SRX550 Services Gateway Front Panel on page 14](#)
 - [SRX550 Services Gateway Power over Ethernet on page 8](#)
 - [Installing a Double-High, Double-Wide Gigabit-Backplane Physical Interface Module on the SRX Series Services Gateway](#)
 - [Physical Interface Modules](#)

SRX550 Services Gateway Mini-Physical Interface Modules

The SRX550 Services Gateway has two slots for installing Mini-Physical Interface Modules (Mini-PIMs).

A Mini-PIM is a network interface card that is installed in the services gateway to provide physical connections to a LAN or WAN. The Mini-PIMs supported on the services gateway are field-replaceable units (FRUs); which you can remove or replace at your site. You can install Mini-PIMs into the two Mini-PIM slots on the front panel of the services gateway chassis.

For more information about supported Mini-PIMs and the minimum supported Junos OS release, see *SRX Series Services Gateway Interface Modules and Compatibility*.

For more information about supported Mini-PIMs, including how to install and configure Mini-PIMs, see the [SRX Series Services Gateways for the Branch Physical Interface Modules Hardware Guide](#).

- Related Documentation**
- [SRX550 Services Gateway Front Panel on page 14](#)
 - [SRX550 Services Gateway Power over Ethernet on page 8](#)
 - [Physical Interface Modules](#)

CHAPTER 5

Cooling System Description

- [SRX550 Services Gateway Cooling System on page 27](#)

SRX550 Services Gateway Cooling System

The SRX550 Services Gateway cooling system consists of four fixed fans. The fans provide cooling to the components installed in the services gateway. To function properly, the entire cooling system requires an unobstructed airflow and proper clearance around the site.

The fan controller constantly monitors the temperature of the services gateway and all modules (Mini-PIMs and GPIMs) installed in the device. Under normal operating conditions, the fans function at lower than full speed.

If any one of the four fans fails, the services gateway generates a warning but keeps the system running. If the temperature keeps rising, the services gateway lowers the power consumption by reducing the performance or shutting down some of the chassis components. However, if the ambient maximum temperature specification exceeds the warning limit and the system cannot be adequately cooled, then the services gateway shuts down the system and hardware components completely.

Related Documentation

- [SRX550 Services Gateway Chassis on page 13](#)
- [SRX550 Services Gateway Description on page 3](#)
- [SRX550 Services Gateway Front Panel on page 14](#)
- [SRX550 Services Gateway Back Panel on page 20](#)

Power System Description

- SRX550 Services Gateway Power Supply on page 29

SRX550 Services Gateway Power Supply

The SRX550 Services Gateway uses either one AC or one DC power supply unit (PSU). The services gateway is equipped with one AC power supply (see [Figure 10 on page 29](#)) for non-power redundancy. A second PSU is optional (sold separately) for power redundancy. A second PSU can be used to meet power requirements exceeding the wattage provided by a single PSU (a nonredundant configuration). The two power supplies, either both AC or both DC, will load-share and provide power redundancy to the services gateway, increasing its availability and reliability. If one power supply fails or is removed, the other power supply redistributes the electrical load without interruption. The services gateway reassesses the power required to support its configuration and issues errors if the available power is insufficient. [Figure 11 on page 30](#) shows the diagram of the DC power supply.



CAUTION: Do not mix AC and DC power supplies within the same services gateway because this can damage the device.

All power supplies are hot-swappable and support single or dual redundant power supply versions. Each power supply is cooled by the system's fans.

Figure 10: AC Power Supply

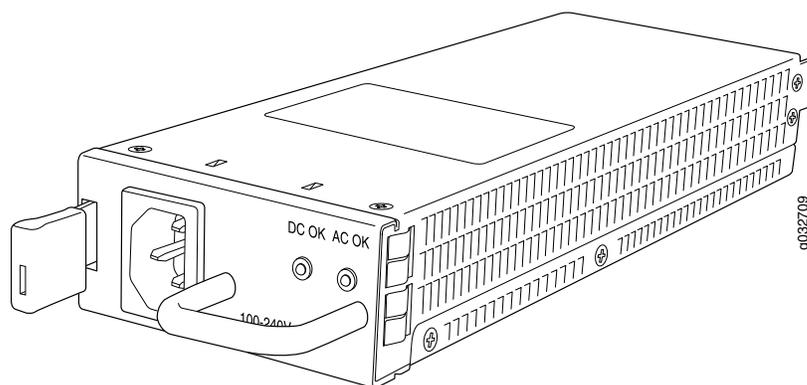
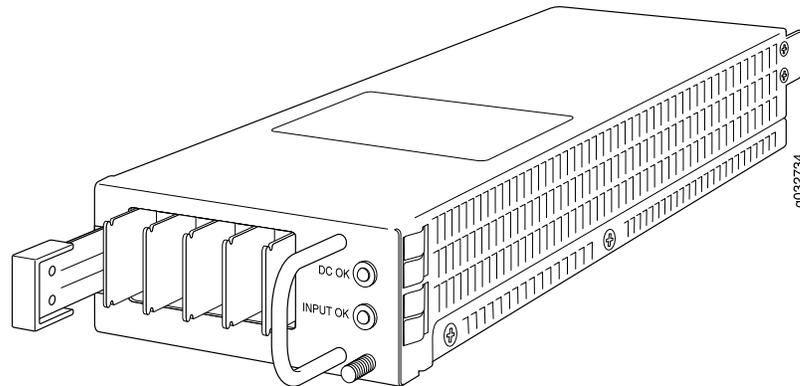


Figure 11: DC Power Supply



The power supplies provide different output wattage to the services gateway components according to the voltage requirements of the components.

The power supply components are listed in [Table 9 on page 30](#).

Table 9: Component Power Output/Consumption

Power Supply	Output/Consumption
645 W AC power supply	<p>This power supply can provide:</p> <ul style="list-style-type: none"> • 390 W at 12 V • 255 W PoE on a single power supply, or with redundancy using the two power supplies • 510 W PoE using the two power supply option operating as nonredundant <p>NOTE: Using the two power supply option operating as nonredundant for up to 510 W PoE power, the administrator has the ability to prioritize the PoE ports that will receive power if an outage should occur to either the power source or to one of the power supplies.</p>
645 W DC power supply	<p>This power supply can provide:</p> <ul style="list-style-type: none"> • 390 W at 12 V • 255 W PoE on a single power supply, or with redundancy using the two power supply option • 510 W PoE using the two power supply option operating as nonredundant <p>NOTE: Using the two power supply options operating as nonredundant for up to 510 W PoE, the administrator has the ability to prioritize the PoE ports that will receive power if an outage should occur to either the power source or to one of the power supplies.</p>

The DC power supply has connections for two DC power feeds labeled A and B, each with a positive (+) and a negative (-) terminal. You can connect the DC power supply to both the feeds. If either feed fails, the power supply draws all its power from the other

feed. This configuration provides the commonly deployed A/B feed redundancy for the system. [Table 10 on page 31](#) describes the connection terminals on the DC power supply.

Table 10: DC Power Supply Terminals

Feed	Label	Description
Feed A	A+	RTN connection for Feed A
	A-	-48VDC connection for Feed A
Feed B	B+	RTN connection for Feed B
	B-	-48VDC connection for Feed B

**Related
Documentation**

- [SRX550 Services Gateway Chassis on page 13](#)
- [SRX550 Services Gateway Front Panel on page 14](#)
- [SRX550 Services Gateway Back Panel on page 20](#)
- [SRX550 Services Gateway Cooling System on page 27](#)
- [Troubleshooting the Power System on the SRX550 Services Gateway on page 132](#)

PART 2

Site Planning and Specifications

- Planning and Preparing the Site on page 35
- Rack Requirements on page 39
- Cabinet Requirements on page 47
- Power Requirements and Specifications on page 49
- Cable Specifications and Pinouts on page 55

CHAPTER 7

Planning and Preparing the Site

- Site Preparation Checklist for the SRX550 Services Gateway on page 35
- General Site Installation Guidelines for the SRX550 Services Gateway on page 37
- SRX550 Services Gateway Environmental Specifications on page 38

Site Preparation Checklist for the SRX550 Services Gateway

The checklist in [Table 11 on page 35](#) summarizes the tasks you need to perform when preparing a site for installing the SRX550 Services Gateway.

Table 11: Site Preparation Checklist for SRX550 Services Gateway Installation

Item or Task	Additional Information	Performed By	Date	Notes
Power				
Measure distance between external power sources and device installation site.	"SRX550 Services Gateway Electrical Wiring Guidelines" on page 49			
Locate sites for connection of system grounding.	"Grounding the SRX550 Services Gateway" on page 78			
Calculate the power consumption and requirements.	"SRX550 Services Gateway AC Power Supply Electrical Specifications" on page 52 and "SRX550 Services Gateway DC Power Supply Electrical Specifications" on page 53			
Environment				

Table 11: Site Preparation Checklist for SRX550 Services Gateway Installation (continued)

Item or Task	Additional Information	Performed By	Date	Notes
Verify that environmental factors such as temperature and humidity do not exceed device tolerances.	"SRX550 Services Gateway Environmental Specifications" on page 38			
Rack Installation				
Verify that your rack meets the minimum requirements.	"SRX550 Services Gateway Rack Size and Strength Requirements" on page 43			
Plan rack location, including required space clearances.	"SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes" on page 43			
Secure the rack to the floor and building structure.	"Connecting the SRX550 Services Gateway to the Building Structure" on page 70			
Cabinet Installation				
Verify that your cabinet meets the minimum requirements.	"SRX550 Services Gateway Cabinet Size and Clearance Requirements" on page 47			
Plan the cabinet location, including required space clearances.	"SRX550 Services Gateway Cabinet Airflow Requirements" on page 48			
Cables				
Acquire cables and connectors.	"Interface Cabling and Wiring Specifications for the SRX550 Services Gateway" on page 55			
Review the maximum distance allowed for each cable. Choose the length of cable based on the distance between the hardware components being connected.				

Table 11: Site Preparation Checklist for SRX550 Services Gateway Installation (continued)

Item or Task	Additional Information	Performed By	Date	Notes
Plan the cable routing and management.				

Related Documentation

- [SRX550 Services Gateway Chassis on page 13](#)
- [Installation Overview for the SRX550 Services Gateway on page 61](#)
- [General Site Installation Guidelines for the SRX550 Services Gateway on page 37](#)

General Site Installation Guidelines for the SRX550 Services Gateway

The following precautions help you plan an acceptable operating environment for your SRX550 Services Gateway and avoid environmentally caused equipment failures:

- For the cooling system to function properly, the airflow around the chassis must be unrestricted. Allow sufficient clearance between the front and back of the chassis and adjacent equipment. Ensure that there is adequate circulation in the installation location.
- Follow the ESD procedures to prevent any damage equipment. Static discharge can cause components to fail completely or intermittently over time. For more information, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
- Ensure that the blank panels are installed into empty slots to prevent any interruption or reduction in the flow of air across internal components.



NOTE: Install the services gateway only in restricted areas, such as dedicated equipment rooms and equipment closets, in accordance with Articles 110–16, 110–17, and 110–18 of the National Electrical Code, ANSI/NFPA 70.

Related Documentation

- [SRX550 Services Gateway Chassis on page 13](#)
- [SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47](#)
- [SRX550 Services Gateway Rack Size and Strength Requirements on page 43](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)

SRX550 Services Gateway Environmental Specifications

Table 12 on page 38 provides the required environmental conditions for normal SRX550 Services Gateway operations. In addition, the site must be as dust-free as possible because dust can clog air intake vents, reducing the efficiency of the cooling system.

Table 12: SRX550 Services Gateway Environmental Specifications

Description	Value
Altitude	No performance degradation to 13,000 ft (3962.4 m)
Relative humidity	Normal operation ensured in relative humidity range of 5% to 90%, noncondensing
Temperature	Normal operation ensured in temperature range of 32°F (0°C) to 104°F (40°C) Nonoperating storage temperature in shipping container: -40°F (-40°C) to 158°F (70°C)
Seismic	Designed to meet Telcordia Technologies Zone 4 earthquake requirements
Maximum thermal output	AC power: 4400 BTU/hour DC power with one 645 W power supply unit: 2200 BTU/hour DC power with two 645 W power supply units, nonredundant: 4400 BTU/hour NOTE: These specifications are estimates and subject to change.



NOTE: Install the services gateway only in restricted areas, such as dedicated equipment rooms and equipment closets, in accordance with Articles 110–16, 110–17, and 110–18 of the National Electrical Code, ANSI/NFPA 70.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Routine Maintenance Procedures for the SRX550 Services Gateway on page 125](#)

CHAPTER 8

Rack Requirements

- [Rack-Mounting Requirements and Warnings on page 39](#)
- [SRX550 Services Gateway Rack Size and Strength Requirements on page 43](#)
- [SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes on page 43](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)

Rack-Mounting Requirements and Warnings

Ensure that the equipment rack into which the services gateway is installed is evenly and securely supported to avoid hazardous conditions that could result from uneven mechanical loading.



WARNING: To prevent bodily injury when mounting or servicing the services gateway in a rack, take the following precautions to ensure that the system remains stable. The following directives help maintain your safety:

- The services gateway must be installed in a rack that is secured to the building structure.
- The services gateway should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting the services gateway 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 services gateway in the rack.

Waarschuwing Om lichamelijk letsel te voorkomen wanneer u dit toestel in een rek monteert of het daar een servicebeurt geeft, moet u speciale voorzorgsmaatregelen nemen om ervoor te zorgen dat het toestel stabiel blijft. De onderstaande richtlijnen worden verstrekt om uw veiligheid te verzekeren:

- De Juniper Networks services gateway moet in een stelling worden geïnstalleerd die aan een bouwsel is verankerd.
- Dit toestel dient onderaan in het rek gemonteerd te worden als het toestel het enige in het rek is.
- Wanneer u dit toestel in een gedeeltelijk gevuld rek monteert, dient u het rek van onderen naar boven te laden met het zwaarste onderdeel onderaan in het rek.
- Als het rek voorzien is van stabiliseringshulpmiddelen, dient u de stabilisatoren te monteren voordat u het toestel in het rek monteert of het daar een servicebeurt geeft.

Varoitus Kun laite asetetaan telineeseen tai huolletaan sen ollessa telineessä, on noudatettava erityisiä varotoimia järjestelmän vakavuuden säilyttämiseksi, jotta vältetään loukkaantumiselta. Noudata seuraavia turvallisuusohjeita:

- Juniper Networks services gateway on asennettava telineeseen, joka on kiinnitetty rakennukseen.
- Jos telineessä ei ole muita laitteita, aseta laite telineen alaosaan.
- Jos laite asetetaan osaksi täytettyyn telineeseen, aloita kuormittaminen sen alaosasta kaikkein raskaimmalla esineellä ja siirry sitten sen yläosaan.
- Jos telinettä varten on vakaimet, asenna ne ennen laitteen asettamista telineeseen tai sen huoltamista siinä.

Attention Pour éviter toute blessure corporelle pendant les opérations de montage ou de réparation de cette unité en casier, il convient de prendre des précautions spéciales afin de maintenir la stabilité du système. Les directives ci-dessous sont destinées à assurer la protection du personnel:

- Le rack sur lequel est monté le Juniper Networks services gateway doit être fixé à la structure du bâtiment.
- Si cette unité constitue la seule unité montée en casier, elle doit être placée dans le bas.
- Si cette unité est montée dans un casier partiellement rempli, charger le casier de bas en haut en plaçant l'élément le plus lourd dans le bas.
- Si le casier est équipé de dispositifs stabilisateurs, installer les stabilisateurs avant de monter ou de réparer l'unité en casier.

Warnung Zur Vermeidung von Körperverletzung beim Anbringen oder Warten dieser Einheit in einem Gestell müssen Sie besondere Vorkehrungen treffen, um sicherzustellen, daß das System stabil bleibt. Die folgenden Richtlinien sollen zur Gewährleistung Ihrer Sicherheit dienen:

- Der Juniper Networks services gateway muß in einem Gestell installiert werden, das in der Gebäudestruktur verankert ist.
- Wenn diese Einheit die einzige im Gestell ist, sollte sie unten im Gestell angebracht werden.
- Bei Anbringung dieser Einheit in einem zum Teil gefüllten Gestell ist das Gestell von unten nach oben zu laden, wobei das schwerste Bauteil unten im Gestell anzubringen ist.
- Wird das Gestell mit Stabilisierungszubehör geliefert, sind zuerst die Stabilisatoren zu installieren, bevor Sie die Einheit im Gestell anbringen oder sie warten.

Avvertenza Per evitare infortuni fisici durante il montaggio o la manutenzione di questa unità in un supporto, occorre osservare speciali precauzioni per garantire che il sistema rimanga stabile. Le seguenti direttive vengono fornite per garantire la sicurezza personale:

- Il Juniper Networks services gateway deve essere installato in un telaio, il quale deve essere fissato alla struttura dell'edificio.
- Questa unità deve venire montata sul fondo del supporto, se si tratta dell'unica unità da montare nel supporto.
- Quando questa unità viene montata in un supporto parzialmente pieno, caricare il supporto dal basso all'alto, con il componente più pesante sistemato sul fondo del supporto.
- Se il supporto è dotato di dispositivi stabilizzanti, installare tali dispositivi prima di montare o di procedere alla manutenzione dell'unità nel supporto.

Advarsel Unngå fysiske skader under montering eller reparasjonsarbeid på denne enheten når den befinner seg i et kabinett. Vær nøye med at systemet er stabilt. Følgende retningslinjer er gitt for å verne om sikkerheten:

- Juniper Networks services gateway må installeres i et stativ som er forankret til bygningsstrukturen.
- Denne enheten bør monteres nederst i kabinettet hvis dette er den eneste enheten i kabinettet.
- Ved montering av denne enheten i et kabinett som er delvis fylt, skal kabinettet lastes fra bunnen og opp med den tyngste komponenten nederst i kabinettet.
- Hvis kabinettet er utstyrt med stabiliseringsutstyr, skal stabilisatorene installeres før montering eller utføring av reparasjonsarbeid på enheten i kabinettet.

Aviso Para se prevenir contra danos corporais ao montar ou reparar esta unidade numa estante, deverá tomar precauções especiais para se certificar

de que o sistema possui um suporte estável. As seguintes directrizes ajudá-lo-ão a efectuar o seu trabalho com segurança:

- O Juniper Networks services gateway deverá ser instalado numa prateleira fixa à estrutura do edifício.
- Esta unidade deverá ser montada na parte inferior da estante, caso seja esta a única unidade a ser montada.
- Ao montar esta unidade numa estante parcialmente ocupada, coloque os itens mais pesados na parte inferior da estante, arrumando-os de baixo para cima.
- Se a estante possuir um dispositivo de estabilização, instale-o antes de montar ou reparar a unidade.

¡Atención! Para evitar lesiones durante el montaje de este equipo sobre un bastidor, o posteriormente durante su mantenimiento, se debe poner mucho cuidado en que el sistema quede bien estable. Para garantizar su seguridad, proceda según las siguientes instrucciones:

- El Juniper Networks services gateway debe instalarse en un bastidor fijado a la estructura del edificio.
- Colocar el equipo en la parte inferior del bastidor, cuando sea la única unidad en el mismo.
- Cuando este equipo se vaya a instalar en un bastidor parcialmente ocupado, comenzar la instalación desde la parte inferior hacia la superior colocando el equipo más pesado en la parte inferior.
- Si el bastidor dispone de dispositivos estabilizadores, instalar éstos antes de montar o proceder al mantenimiento del equipo instalado en el bastidor.

Varning! För att undvika kroppsskada när du installerar eller utför underhållsarbete på denna enhet på en ställning måste du vidta särskilda försiktighetsåtgärder för att försäkra dig om att systemet står stadigt. Följande riktlinjer ges för att trygga din säkerhet:

- Juniper Networks services gateway måste installeras i en ställning som är förankrad i byggnadens struktur.
- Om denna enhet är den enda enheten på ställningen skall den installeras längst ned på ställningen.
- Om denna enhet installeras på en delvis fylld ställning skall ställningen fyllas nedifrån och upp, med de tyngsta enheterna längst ned på ställningen.
- Om ställningen är försedd med stabiliseringsdon skall dessa monteras fast innan enheten installeras eller underhålls på ställningen.

Related Documentation • [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)

- [Installation Instructions Warning on page 62](#)
- [SRX550 Services Gateway Fire Safety Requirements and Fire Suppression Equipment on page 167](#)

SRX550 Services Gateway Rack Size and Strength Requirements

When installing the SRX550 Services Gateway in a rack, you must ensure that the rack complies with a 2U (19 in. or 45.6 cm) rack as defined in *Cabinets, Racks, Panels, and Associated Equipment* (document number EIA-310-D) published by the Electronic Industries Alliance (<http://www.ecaus.org/eia/site/index.html>).

When selecting a rack, ensure that the physical characteristics of the rack comply with the following specifications:

- The outer edges of the mounting brackets extend the width of the chassis to 19 in. (45.6 cm).
- The front of the chassis extends approximately 0.5 in. (1.27 cm) beyond the mounting ears.

Related Documentation

- [General Site Installation Guidelines for the SRX550 Services Gateway on page 37](#)
- [SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)
- [SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes on page 43](#)
- [Connecting the SRX550 Services Gateway to the Building Structure on page 70](#)

SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes

The spacing of the mounting brackets and flange holes on the rack and device mounting brackets are as follows:

- The holes within each rack set are spaced at 2U (3.5 in. or 8.89 cm). The services gateway can be mounted in any rack that provides holes or hole patterns spaced at 1U (1.75 in. or 4.5 cm) increments.
- The mounting brackets and front-mount flanges used to attach the chassis to a rack are designed to fasten to holes spaced at rack distances of 2U (3.5 in.).
- The mounting holes in the mounting brackets provided with the device chassis are spaced 1.25 in. (3.2 cm) apart, measured from the center of each hole.

Related Documentation

- [General Site Installation Guidelines for the SRX550 Services Gateway on page 37](#)
- [SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)
- [SRX550 Services Gateway Rack Size and Strength Requirements on page 43](#)

- [Connecting the SRX550 Services Gateway to the Building Structure on page 70](#)

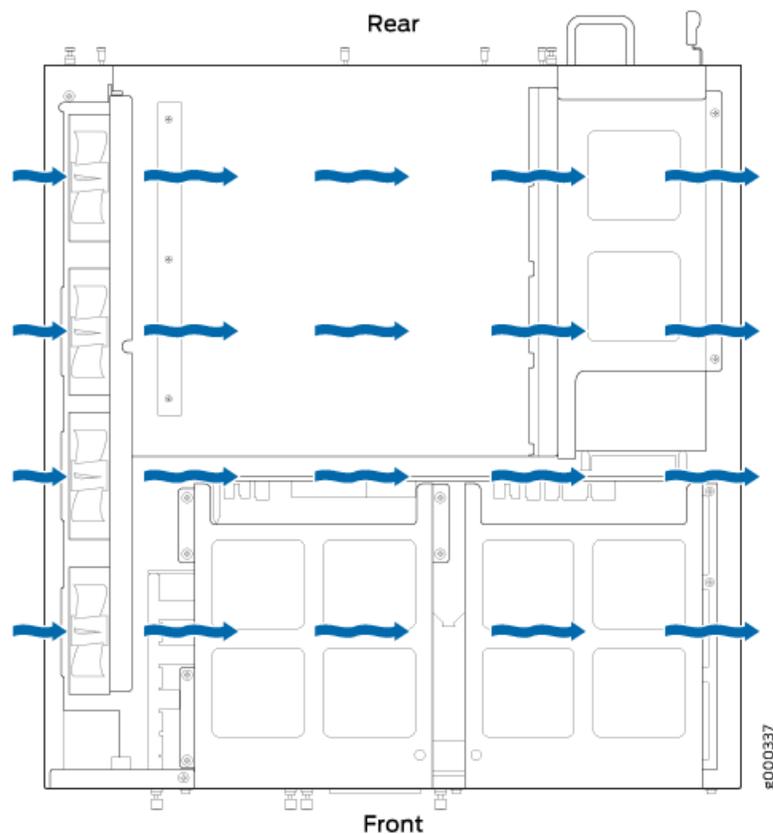
Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway

When planning the installation site for the SRX550 Services Gateway, you need to allow sufficient clearance around the rack.

When planning the installation site for the services gateway, consider the following:

- For the cooling system to function properly, the airflow around the chassis must be unrestricted. [Figure 12 on page 44](#) shows the direction of airflow through the chassis.

Figure 12: Airflow Through the Chassis



- For service personnel to remove and install hardware components, there must be adequate space at the front and back of the services gateway as indicated in [Table 13 on page 45](#).
- If you are mounting the services gateway in a rack with other equipment, ensure that the exhaust from other equipment does not blow into the intake vents of the chassis.

Table 13 on page 45 provides information about the clearance requirements for maintaining optimum airflow and the distances to facilitate easy maintenance of the services gateway.

Table 13: Clearance Requirements for the SRX550 Services Gateway

Location	Recommended Clearance	Requirement for Clearance
Front of the chassis	8.7 in. (22 cm)	Space for service personnel to remove and install hardware components
Rear of the chassis	17.4 in. (44.2 cm)	Space for service personnel to remove and install hardware components
Between front-mounting flange and rack or cabinet edge	2.5 in. (6.35 cm)	Space for cable management and organization
Between both sides of the chassis and any non-heat-producing surface such as a wall or cabinet side	6.0 in. (15.24 cm)	Space for the cooling system to function properly and to maintain unrestricted airflow around the chassis

Related Documentation

- [SRX550 Services Gateway Description on page 3](#)
- [SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)
- [SRX550 Services Gateway Rack Size and Strength Requirements on page 43](#)
- [General Site Installation Guidelines for the SRX550 Services Gateway on page 37](#)

CHAPTER 9

Cabinet Requirements

- SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47
- SRX550 Services Gateway Cabinet Airflow Requirements on page 48

SRX550 Services Gateway Cabinet Size and Clearance Requirements

You can install the SRX550 Services Gateway in a 19 in. (48.3 cm) cabinet as defined in *Cabinets, Racks, Panels, and Associated Equipment* (document number EIA-310-D) published by the Electronic Industries Alliance (<http://www.eiaus.org/eia/site/index.html>). You must mount the services gateway horizontally in the cabinet.



NOTE: The holes in the mounting brackets chassis are spaced 1.25 in (3.2 cm) apart, measured from the center of the hole.

When selecting a cabinet, ensure that the physical characteristics of the cabinet comply with the following specifications:

- The cabinet is at least 2U (3.50 in. or 8.89 cm) and can accommodate the services gateway.
- The outer edges of the mounting brackets extend the width of either chassis to 19 in. (48.2 cm), and the front of the chassis extends approximately 0.5 in (1.27 cm) beyond the mounting brackets.
- The minimum total clearance inside the cabinet is 30.7 in. (78 cm) between the inside of the front door and the inside of the rear door.



NOTE: A cabinet larger than the minimum required provides better airflow and reduces the chance of overheating.

Related Documentation

- SRX550 Services Gateway Chassis on page 13
- SRX550 Services Gateway Cabinet Airflow Requirements on page 48
- SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes on page 43
- SRX550 Services Gateway Rack Size and Strength Requirements on page 43

- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)

SRX550 Services Gateway Cabinet Airflow Requirements

When you mount the SRX550 Services Gateway in a cabinet, you must ensure that ventilation through the cabinet is sufficient to prevent overheating. Consider the following when planning for chassis cooling:

- Ensure that the cool air supply you provide through the cabinet can adequately dissipate the thermal output of the services gateway.
- Install the services gateway as close as possible to the front of the cabinet so that the cable management system clears the inside of the front door. Installing the chassis close to the front of the cabinet maximizes the clearance in the rear of the cabinet for critical airflow.
- Route and dress all cables to minimize the blockage of airflow to and from the chassis.

Related Documentation

- [SRX550 Services Gateway Chassis on page 13](#)
- [SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47](#)
- [SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes on page 43](#)
- [SRX550 Services Gateway Rack Size and Strength Requirements on page 43](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)

Power Requirements and Specifications

- [SRX550 Services Gateway Electrical Wiring Guidelines on page 49](#)
- [SRX550 Services Gateway Supported AC Power Cords on page 50](#)
- [SRX550 Services Gateway AC Power Supply Electrical Specifications on page 52](#)
- [SRX550 Services Gateway DC Power Cable Specifications on page 52](#)
- [SRX550 Services Gateway DC Power Supply Electrical Specifications on page 53](#)
- [SRX550 Services Gateway Power Requirements on page 54](#)

SRX550 Services Gateway Electrical Wiring Guidelines

[Table 14 on page 49](#) describes the factors you must consider while planning the electrical wiring for the SRX550 Services Gateway at your site.



CAUTION: It is particularly important to provide a properly grounded and shielded environment and to use electrical surge-suppression devices.

Table 14: Site Electrical Wiring Guidelines for the SRX550 Services Gateway

Site Wiring Factor	Guideline
Signaling limitations	<p>To ensure that signaling functions optimally:</p> <ul style="list-style-type: none"> • Install wires correctly. Improperly installed wires can emit radio interference. • Do not exceed the recommended distances or pass wires between buildings. The potential for damage from lightning strikes increases if wires exceed recommended distances or if wires pass between buildings. • Shield all conductors. The electromagnetic pulse (EMP) caused by lightning can damage unshielded conductors and destroy electronic devices.

Table 14: Site Electrical Wiring Guidelines for the SRX550 Services Gateway (continued)

Site Wiring Factor	Guideline
Radio frequency interference (RFI)	<p>To reduce or eliminate the emission of RFI from your site wiring:</p> <ul style="list-style-type: none"> • Use twisted-pair cable with a good distribution of grounding conductors. • Use a high-quality twisted-pair cable with one ground conductor for each data signal when applicable, if you must exceed the recommended distances.
Electromagnetic compatibility (EMC)	<p>Provide a properly grounded and shielded environment and use electrical surge-suppression devices.</p> <p>Strong sources of electromagnetic interference (EMI) can cause the following damage:</p> <ul style="list-style-type: none"> • Destroy the signal drivers and receivers in the device. • Conduct power surges over the lines into the equipment, resulting in an electrical hazard. <p>TIP: If your site is susceptible to problems with EMC, particularly from lightning or radio transmitters, you might want to seek expert advice.</p>



CAUTION: Some ports are designed for use as intrabuilding interfaces only (Type 2 or Type 4 ports, the battery return connection is to be treated as an Isolated DC return (that is, DC-I), as defined in GR-1089-CORE) and require isolation from the exposed OSP cabling. To comply the NEBS requirements and protect against lightening surges and commercial power disturbances, the intrabuilding port(s) of the device **MUST NOT** be metallically connected to interfaces that connect to the OSP or its wiring. The intrabuilding port(s) of the device is suitable for connection to intrabuilding or unexposed wiring or cabling only. The addition of primary protectors is not sufficient protection to connect these interfaces metallically to OSP wiring.

Related Documentation

- [General Site Installation Guidelines for the SRX550 Services Gateway on page 37](#)
- [Maintaining the SRX550 Services Gateway Power Supply on page 126](#)
- [SRX550 Services Gateway Power Requirements on page 54](#)
- [SRX550 Services Gateway Environmental Specifications on page 38](#)

SRX550 Services Gateway Supported AC Power Cords



WARNING: The AC power cord for the services gateway is intended for use with the services gateway only and not for any other use.



NOTE: In North America, AC power cords must not exceed 4.5 m (approximately 14.75 ft) in length, to comply with National Electrical code (NEC) Section 400-8 (NFPA 75, 5-2.2) and 210-52, and Canadian Electrical Code (CEC) Section 4-010(3).

Table 15 on page 51 provides power cord specifications, and Figure 13 on page 51 depicts the plug on the AC power cord provided for each country or region.

Table 15: AC Power Cord Specifications

Country	Electrical Specification	Plug Standards
Australia	250 VAC, 10 A, 50 Hz	AS/NZ 3112-1993
China	250 VAC, 10 A, 50 Hz	GB2099.1 1996 and GB 1002 1996 (CH1-10P)
Europe (except Italy and United Kingdom)	250 VAC, 10 A, 50 Hz	CEE (7) VII
Italy	250 VAC, 10 A, 50 Hz	CEI 23-16/VII
Japan	125 VAC, 12 A, 50 or 60 Hz	JIS 8303
North America	125 VAC, 10 A, 60 Hz	NEMA 5-15
United Kingdom	250 VAC, 10 A, 50 Hz	BS 1363A

Figure 13: AC Plug Types



NOTE: Power cords and cables must not block access to services gateway components or drape where people might trip on them.

Related Documentation

- [SRX550 Services Gateway Power Supply on page 29](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)
- [SRX550 Services Gateway Electrical Wiring Guidelines on page 49](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)

SRX550 Services Gateway AC Power Supply Electrical Specifications

The AC power supply electrical specifications for the SRX550 Services Gateway are listed in [Table 16 on page 52](#).

Table 16: AC Power Supply Electrical Specifications for the SRX550 Services Gateway

Power Requirement	Specification
AC input voltage	100 to 240 VAC
AC input line frequency	50 to 60 Hz
AC system current rating	7.6 to 3.8 A

Related Documentation

- [SRX550 Services Gateway Power Supply on page 29](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)
- [SRX550 Services Gateway Electrical Wiring Guidelines on page 49](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)

SRX550 Services Gateway DC Power Cable Specifications

The DC power supply in slot 0 must be powered by dedicated power feeds derived from feed A, and the DC power supply in slot 1 must be powered by dedicated power feeds derived from feed B. This configuration provides the commonly deployed A/B feed redundancy for the system.



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.



WARNING: For field-wiring connections, use copper conductors only. For other electrical safety information, see [“SRX550 Services Gateway Electrical Wiring Guidelines” on page 49](#).



CAUTION: Power cords and cables must not block access to services gateway components or drape where people could trip on them.

Table 17 on page 53 summarizes the specifications for the power cable(s), which you must supply.

Table 17: DC Power Cable Specifications

Cable Type	Quantity and Specification
Power	8 AWG, minimum 60°C wire, or as permitted by the local code

Related Documentation

- [SRX550 Services Gateway Power Supply on page 29](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)
- [SRX550 Services Gateway Electrical Wiring Guidelines on page 49](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)

SRX550 Services Gateway DC Power Supply Electrical Specifications

The DC power supply electrical specifications for the SRX550 Services Gateway are listed in Table 18 on page 53.

Table 18: DC Power Supply Electrical Specifications for the SRX550 Services Gateway

Power Requirement	Specification
DC input voltage	Operating range: –40 to –72 VDC
DC system current rating	16 A at –48 VDC

Related Documentation

- [SRX550 Services Gateway Power Supply on page 29](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)
- [SRX550 Services Gateway Electrical Wiring Guidelines on page 49](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)

SRX550 Services Gateway Power Requirements

The electrical and power requirements for the SRX550 Services Gateway include factors you must consider while planning the electrical wiring and power availability at your site. These requirements are covered in the following topics:

- Power specifications and requirements for the services gateway
- Electrical wiring guidelines for the services gateway installation site
- Power, connection, and power cord specifications for the services gateway
- Grounding guidelines and specifications for the services gateway

Related Documentation

- [SRX550 Services Gateway Power Supply on page 29](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX550 Services Gateway on page 44](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)
- [SRX550 Services Gateway Electrical Wiring Guidelines on page 49](#)
- [Grounding the SRX550 Services Gateway on page 78](#)

Cable Specifications and Pinouts

- [Interface Cabling and Wiring Specifications for the SRX550 Services Gateway on page 55](#)
- [RJ-45 Connector Pinouts for the SRX550 Services Gateway Ethernet Port on page 56](#)
- [RJ-45 Connector Pinouts for the SRX550 Services Gateway Console Port on page 56](#)

Interface Cabling and Wiring Specifications for the SRX550 Services Gateway

The network interfaces supported on the services gateway accept different kinds of network cables. [Table 19 on page 55](#) lists the specifications for the cables that connect to ports on the services gateway.

Table 19: Cable and Wire Specifications for Ports and Alarm Interfaces

Port	Cable Specification	Cable/Wire Supplied	Maximum Length	Device Receptacle
Console	RS-232 (EIA-232) serial cable	One 6-ft (1.83-m) length with DB-9/DB-9 connectors	6 ft (1.83 m)	RJ-45
USB console	USB	One 6-ft (1.83-m) length with Mini-B and Type A plugs	6 ft (1.83 m)	Mini-B USB Socket
Ethernet	Category 5 cable or equivalent suitable for 100Base-T operation	One 15-ft (4.57-m) length with RJ-45/RJ-45 connectors	328 ft (100 m)	RJ-45 autosensing



NOTE: The Auxiliary port is not supported on the SRX550 Services Gateway.

Related Documentation

- [RJ-45 Connector Pinouts for the SRX550 Services Gateway Ethernet Port on page 56](#)
- [RJ-45 Connector Pinouts for the SRX550 Services Gateway Console Port on page 56](#)

RJ-45 Connector Pinouts for the SRX550 Services Gateway Ethernet Port

The port on the front panel labeled ETHERNET is an autosensing 10/100-Mbps Ethernet RJ-45 receptacle that accepts an Ethernet cable for connecting the services gateway to a management LAN (or other device that supports out-of-band management). [Table 20 on page 56](#) describes the RJ-45 connector pinouts for the Ethernet port.

Table 20: RJ-45 Connector Pinouts for Services Gateway Ethernet Port

Pin	Signal
1	TX+
2	TX-
3	RX+
4	Termination network
5	Termination network
6	RX-
7	Termination network
8	Termination network

Related Documentation

- [RJ-45 Connector Pinouts for the SRX550 Services Gateway Console Port on page 56](#)
- [Interface Cabling and Wiring Specifications for the SRX550 Services Gateway on page 55](#)

RJ-45 Connector Pinouts for the SRX550 Services Gateway Console Port

The port on the front panel labeled CONSOLE is an autosensing 10/100-Mbps Ethernet RJ-45 receptacle that accepts an RJ-45 cable for connecting the services gateway to a management LAN (or other device that supports out-of-band management). [Table 21 on page 56](#) describes the RJ-45 connector pinouts for the console port.

Table 21: RJ-45 Connector Pinouts for the Services Gateway Console Port

Pin	Signal	Description
1	RTS	Request to Send
2	DTR	Data Terminal Ready
3	TXD	Transmit Data

Table 21: RJ-45 Connector Pinouts for the Services Gateway Console Port (continued)

Pin	Signal	Description
4	Ground	Signal Ground
5	Ground	Signal Ground
6	RXD	Receive Data
7	DSR/DCD	Data Set Ready
8	CTS	Clear to Send

Related Documentation

- [RJ-45 Connector Pinouts for the SRX550 Services Gateway Ethernet Port on page 56](#)
- [Interface Cabling and Wiring Specifications for the SRX550 Services Gateway on page 55](#)

PART 3

Initial Installation and Configuration

- [Installation Overview on page 61](#)
- [Unpacking the Services Gateway on page 65](#)
- [Installing the Mounting Hardware on page 69](#)
- [Installing the Services Gateway on page 71](#)
- [Grounding the SRX550 Services Gateway on page 77](#)
- [Connecting the SRX550 Services Gateway to External Devices on page 81](#)
- [Providing Power to the SRX550 Services Gateway on page 89](#)
- [Performing Initial Configuration on page 97](#)

CHAPTER 12

Installation Overview

- [Installation Overview for the SRX550 Services Gateway on page 61](#)
- [Required Tools and Parts for Installing the SRX550 Services Gateway on page 62](#)
- [Installation Instructions Warning on page 62](#)
- [SRX550 Services Gateway Autoinstallation Overview on page 63](#)

Installation Overview for the SRX550 Services Gateway

After you have prepared the site for installation and unpacked the SRX550 Services Gateway, you are ready to install the device. It is important to proceed through the installation process in the following order:

1. Review the safety guidelines explained in [“General Electrical Safety Guidelines and Warnings” on page 183](#).
2. Prepare the services gateway for installation as described in [“Preparing the SRX550 Services Gateway for Rack-Mount Installation” on page 69](#).
3. Install the services gateway as described in [“Installing the SRX550 Services Gateway in a Rack” on page 71](#).
4. Connect cables to external devices.
5. Connect the grounding cable as described in [“Grounding the SRX550 Services Gateway” on page 78](#).
6. Power on the services gateway as described in [“Powering On the SRX550 Services Gateway” on page 94](#).

Related Documentation

- [General Electrical Safety Guidelines and Warnings on page 183](#)
- [Preparing the SRX550 Services Gateway for Rack-Mount Installation on page 69](#)
- [Installing the SRX550 Services Gateway in a Rack on page 71](#)
- [Grounding the SRX550 Services Gateway on page 78](#)
- [Powering On the SRX550 Services Gateway on page 94](#)

Required Tools and Parts for Installing the SRX550 Services Gateway

To install the services gateway, you need the following tools and parts:

- Phillips (+) screwdriver, number 2
- Tie wrap
- Electrostatic discharge (ESD) grounding wrist strap

Related Documentation

- [Installation Overview for the SRX550 Services Gateway on page 61](#)
- [Installing the SRX550 Services Gateway in a Rack on page 71](#)
- [SRX550 Services Gateway Safety Requirements, Warnings, and Guidelines on page 164](#)

Installation Instructions Warning



WARNING: Read the installation instructions before you connect the services gateway to a power source.

Waarschuwing Raadpleeg de installatie-aanwijzingen voordat u het systeem met de voeding verbindt.

Varoitus Lue asennusohjeet ennen järjestelmän yhdistämistä virtalähteeseen.

Attention Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

Warnung Lesen Sie die Installationsanweisungen, bevor Sie das System an die Stromquelle anschließen.

Avvertenza Consultare le istruzioni di installazione prima di collegare il sistema all'alimentatore.

Advarsel Les installasjonsinstruksjonene før systemet kobles til strømkilden.

Aviso Leia as instruções de instalação antes de ligar o sistema à sua fonte de energia.

¡Atención! Ver las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Varning! Läs installationsanvisningarna innan du kopplar systemet till dess strömförsörjningsenhet.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Rack-Mounting Requirements and Warnings on page 39](#)

- [SRX550 Services Gateway Fire Safety Requirements and Fire Suppression Equipment on page 167](#)

SRX550 Services Gateway Autoinstallation Overview

Autoinstallation provides automatic configuration for a new SRX550 Services Gateway that you connect to the network and turn on, or for a services gateway configured for autoinstallation. The autoinstallation process begins whenever a services gateway is powered on and cannot locate a valid configuration file in the CompactFlash. Typically, a configuration file is unavailable when a services gateway is powered on for the first time or if the configuration file is deleted from the CompactFlash. The autoinstallation feature enables you to deploy multiple services gateways from a central location in the network.

If you are setting up many services gateways, autoinstallation can help automate the configuration process by loading configuration files onto new or existing devices automatically over the network. You can use the CLI to configure a services gateway for autoinstallation. The J-Web interface does not include pages for the autoinstallation feature.

For the autoinstallation feature to work, you must store one or more host-specific or default configuration files on a configuration server in the network and have a service available—typically Dynamic Host Configuration Protocol (DHCP)—to assign an IP address to the services gateway.

Autoinstallation begins automatically when you connect to the Ethernet port labeled **0/0** (interface `ge-0/0/0`) on a new services gateway connected to the network and power on the services gateway. To simplify the process, you can explicitly enable autoinstallation on a services gateway and specify a configuration server, an autoinstallation interface, and a protocol for IP address acquisition.



NOTE: Autoinstallation is enabled on all ports of the services gateway. If you do not want to use the autoinstallation feature, you must delete it using the CLI. For more information about the autoinstallation feature, see the [Initial Configuration for Security Devices](#).

Related Documentation

- [Installation Overview for the SRX550 Services Gateway on page 61](#)
- [Required Tools and Parts for Installing the SRX550 Services Gateway on page 62](#)
- [Grounding the SRX550 Services Gateway on page 78](#)
- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)

Unpacking the Services Gateway

- [Unpacking the SRX550 Services Gateway on page 65](#)
- [Verifying Parts Received with the SRX550 Services Gateway on page 66](#)

Unpacking the SRX550 Services Gateway

Ensure that you have the following parts and tools available:

- Phillips (+) screwdriver, number 2
- 1/2 in. (13 mm) open-end or socket wrench to remove bracket bolts from the shipping pallet
- Blank panels to cover any slots not occupied by a component

The SRX550 Services Gateway is shipped in a cardboard carton and secured with foam packing material. The carton also contains an accessory box and quick start instructions.



NOTE: The services gateway is maximally protected inside the cardboard carton. Do not unpack it until you are ready to begin installation.

To unpack the SRX550 Services Gateway:

1. Move the cardboard carton to a staging area as close to the installation site as possible, where you have enough room to remove the components from the chassis.
2. Position the cardboard carton with the arrows pointing up.
3. Carefully open the top of the cardboard carton.
4. Remove the foam covering the top of the services gateway.
5. Remove the accessory box.
6. Verify the parts received against the lists in [“Verifying Parts Received with the SRX550 Services Gateway” on page 66](#).
7. Store the brackets and bolts inside the accessory box.
8. Save the shipping carton and packing materials in case you need to move or ship the services gateway at a later time.

- Related Documentation**
- [Preparing the SRX550 Services Gateway for Rack-Mount Installation on page 69](#)
 - [Installation Overview for the SRX550 Services Gateway on page 61](#)

Verifying Parts Received with the SRX550 Services Gateway

The SRX550 Services Gateway shipment package contains a packing list. Check the parts in the shipment against the items on the packing list. The packing list specifies the part numbers and carries a brief description of each part in your order.

If any part on the packing list is missing, contact your customer service representative or contact Juniper customer care from within the U.S. or Canada by telephone at 1-888-314-5822. For international-dial or direct-dial options in countries without toll-free numbers, see <http://www.juniper.net/support/requesting-support.html>.

A fully configured services gateway contains the chassis with installed components, listed in [Table 22 on page 66](#), and an accessory box, which contains the parts listed in [Table 23 on page 67](#).



NOTE: The parts shipped with your services gateway can vary depending on the configuration you ordered.

Table 22: Parts List for a Fully Configured SRX550 Services Gateway

Component	Quantity
2U SRX550 Services Gateway chassis with 6 GPIM slots, 2 Mini-PIM slots, 1 ACE slot, 2 power supply slots, 6 10/100/1000 base-T ports, and 4 Gigabit Ethernet SFP ports. Includes blank covers for GPIM slots (6 covers for GPIM slots), Mini-PIM slots, ACE slot, and power supply slots. NOTE: The ACE slot is not used.	1
Front-mount and mid-mount rack-mount kit	1
Serial console cable with DB-9 and RJ-45 connectors	1
USB console cable with Type-A and Mini-B USB plugs	1
645 W AC power supply that provides: 390 W system power at 12 V; 255 W PoE power on a single power supply, or with redundancy using the two power supply option; and 510 W PoE without redundancy on two power supplies. Works with 90–264 VAC input. NOTE: The shipment includes one power cord appropriate for your geographical location.	1

Two power supplies must be installed in the services gateway for redundancy. A second power supply and additional power supplies are separately orderable and do not include the power cord. Additional power cords must be ordered separately.

Table 23: Accessory/Upgrade Parts List for the SRX550 Services Gateway

Part	Quantity
Juniper Networks Product Warranty	1
End User License Agreement	1
Quick Start Guide	1
Spare front-mount and mid-mount rack-mount kit	1
Spare ACE slot blank cover	1
Spare power supply slot blank cover	1
645 W DC power supply with PoE support	1

- Related Documentation**
- [Unpacking the SRX550 Services Gateway on page 65](#)
 - [Preparing the SRX550 Services Gateway for Rack-Mount Installation on page 69](#)

Installing the Mounting Hardware

- [Preparing the SRX550 Services Gateway for Rack-Mount Installation on page 69](#)
- [Connecting the SRX550 Services Gateway to the Building Structure on page 70](#)

Preparing the SRX550 Services Gateway for Rack-Mount Installation

You can mount an SRX550 Services Gateway on four-post (telco) racks, enclosed cabinets, and open-frame racks. Center-mount racks are not supported.

Before mounting the SRX550 Services Gateway in a rack:

- Verify that the site meets the requirements described in [“Site Preparation Checklist for the SRX550 Services Gateway” on page 35](#).
- Verify that you have the following parts available in your rack-mounting kit for the SRX550 Services Gateway:
 - Rack-mounting brackets
 - Eight mounting screws to attach the mounting brackets to the chassis of the services gateway
 - Four mounting screws to attach the mounting brackets to the rack rail
- Verify that the racks or cabinets meet the specific requirements described in [“SRX550 Services Gateway Rack Size and Strength Requirements” on page 43](#).
- Place the rack or cabinet in its permanent location, allowing adequate clearance for airflow and maintenance, and secure it to the building structure. For more information, see [“SRX550 Services Gateway Cabinet Airflow Requirements” on page 48](#).
- Remove the gateway chassis from the shipping carton. For unpacking instructions, see [“Unpacking the SRX550 Services Gateway” on page 65](#).

Related Documentation

- [SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47](#)
- [Installation Overview for the SRX550 Services Gateway on page 61](#)

Connecting the SRX550 Services Gateway to the Building Structure

Always secure the rack in which you are installing the SRX550 Services Gateway to the structure of the building. If your geographical area is subject to earthquakes, bolt the rack to the floor. For maximum stability, also secure the rack to ceiling brackets.

Related Documentation

- [General Site Installation Guidelines for the SRX550 Services Gateway on page 37](#)
- [SRX550 Services Gateway Cabinet Size and Clearance Requirements on page 47](#)
- [SRX550 Services Gateway Rack Size and Strength Requirements on page 43](#)
- [Site Preparation Checklist for the SRX550 Services Gateway on page 35](#)
- [SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes on page 43](#)

Installing the Services Gateway

- Installing the SRX550 Services Gateway in a Rack on page 71
- Installing an AC Power Supply on the SRX550 Services Gateway on page 73
- Installing a DC Power Supply on the SRX550 Services Gateway on page 74

Installing the SRX550 Services Gateway in a Rack

You can front-mount the SRX550 Services Gateway in a rack. Many types of racks are acceptable, including four-post (telco) racks, enclosed cabinets, and open-frame racks.

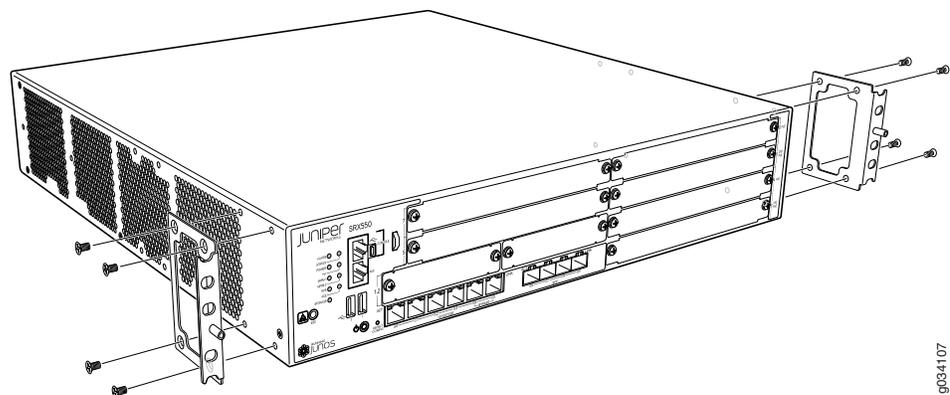


NOTE: If you are installing multiple devices in one rack, install the lowest one first and proceed upward in the rack.

To install the services gateway in a rack:

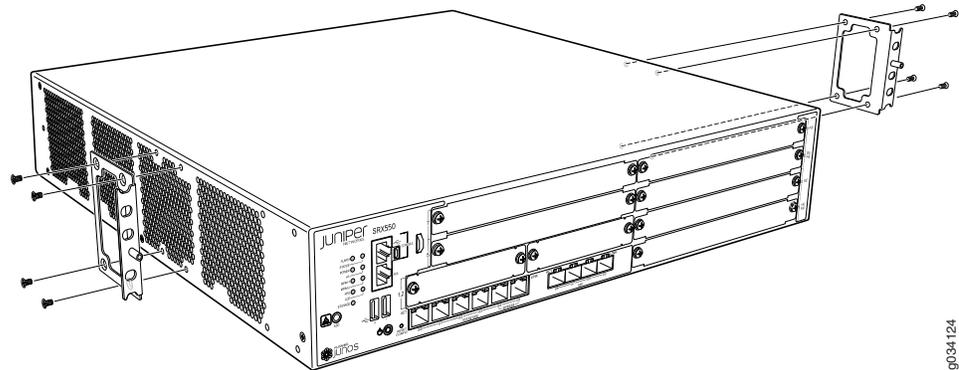
1. Position a mounting bracket on each side of the chassis.
2. Use a Phillips (+) screwdriver, number 2 to install the screws that secure the mounting brackets to the chassis. Use either the front mount position, as shown in [Figure 14 on page 71](#), or the center mount position as shown in [Figure 15 on page 72](#).

Figure 14: Installing the Rack Mount Brackets (Front Mount Position)



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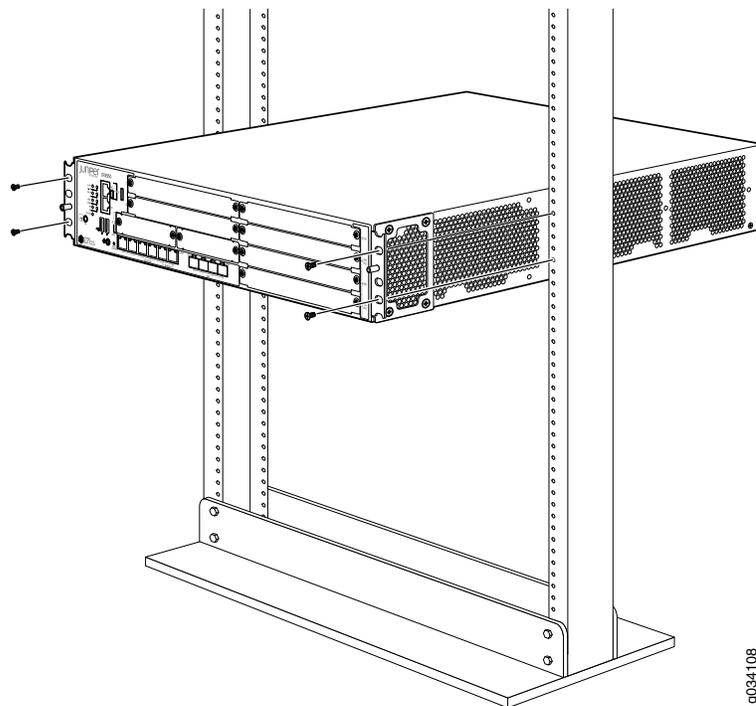
Figure 15: Installing the Rack Mount Brackets (Center Mount Position)



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3. Have one person grasp the sides of the services gateway, lift it, and position it in the rack.
4. Align the bottom hole in each mounting bracket with a hole in each rack rail, making sure the chassis is level.
5. Have a second person install a mounting screw into each of the two aligned holes. Use a Phillips (+) screwdriver, number 2 to tighten the screws.
6. Install the second screw in each mounting bracket.

Figure 16: Installing the Services Gateway in the Rack (Front Mount Shown, Center Mount Similar)



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7. Verify that the mounting screws on one side of the rack are aligned with the mounting screws on the opposite side and that the services gateway is level.

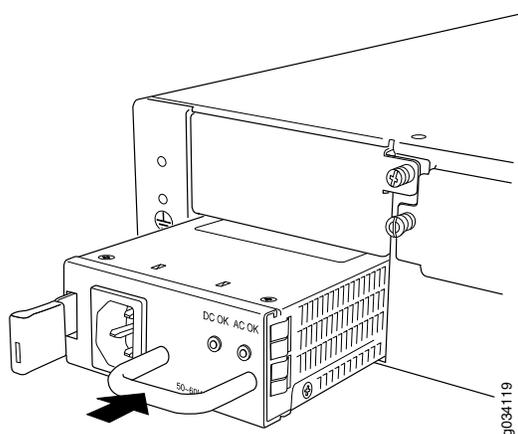
- Related Documentation**
- [Installation Overview for the SRX550 Services Gateway on page 61](#)
 - [SRX550 Services Gateway Rack Size and Strength Requirements on page 43](#)
 - [SRX550 Services Gateway Spacing of Mounting Bracket and Flange Holes on page 43](#)

Installing an AC Power Supply on the SRX550 Services Gateway

To install an AC power supply:

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. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
2. Using both hands, slide the power supply straight into the chassis until the power supply is fully seated in the chassis slot. The power supply faceplate should be flush with any adjacent power supply faceplate (see [Figure 17 on page 73](#)).
3. Attach the power cord to the power supply.
4. Route the power cord along the cable restraint toward the left or right corner of the chassis. If they are needed to hold the power cord in place, thread plastic cable ties, which you must provide, through the openings on the cable restraint.
5. Attach the power cord to the AC power source, and switch on the dedicated facility circuit breaker for the power supply. Follow the ESD and connection instructions for your site. If the power supply is correctly installed and functioning normally, the POWER LED lights steadily.

Figure 17: Installing an AC Power Supply on the SRX550 Services Gateway



- Related Documentation**
- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
 - [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)
 - [Disconnecting an AC Power Cord from the SRX550 Services Gateway on page 144](#)

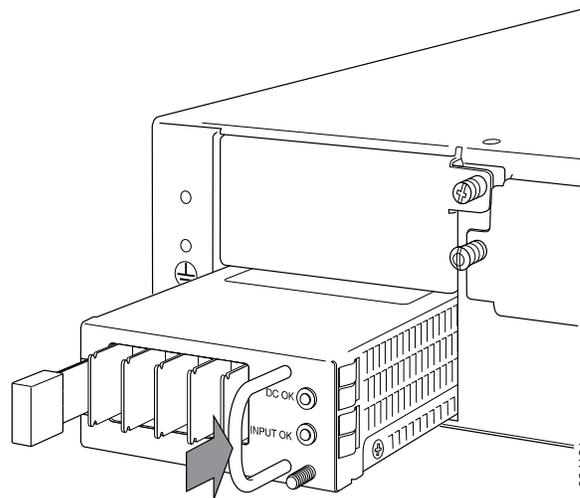
- [Removing an AC Power Supply from the SRX550 Services Gateway on page 143](#)
- [Connecting an AC Power Cord to the SRX550 Services Gateway on page 91](#)

Installing a DC Power Supply on the SRX550 Services Gateway

To install a DC power supply:

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. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to off position (O), and tape the switch handle of the circuit breaker in the off position.
2. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
3. Orient the power supply so that the locking lever is on the left, as shown in [Figure 18 on page 74](#).

Figure 18: Installing a DC Power Supply on an SRX550 Services Gateway



4. Using both hands, slide the power supply straight into the chassis until the power supply is fully seated in the chassis slot. The power supply faceplate should be flush with any adjacent power supply faceplate.
5. Tighten the captive screws on the lower edge of the power supply faceplate.
6. Remove the clear plastic cover protecting the terminal studs on the faceplate.

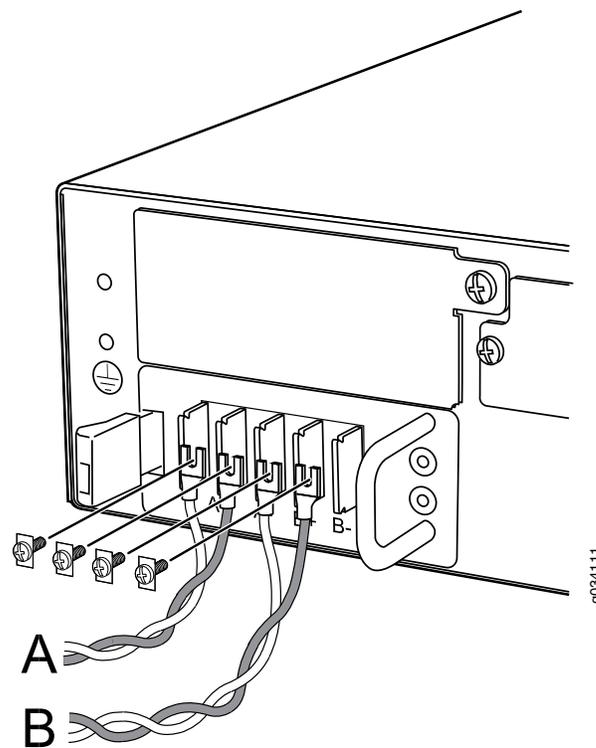
7. Verify that the DC power cables are correctly labeled before making connections to the power supply. In a typical power distribution scheme where the return is connected to chassis ground at the battery plant, you can use a multimeter to verify the resistance of the **-48V** and **RTN** DC cables to chassis ground:
 - The cable with very large resistance (indicating an open circuit) to chassis ground will be **-48V**.
 - The cable with very low resistance (indicating a closed circuit) to chassis ground will be **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 terminals on the power supply.

8. Connect DC power cables to the **A+** and **A-** terminals:
 - a. Remove the screws and square washers from the **A+** and **A-** terminals. Use a Phillips (+) screwdriver, number 2. The square washers are permanently attached to the screws.
 - b. Secure each power cable lug to the appropriate terminal with a screw. Apply between 23 lb-in. (2.6 Nm) and 25 lb-in. (2.8 Nm) of torque to each screw.
 - Secure the positive (+) DC source power cable lug to the **A+** (return) terminal.
 - Secure the negative (-) DC source power cable lug to the **A-** (input) terminal.

Figure 19: Connecting DC Power Cables



9. Replace the clear plastic cover over the terminal studs on the faceplate.
10. Verify that the power cables are connected correctly, that they are not touching or blocking access to services gateway components, and that they do not drape where people could trip on them.
11. Remove the tape from the switch handle of the circuit breaker on the panel board that services the DC circuit and switch the circuit breaker to the on position (). Observe the status LEDs on the power supply faceplate. If the power supply is correctly installed and functioning normally, the POWER LED lights green steadily on the services gateway front panel.



NOTE: If more than one power supply is being installed, turn on all power supplies at the same time.

Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)
- [Removing a DC Power Supply from the SRX550 Services Gateway on page 145](#)
- [Removing a DC Power Supply Cable from the SRX550 Services Gateway on page 151](#)

Grounding the SRX550 Services Gateway

- [SRX550 Services Gateway Grounding Specifications on page 77](#)
- [Grounding the SRX550 Services Gateway on page 78](#)

SRX550 Services Gateway Grounding Specifications

To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, the SRX550 Services Gateway must be adequately grounded before power is connected. You must provide a grounding lug to connect the services gateway to earth ground.



WARNING: Before services gateway installation begins, a licensed electrician must attach a cable lug to the grounding and power cables that you supply. A cable with an incorrectly attached lug can damage the services gateway (for example, by causing a short circuit).

To ground the services gateway before connecting power, you connect the grounding cable to earth ground and then attach the lug on the cable to the chassis grounding point, using the screw.

[Table 24 on page 77](#) lists the specifications of the grounding cable used with the device.

Table 24: Grounding Cable Specifications for the SRX550 Services Gateway

Grounding Requirement	Specification
Grounding cable	14 AWG single-strand wire cable
Amperage of grounding cable	Up to 25A
Grounding lug	Ring-type, Panduit LCC6-10A-L lug, or equivalent

Related Documentation

- [Grounding the SRX550 Services Gateway on page 78](#)
- [Connecting the SRX550 Services Gateway to a DC Power Source on page 92](#)
- [Powering On the SRX550 Services Gateway on page 94](#)

- [Powering Off the SRX550 Services Gateway on page 95](#)

Grounding the SRX550 Services Gateway

You ground the services gateway by connecting a grounding cable to earth ground and then attaching it to the chassis grounding points located on the right side of the device (if you are facing the front of the chassis).

Ensure that you have the following parts and tools available:

- Phillips (+) screwdrivers, numbers 1 and 2
- Two M5 grounding screws
- Grounding cables
- Cable lugs (for example, Panduit LCC6-10A-L)



CAUTION: Before services gateway installation begins, a licensed electrician must attach a cable lug to the grounding and power cables that you supply. A cable with an incorrectly attached lug can damage the services gateway (for example, by causing a short circuit).

To ground the services gateway:

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the chassis. For more details, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
 2. Ensure that all grounding surfaces are clean, free from accumulated dust or debris, and brought to a bright finish before grounding connections are made.
-



NOTE: The surface of the grounding points are suitably plated for conductivity.

3. Connect the grounding cable to a proper earth ground.
4. Place the grounding cable lugs over the grounding points (sized for M5 screws) on the left side of the back panel.
5. Secure the grounding cable lugs to the grounding points, first with the washers, then with the screws.
6. Dress the grounding cable and verify that it does not touch or block access to the services gateway components and that it does not drape where people could trip on it.

Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)

- [Powering On the SRX550 Services Gateway on page 94](#)
- [Powering Off the SRX550 Services Gateway on page 95](#)
- [Organizing Interface Cables on the SRX550 Services Gateway on page 81](#)
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)

CHAPTER 17

Connecting the SRX550 Services Gateway to External Devices

- [Organizing Interface Cables on the SRX550 Services Gateway on page 81](#)
- [Connecting the Modem to the Console Port on the SRX550 Services Gateway on page 81](#)
- [Connecting to the SRX550 Services Gateway from the CLI with the USB Console Port on page 82](#)
- [Connecting the CLI at the User End for the SRX550 Services Gateway on page 85](#)
- [Configuring the Modem at the SRX550 Services Gateway End on page 86](#)

Organizing Interface Cables on the SRX550 Services Gateway

Arrange network cables as follows to prevent them from dislodging or developing stress points:

- Secure cables so that they are not supporting their own weight as they hang to the floor.
- Place excess cable out of the way in neatly coiled loops.
- Use fasteners to maintain the shape of cable loops.

Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Connecting the SRX550 Services Gateway to the AC Power Source on page 89](#)
- [Connecting the SRX550 Services Gateway to a DC Power Source on page 92](#)
- [Grounding the SRX550 Services Gateway on page 78](#)

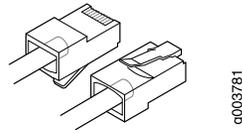
Connecting the Modem to the Console Port on the SRX550 Services Gateway

To connect the dial-up modem to the console port on the SRX550 Services Gateway:

1. Turn off power to the services gateway.
2. Turn off the power to the modem.

3. Plug one end of the Ethernet cable into the console port on the services gateway. (Figure 20 on page 82 shows the console cable connector).

Figure 20: Console Cable Connector



4. Plug the other end of the Ethernet cable into the RJ-45 to DB-9 serial port adapter.



NOTE: Most modems have an RS-232 DB-25 connector. You must separately purchase an adapter to connect your modem to the RJ-45 to DB-9 adapter and Ethernet cable.

5. Connect the serial port adapter to a separately purchased DB-9 female to DB-25 male adapter or other adapter appropriate for your modem.
6. Plug the modem adapter into the DB-25 connector on the modem.
7. Connect the modem to your telephone network.
8. Turn on the power to the modem.
9. Power on the services gateway by pressing the Power button on the front of the services gateway. Verify that the POWER LED on the front panel turns green.

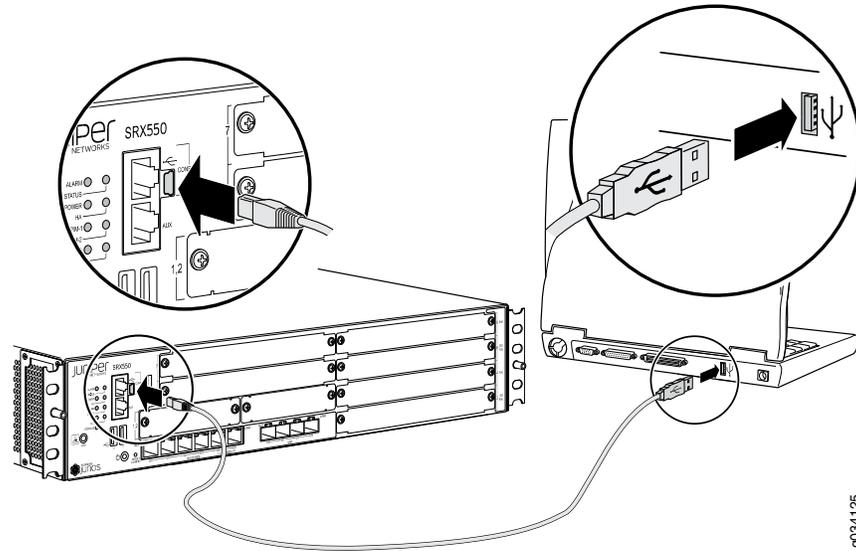
Related Documentation

- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)
- [Configuring the Modem at the SRX550 Services Gateway End on page 86](#)
- [Connecting the CLI at the User End for the SRX550 Services Gateway on page 85](#)

Connecting to the SRX550 Services Gateway from the CLI with the USB Console Port

You can connect your management station to the USB console port on the services gateway and use the CLI to configure the services gateway, as shown in [Figure 21 on page 83](#).

Figure 21: Connecting to the USB Console Port on the SRX550 Services Gateway



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To connect to the CLI using a local management device through the USB console port on the services gateway:

1. If you have not already done so, obtain the USB console driver software from the Juniper Networks website
<http://www.juniper.net/support/products/junos/dom/12.1/#sw>.
2. Install the USB console driver software by following these steps:



CAUTION: Install the USB console driver software before attempting to establish a physical connection between the services gateway and the management device, otherwise the connection will fail.

- a. Copy and unzip the USBDriver.zip file to your local folder.
- b. Double-click the .exe file. The Juniper Networks CP210X USB to UART Bridge Driver installer window appears.
- c. Click **Install**.
- d. Click **Continue Anyway** on the next screen to complete the installation.



NOTE: If you chose **STOP Installation** at any time during the process then all or part of the software will fail to install. In such a case, it is recommended that you uninstall the USB console driver and then reinstall it.

- e. Click **OK** when the installation is complete.
3. Plug the large end of the USB cable supplied with the services gateway into a USB port on the management device (see [Figure 21 on page 83](#)).
4. Connect the other end of the USB cable to the USB console port on the services gateway (see [Figure 21 on page 83](#)).
5. Start your asynchronous terminal emulation application (such as Microsoft Windows HyperTerminal), and select the new **COM** port installed by the USB Console driver software. In most cases, this is the highest-numbered **COM** port in the selection menu.
6. Configure the port settings, as shown in [Table 25 on page 84](#).

Table 25: Port Settings

Port Settings	Value
Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

7. If you have not already done so, power on the services gateway by pressing the Power button on the front of the services gateway. Verify that the POWER LED on the front panel turns green.

The terminal emulation screen on your management device displays the startup sequence. When the services gateway has finished starting up, a login prompt appears.
8. Log in as the user **root**. No password is required at initial connection, but you must assign a root password before committing any configuration settings.

Related Documentation

- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)

Connecting the CLI at the User End for the SRX550 Services Gateway

To connect to the CLI through a dial-up modem connected to the console port on the SRX550 Services Gateway:

1. Connect a modem at your remote location to a management device.
2. Start your asynchronous terminal emulation application (such as Microsoft Windows HyperTerminal) on the management device.
3. Select the **COM** port to which the modem is connected (for example, **COM1**).
4. Configure the port settings shown in [Table 26 on page 85](#).

Table 26: Port Settings

Port Settings	Value
Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

5. In the HyperTerminal window, type **AT**.

For more information on the AT commands, see the [Initial Configuration for Security Devices](#).

An **OK** response indicates that the modem can communicate successfully with the **COM** port on the management device.

6. To dial the modem that is connected to the console port on the services gateway, type **ATDT *remote-modem-number***. For example, if the phone number of the modem connected to the console port on the services gateway is **0019785551234**, type **ATDT 0019785551234**.

The services gateway login prompt appears.

7. Log in as the user **root**. No password is required at initial connection, but you must assign a root password before you commit any configuration settings.

Related Documentation

- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)
- [Configuring the Modem at the SRX550 Services Gateway End on page 86](#)
- [Connecting the Modem to the Console Port on the SRX550 Services Gateway on page 81](#)

Configuring the Modem at the SRX550 Services Gateway End

Before you can connect a dial-up modem to the console port on the SRX550 Services Gateway, you must configure the modem to accept a call on the first ring and to accept DTR signals. You must also disable flow control on the modem.



NOTE: These instructions use Hayes-compatible modem commands to configure the modem. If your modem is not Hayes-compatible, refer to the documentation for your modem and enter equivalent modem commands.

To configure the modem on the services gateway end:

1. Connect the modem to the management device (a desktop or laptop computer).
2. Power on the modem.
3. From the management device, start your asynchronous terminal emulation application (such as Microsoft Windows HyperTerminal), and select the **COM** port to which the modem is connected (for example, **COM1**).
4. Configure the port settings, as shown in [Table 27 on page 86](#).

Table 27: Port Settings

Port Settings	Value
Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

5. In the HyperTerminal window, type **AT**.

For more information on the AT commands, see the [Initial Configuration for Security Devices](#).

An **OK** response verifies that the modem can communicate successfully with the **COM** port on the management device.

6. To configure the modem to answer a call on the first ring, type **ATS0=1**.
7. To configure the modem to accept modem control DTR signals, type **AT&D1**.
8. To disable flow control, type **AT&K0**.
9. To save modem settings, type **AT&W**.

**Related
Documentation**

- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)
- [Connecting the Modem to the Console Port on the SRX550 Services Gateway on page 81](#)
- [Connecting the CLI at the User End for the SRX550 Services Gateway on page 85](#)

Providing Power to the SRX550 Services Gateway

- [Connecting the SRX550 Services Gateway to the AC Power Source on page 89](#)
- [Connecting an AC Power Cord to the SRX550 Services Gateway on page 91](#)
- [Connecting the SRX550 Services Gateway to a DC Power Source on page 92](#)
- [Powering On the SRX550 Services Gateway on page 94](#)
- [Powering Off the SRX550 Services Gateway on page 95](#)

Connecting the SRX550 Services Gateway to the AC Power Source



CAUTION: Do not mix AC and DC power supplies within the same services gateway because this can damage the device.

A 645 W AC power supply with PoE support ships with the SRX550 Services Gateway. You connect AC power to the services gateway by attaching the power cord from the AC power source to the AC appliance inlet located on the power supply. The power cord is not provided.

To connect the services gateway to an AC power supply:



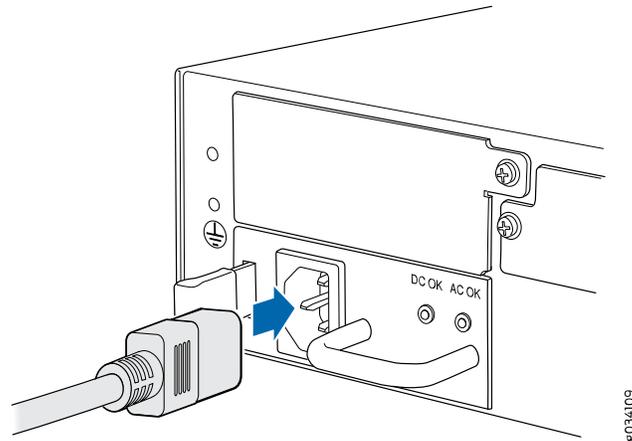
CAUTION: You need an electrostatic discharge (ESD) grounding wrist strap while connecting the services gateway to an AC power supply.

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the side of the chassis.
2. Locate the power cord or cords you will use to connect the services gateway to AC power.
3. Insert the appliance coupler end of the power cord into the appliance inlet on the power supply.
4. Insert the power cord plug into an external AC power source receptacle.



NOTE: Each power supply must be connected to a dedicated AC power feed and a dedicated external circuit breaker. We recommend that you use a 15 A (250 VAC) minimum, or as permitted by local code.

Figure 22: Connecting an AC Power Cord



5. Dress the power cord appropriately. Verify that the power cord does not block the air exhaust and access to services gateway components or drape where people could trip on it.



NOTE: The services gateway must be connected to earth ground during normal operation. The protective earthing terminal on the side of the chassis is provided to connect the services gateway to ground.



CAUTION: We recommend using a surge protector for the power connection.

Related Documentation

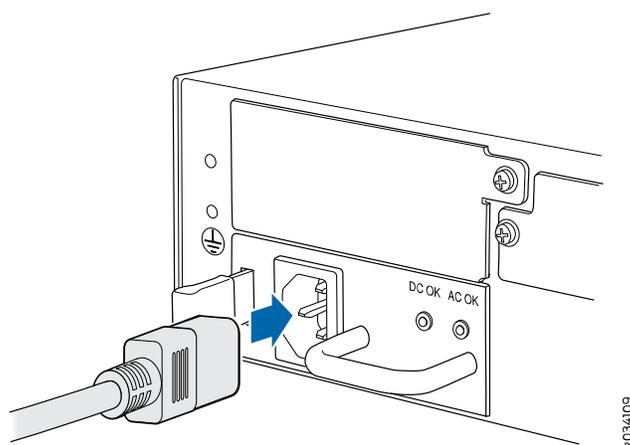
- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Grounding the SRX550 Services Gateway on page 78](#)
- [Organizing Interface Cables on the SRX550 Services Gateway on page 81](#)
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)

Connecting an AC Power Cord to the SRX550 Services Gateway

To connect the AC power cord:

1. Locate a replacement power cord with the type of plug appropriate for your geographical location.
2. Connect the power cord to the power supply, as shown in [Figure 23 on page 91](#).

Figure 23: Connecting an AC Power Cord on the SRX550 Services Gateway



3. Insert the power cord plug into an external AC power source receptacle.
4. Route the power cord along the cable restraint toward the left or right corner of the chassis. If they are needed to hold the power cord in place, thread plastic cable ties, which you must provide, through the openings on the cable restraint.
5. Verify that the power cord does not block the air exhaust and access to services gateway components, or drape where people could trip on it. If the power supply is correctly installed and functioning normally, the POWER LED lights steadily.

Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)
- [Disconnecting an AC Power Cord from the SRX550 Services Gateway on page 144](#)
- [Removing an AC Power Supply from the SRX550 Services Gateway on page 143](#)
- [Installing an AC Power Supply on the SRX550 Services Gateway on page 73](#)

Connecting the SRX550 Services Gateway to a DC Power Source



CAUTION: Do not mix AC and DC power supplies within the same services gateway. Damage to the device might occur.

A 645 W DC power supply with PoE support is available for the SRX550 Services Gateway.



WARNING: Before performing the following procedure, ensure that power is removed from the DC circuit. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to the off position (O), and tape the switch handle of the circuit breaker in the off position.

You connect DC power to the device by attaching power cables from the external DC power sources to the terminals on the power supply faceplate. You must provide the power cables.

The power supply has two sets of terminals, to accommodate a redundant DC power feed. If one feed fails, the services gateway draws its power from the other feed. The terminals for Feed A are labeled **A+** and **A-**. The terminals for Feed B are labeled **B+** and **B-**. You do not need to use both feeds; if you only have one DC power source, or if you do not want to use feed redundancy, you can connect just one feed.

To connect the DC source power cables to the services gateway power supply:

1. Switch off the dedicated facility circuit breakers. 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 an electrostatic discharge (ESD) grounding strap to your bare wrist, and connect the strap to the ESD point on the back panel of the chassis.
3. Remove the clear plastic cover protecting the terminals on the power supply faceplate.
4. 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 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:
 - The cable with very large resistance (indicating an open circuit) to chassis ground will be **-48V**.
 - The cable with very low resistance (indicating a closed circuit) to chassis ground will be **RTN**.



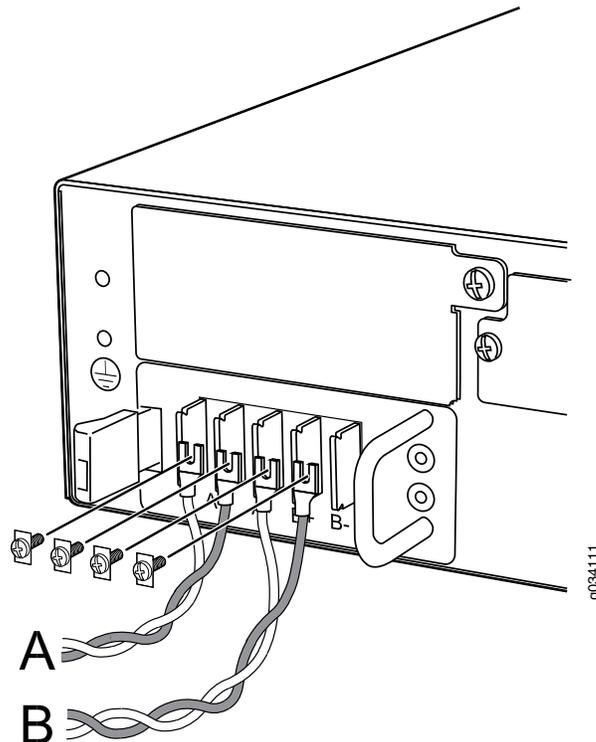
NOTE: The DC cable should be of minimum 14 AWG.



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 terminals on the power supply.

5. Connect DC power cables to the **A+** and **A-** terminals:
 - a. Remove the screws and square washers from the **A+** and **A-** terminals. Use a Phillips (+) screwdriver, number 2. The square washers are permanently attached to the screws.
 - b. Secure each power cable lug to the appropriate terminal with a screw. Apply between 23 lb-in. (2.6 Nm) and 25 lb-in. (2.8 Nm) of torque to each screw.
 - Secure the positive (+) DC source power cable lug to the **A+** (return) terminal.
 - Secure the negative (–) DC source power cable lug to the **A-** (input) terminal.

Figure 24: Connecting DC Power Cables



6. (Optional) If you have two DC power sources and wish to deploy A/B feed redundancy for the services gateway, connect the DC power cables to **B+** and **B-** terminals also.

7. Replace the clear plastic cover over the terminal studs on the faceplate.
8. Verify that the power cables are connected correctly, that they are not touching or blocking access to services gateway components, and that they do not drape where people could trip on them.



NOTE: The services gateway must be connected to earth ground during normal operation. The protective earthing terminal on the back panel of the chassis is provided to connect the services gateway to ground.

Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Grounding the SRX550 Services Gateway on page 78](#)
- [Organizing Interface Cables on the SRX550 Services Gateway on page 81](#)
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)

Powering On the SRX550 Services Gateway

To power on the services gateway:

1. Ensure that you have connected the power supply to the device.
2. Insert the plug of the power supply adapter into an AC or DC power source receptacle.
 - a. Using AC Power supply—Insert the appliance coupler end of the power cord into the appliance inlet on the power supply and the power cord plug into an external AC power source receptacle.
 - b. Using DC power supply—Connect DC power cables to the **A+** and **A-** terminals and the other ends to an external DC power source. If you have two DC power sources and wish to deploy A/B feed redundancy for the services gateway, also connect DC power cables to the **B+** and **B-** terminals and the other ends to an external DC power source.



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 terminals on the power supply.

3. Turn on the power to the AC or DC power receptacle.

The device starts automatically as the power supply completes its startup sequence. The POWER LED (on the front panel of the chassis) lights during startup and remains on steadily when the services gateway is operating normally.

- Related Documentation**
- [Connecting the SRX550 Services Gateway to the AC Power Source on page 89](#)
 - [Connecting the SRX550 Services Gateway to a DC Power Source on page 92](#)
 - [Grounding the SRX550 Services Gateway on page 78](#)
 - [Resetting the SRX550 Services Gateway on page 136](#)
 - [Powering Off the SRX550 Services Gateway on page 95](#)
 - [SRX550 Services Gateway Front Panel on page 14](#)

Powering Off the SRX550 Services Gateway

To power off the services gateway, press the Power button on the front of the services gateway and hold it for 10 seconds. The services gateway immediately shuts down.



NOTE: Graceful shutdown is not supported on the SRX550 Services Gateway.

To remove power completely from the services gateway, unplug the AC power cord or DC power supply cable.

After powering off a power supply, wait at least 60 seconds before turning it back on. After powering on a power supply, wait at least 10 seconds before turning it off.

If the system is completely powered off when you turn on the power supply, the services gateway starts as the power supply completes its startup sequence. If the services gateway finishes starting and you need to power off the system again, first issue the **request system halt** CLI command.

After a power supply is turned on, it can take up to 60 seconds for status indicators—such as the POWER LED (on the front panel of the chassis) and the **show chassis** command display—to indicate that the power supply is functioning normally. Ignore error indicators that appear during the first 60 seconds.

- Related Documentation**
- [Grounding the SRX550 Services Gateway on page 78](#)
 - [Resetting the SRX550 Services Gateway on page 136](#)
 - [Powering On the SRX550 Services Gateway on page 94](#)
 - [SRX550 Services Gateway Front Panel on page 14](#)

Performing Initial Configuration

- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)
- [SRX550 Services Gateway Basic Connectivity Settings on page 98](#)
- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [SRX550 Services Gateway Secure Web Access Overview on page 102](#)
- [Connecting to the SRX550 Services Gateway from the CLI Locally on page 103](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)
- [Viewing Factory-Default Settings of the SRX550 Services Gateway on page 106](#)
- [Configuring Basic Settings for the SRX550 Services Gateway with a Configuration Editor on page 112](#)
- [Displaying Basic Connectivity Configurations for the SRX550 Services Gateway on page 116](#)
- [Built-In Ethernet Ports for the SRX550 Services Gateway on page 117](#)
- [Management Access for the SRX550 Services Gateway on page 120](#)

SRX550 Services Gateway Basic Connectivity Overview

The Juniper Networks Junos operating system (Junos OS) is preinstalled on the SRX550 Services Gateway. When the services gateway is powered on, it is ready to be configured.

If you are setting up a services gateway for the first time, you can use the command-line interface (CLI) or the J-Web setup wizard to configure basic connectivity .

If you are setting up many services gateways, autoinstallation can help automate the configuration process. See [“SRX550 Services Gateway Autoinstallation Overview” on page 63](#).

Before you configure the services gateway for the first time, you must complete the prerequisite tasks listed in [Table 28 on page 98](#).

Table 28: Services Gateway Prerequisite Tasks

Task	Details
Gather information on:	<ul style="list-style-type: none"> • Device identification <ul style="list-style-type: none"> • Hostname for the device on the network • Domain to which the device belongs on the network • Password for the root user • Time zone information <ul style="list-style-type: none"> • System time and zone for services gateway location • IP address of a Network Time Protocol (NTP) server, if NTP is used to set the time on the services gateway • Network settings for the services gateway: <ul style="list-style-type: none"> • IP address of a Domain Name System (DNS) • List of domains that can be appended to hostnames for DNS resolution
If you are performing the initial configuration with the J-Web setup wizard, gather the following equipment:	<ul style="list-style-type: none"> • Management device, such as a desktop or laptop computer, with an Ethernet port • Ethernet cable
If you are performing the initial configuration with the CLI, gather the following equipment:	<ul style="list-style-type: none"> • Management device, such as a desktop or laptop computer, with a serial port and an asynchronous terminal application (such as Microsoft Windows HyperTerminal) • Serial cable • For a remote connection, gather the following equipment: <ul style="list-style-type: none"> • Two dial-up modems • An adapter appropriate for your modem; for example, DB-25 male or similar

Related Documentation

- [SRX550 Services Gateway Basic Connectivity Settings on page 98](#)
- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [Connecting to the SRX550 Services Gateway from the CLI Locally on page 103](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)

SRX550 Services Gateway Basic Connectivity Settings

Table 29 on page 99 provides information on basic connectivity settings for the SRX550 Services Gateway.

Table 29: Services Gateway Basic Connectivity Settings Details

Element	Description	Settings
Device identification	The hostname defines the network or network to which your services gateway belongs.	The hostname refers to the specific machine, while the domain name is shared among all devices in a given network. Together the hostname and domain name identify the device in the network.
Root password	Initially, the root password is not defined on the device. To ensure basic security, you must define the root password during initial configuration. If a root password is not defined, you cannot commit configuration settings on the device. NOTE: The root password is mandatory. NOTE: If you use a plaintext password, the device displays the password as an encrypted string so that users viewing the configuration cannot see it.	The root password must meet the following criteria: <ul style="list-style-type: none"> • Must contain at least six characters • Can include most character classes (alphabetic, numeric, and special characters), except control characters • Must contain at least one change of case or character class NOTE: For Common Criteria environments only, the password must contain between 10 and 20 characters and must include at least 3 of the 5 character classes (uppercase letters, lowercase letters, punctuation marks, numbers, and other special characters). Control characters are not recommended. For more information, see the Configuration Guides for Junos OS Public Sector Certifications .
Network settings	A Domain Name System (DNS) server on the network maintains a database for resolving hostnames and IP addresses. Network devices can query the DNS server by hostnames rather than IP addresses. The services gateway accesses the DNS servers that are added to the configuration to resolve hostnames in the order in which you list them.	If you want to include your device in several domains, add these domains to the configuration so that they are included in a DNS search. When DNS searches are requested, the domain suffixes are appended to the hostnames.
Default gateway	A default gateway is a static route that is used to direct packets addressed to networks not explicitly listed in the routing table. If a packet arrives at the services gateway with an address for which the device does not have routing information, the services gateway sends the packet to the default gateway.	The default gateway entry is always present in the routing and forwarding tables.

Table 29: Services Gateway Basic Connectivity Settings Details (continued)

Element	Description	Settings
Time zone and system time	<p>You define the time zone for the location where you plan to operate the services gateway by using a designation that consists of the following information for the location:</p> <ul style="list-style-type: none"> Name of the continent or ocean—for example, America or Pacific Name of the major city or other geographic feature in the time zone—for example, Boston or Azores <p>It is recommended that you set the system time before you begin configuration.</p>	<p>A Network Time Protocol (NTP) server provides accurate time across a network. The device synchronizes the system time with the NTP server and periodically accesses the NTP server to maintain the correct time.</p> <p>The time zone and system time must be accurate so that the device schedules events and operations as expected.</p> <p>NOTE: For Common Criteria compliance, you must configure NTP to provide accurate timestamps for system log messages. For more information, see the Configuration Guides for Junos OS Public Sector Certifications.</p>

Related Documentation

- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)
- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [Connecting to the SRX550 Services Gateway from the CLI Locally on page 103](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)

Connecting to the SRX550 Services Gateway from the J-Web Interface

To use the J-Web setup wizard to configure the SRX550 Services Gateway, you must connect through one of the built-in Ethernet management ports.

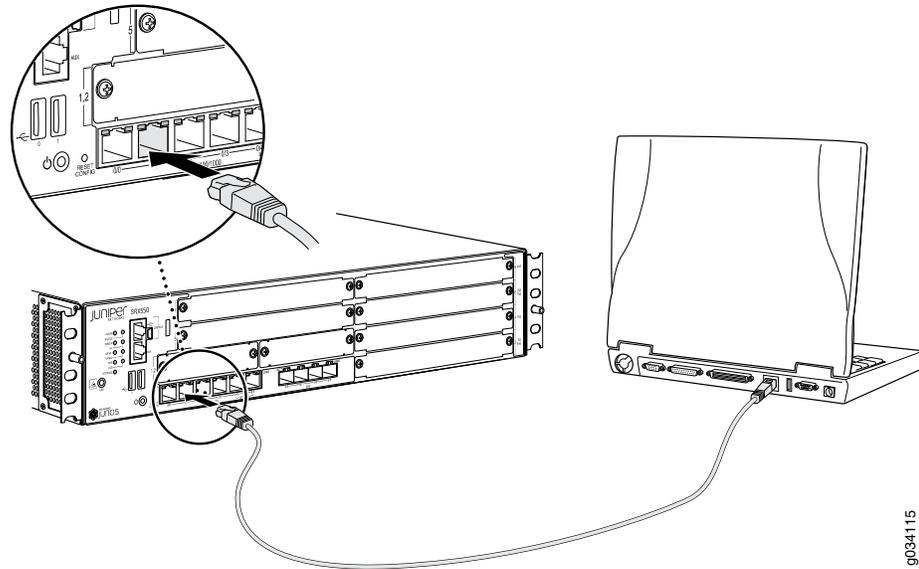


NOTE: To access the J-Web interface, your management device requires a supported browser: either Microsoft Internet Explorer version 7.0 or Mozilla Firefox version 3.0 (or later).

When the services gateway is powered on for the first time, the system looks for a DHCP server. If it does not find one, it assigns an IP address within the **192.168.1.0/24** network to any device connected to it.

To connect to the J-Web interface through the port labeled **0/1** (interface ge-0/0/1) on the services gateway, see [Figure 25 on page 101](#).

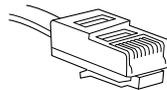
Figure 25: Connecting to the Ethernet Port on the SRX550 Services Gateway



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1. From the management device (such as a desktop or laptop computer) that you use to access the J-Web interface, verify that the address of the port that you connect to the services gateway is set to one of the following:
 - Ethernet address on the **192.168.1.0/24** network (other than **192.168.1.1**)
 - Ethernet address from a DHCP server
2. Turn off the power to the management device.
3. Plug one end of the Ethernet cable (Figure 26 on page 101 shows the connector) into the Ethernet port on the management device.

Figure 26: Ethernet Cable Connector (RJ-45)



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4. Connect the other end of the Ethernet cable to the built-in Ethernet port **0/1** on the services gateway.
5. Power on the services gateway by connecting the power cord or by pressing the Power button on the front of the services gateway.
6. Wait until the STATUS LED on the front panel turns solid green.
7. Turn on the power to the management device. The services gateway assigns an IP address to the management device within the **192.168.1.0/24** network if the services gateway is configured to use DHCP.
8. From the management device, open a Web browser and enter the IP address **192.168.1.1** in the address field.

9. Specify the default username as **root**. Do not enter any value in the Password field.
10. Press **Enter**. The J-Web setup wizard appears.



NOTE: The upper left area of the wizard page shows where you are in the setup process. Click a field in the wizard page to display information about that field in the lower left area of the page.

11. Use the wizard to configure basic settings such as hostname, domain name, and root password for your services gateway. You can also use the wizard to configure a default gateway, DNS servers, domain search, VLANs, interfaces, and the J-Web interface preferences. For details on using the J-Web setup wizard to configure basic settings for the services gateway, see [“Configuring Basic Settings for the SRX550 Services Gateway with a Configuration Editor”](#) on page 112.
12. Click **Commit** to apply the configuration. After configuring the basic settings, you are prompted to log out. Relaunch the page to see the settings and continue working in the J-Web interface.



NOTE: You must manually configure the IP address for the management port that you are using before you save your initial configuration. When you save the configuration for the first time, you will lose the connection to the services gateway if you have not manually configured the IP address. If you lose the connection through the management interface, you must connect through the console port.

Related Documentation

- [Connecting to the SRX550 Services Gateway from the CLI Locally on page 103](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)

SRX550 Services Gateway Secure Web Access Overview

You can manage a services gateway remotely through the J-Web interface. To communicate with the services gateway, the J-Web interface uses Hypertext Transfer Protocol (HTTP). HTTP allows easy Web access but does not include encryption. The data transmitted between the client and the services gateway by means of HTTP is vulnerable to interception and attack. To enable secure Web access, a services gateway supports HTTP over Secure Sockets Layer (HTTPS). You can enable HTTP or HTTPS access on specific interfaces and ports as needed.

The services gateway uses the SSL protocol to provide secure management of services gateways through the J-Web interface. SSL uses public-private key technology, which requires a paired private key and an authentication certificate to provide the SSL service. SSL encrypts communication between your device and the Web browser with a session key negotiated by the SSL server certificate.

An SSL certificate includes identifying information such as a public key and a signature made by a certificate authority (CA). When you access the services gateway through HTTPS, an SSL handshake authenticates the server and the client and begins a secure session. If the information does not match or if the certificate has expired, your access to the services gateway through HTTPS is restricted.

Without SSL encryption, communication between your services gateway and the browser is sent in the open and can be intercepted. We recommend that you enable HTTPS access on your WAN interfaces.

On services gateways, HTTP access is enabled by default on the built-in management interfaces. By default, HTTPS access is supported on any interface with an SSL server certificate.

You can use the J-Web interface or the CLI to configure secure Web access.

Before you configure secure Web access for the first time, you must complete the following tasks:

- Establish basic connectivity.
- Obtain an SSL certificate from a trusted signing authority.

For more details about configuring secure web access on your services gateway, see the [Initial Configuration for Security Devices](#).

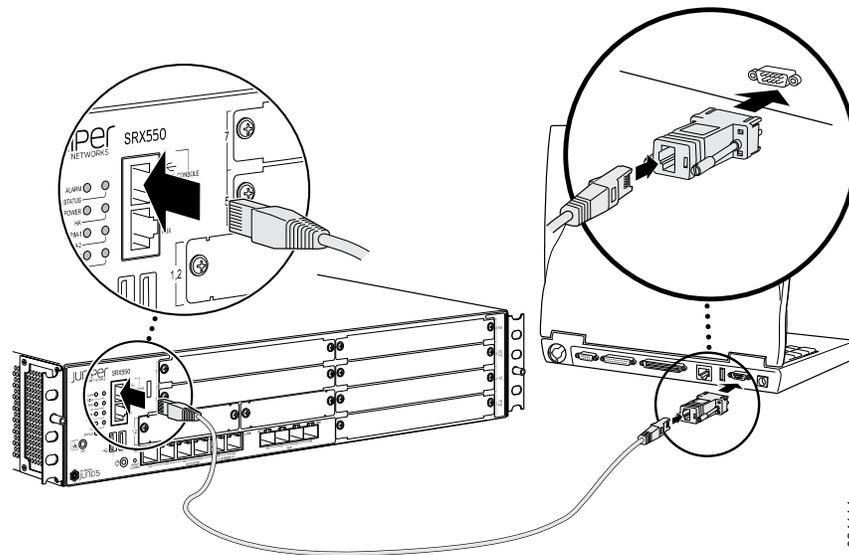
**Related
Documentation**

- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)
- [Configuring Basic Settings for the SRX550 Services Gateway with a Configuration Editor on page 112](#)

Connecting to the SRX550 Services Gateway from the CLI Locally

To use the CLI to configure the SRX550 Services Gateway, you must connect through the console port, as shown in [Figure 27 on page 104](#).

Figure 27: Connecting to the Console Port on the SRX550 Services Gateway



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NOTE: Figure 27 on page 104 shows a connection to a local management device. A remote connection to the services gateway through a modem requires the cable and connector shown (RJ-45 to a DB-9 serial port adapter), along with an adapter for your modem, which you must purchase separately.

To connect to the CLI using a local management device through the console port on the services gateway:

1. Turn off power to the services gateway.
2. Turn off power to the management device (such as a desktop or laptop computer) that you are using to access the CLI.
3. Plug one end of the Ethernet cable into the RJ-45 to DB-9 serial port adapter (see Figure 27 on page 104).
4. Plug the RJ-45 to DB-9 serial port adapter into the serial port on the management device (see Figure 27 on page 104).
5. Connect the other end of the Ethernet cable to the console port on the services gateway (see Figure 27 on page 104).
6. Turn on the power to the management device.
7. Start your asynchronous terminal emulation application (such as Microsoft Windows HyperTerminal), and select the appropriate **COM** port to use (for example, **COM1**).
8. Configure the port settings, as shown in Table 30 on page 105.

Table 30: Port Settings

Port Settings	Value
Bits per second	9600
Data bits	8
Parity	None
Stop bits	1
Flow control	None

- Power on the services gateway by pressing the Power button on the front of the services gateway. Verify that the POWER LED on the front panel turns green.

The terminal emulation screen on your management device displays the startup sequence. When the services gateway has finished starting up, a login prompt appears.

- Log in as the user **root**. No password is required at initial connection, but you must assign a root password before committing any configuration settings.

Related Documentation

- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)

Connecting to the SRX550 Services Gateway from the CLI Remotely

You can connect an SRX550 Services Gateway to the CLI from a remote location through two dial-up modems:

- A modem that is connected to the console port on the services gateway
- A second modem that is connected to a remote management device

The modem connection lets you remotely perform the same console operations that you can perform locally.

Related Documentation

- [Configuring the Modem at the SRX550 Services Gateway End on page 86](#)
- [Connecting the Modem to the Console Port on the SRX550 Services Gateway on page 81](#)
- [Connecting the CLI at the User End for the SRX550 Services Gateway on page 85](#)

Viewing Factory-Default Settings of the SRX550 Services Gateway

To view the factory-default configuration of the services gateway using the CLI:

1. Verify that the services gateway is powered on.
2. Log in as the root user and provide your credentials.
3. In shell mode, navigate to the `/etc/config` folder.

```
% cd /etc/config
```

4. View the list of default config files.

```
% ls
```

The following sample output displays the list of factory-default configuration files:

```
j-series-defaults.conf
jsrxsme-series-defaults.conf
jsrxsme-series-factory.conf
junos-defaults.conf
junos-factory.conf
junos-fips-defaults.conf
ptx-series-defaults.conf
srx100-8xfe-factory.conf
srx100b-defaults.conf
srx100b-factory.conf
srx100h-defaults.conf
srx100h-factory.conf
srx100h2-defaults.conf
srx100h2-factory.conf
srx110-8xfe-vdsl-factory.conf
srx110-8xfe-vdsl-wl-factory.conf
srx110-8xfe-wl-factory.conf
srx110b-defaults.conf
srx110b-va-defaults.conf
srx110b-va-factory.conf
srx110b-vb-defaults.conf
srx110b-vb-factory.conf
srx110b-wl-defaults.conf
srx110b-wl-factory.conf
srx110h-defaults.conf
srx110h-va-defaults.conf
srx110h-va-factory.conf
srx110h-va-wl-defaults.conf
srx110h-va-wl-factory.conf
srx110h-vb-defaults.conf
srx110h-vb-factory.conf
srx110h-vb-wl-defaults.conf
srx110h-vb-wl-factory.conf
srx110h-wl-defaults.conf
srx110h-wl-factory.conf
srx110h2-va-defaults.conf
srx110h2-va-factory.conf
srx110h2-vb-defaults.conf
srx110h2-vb-factory.conf
srx210-2xge-6xfe-factory.conf
srx210-poe-2xge-6xfe-factory.conf
srx210b-defaults.conf
srx210h-defaults.conf
srx210h-factory.conf
srx210h-poe-defaults.conf
srx210h-poe-factory.conf
srx210he-defaults.conf
srx210he-factory.conf
srx210he-poe-defaults.conf
srx210he-poe-factory.conf
srx210he2-defaults.conf
srx210he2-factory.conf
srx210he2-poe-defaults.conf
srx210he2-poe-factory.conf
srx220-8xge-factory.conf
srx220-poe-8xge-factory.conf
srx220h-defaults.conf
srx220h-factory.conf
srx220h-poe-defaults.conf
srx220h-poe-factory.conf
srx220h2-defaults.conf
srx220h2-factory.conf
srx220h2-poe-defaults.conf
srx220h2-poe-factory.conf
srx240-16xge-factory.conf
srx240-poe-16xge-factory.conf
srx240b-factory.conf
srx240b2-factory.conf
srx240h-dc-defaults.conf
srx240h-dc-factory.conf
srx240h-defaults.conf
srx240h-factory.conf
srx240h-poe-defaults.conf
srx240h-poe-factory.conf
srx240h2-dc-defaults.conf
srx240h2-dc-factory.conf
srx240h2-defaults.conf
srx240h2-factory.conf
srx240h2-poe-defaults.conf
srx240h2-poe-factory.conf
srx550-6xge-factory.conf
srx550-defaults.conf
srx550-factory.conf
srx650-4xge-factory.conf
```

```

srx210b-factory.conf          srx650-defaults.conf
srx210be-defaults.conf       srx650-factory.conf
srx210be-factory.conf

```

5. View the required default config file.

% vi *config file name*

For example, enter the following command to view the default configuration file for the SRX240 Services Gateway.

% vi srx240-poe-16xge-factory.conf

The following sample output displays the factory-default configuration on an SRX240 Services Gateway:

```

##
## $Id: $
##
## Copyright (c) 2009, Juniper Networks, Inc.
## All rights reserved.
##
system {
  autoinstallation {
    delete-upon-commit;
    traceoptions {
      level verbose;
      flag {
        all;
      }
    }
  }
  interfaces {
    ge-0/0/0 {
      bootp;
    }
  }
}
services {
  ssh;
  telnet;
  dhcp {
    router {
      192.168.1.1;
    }
    pool 192.168.1.0/24 {
      address-range low 192.168.1.2 high 192.168.1.254;
    }
    propagate-settings ge-0/0/0.0;
  }
  web-management {
    http {
      interface [ vlan.0 ];
    }
    https {
      system-generated-certificate;
      interface [ vlan.0 ];
    }
  }
  xnm-clear-text;
}
name-server {
  208.67.222.222;
}

```

```
        208.67.220.220;
    }
    syslog {
        archive size 100k files 3;
    }
}

interfaces {
    ge-0/0/0 {
        unit 0;
    }
    ge-0/0/1 {
        unit 0 {
            family ethernet-switching {
                vlan {
                    members vlan-trust;
                }
            }
        }
    }
    ge-0/0/2 {
        unit 0 {
            family ethernet-switching {
                vlan {
                    members vlan-trust;
                }
            }
        }
    }
    ge-0/0/3 {
        unit 0 {
            family ethernet-switching {
                vlan {
                    members vlan-trust;
                }
            }
        }
    }
    ge-0/0/4 {
        unit 0 {
            family ethernet-switching {
                vlan {
                    members vlan-trust;
                }
            }
        }
    }
    ge-0/0/5 {
        unit 0 {
            family ethernet-switching {
                vlan {
                    members vlan-trust;
                }
            }
        }
    }
}
```

```
}
ge-0/0/6 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/7 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/8 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/9 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/10 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/11 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
```

```
ge-0/0/12 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/13 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/14 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
ge-0/0/15 {
  unit 0 {
    family ethernet-switching {
      vlan {
        members vlan-trust;
      }
    }
  }
}
vlan {
  unit 0 {
    family inet {
      address 192.168.1.1/24;
    }
  }
}
}

poe {
  interface all;
}

security {
  nat {
    source {
      rule-set trust-to-untrust {
        from zone trust;
        to zone untrust;
        rule source-nat-rule {
          match {
```

```

        source-address 0.0.0.0/0;
    }
    then {
        source-nat {
            interface;
        }
    }
}
}
}
screen {
    ids-option untrust-screen {
        icmp {
            ping-death;
        }
        ip {
            source-route-option;
            tear-drop;
        }
        tcp {
            syn-flood {
                alarm-threshold 1024;
                attack-threshold 200;
                source-threshold 1024;
                destination-threshold 2048;
                timeout 20;
            }
            land;
        }
    }
}
zones {
    security-zone trust {
        host-inbound-traffic {
            system-services {
                all;
            }
            protocols {
                all;
            }
        }
        interfaces {
            vlan.0;
        }
    }
    security-zone untrust {
        interfaces {
            ge-0/0/0.0 {
                host-inbound-traffic {
                    system-services {
                        dhcp;
                        tftp;
                    }
                }
            }
        }
        screen untrust-screen;
    }
}
policies {

```

```

        from-zone trust to-zone untrust {
            policy trust-to-untrust {
                match {
                    source-address any;
                    destination-address any;
                    application any;
                }
                then {
                    permit;
                }
            }
        }
    }
}
vllans {
    vlan-trust {
        vlan-id 3;
        l3-interface vlan.0;
    }
}
protocols {
    stp;
}

```

- Related Documentation**
- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)
 - [SRX550 Services Gateway Autoinstallation Overview on page 63](#)

Configuring Basic Settings for the SRX550 Services Gateway with a Configuration Editor

To establish basic connectivity on an SRX550 Services Gateway:

1. Identify the services gateway.
2. Connect it to the network.
3. Configure basic network settings.

In a typical network, the services gateway has the basic settings listed in [Table 31 on page 112](#). Determine the values to set on the services gateway in your network.

Table 31: Sample Settings on the SRX550 Services Gateway

SRX550 Services Gateway Property	Sample Value
Services gateway hostname	devicea
IP address for default gateway	10.0.0.1/24
IP address of the NTP server used to synchronize system time	10.148.2.21
IP address of the DNS server to which DNS requests are sent	10.148.2.32

Table 31: Sample Settings on the SRX550 Services Gateway (*continued*)

SRX550 Services Gateway Property	Sample Value
Domains to which the services gateway belongs	lab.device.net and device.net

You can configure basic settings for the services gateway using either the J-Web setup wizard or CLI as the configuration editor. [Table 32 on page 113](#) summarizes the configuration tasks for the initial setup for both required and optional settings.

Table 32: Configuring Basic Settings

Task	Required or Optional	Using the J-Web Setup Wizard	Using the CLI
Navigate to Configure System: Identification page.	Required	After establishing basic connectivity and entering root as the default username (see “Connecting to the SRX550 Services Gateway from the J-Web Interface” on page 100), click Enter . The J-Web setup wizard appears. Click Start at the bottom of the Introduction page.	Navigate to the top of the configuration hierarchy in the CLI. From the [edit] hierarchy level, type: edit system
Define the hostname of the services gateway.	Required	On the Configure System: Identification page, type the hostname of the services gateway; for example, devicea .	Specify the hostname. For example: set host-name devicea
Identify the domain name of the network or network to which the services gateway belongs.	Required	From the Configure System: Identification page, type the domain name of the services gateway; for example, lab.device.net .	Specify the domain name. For example: set domain-name lab.device.net
Define the root password for the user with unrestricted access to the services gateway. NOTE: For readability, the entire key is not shown.	Required	<ol style="list-style-type: none"> On the Configure System: Identification page, type the root password, for example ssh-rsa AAAAB3Nza...D9Y2gXF9ac== root@devicea.lab.device.net Retype the password in the Verify root password field. 	Specify the root password. For example: set root-authentication ssh-rsa "ssh-rsa AAAAB3Nza...D9Y2gXF9ac== root@devicea.lab.device.net"

Table 32: Configuring Basic Settings (*continued*)

Task	Required or Optional	Using the J-Web Setup Wizard	Using the CLI
Define the IP address of the default gateway. The default gateway is the IP address and subnet of the next-hop router, which is generally provided by the ISP for a branch office.	Optional	From the Configure System: Network Settings page, type the IP address of the default gateway; for example, 10.0.0.1/24 .	Set the default gateway IP address and the next-hop router address. For example: set interfaces ge-0/0/1 unit 0 family inet address 10.0.0.1/24 set routing-options static route 0.0.0.0/0 next-hop 10.0.0.2 NOTE: The example assumes that the next-hop router address is 10.0.0.2.
Add the names of servers that maintain databases for resolving hostnames and IP addresses.	Optional	From the Configure System: Network Settings page, type the IP address of the DNS server; for example, 10.148.2.32 . Then click Add .	Specify the address of the DNS server. For example: set name-server 10.148.2.32
Add each domain to which the services gateway belongs, to include it in a DNS search.	Optional	From the Configure System: Network Settings page, type the domains to be searched; for example, lab.device.net and device.net . Then click Add after each one you add to the list.	Specify the domains to be searched. For example: set domain-search lab.device.net set domain-search device.net
Configure interface groups (VLANs).	Optional	From the Interface Groups (VLANs) page, click Add , Edit , or Delete to configure VLANs.	Specify a VLAN interface. For example: set interfaces ge-0/0/1 unit 0 family inet address 10.148.1.32
Configure interfaces other than VLANs.	Optional	From the Configure Interfaces page, click Add , Edit , or Delete to configure interfaces other than VLANs.	Specify an interface other than a VLAN interface. For example: set interfaces ge-0/0/2 unit 0 family inet address 10.148.5.32

Table 32: Configuring Basic Settings (*continued*)

Task	Required or Optional	Using the J-Web Setup Wizard	Using the CLI
Specify the tab you want to appear on startup.	Required	From the Configure J-Web Preferences page, from the J-Web interface starting page options, select the tab you want to appear on startup.	N/A
The Configure J-Web Preferences page appears before the Configure System: Time page in the wizard. Specify when you want commit to occur.	Required	From the Configure J-Web Preferences page, from the J-Web interface commit options, specify when you want commit to occur.	N/A
Define the current system time and time zone in which the services gateway is located.	Optional	<ol style="list-style-type: none"> From the Configure System: Time page, click Reset Manually to reset the time. From the Time Zone list, select the time zone for your services gateway; for example, America/Los_Angeles 	Specify the time zone. For example: set time-zone America/Los_Angeles
Define the NTP server that the services gateway can reach to synchronize the system time.	Optional	From the Configure System: Time page, in the NTP Servers field, type the NTP server's IP address; for example, 10.148.2.21 .	Specify the address of the NTP server. For example: set ntp server 10.148.2.21
Commit the configuration.	Required	Review the configuration on the Review & Commit page. Click Commit to save the configuration, or click Back to make changes.	Commit and save your configuration. For example: commit



NOTE: After basic setup is configured, the J-Web setup wizard will no longer be available unless you reset the services gateway to the factory default settings and reboot it. You can perform additional setup by using the J-Web interface or the CLI interface. You can use wizards to configure basic firewall policies, VPN settings, and NAT rules. For more information about these wizards, see the [Security Basics](#).

For detailed instructions on managing users and operations, monitoring network performance, upgrading software, and diagnosing common problems on an SRX550 Services Gateway, see the [Monitoring and Troubleshooting for Security Devices](#).

**Related
Documentation**

- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)
- [Configuring the Modem at the SRX550 Services Gateway End on page 86](#)
- [Connecting the Modem to the Console Port on the SRX550 Services Gateway on page 81](#)

Displaying Basic Connectivity Configurations for the SRX550 Services Gateway

To verify that the SRX550 Services Gateway has the settings you configured, you need to display the basic connectivity configurations. Because the basic connectivity settings appear in different places in the configuration hierarchy, displaying the entire configuration at once makes viewing the settings easier.

To display and verify the basic connectivity settings, select **Configure>System Properties>System Identity**. Alternatively, from configuration mode in the CLI, enter the **show** command. Review the following sample output. Your output displays the values you set.

```
[edit]
user@host# show
system {
  host-name devicea;
  domain-name lab.device.net;
  domain-search [ lab.device.net device.net ];
  time-zone America/Boston;
  root-authentication {
    ssh-rsa "ssh-rsa AAAAB3Nza...D9Y2gXF9ac==root@devicea.lab.device.net";
  }
  name-server {
    10.148.2.32;
  }
  services {
  }
  ntp {
    server 10.148.2.21;
  }
}
interfaces {
  ge-0/0/0 {
    unit 0 {
      family inet {
        address 10.157.71.12/19;
      }
    }
  }
}
lo0 {
  unit 0 {
    family inet {
      address 127.0.0.1/32;
    }
  }
}
```

```

        address 10.254.71.12/32 {
            primary;
        }
    } family iso {
        address 47.0005.80ff.f800.0000.0108.0001.0102.5407.1012.00;
    }
    } family inet6 {
        address abcd::10:254:71:12/128 {
            primary;
        }
    }
}
}

```

The output shows a basic connectivity configuration. Verify that the values displayed are correct for your services gateway.

Related Documentation

- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)
- [Connecting to the SRX550 Services Gateway from the CLI Locally on page 103](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)
- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [Configuring Basic Settings for the SRX550 Services Gateway with a Configuration Editor on page 112](#)

Built-In Ethernet Ports for the SRX550 Services Gateway

You perform initial device setup through the six built-in Gigabit Ethernet ports, labeled 0/0 through 0/5 (interfaces ge-0/0/0 through ge-0/0/5), on the front panel of the SRX550 Services Gateway.



NOTE:

- If chassis clustering is enabled, we recommend using the port labeled 0/0 port as the management port (fxp0) and using the 0/1 port (if used) as the control port (fxp1). The fxp0 and fxp1 ports are created only when chassis clustering is enabled. You can use the other ports as fabric ports.
- LAN bypass is not supported on the SRX550 Services Gateway.

Before initial configuration, when the factory default configuration is active, the services gateway attempts to perform autoinstallation by obtaining a device configuration through all its connected interfaces, including the interface ge-0/0/0. All interfaces are configured as Layer 3 interfaces. See [Table 33 on page 118](#) for the default interface configuration.

Table 33: Default Interface Configuration for the Services Gateway

Port Label	Interface	Connector	Security Zone	DHCP State	Address
0/0	ge-0/0/0 NOTE: If chassis clustering is enabled, use this port as the management port (fxp0).	RJ-45	Untrust	Client	Dynamically assigned
0/1	ge-0/0/1 (if used) NOTE: If chassis clustering is enabled, use this port as the control port (fxp1).	RJ-45	Trust	Server	Ports 0/1 through 0/5 are grouped into a VLAN with IP address 192.168.1.1/24.
0/2	ge-0/0/2 (if used) NOTE: Use this port as a fabric port.	RJ-45	Trust	Server	
0/3	ge-0/0/3 (if used) NOTE: Use this port as a fabric port.	RJ-45	Trust	Server	

Table 33: Default Interface Configuration for the Services Gateway (continued)

Port Label	Interface	Connector	Security Zone	DHCP State	Address
0/4	ge-0/0/4	RJ-45	Trust	Server	
0/5	ge-0/0/5	RJ-45	Trust	Server	
0/6	ge-0/0/6	No default Configuration			
0/7	ge-0/0/7				
0/8	ge-0/0/8				
0/9	ge-0/0/9				

By default, the security policies and NAT rules in [Table 34 on page 119](#) and [Table 35 on page 119](#) are created on the SRX Series security policies.

Table 34: Security Policies

Source Zone	Destination Zone	Policy Action
Trust	Untrust	Permit

Table 35: NAT Rule

Source Zone	Destination Zone	NAT Action
Trust	Untrust	Source NAT to untrust zone interface

For example, a common default firewall configuration includes the following assumptions:

- The protected network is connected to the interfaces ge-0/0/1 (port 0/1) through interface ge-0/0/5 (port 0/5) in the trust zone.
- Connectivity to the Internet is through the interface ge-0/0/0 (port 0/0) in the untrust zone.
- The IP address of the ge-0/0/0 interface is assigned via DHCP.



NOTE: The interfaces ge-0/0/1 (port 0/1) through ge-0/0/5 interface (port 0/5) are a part of the default VLAN. The protected hosts can be connected to any of the ports that are part of the default VLAN.

You can configure the services gateway using the CLI or the J-Web interface. To use the J-Web interface, connect a desktop or laptop computer to the port labeled 0/1 (interface

ge-0/0/1). The IP address of the desktop or laptop computer can be statically configured or assigned by the factory default DHCP server enabled on the VLAN interface.

After you connect your desktop or laptop computer to port 0/1, use a Web browser to visit <http://192.168.1.1>, access the J-Web setup wizard, and complete the initial setup configuration of the services gateway.

After you perform the initial configuration and commit it by clicking **Commit**, the configured services gateway can no longer act as a DHCP server. Therefore, to continue using the services gateway as a management interface, you need to configure the IP address of the interface as part of the initial configuration.



NOTE: You must manually configure the IP address for the management port that you are using before you save your initial configuration. When you save the configuration for the first time, you will lose the connection to the services gateway if you have not manually configured the IP address. If you lose the connection through the management interface, you must connect through the console port.

After the initial configuration is complete, you can attach the built-in Ethernet port that you are using for management purposes to the management network.

Related Documentation

- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [Connecting to the SRX550 Services Gateway from the CLI Locally on page 103](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)
- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)

Management Access for the SRX550 Services Gateway

Telnet allows you to connect to the SRX550 Services Gateway and access the CLI to execute commands from a remote system. Telnet connections are not encrypted and therefore can be intercepted.



NOTE: You cannot use Telnet to access the root account. You must use more secure methods, such as SSH, to log in as root.

SSH provides the following features:

- Allows you to connect to the services gateway and to access the CLI to execute commands from a remote system
- Unlike Telnet, encrypts traffic so that it cannot be intercepted
- Can be configured so that connections are authenticated by a digital certificate
- Uses public–private key technology for both connection and authentication

The SSH client software must be installed on the machine where the client application runs. If the SSH private key is encrypted (for greater security), the SSH client must be able to access the passphrase used to decrypt the key.

For information about obtaining SSH software, see <http://www.ssh.com> and <http://www.openssh.com>.

If you are using a Junos XML protocol server to configure and monitor devices, you can activate cleartext access on the services gateway to allow unencrypted text to be sent directly over a TCP connection without using any additional protocol (such as SSH, SSL, or Telnet). For more information about the Junos XML management protocol, see the [Junos XML Management Protocol Guide](#).



NOTE: Information sent in cleartext is not encrypted and therefore can be intercepted.

If the services gateway is operating in a Common Criteria environment, see the [Configuration Guides for Junos OS Public Sector Certifications](#).

**Related
Documentation**

- [SRX550 Services Gateway Basic Connectivity Overview on page 97](#)
- [Connecting to the SRX550 Services Gateway from the J-Web Interface on page 100](#)
- [Connecting to the SRX550 Services Gateway from the CLI Locally on page 103](#)
- [Connecting to the SRX550 Services Gateway from the CLI Remotely on page 105](#)

PART 4

Maintaining and Troubleshooting Components

- [Maintaining Components on page 125](#)
- [Troubleshooting Components on page 127](#)

CHAPTER 20

Maintaining Components

- [Required Tools and Parts for Maintaining the SRX550 Services Gateway Hardware Components on page 125](#)
- [Routine Maintenance Procedures for the SRX550 Services Gateway on page 125](#)
- [Maintaining the SRX550 Services Gateway Cooling System Components on page 126](#)
- [Maintaining the SRX550 Services Gateway Power Supply on page 126](#)

Required Tools and Parts for Maintaining the SRX550 Services Gateway Hardware Components

The following tools and parts are required to maintain the hardware components of the services gateway:

- Electrostatic bag or antistatic mat
- Electrostatic discharge (ESD) grounding wrist strap
- Flat-blade screw-blade screwdriver, approximately 1/8 in. (3 mm)
- Phillips (+) screwdrivers, number 1 and number 2

Related Documentation

- [Routine Maintenance Procedures for the SRX550 Services Gateway on page 125](#)
- [Maintaining the SRX550 Services Gateway Cooling System Components on page 126](#)
- [Maintaining the SRX550 Services Gateway Power Supply on page 126](#)

Routine Maintenance Procedures for the SRX550 Services Gateway

For optimum performance of the services gateway, perform the following preventive maintenance procedures regularly:

- Inspect the installation site for moisture, loose wires or cables, and excessive dust.
- Make sure that airflow is unobstructed around the services gateway and into the air intake vents.
- Check the status LEDs on the front and back panels of the services gateway.

- Related Documentation**
- [Required Tools and Parts for Maintaining the SRX550 Services Gateway Hardware Components on page 125](#)
 - [Maintaining the SRX550 Services Gateway Cooling System Components on page 126](#)
 - [Maintaining the SRX550 Services Gateway Power Supply on page 126](#)

Maintaining the SRX550 Services Gateway Cooling System Components

The services gateway fan controller works to maintain an optimal temperature for the services gateway. If the fan controller fails, the services gateway temperature will exceed the maximum working temperature and it will fail. Make sure that you maintain the recommended clearances behind the services gateway to enable the fan controller to function optimally.

- Related Documentation**
- [Required Tools and Parts for Maintaining the SRX550 Services Gateway Hardware Components on page 125](#)
 - [Routine Maintenance Procedures for the SRX550 Services Gateway on page 125](#)
 - [Maintaining the SRX550 Services Gateway Power Supply on page 126](#)

Maintaining the SRX550 Services Gateway Power Supply

To maintain the power supplies of the services gateway:

- Make sure that all power and grounding cables are arranged so that they do not obstruct access to other services gateway components.
- Routinely check the POWER LED on the front panel. If this LED is solid green, the power supplies are functioning normally.
- Periodically inspect the site to ensure that the grounding and power cables connected to the services gateway are securely in place and that there is no moisture accumulating near the services gateway.

- Related Documentation**
- [Required Tools and Parts for Maintaining the SRX550 Services Gateway Hardware Components on page 125](#)
 - [Routine Maintenance Procedures for the SRX550 Services Gateway on page 125](#)
 - [Maintaining the SRX550 Services Gateway Cooling System Components on page 126](#)

CHAPTER 21

Troubleshooting Components

- [Troubleshooting with the CLI on the SRX550 Services Gateway on page 127](#)
- [Troubleshooting with LEDs on the SRX550 Services Gateway on page 128](#)
- [Troubleshooting with Chassis and Interface Alarm Messages on the SRX550 Services Gateway on page 130](#)
- [Troubleshooting the Power System on the SRX550 Services Gateway on page 132](#)
- [Using the RESET CONFIG Button on the SRX550 Services Gateway on page 135](#)
- [Changing the RESET CONFIG Button Behavior on the SRX550 Services Gateway on page 136](#)
- [Resetting the SRX550 Services Gateway on page 136](#)
- [Juniper Networks Technical Assistance Center on page 137](#)

Troubleshooting with the CLI on the SRX550 Services Gateway

The Junos OS command-line interface (CLI) is the primary tool for controlling and troubleshooting services gateway hardware, the Junos OS, routing protocols, and network connectivity. The CLI commands display information from routing tables, information specific to routing protocols, and information about network connectivity derived from the ping and trace route utilities.

You need to enter the CLI commands on one or more external management devices connected to the services gateway to display the information.

Related Documentation

- [SRX550 Services Gateway Front Panel on page 14](#)
- [Troubleshooting with LEDs on the SRX550 Services Gateway on page 128](#)
- [Troubleshooting with Chassis and Interface Alarm Messages on the SRX550 Services Gateway on page 130](#)
- [Troubleshooting the Power System on the SRX550 Services Gateway on page 132](#)
- [Changing the RESET CONFIG Button Behavior on the SRX550 Services Gateway on page 136](#)

Troubleshooting with LEDs on the SRX550 Services Gateway

The LEDs available on the services gateway display the status of various components. [Table 36 on page 128](#) describes the LEDs on the chassis.

Table 36: Component LEDs on the Services Gateway Chassis

LED	Location	Usage
ALARM	Left side of the front chassis panel	<p>The ALARM LED has the following indicator colors:</p> <ul style="list-style-type: none"> Red and steadily on indicates a hardware component or software module failure. Amber and steadily on indicates a major alarm, such as low memory (less than 10% remaining), session full, maximum number of VPN tunnels reached, high availability (HA) status change, or redundant group member not found. Off indicates that the device is starting up. <p>NOTE: When the system is running, if the ALARM LED is off, it indicates that no alarms are present on the device.</p>
STATUS	Left side of the front chassis panel	<p>The STATUS LED has the following indicator colors:</p> <ul style="list-style-type: none"> Green and steadily on indicates that the services gateway is functioning normally. Red and steadily on indicates that the services gateway has failed. Amber and steadily on indicates that the services gateway is starting up, running diagnostics, or shutting down. Off indicates that the device is not receiving power.
POWER	Left side of the front chassis panel	<p>The POWER LED has the following indicator colors:</p> <ul style="list-style-type: none"> Green and steadily on indicates that all power supply units (PSUs) are functioning normally. Red and steadily on indicates failure of one or more PSUs. Amber and steadily on indicates that the Power button has been pressed. The services gateway will shut down. Off indicates that the device is not receiving power.

Table 36: Component LEDs on the Services Gateway Chassis (*continued*)

LED	Location	Usage
HA	Left side of the front chassis panel	<p>The HA LED has the following indicator colors:</p> <ul style="list-style-type: none"> Green and steadily on indicates all configured high availability links are available. Red and steadily on indicates cluster member missing or unreachable. Amber and steadily on indicates that some configured high availability links are down, but enough links are still active for full high availability functionality. In this situation performance might be reduced, current bandwidth could cause packet drops, or single point of failure might now exist. Off indicates that HA is not enabled.
ACE	Left side of the front chassis panel	NOTE: ACE LED is not functional.
RPS	Left side of the front chassis panel	<p>Green and steadily on indicates that the redundant power supply is operating normally.</p> <p>Red and steadily on indicates that one of the following conditions has occurred:</p> <ul style="list-style-type: none"> The primary power supply has failed, and the device is being powered by the redundant power supply. The redundant power supply has been installed, but is not connected to a power source.
MPIM-1 and MPIM-2	Left side of the front chassis panel	<p>Green and steadily on indicates that the Mini-PIM in the corresponding slot is functioning normally.</p> <p>Red and steadily on indicates that the Mini-PIM hardware in the corresponding slot has failed or its anti-counterfeit check failed.</p> <p>Off indicates that there is no Mini-PIM in the corresponding slot, or that the Mini-PIM is not detected by the device.</p>

Related Documentation

- [SRX550 Services Gateway Front Panel on page 14](#)
- [Troubleshooting with the CLI on the SRX550 Services Gateway on page 127](#)
- [Troubleshooting with Chassis and Interface Alarm Messages on the SRX550 Services Gateway on page 130](#)
- [Troubleshooting the Power System on the SRX550 Services Gateway on page 132](#)

- [Changing the RESET CONFIG Button Behavior on the SRX550 Services Gateway on page 136](#)

Troubleshooting with Chassis and Interface Alarm Messages on the SRX550 Services Gateway

When the services gateway detects an alarm condition, it lights the red or yellow alarm LED on the front panel as appropriate. For a detailed description of the alarm condition, issue the **show chassis alarms** CLI command.

There are two classes of alarm messages:

- Chassis alarms—Indicate a problem with a chassis component such as the cooling system or power supply.
- Interface alarms—Indicate a problem with a specific network interface.

Examples:

```
user@host# run show chassis alarms
```

```
4 alarms currently active
```

Alarm time	Class	Description
2009-02-05 09:27:11 PDT	Major	ge-0/0/5: Link down
2009-02-05 09:27:11 PDT	Major	ge-0/0/6: Link down

```
user@host> show chassis fpc pic-status
```

Slot 0	Online	FPC
PIC 0	Online	6x GE, 4x GE SFP Base PIC
Slot 2	Online	FPC
PIC 0	Online	1x T1E1 mPIM
Slot 3	Online	FPC
PIC 0	Online	2x 10G xPIM
Slot 6	Online	FPC
PIC 0	Online	2x 10G xPIM
Slot 7	Online	FPC
PIC 0	Online	1x CLR CH T3/E3
Slot 8	Online	FPC
PIC 0	Online	8x Sync Serial gPIM

For more information about the **show chassis alarms** command, see the [Monitoring and Troubleshooting for Security Devices](#).

[Table 37 on page 131](#) describes alarms that can occur for a services gateway chassis component.

Table 37: Alarms for Services Gateway Chassis Components

Component	Alarm Conditions	Action	Alarm Severity
Boot media	The services gateway boots from an alternate boot device.	<p>If the internal flash fails at startup, the services gateway automatically boots itself from the alternative boot device (USB storage device).</p> <p>If you configured your services gateway to boot from an alternative boot device, ignore this alarm condition.</p> <p>If you did not configure the services gateway to boot from an alternative boot device, contact JTAC.</p>	Yellow (minor)
Gigabit-Backplane Physical Interface Module (GPIM)	A GPIM has failed.	<p>Contact JTAC.</p> <p>See “Juniper Networks Technical Assistance Center” on page 137</p>	Red (major)
Hardware components on the services gateway	The services gateway chassis temperature is too high.	<ul style="list-style-type: none"> • Check the room temperature. See “SRX550 Services Gateway Environmental Specifications” on page 38. • Check the air flow. See “SRX550 Services Gateway Cabinet Airflow Requirements” on page 48. • Check the fans. See “Maintaining the SRX550 Services Gateway Cooling System Components” on page 126. <p>If you must replace a fan, contact JTAC.</p> <p>See “Juniper Networks Technical Assistance Center” on page 137</p>	Yellow (minor)
	The services gateway fan has failed.	<p>Place your hand near the exhaust vents at the rear of the chassis to determine whether the fan is pushing air out of the chassis.</p> <p>Replace the failed fan and contact JTAC.</p>	Red (major)



NOTE: For more information about alarms, see the [Monitoring and Troubleshooting for Security Devices](#).

Troubleshooting the Power System on the SRX550 Services Gateway

The LEDs on the services gateway enable you to determine the performance and operation of the power system. The POWER LED located on the front panel of the services gateway, as described in [Table 38 on page 132](#), indicates the different status settings with respect to the power system. The LEDs on the faceplate of each power supply also show power supply status as described in [Table 39 on page 134](#).

Table 38: POWER LED Description

LED Status	LED State	Meaning	Possible Cause and Corrective Action
Green	On	The services gateway is receiving power, and all AC and/or DC power supply units (PSUs) are working properly.	Normal indication. No action is required.
Red	On	Indicates failure of one or more PSUs.	If you cannot determine the cause of the problem or need additional assistance while troubleshooting a services gateway, 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).
Amber	On	Power button has been pressed. The services gateway will shut down.	Once the services gateway is running again, continue troubleshooting.

Table 38: POWER LED Description (*continued*)

LED Status	LED State	Meaning	Possible Cause and Corrective Action
	Off	Indicates that the services gateway is not receiving power.	<p>If a red alarm condition occurs, issue the show chassis alarms command to determine the source of the problem.</p> <ul style="list-style-type: none"> • Verify that the AC power cord and/or DC power supply cable is not damaged. If the insulation is cracked or broken, immediately replace the cord or cable. • Verify that the source circuit breaker has the proper current rating. Each power supply must be connected to a separate source circuit breaker. • Ensure that the power socket you are plugged into is in working condition. • Connect the power supply to a different power source with a new power cord or power cables. If the power supply status LEDs indicate that the power supply is not functioning normally, the power supply is the source of the problem. Replace the power supply with a spare. <p>NOTE: If the system temperature exceeds the threshold, the Junos OS shuts down all power supplies so that no status is displayed.</p> <p>The Junos OS also can shut down one of the power supplies for other reasons. In this case, the remaining power supplies provide power to the services gateway, and you can still view the system status through the CLI.</p>

Table 39: Power Supply Faceplate LEDs

Power Supply Type	LED Label	Color	Meaning	Possible Cause and Corrective Action
AC	DC OK	Green	The DC output voltages produced by the power supply are within tolerance.	Normal indication. No action is required.
		Red	One or more of the DC output voltages produced by the power supply are outside of tolerance.	
		Unlit	The power supply is not receiving input power.	
	AC OK	Green	The AC input power provided to the power supply is within tolerance.	
		Amber	The AC input power provided to the power supply is outside of tolerance.	
		Unlit	The power supply is not receiving input power.	
DC	DC OK	Green	The DC output voltages produced by the power supply are within tolerance.	Normal indication. No action is required.
		Red	One or more of the DC output voltages produced by the power supply are outside of tolerance.	
		Unlit	The power supply is not receiving input power.	
	INPUT OK	Green	The DC input power provided to the power supply is within tolerance.	
		Amber	The DC input power provided to the power supply is outside of tolerance.	
		Unlit	The power supply is not receiving input power.	

- Related Documentation**
- [SRX550 Services Gateway Front Panel on page 14](#)
 - [Troubleshooting with the CLI on the SRX550 Services Gateway on page 127](#)

- [Troubleshooting with LEDs on the SRX550 Services Gateway on page 128](#)
- [Changing the RESET CONFIG Button Behavior on the SRX550 Services Gateway on page 136](#)

Using the RESET CONFIG Button on the SRX550 Services Gateway

If a configuration fails or denies management access to the services gateway, you can use the RESET CONFIG button to restore the services gateway to the factory default configuration or a rescue configuration. For example, if someone inadvertently commits a configuration that denies management access to a services gateway, you can delete the invalid configuration and replace it with a rescue configuration by pressing the RESET CONFIG button. The button is recessed to prevent it from being pressed accidentally.

The rescue configuration is a previously committed, valid configuration. You must have previously set the rescue configuration through the J-Web interface or the CLI.

To press the RESET CONFIG button, insert a small probe (such as a straightened paper clip) into the pinhole on the front panel.



CAUTION:

- By default, pressing and quickly releasing the RESET CONFIG button loads and commits the rescue configuration through the J-Web interface or the CLI. (For details, see the [CLI Explorer](#).)
- By default, pressing and holding the RESET CONFIG button for 15 seconds or more—until the STATUS LED blinks red—deletes all configurations on the services gateway, including the backup configurations and rescue configuration, and loads and commits the factory configuration.

For details about factory-default settings, see *Viewing Factory-Default Settings of the SRX650 Services Gateway*.

For details about performing initial software configuration, see *Configuring Basic Settings for the SRX650 Services Gateway with the CLI or the J-Web Interface*.

Related Documentation

- [SRX550 Services Gateway Front Panel on page 14](#)
- [Troubleshooting with the CLI on the SRX550 Services Gateway on page 127](#)
- [Troubleshooting with LEDs on the SRX550 Services Gateway on page 128](#)
- [Troubleshooting the Power System on the SRX550 Services Gateway on page 132](#)
- [Changing the RESET CONFIG Button Behavior on the SRX550 Services Gateway on page 136](#)
- [Resetting the SRX550 Services Gateway on page 136](#)

Changing the RESET CONFIG Button Behavior on the SRX550 Services Gateway

You can change the default operation of the RESET CONFIG button of the SRX Services Gateway by limiting how the button resets the services gateway:

- To prevent the RESET CONFIG button from setting the services gateway to the factory default configuration and deleting all other configurations, enter the following command. You can still press and quickly release the button to reset it to the rescue configuration.

```
user@host# set chassis config-button no-clear
```

- To prevent the RESET CONFIG button from setting the services gateway to the rescue configuration, enter the following command. You can still press and hold the button for 15 seconds or more to reset the services gateway to the factory defaults.

```
user@host# set chassis config-button no-rescue
```

- To disable the button and prevent the services gateway from resetting to either configuration, enter the following command:

```
user@host# set chassis config-button no-clear no-rescue
```

The **no-rescue** option prevents the RESET CONFIG button from loading the rescue configuration. The **no-clear** option prevents the RESET CONFIG button from deleting all configurations on the services gateway.

To return the function of the RESET CONFIG button to its default behavior, remove the **config-button** statement from the services gateway configuration.

Related Documentation

- [SRX550 Services Gateway Front Panel on page 14](#)
- [Troubleshooting with the CLI on the SRX550 Services Gateway on page 127](#)
- [Troubleshooting with LEDs on the SRX550 Services Gateway on page 128](#)
- [Troubleshooting the Power System on the SRX550 Services Gateway on page 132](#)
- [Using the RESET CONFIG Button on the SRX550 Services Gateway on page 135](#)
- [Resetting the SRX550 Services Gateway on page 136](#)

Resetting the SRX550 Services Gateway

Use the RESET CONFIG button to return the SRX550 Services Gateway to either the rescue configuration or the factory default configuration. The button is recessed to prevent it from being pressed accidentally. To press this button, insert a small probe (such as a straightened paper clip) into the pinhole on the front panel of the chassis.

For example, if someone inadvertently commits a configuration that denies management access to a services gateway, you can delete the invalid configuration and replace it with a rescue configuration by pressing the RESET CONFIG button. You must have previously set the rescue configuration through the J-Web interface or the CLI. The rescue configuration is a previously committed, valid configuration.



CAUTION: Pressing and holding the RESET CONFIG button for 15 seconds or more—until the STATUS LED blinks red—deletes all configurations on the services gateway, including the backup configurations and rescue configuration, and loads and commits the factory configuration.

There are two types of reset:

- Power On—This reset occurs during the services gateway powering on and powering off. This reset is issued when the services gateway is first powered on. The system accesses the configuration settings from the boot flash for this type of reset.
- Config—This reset is the asynchronous reset input to the services gateway. The RESET CONFIG button is used to generate a reset to load the default configuration settings from the kernel. The system accesses the default factory settings from the internal flash for this type of reset.

Related Documentation

- [Grounding the SRX550 Services Gateway on page 78](#)
- [Powering On the SRX550 Services Gateway on page 94](#)
- [Powering Off the SRX550 Services Gateway on page 95](#)
- [SRX550 Services Gateway Front Panel on page 14](#)

Juniper Networks Technical Assistance Center

If you need assistance while troubleshooting a services gateway, 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).

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Contacting Customer Support on page 153](#)
- [Verifying Parts Received with the SRX550 Services Gateway on page 66](#)

PART 5

Replacing Components

- [Overview of Replacing Components on page 141](#)
- [Replacing Power System Components on page 143](#)
- [Contacting Customer Support and Returning Components on page 153](#)

Overview of Replacing Components

- Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141

Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway

The tools and parts required for replacing various hardware components are listed in Table 40 on page 141.

Table 40: Tools and Parts Required for Replacing Services Gateway Hardware Components

Tool or Part	Components
3/8 in. nut driver or pliers	Cables and connectors
Blank panels (if component is not reinstalled)	Power supply Mini-PIMs GPIMs
Electrostatic bag or antistatic mat	Mini-PIMs GPIMs
Electrostatic discharge (ESD) grounding wrist strap	All
Flat-blade (–) screwdriver	Cables and connectors
Phillips (+) screwdrivers, numbers 1 and 2	Cables and connectors Blank panels GPIMs Mini-PIMs
Wire cutters	Cables and connectors



NOTE: For details on replacing a Mini-PIM or a GPIM, see [Physical Interface Modules](#).

- Related Documentation**
- [Replacing the AC Power Supply on the SRX550 Services Gateway](#)
 - [Replacing a DC Power Supply on the SRX550 Services Gateway on page 146](#)
 - [Physical Interface Modules](#)

Replacing Power System Components

- [Removing an AC Power Supply from the SRX550 Services Gateway on page 143](#)
- [Disconnecting an AC Power Cord from the SRX550 Services Gateway on page 144](#)
- [Removing a DC Power Supply from the SRX550 Services Gateway on page 145](#)
- [Replacing a DC Power Supply on the SRX550 Services Gateway on page 146](#)
- [Removing a DC Power Supply Cable from the SRX550 Services Gateway on page 151](#)

Removing an AC Power Supply from the SRX550 Services Gateway

Up to two power supplies can be located at the rear of the chassis on the right side. Each AC power supply weighs 2 lb (1.32 kg).



CAUTION: Do not leave a power supply slot empty for more than 30 minutes while the services gateway is operational. For proper airflow, the power supply must remain in the chassis, or a blank panel must be used in an empty slot.

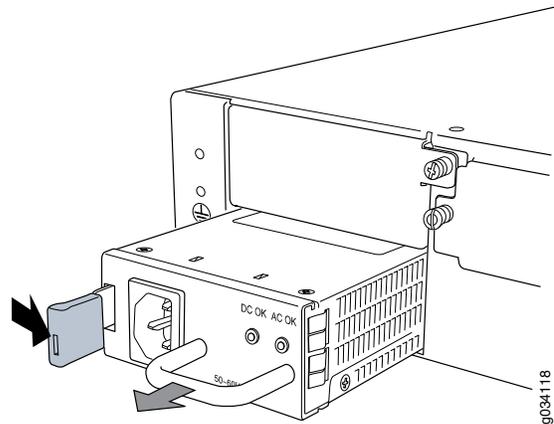


NOTE: After powering off a power supply, wait at least 60 seconds before turning it back on.

To remove an AC power supply:

1. Switch off the dedicated facility circuit breaker for the power supply, and remove the power cord from the AC power source. Follow the electrostatic discharge (ESD) and disconnection instructions for your site.
2. Attach an ESD grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
3. Press the latch to the left of the power outlet (see [Figure 28 on page 144](#)).
4. After the power supply is unlatched, remove the power cord from the power supply.
5. Pull the power supply straight out of the chassis.

Figure 28: Removing an AC Power Supply from the SRX550 Services Gateway



Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)
- [Disconnecting an AC Power Cord from the SRX550 Services Gateway on page 144](#)
- [Installing an AC Power Supply on the SRX550 Services Gateway on page 73](#)
- [Connecting an AC Power Cord to the SRX550 Services Gateway on page 91](#)

Disconnecting an AC Power Cord from the SRX550 Services Gateway



WARNING: Before working on an AC-powered device or near power supplies, unplug the power cord.

To disconnect the AC power cord:

1. Unplug the power cord from the power source receptacle.
2. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
3. Unplug the power cord from the appliance inlet on the power supply.

Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)
- [Removing an AC Power Supply from the SRX550 Services Gateway on page 143](#)

- [Installing an AC Power Supply on the SRX550 Services Gateway on page 73](#)
- [Connecting an AC Power Cord to the SRX550 Services Gateway on page 91](#)

Removing a DC Power Supply from the SRX550 Services Gateway

Up to two power supplies can be installed at the rear of the chassis on the right side. Each DC power supply weighs approximately 2 lb (1.29 kg).



CAUTION: Do not leave a power supply slot empty for more than 30 minutes while the services gateway is operational. For proper airflow, the power supply must remain in the chassis, or a blank panel must be used in an empty slot.

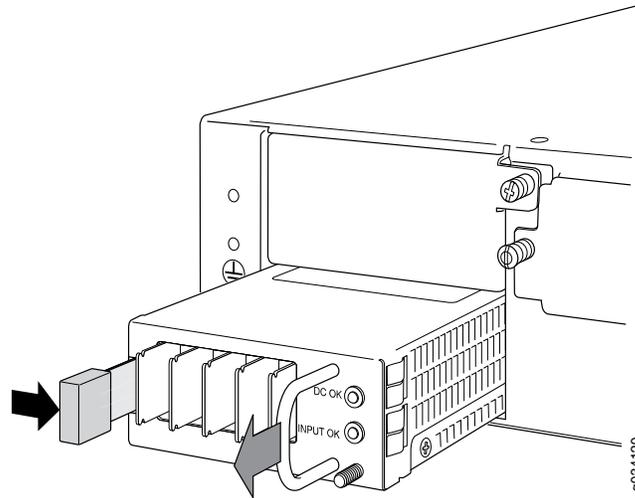


NOTE: After powering off a power supply, wait at least 60 seconds before turning it back on.

To remove a DC power supply, see [Figure 29 on page 146](#).

1. Switch off the dedicated facility circuit breaker for the power supply. Follow the electrostatic discharge (ESD) and disconnection instructions for your site.
2. Make sure that the voltage across the DC power source cable leads is 0 V and that there is no chance that the cables might become active during the removal process.
3. Attach an ESD grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
4. Remove the clear plastic cover protecting the terminal studs on the faceplate.
5. Remove the screws and washers from the terminals. Use a Phillips (+) screwdriver, number 2 to loosen and remove the screws.
6. Remove the cable lugs from the terminal studs.
7. Carefully move the power cables out of the way.
8. Push the tab on the left edge of the power supply to the right.
9. Pull the power supply straight out of the chassis.

Figure 29: Removing a DC Power Supply from the SRX550 Services Gateway



Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)
- [Installing a DC Power Supply on the SRX550 Services Gateway on page 74](#)
- [Removing a DC Power Supply Cable from the SRX550 Services Gateway on page 151](#)

Replacing a DC Power Supply on the SRX550 Services Gateway

You can replace the DC power supply on the SRX550 Services Gateway after disconnecting the power cord and removing the power supply already installed. However, redundant DC power supplies are hot-swappable. You need not power off the services gateway for replacing them.



NOTE: To maintain proper cooling and prevent thermal shutdown of the operating power supply unit, each power supply slot must contain either a power supply or a blank panel. If you remove a power supply, you must install a replacement power supply or a blank panel shortly after the removal.

This topic describes:

- [Removing a DC Power Supply from the SRX550 Services Gateway on page 147](#)
- [Installing a DC Power Supply on the SRX550 Services Gateway on page 148](#)
- [Removing a DC Power Supply Cable from the SRX550 Services Gateway on page 151](#)

Removing a DC Power Supply from the SRX550 Services Gateway

Up to two power supplies can be installed at the rear of the chassis on the right side. Each DC power supply weighs approximately 2 lb (1.29 kg).



CAUTION: Do not leave a power supply slot empty for more than 30 minutes while the services gateway is operational. For proper airflow, the power supply must remain in the chassis, or a blank panel must be used in an empty slot.

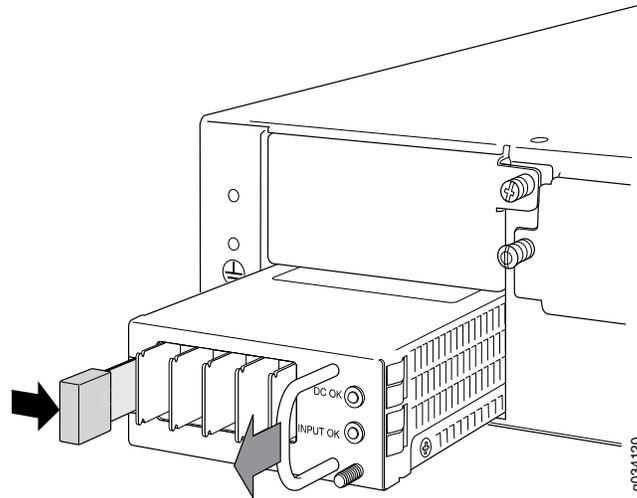


NOTE: After powering off a power supply, wait at least 60 seconds before turning it back on.

To remove a DC power supply, see [Figure 29 on page 146](#).

1. Switch off the dedicated facility circuit breaker for the power supply. Follow the electrostatic discharge (ESD) and disconnection instructions for your site.
2. Make sure that the voltage across the DC power source cable leads is 0 V and that there is no chance that the cables might become active during the removal process.
3. Attach an ESD grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
4. Remove the clear plastic cover protecting the terminal studs on the faceplate.
5. Remove the screws and washers from the terminals. Use a Phillips (+) screwdriver, number 2 to loosen and remove the screws.
6. Remove the cable lugs from the terminal studs.
7. Carefully move the power cables out of the way.
8. Push the tab on the left edge of the power supply to the right.
9. Pull the power supply straight out of the chassis.

Figure 30: Removing a DC Power Supply from the SRX550 Services Gateway

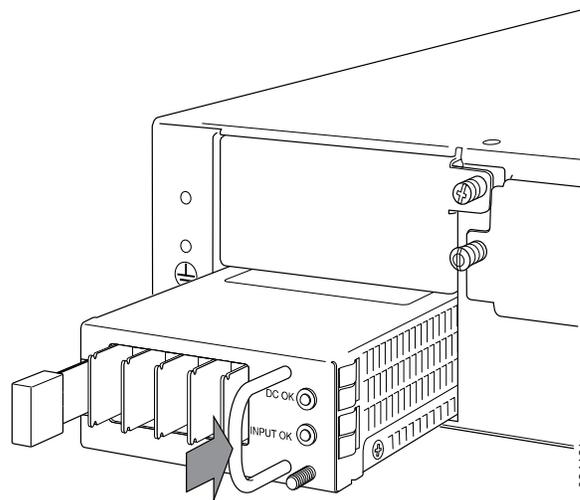


Installing a DC Power Supply on the SRX550 Services Gateway

To install a DC power supply:

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. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the circuit breaker to off position (O), and tape the switch handle of the circuit breaker in the off position.
2. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
3. Orient the power supply so that the locking lever is on the left, as shown in [Figure 18 on page 74](#).

Figure 31: Installing a DC Power Supply on an SRX550 Services Gateway



4. Using both hands, slide the power supply straight into the chassis until the power supply is fully seated in the chassis slot. The power supply faceplate should be flush with any adjacent power supply faceplate.
5. Tighten the captive screws on the lower edge of the power supply faceplate.
6. Remove the clear plastic cover protecting the terminal studs on the faceplate.
7. 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 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:
 - The cable with very large resistance (indicating an open circuit) to chassis ground will be **-48V**.
 - The cable with very low resistance (indicating a closed circuit) to chassis ground will be **RTN**.

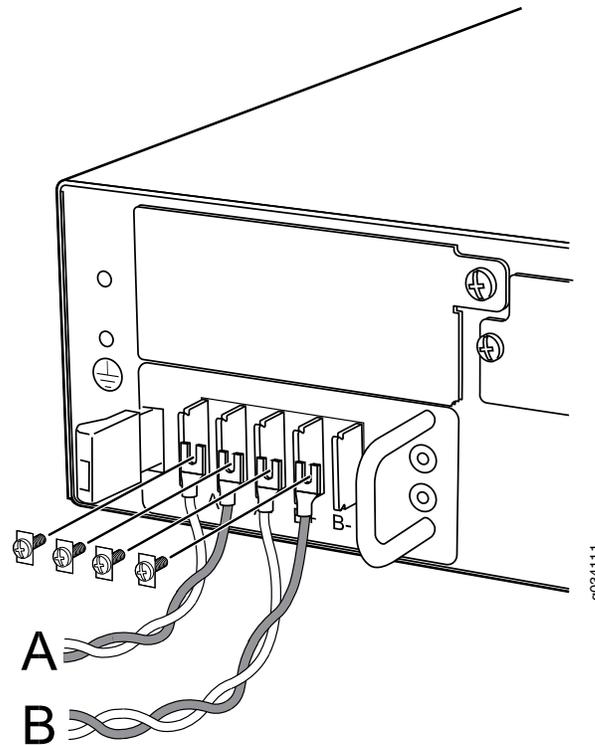


CAUTION: You must ensure that power connections maintain the proper polarity. The power source cables might be labeled (+) and (-) to indicate their polarity. There is no standard color coding for DC power cables. The color coding used by the external DC power source at your site determines the color coding for the leads on the power cables that attach to the terminals on the power supply.

8. Connect DC power cables to the **A+** and **A-** terminals:
 - a. Remove the screws and square washers from the **A+** and **A-** terminals. Use a Phillips (+) screwdriver, number 2. The square washers are permanently attached to the screws.

- b. Secure each power cable lug to the appropriate terminal with a screw. Apply between 23 lb-in. (2.6 Nm) and 25 lb-in. (2.8 Nm) of torque to each screw.
 - Secure the positive (+) DC source power cable lug to the **A+** (return) terminal.
 - Secure the negative (-) DC source power cable lug to the **A-** (input) terminal.

Figure 32: Connecting DC Power Cables



9. Replace the clear plastic cover over the terminal studs on the faceplate.
10. Verify that the power cables are connected correctly, that they are not touching or blocking access to services gateway components, and that they do not drape where people could trip on them.
11. Remove the tape from the switch handle of the circuit breaker on the panel board that services the DC circuit and switch the circuit breaker to the on position (|). Observe the status LEDs on the power supply faceplate. If the power supply is correctly installed and functioning normally, the POWER LED lights green steadily on the services gateway front panel.



NOTE: If more than one power supply is being installed, turn on all power supplies at the same time.

Removing a DC Power Supply Cable from the SRX550 Services Gateway

To remove a power supply cable connected to a DC power supply:

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to an approved site ESD grounding point. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
2. Switch off the external circuit breakers for all the cables attached to the power supply. Make sure that the voltage across the DC power source cable leads is 0 V and that there is no chance that the cables might become active during the removal process.
3. Remove the power cable from the DC power source.
4. Attach an ESD grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
5. Make sure the cable is not touching or in the way of any services gateway components and that it does not drape where people could trip on it.
6. Remove the clear plastic cover protecting the terminal studs on the faceplate.
7. Attach the power cable to the DC power source.
8. Verify that the DC source power cabling is correct. If the power cable is correctly installed and the power supply is functioning normally, the POWER LED on the front panel lights green steadily.

Related Documentation

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)

Removing a DC Power Supply Cable from the SRX550 Services Gateway

To remove a power supply cable connected to a DC power supply:

1. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to an approved site ESD grounding point. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
2. Switch off the external circuit breakers for all the cables attached to the power supply. Make sure that the voltage across the DC power source cable leads is 0 V and that there is no chance that the cables might become active during the removal process.
3. Remove the power cable from the DC power source.
4. Attach an ESD grounding strap to your bare wrist and connect the strap to one of the ESD points on the chassis. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).

5. Make sure the cable is not touching or in the way of any services gateway components and that it does not drape where people could trip on it.
6. Remove the clear plastic cover protecting the terminal studs on the faceplate.
7. Attach the power cable to the DC power source.
8. Verify that the DC source power cabling is correct. If the power cable is correctly installed and the power supply is functioning normally, the POWER LED on the front panel lights green steadily.

**Related
Documentation**

- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [Required Tools and Parts for Replacing Hardware Components on the SRX550 Services Gateway on page 141](#)
- [Removing a DC Power Supply from the SRX550 Services Gateway on page 145](#)
- [Installing a DC Power Supply on the SRX550 Services Gateway on page 74](#)

Contacting Customer Support and Returning Components

- Contacting Customer Support on page 153
- Return Procedure for the SRX550 Services Gateway on page 154
- Locating the SRX550 Services Gateway Chassis Serial Number and Agency Label on page 155
- Locating the SRX550 Services Gateway Mini-PIM and GPIM Serial Number Labels on page 155
- Listing the SRX550 Services Gateway Component Serial Numbers with the CLI on page 155
- Information You Might Need to Supply to JTAC on page 156
- Required Tools and Parts for Packing the SRX550 Services Gateway on page 157
- Packing the SRX550 Services Gateway for Shipment on page 157
- Packing SRX550 Services Gateway Components for Shipment on page 158

Contacting Customer Support

Once you have located the serial numbers of the device or component, you can return the device or component for repair or replacement. For this, you need to contact Juniper Networks Technical Assistance Center (JTAC).

You can contact JTAC 24 hours a day, 7 days a week, using any of the following methods:

- On the Web: Using the Case Manager link at <http://www.juniper.net/support/>
- By telephone:
 - From the USA and Canada: 1-888-314-JTAC
 - From all other locations: 1-408-745-9500



NOTE: If contacting JTAC by telephone, enter your 11-digit case number followed by the pound (#) key if this is an existing case, or press the star (*) key to be routed to the available support engineer.

- Related Documentation**
- [Return Procedure for the SRX550 Services Gateway on page 154](#)
 - [Listing the SRX550 Services Gateway Component Serial Numbers with the CLI on page 155](#)
 - [Locating the SRX550 Services Gateway Chassis Serial Number and Agency Label on page 155](#)
 - [Packing the SRX550 Services Gateway for Shipment on page 157](#)
 - [Packing SRX550 Services Gateway Components for Shipment on page 158](#)

Return Procedure for the SRX550 Services Gateway

To return an SRX550 Services Gateway or component to Juniper Networks for repair or replacement:

1. Determine the part number and serial number of the services gateway or component.
2. Obtain a Return Materials Authorization (RMA) number from JTAC.



NOTE: Do not return the services gateway or any component to Juniper Networks unless you have first obtained an RMA number. Juniper Networks reserves the right to refuse shipments that do not have an RMA. Refused shipments are returned to the customer via collect freight.

3. Pack the SRX550 Services Gateway or component for shipping.

For more information about return and repair policies, see the customer support webpage at <http://www.juniper.net/support/guidelines.html>.

For product problems or technical support issues, 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).

- Related Documentation**
- [Listing the SRX550 Services Gateway Component Serial Numbers with the CLI on page 155](#)
 - [Locating the SRX550 Services Gateway Chassis Serial Number and Agency Label on page 155](#)
 - [Information You Might Need to Supply to JTAC on page 156](#)
 - [Packing the SRX550 Services Gateway for Shipment on page 157](#)
 - [Packing SRX550 Services Gateway Components for Shipment on page 158](#)
 - [Contacting Customer Support on page 153](#)

Locating the SRX550 Services Gateway Chassis Serial Number and Agency Label

The SRX550 Services Gateway serial number is located on the bottom of the device on the compliance/agency label.

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Listing the SRX550 Services Gateway Component Serial Numbers with the CLI on page 155](#)
- [Information You Might Need to Supply to JTAC on page 156](#)
- [Contacting Customer Support on page 153](#)

Locating the SRX550 Services Gateway Mini-PIM and GPIM Serial Number Labels

Mini-Physical Interface Modules (Mini-PIMs) and Gigabit-Backplane Physical Interface Modules (GPIMs) are field-replaceable on the SRX Series Services Gateway. Each Mini-PIM and GPIM has a unique serial number. The serial number label is located on the right side of the Mini-PIM, when the Mini-PIM is horizontally oriented (as it would be installed on the device). The exact location might be slightly different on different Mini-PIMs and GPIMs (XPIMs or GPIMs), depending on the placement of components on the Mini-PIM and GPIM.

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Listing the SRX550 Services Gateway Component Serial Numbers with the CLI on page 155](#)
- [Information You Might Need to Supply to JTAC on page 156](#)
- [Contacting Customer Support on page 153](#)
- [Physical Interface Modules](#)

Listing the SRX550 Services Gateway Component Serial Numbers with the CLI

Before contacting Juniper Networks to request a Return Materials Authorization (RMA), you must find the serial number on the SRX550 Services Gateway or component.

To list all of the SRX550 Services Gateway components and their serial numbers, enter the following command-line interface (CLI) command:

```
user@host> show chassis hardware
```

```
Hardware inventory:
Item  Version  Part number  Serial number  Description
Chassis      AL1011AA0001  SRX550
Midplane    REV 02    750-035027  AADB5078
Routing Engine REV 07    711-035026  AADB5174  RE-SRXSME-SRX550
FPC 0      FPC
PIC 0      6x GE, 4x GE SFP Base
PIC
```

```

FPC 1   REV 01   750-023367  PR4631   FPC
PIC 0           1x T1E1 mPIM
FPC 2   REV 01   750-025085  PW8543   FPC
PIC 0           1x Serial mPIM
FPC 3   REV 07   750-030991  AABC5717 FPC
PIC 0           1x CLR CH T3/E3
Power Supply 0 REV 03   740-024283  VA11496  PS 645W AC

```



NOTE: In the `show chassis hardware` command, the Gigabit-Backplane Physical Interface Module (GPIM) slot number is reported as an FPC number, and the GPIM number (always 0) is reported as the PIC number.

Most components also have a serial number ID label attached to the component body.

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Locating the SRX550 Services Gateway Chassis Serial Number and Agency Label on page 155](#)
- [Information You Might Need to Supply to JTAC on page 156](#)
- [Contacting Customer Support on page 153](#)

Information You Might Need to Supply to JTAC

When requesting support from JTAC by telephone, be prepared to provide the following information:

- Your existing case number, if you have one
- Details of the failure or problem
- Type of activity being performed on the services gateway when the problem occurred
- Configuration data displayed by one or more `show` commands
- Your name, organization name, telephone number, fax number, and shipping address

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Listing the SRX550 Services Gateway Component Serial Numbers with the CLI on page 155](#)
- [Locating the SRX550 Services Gateway Chassis Serial Number and Agency Label on page 155](#)
- [Locating the SRX550 Services Gateway Mini-PIM and GPIM Serial Number Labels on page 155](#)
- [Packing the SRX550 Services Gateway for Shipment on page 157](#)
- [Packing SRX550 Services Gateway Components for Shipment on page 158](#)
- [Contacting Customer Support on page 153](#)

Required Tools and Parts for Packing the SRX550 Services Gateway

To remove the components from the SRX550 Services Gateway or to remove the services gateway from a rack, you need the following tools and parts:

- Blank panels to cover empty slots
- Electrostatic bag or antistatic mat for each component
- Electrostatic discharge (ESD) grounding wrist strap
- Flat-blade screwdriver, approximately 1/4 in. (6 mm)
- Phillips (+) screwdrivers, numbers 1 and 2

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Packing the SRX550 Services Gateway for Shipment on page 157](#)
- [Packing SRX550 Services Gateway Components for Shipment on page 158](#)

Packing the SRX550 Services Gateway for Shipment

To pack the SRX550 Services Gateway for shipment:

1. Retrieve the shipping carton and packing materials in which the services gateway was originally shipped. If you do not have these materials, contact your Juniper Networks representative about approved packaging materials.
2. Attach an electrostatic discharge (ESD) grounding strap to your bare wrist and connect the strap to the ESD point on the chassis or to an outside ESD point if the device is disconnected from earth ground. For more information about ESD, see [“Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway” on page 166](#).
3. On the console or other management device connected to the services gateway, enter the CLI operational mode and issue the following command to shut down the services gateway software:

```
user@host> request system halt
```

Wait until a message appears on the console confirming that the operating system has halted.

4. Shut down power to the services gateway by pressing the Power button on the front of the services gateway.
5. Disconnect power from the services gateway.
6. Remove the cables that connect to all external devices.
7. Remove any GPIMs or Mini-PIMs that have been installed in the services gateway.
8. If the services gateway is installed in a rack, have one person support the weight of the services gateway while another person unscrews and removes the mounting screws.

9. Place the services gateway in the shipping carton.
10. Cover the services gateway with an ESD bag, and place the packing foam on top of and around the device.
11. Replace the accessory box on top of the packing foam.
12. Securely tape the box closed.
13. Write the Return Materials Authorization (RMA) number on the exterior of the box to ensure proper tracking.

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Packing SRX550 Services Gateway Components for Shipment on page 158](#)
- [Required Tools and Parts for Packing the SRX550 Services Gateway on page 157](#)

Packing SRX550 Services Gateway Components for Shipment

Follow these guidelines for packing and shipping individual components of the services gateway:

- When you return a component, make sure that it is adequately protected with packing materials and packed so that the pieces are prevented from moving around inside the carton.
- Use the original shipping materials if they are available.
- Place the individual component in an electrostatic bag.
- Write the Return Materials Authorization (RMA) number on the exterior of the box to ensure proper tracking.



CAUTION: Do not stack any of the services gateway components during packing.

Related Documentation

- [Return Procedure for the SRX550 Services Gateway on page 154](#)
- [Packing the SRX550 Services Gateway for Shipment on page 157](#)
- [Required Tools and Parts for Packing the SRX550 Services Gateway on page 157](#)

PART 6

Safety

- [General Safety Guidelines and Warnings on page 161](#)
- [Fire Safety Requirements on page 167](#)
- [Laser and LED Safety Guidelines and Warnings on page 169](#)
- [Maintenance and Operational Safety Guidelines and Warnings on page 175](#)
- [Electrical Safety Guidelines and Warnings on page 183](#)
- [Agency Approvals and Regulatory Compliance Information on page 193](#)

General Safety Guidelines and Warnings

- SRX550 Services Gateway Definition of Safety Warning Levels on page 161
- SRX550 Services Gateway General Safety Guidelines and Warnings on page 163
- SRX550 Services Gateway Safety Requirements, Warnings, and Guidelines on page 164
- Restricted Access Area Warning on page 164
- Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166

SRX550 Services Gateway Definition of Safety Warning Levels

This guide uses the following four levels of safety warnings:



.....
NOTE: You might find this information helpful in a particular situation or might otherwise overlook it.
.....



.....
CAUTION: You need to observe the specified guidelines to avoid minor injury or discomfort to you or severe damage to the device.
.....



.....
WARNING: This symbol is used with laser warnings. Unterminated optical connectors can emit invisible laser radiation. Focusing your eye directly on a laser source—even a low-power laser—could permanently damage the eye.
.....



.....
WARNING: This symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

Waarschuwing Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische

schakelingen betrokken risico's en dient u op de hoogte te zijn van standaard maatregelen om ongelukken te voorkomen.

Varoitus Tämä varoitusmerkki merkitsee vaaraa. Olet tilanteessa, joka voi johtaa ruumiinvammaan. Ennen kuin työskentelet minkään laitteiston parissa, ota selvää sähkökytkentöihin liittyvistä vaaroista ja tavanomaisista onnettomuuksien ehkäisykeinoista.

Attention Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant causer des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers posés par les circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents.

Warnung Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu einer Körperverletzung führen könnte. Bevor Sie mit der Arbeit an irgendeinem Gerät beginnen, seien Sie sich der mit elektrischen Stromkreisen verbundenen Gefahren und der Standardpraktiken zur Vermeidung von Unfällen bewußt.

Avvertenza Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di lavorare su qualsiasi apparecchiatura, occorre conoscere i pericoli relativi ai circuiti elettrici ed essere al corrente delle pratiche standard per la prevenzione di incidenti.

Advarsel Dette varselsymbolet betyr fare. Du befinner deg i en situasjon som kan føre til personskade. Før du utfører arbeid på utstyr, må du være oppmerksom på de faremomentene som elektriske kretser innebærer, samt gjøre deg kjent med vanlig praksis når det gjelder å unngå ulykker.

Aviso Este símbolo de aviso indica perigo. Encontra-se numa situação que lhe poderá causar danos físicos. Antes de começar a trabalhar com qualquer equipamento, familiarize-se com os perigos relacionados com circuitos eléctricos, e com quaisquer práticas comuns que possam prevenir possíveis acidentes.

¡Atención! Este símbolo de aviso significa peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considerar los riesgos que entraña la corriente eléctrica y familiarizarse con los procedimientos estándar de prevención de accidentes.

Varning! Denna varningssymbol signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanligt förfarande för att förebygga skador.

-
- Related Documentation**
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
 - [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)

- [SRX550 Services Gateway Fire Safety Requirements and Fire Suppression Equipment on page 167](#)

SRX550 Services Gateway General Safety Guidelines and Warnings

The following guidelines help ensure your safety and protect the services gateway from damage. The list of guidelines might not address all potentially hazardous situations in your working environment, so be alert and exercise good judgment at all times.

- Perform only the procedures explicitly described in this guide. Make sure that only authorized service personnel perform other system services.
- Keep the area around the chassis clear and free from dust before, during, and after installation.
- Keep tools away from areas where people could trip on them.
- Wear safety glasses if you are working under any conditions that could be hazardous to your eyes.
- Do not perform any actions that create a potential hazard to people or make the equipment unsafe.
- Never install or manipulate wiring during electrical storms.
- Never install electrical jacks in wet locations unless the jacks are specifically designed for wet environments.
- Do not open or remove chassis covers or sheet metal parts unless instructions are provided in this guide. Such an action could cause severe electrical shock.
- Do not push or force any objects through any opening in the chassis frame. Such an action could result in electrical shock or fire.
- Avoid spilling liquid onto the services gateway chassis or onto any services gateway component. Such an action could cause electrical shock or damage the services gateway.
- Avoid touching uninsulated electrical wires or terminals that have not been disconnected from their power source. Such an action could cause electrical shock.

Related Documentation

- [SRX550 Services Gateway Definition of Safety Warning Levels on page 161](#)
- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [SRX550 Services Gateway Fire Safety Requirements and Fire Suppression Equipment on page 167](#)

SRX550 Services Gateway Safety Requirements, Warnings, and Guidelines

To avoid harm to yourself or the services gateway when you install and maintain it, follow the guidelines for working with and near electrical equipment, as well as the safety procedures for working with services gateways.



NOTE: Providing an exhaustive set of guidelines for working with electrical equipment is beyond the scope of this guide.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [SRX550 Services Gateway Electrical Wiring Guidelines on page 49](#)
- [Required Tools and Parts for Installing the SRX550 Services Gateway on page 62](#)
- [Preparing the SRX550 Services Gateway for Rack-Mount Installation on page 69](#)
- [General Site Installation Guidelines for the SRX550 Services Gateway on page 37](#)

Restricted Access Area Warning



WARNING: The services gateway is intended for installation in restricted access areas. A restricted access area is an area to which access can be gained only by service personnel through the use of a special tool, lock and key, or other means of security, and which is controlled by the authority responsible for the location.

Waarschuwing Dit toestel is bedoeld voor installatie op plaatsen met beperkte toegang. Een plaats met beperkte toegang is een plaats waar toegang slechts door servicepersoneel verkregen kan worden door middel van een speciaal instrument, een slot en sleutel, of een ander veiligheidsmiddel, en welke beheerd wordt door de overheidsinstantie die verantwoordelijk is voor de locatie.

Varoitus Tämä laite on tarkoitettu asennettavaksi paikkaan, johon pääsy on rajoitettua. Paikka, johon pääsy on rajoitettua, tarkoittaa paikkaa, johon vain huoltohenkilöstö pääsee jonkin erikoistyökalun, lukkoon sopivan avaimen tai jonkin muun turvalaitteen avulla ja joka on paikasta vastuussa olevien toimivaltaisten henkilöiden valvoma.

Attention Cet appareil est à installer dans des zones d'accès réservé. Ces dernières sont des zones auxquelles seul le personnel de service peut accéder en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité. L'accès aux zones de sécurité est sous le contrôle de l'autorité responsable de l'emplacement.

Warnung Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Ein Bereich mit beschränktem Zutritt ist ein Bereich, zu dem nur Wartungspersonal mit einem Spezialwerkzeugs, Schloß und Schlüssel oder anderer Sicherheitsvorkehrungen Zugang hat, und der von dem für die Anlage zuständigen Gremium kontrolliert wird.

Avvertenza Questa unità deve essere installata in un'area ad accesso limitato. Un'area ad accesso limitato è un'area accessibile solo a personale di assistenza tramite un'attrezzo speciale, lucchetto, o altri dispositivi di sicurezza, ed è controllata dall'autorità responsabile della zona.

Advarsel Denne enheten er laget for installasjon i områder med begrenset adgang. Et område med begrenset adgang gir kun adgang til servicepersonale som bruker et spesielt verktøy, lås og nøkkel, eller en annen sikkerhetsanordning, og det kontrolleres av den autoriteten som er ansvarlig for området.

Aviso Esta unidade foi concebida para instalação em áreas de acesso restrito. Uma área de acesso restrito é uma área à qual apenas tem acesso o pessoal de serviço autorizado, que possua uma ferramenta, chave e fechadura especial, ou qualquer outra forma de segurança. Esta área é controlada pela autoridade responsável pelo local.

¡Atención! Esta unidad ha sido diseñada para instalarse en áreas de acceso restringido. Área de acceso restringido significa un área a la que solamente tiene acceso el personal de servicio mediante la utilización de una herramienta especial, cerradura con llave, o algún otro medio de seguridad, y que está bajo el control de la autoridad responsable del local.

Varning! Denna enhet är avsedd för installation i områden med begränsat tillträde. Ett område med begränsat tillträde får endast tillträdas av servicepersonal med ett speciellt verktyg, lås och nyckel, eller annan säkerhetsanordning, och kontrolleras av den auktoritet som ansvarar för området.

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)

Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway

Many services gateway hardware components are sensitive to damage from static electricity. Some components can be impaired by voltages as low as 30 V. You can easily generate potentially damaging static voltages whenever you handle plastic or foam packing material or if you move components across plastic or carpets. Observe the following guidelines to minimize the potential for electrostatic discharge (ESD) damage, which can cause intermittent or complete component failures:

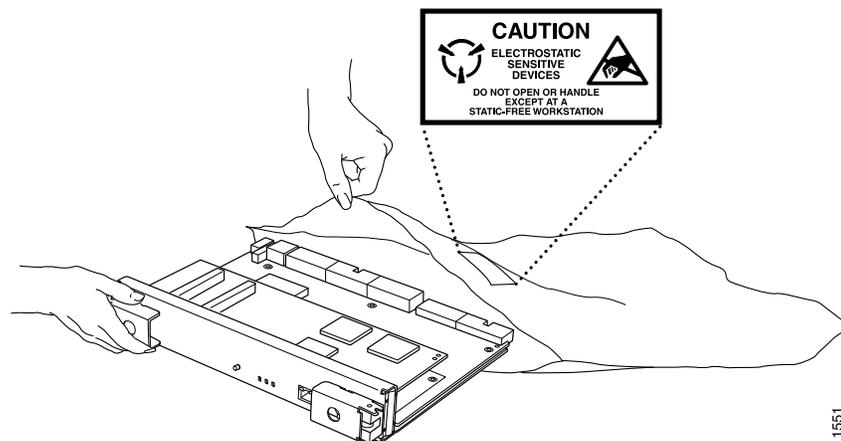
- Always use an ESD wrist strap or ankle strap, and verify that it is in direct contact with your skin.



CAUTION: For safety, periodically check the resistance value of the ESD strap. The resistance must be in the range of 1 to 10 Mohm.

- When handling any component that is removed from the chassis, verify that the equipment end of your ESD strap is attached to one of the ESD points on the chassis.
- Avoid contact between the component and your clothing. ESD voltages emitted from clothing can damage components.
- When removing or installing a component, always place it component-side up on an antistatic surface, in an antistatic card rack, or in an electrostatic bag. See [Figure 33 on page 166](#). If you are returning a component, place it into an electrostatic bag before packing it.

Figure 33: Placing a Component into an Electrostatic Bag



Related Documentation

- [SRX550 Services Gateway Definition of Safety Warning Levels on page 161](#)
- [SRX550 Services Gateway Fire Safety Requirements and Fire Suppression Equipment on page 167](#)
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)

Fire Safety Requirements

- [SRX550 Services Gateway Fire Safety Requirements and Fire Suppression Equipment on page 167](#)

SRX550 Services Gateway Fire Safety Requirements and Fire Suppression Equipment

In the event of a fire emergency involving devices and other network equipment, the safety of people is the primary concern. Establish procedures for protecting people in the event of a fire emergency, provide safety training, and properly provision fire control equipment and fire extinguishers.

In addition, establish procedures to protect your equipment in the event of a fire emergency. Juniper Networks products should be installed in an environment suitable for electronic equipment. We recommend that fire suppression equipment be available in the event of a fire in the vicinity of the equipment and that all local fire, safety, and electrical codes and ordinances be observed when installing and operating your equipment.

In the event of an electrical hazard or an electrical fire, first turn power off to the equipment at the source. Then use a Type C fire extinguisher to extinguish the fire. Type C fire extinguishers, which use noncorrosive fire retardants such as carbon dioxide (CO₂) and Halotron, are most effective for suppressing electrical fires. Type C fire extinguishers displace the oxygen from the point of combustion to eliminate the fire. For extinguishing fire on or around equipment that draws air from the environment for cooling, use this type of inert oxygen displacement extinguisher instead of an extinguisher that leave residues on equipment.

Do not use multipurpose Type ABC chemical fire extinguishers (dry chemical fire extinguishers) near Juniper Networks equipment. The primary ingredient in these fire extinguishers is monoammonium phosphate, which is very sticky and difficult to clean. In addition, in minute amounts of moisture, monoammonium phosphate can become highly corrosive and corrodes most metals.

Any equipment in a room in which a chemical fire extinguisher has been discharged is subject to premature failure and unreliable operation. The equipment is considered to be irreparably damaged.



NOTE: To keep warranties effective, do not use a dry chemical fire extinguisher to control a fire at or near a Juniper Networks services gateway. If a dry chemical fire extinguisher is used, the unit is no longer eligible for coverage under a service agreement.

We recommend that you dispose of any irreparably damaged equipment in an environmentally responsible manner.

Related Documentation

- [SRX550 Services Gateway Definition of Safety Warning Levels on page 161](#)
- [Preventing Electrostatic Discharge Damage to the SRX550 Services Gateway on page 166](#)
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)

CHAPTER 27

Laser and LED Safety Guidelines and Warnings

- [General Laser Safety Guidelines on page 169](#)
- [Class 1 Laser Product Warning on page 170](#)
- [Class 1 LED Product Warning on page 170](#)
- [Laser Beam Warning on page 171](#)
- [Radiation from Open Port Apertures Warning on page 172](#)

General Laser Safety Guidelines

When working around the services gateway, observe the following safety guidelines to prevent eye injury:

- Do not look into unterminated ports or at fibers that connect to unknown sources.
- Do not examine unterminated optical ports with optical instruments.
- Avoid direct exposure to the beam.



WARNING: Unterminated optical connectors can emit invisible laser radiation. The lens in the human eye focuses all the laser power on the retina, so focusing the eye directly on a laser source—even a low-power laser—could permanently damage the eye.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Class 1 Laser Product Warning on page 170](#)
- [Class 1 LED Product Warning on page 170](#)
- [Laser Beam Warning on page 171](#)
- [Radiation from Open Port Apertures Warning on page 172](#)

Class 1 Laser Product Warning



WARNING: Class 1 laser product.

Waarschuwing Klasse-1 laser produkt.

Varoitus Luokan 1 lasertuote.

Attention Produit laser de classe I.

Warnung Laserprodukt der Klasse 1.

Avvertenza Prodotto laser di Classe 1.

Advarsel Laserprodukt av klasse 1.

Aviso Produto laser de classe 1.

¡Atención! Producto láser Clase I.

Varning! Laserprodukt av klass 1.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [General Laser Safety Guidelines on page 169](#)
- [Class 1 LED Product Warning on page 170](#)
- [Laser Beam Warning on page 171](#)
- [Radiation from Open Port Apertures Warning on page 172](#)

Class 1 LED Product Warning



WARNING: Class 1 LED product.

Waarschuwing Klasse 1 LED-product.

Varoitus Luokan 1 valodiodituote.

Attention Alarme de produit LED Class I.

Warnung Class 1 LED-Produktwarnung.

Avvertenza Avvertenza prodotto LED di Classe 1.

Advarsel LED-produkt i klasse 1.

Aviso Produto de classe 1 com LED.

¡Atención! Aviso sobre producto LED de Clase 1.

Warning! Lysdiodprodukt av klass 1.

- Related Documentation**
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
 - [General Laser Safety Guidelines on page 169](#)
 - [Class 1 Laser Product Warning on page 170](#)
 - [Laser Beam Warning on page 171](#)
 - [Radiation from Open Port Apertures Warning on page 172](#)

Laser Beam Warning

WARNING: Do not stare into the laser beam or view it directly with optical instruments.

Waarschuwing Niet in de straal staren of hem rechtstreeks bekijken met optische instrumenten.

Varoitus Älä katso säteeseen äläkä tarkastele sitä suoraan optisen laitteen avulla.

Attention Ne pas fixer le faisceau des yeux, ni l'observer directement à l'aide d'instruments optiques.

Warnung Nicht direkt in den Strahl blicken und ihn nicht direkt mit optischen Geräten prüfen.

Avvertenza Non fissare il raggio con gli occhi né usare strumenti ottici per osservarlo direttamente.

Advarsel Stirr eller se ikke direkte p strlen med optiske instrumenter.

Aviso Não olhe fixamente para o raio, nem olhe para ele directamente com instrumentos ópticos.

¡Atención! No mirar fijamente el haz ni observarlo directamente con instrumentos ópticos.

Warning! Rikta inte blicken in mot strålen och titta inte direkt på den genom optiska instrument.

- Related Documentation**
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
 - [General Laser Safety Guidelines on page 169](#)
 - [Class 1 Laser Product Warning on page 170](#)
 - [Class 1 LED Product Warning on page 170](#)

- [Radiation from Open Port Apertures Warning on page 172](#)

Radiation from Open Port Apertures Warning



WARNING: Because invisible radiation can be emitted from the aperture of the port when no fiber cable is connected, avoid exposure to radiation and do not stare into open apertures.

Waarschuwing Aangezien onzichtbare straling vanuit de opening van de poort kan komen als er geen fiberkabel aangesloten is, dient blootstelling aan straling en het kijken in open openingen vermeden te worden.

Varoitus Koska portin aukosta voi emittoitua näkymätöntä säteilyä, kun kuitukaapelia ei ole kytkettynä, vältä säteilylle altistumisesta äläkä katso avoimiin aukkoihin.

Attention Des radiations invisibles à l'il nu pouvant traverser l'ouverture du port lorsqu'aucun câble en fibre optique n'y est connecté, il est recommandé de ne pas regarder fixement l'intérieur de ces ouvertures.

Warnung Aus der Port-Öffnung können unsichtbare Strahlen emittieren, wenn kein Glasfaserkabel angeschlossen ist. Vermeiden Sie es, sich den Strahlungen auszusetzen, und starren Sie nicht in die Öffnungen!

Avvertenza Quando i cavi in fibra non sono inseriti, radiazioni invisibili possono essere emesse attraverso l'apertura della porta. Evitate di esporvi alle radiazioni e non guardate direttamente nelle aperture.

Advarsel Unngå utsettelse for stråling, og stirr ikke inn i åpninger som er åpne, fordi usynlig stråling kan emitteres fra portens åpning når det ikke er tilkoblet en fiberkabel.

Aviso Dada a possibilidade de emissão de radiação invisível através do orifício da via de acesso, quando esta não tiver nenhum cabo de fibra conectado, deverá evitar a exposição à radiação e não deverá olhar fixamente para orifícios que se encontrarem a descoberto.

¡Atención! Debido a que la apertura del puerto puede emitir radiación invisible cuando no existe un cable de fibra conectado, evite mirar directamente a las aperturas para no exponerse a la radiación.

Varning! Osynlig strålning kan avges från en portöppning utan ansluten fiberkabel och du bör därför undvika att bli utsatt för strålning genom att inte stirra in i oskyddade öppningar.

- Related Documentation**
- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
 - [General Laser Safety Guidelines on page 169](#)

- [Class 1 Laser Product Warning on page 170](#)
- [Class 1 LED Product Warning on page 170](#)
- [Laser Beam Warning on page 171](#)

Maintenance and Operational Safety Guidelines and Warnings

- Battery Handling Warning on page 175
- Lightning Activity Warning on page 176
- Jewelry Removal Warning on page 177
- Operating Temperature Warning on page 179
- Product Disposal Warning on page 180

Battery Handling Warning



WARNING: Replacing the battery incorrectly might result in an explosion. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Waarschuwing Er is ontploffingsgevaar als de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type dat door de fabrikant aanbevolen is. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften weggeworpen te worden.

Varoitus Räjähdyksen vaara, jos akku on vaihdettu väärään akkuun. Käytä vaihtamiseen ainoastaan saman- tai vastaaventyyppistä akkua, joka on valmistajan suosittelema. Hävitä käytetyt akut valmistajan ohjeiden mukaan.

Attention Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

Warnung Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Avvertenza Pericolo di esplosione se la batteria non è installata correttamente. Sostituire solo con una di tipo uguale o equivalente, consigliata dal produttore. Eliminare le batterie usate secondo le istruzioni del produttore.

Advarsel Det kan være fare for eksplosjon hvis batteriet skiftes på feil måte. Skift kun med samme eller tilsvarende type som er anbefalt av produsenten. Kasser brukte batterier i henhold til produsentens instruksjoner.

Aviso Existe perigo de explosão se a bateria for substituída incorrectamente. Substitua a bateria por uma bateria igual ou de um tipo equivalente recomendado pelo fabricante. Destrua as baterias usadas conforme as instruções do fabricante.

¡Atención! Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

Varning! Explosionsfara vid felaktigt batteribyte. Ersätt endast batteriet med samma batterityp som rekommenderas av tillverkaren eller motsvarande. Följ tillverkarens anvisningar vid kassering av använda batterier.

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Jewelry Removal Warning on page 177](#)
- [Lightning Activity Warning on page 176](#)
- [Operating Temperature Warning on page 179](#)
- [Product Disposal Warning on page 180](#)

Lightning Activity Warning



WARNING: Do not work on the system or connect or disconnect cables during periods of lightning activity.

Waarschuwing Tijdens onweer dat gepaard gaat met bliksem, dient u niet aan het systeem te werken of kabels aan te sluiten of te ontkoppelen.

Varoitus Älä työskentele järjestelmän parissa äläkä yhdistä tai irrota kaapeleita ukkosilmalla.

Attention Ne pas travailler sur le système ni brancher ou débrancher les câbles pendant un orage.

Warnung Arbeiten Sie nicht am System und schließen Sie keine Kabel an bzw. trennen Sie keine ab, wenn es gewittert.

Avvertenza Non lavorare sul sistema o collegare oppure scollegare i cavi durante un temporale con fulmini.

Advarsel Utfør aldri arbeid på systemet, eller koble kabler til eller fra systemet når det tordner eller lyner.

Aviso Não trabalhe no sistema ou ligue e desligue cabos durante períodos de mau tempo (trovoada).

¡Atención! No operar el sistema ni conectar o desconectar cables durante el transcurso de descargas eléctricas en la atmósfera.

Varning! Vid åska skall du aldrig utföra arbete på systemet eller ansluta eller koppla loss kablar.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Battery Handling Warning on page 175](#)
- [Jewelry Removal Warning on page 177](#)
- [Operating Temperature Warning on page 179](#)
- [Product Disposal Warning on page 180](#)

Jewelry Removal Warning



WARNING: 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 weld the metal object to the terminals.

Waarschuwing Alvorens aan apparatuur te werken die met elektrische leidingen is verbonden, sieraden (inclusief ringen, kettingen en horloges) verwijderen. Metalen voorwerpen worden warm wanneer ze met stroom en aarde zijn verbonden, en kunnen ernstige brandwonden veroorzaken of het metalen voorwerp aan de aansluitklemmen lassen.

Varoitus Ennen kuin työskentelet voimavirtajohtoihin kytkettyjen laitteiden parissa, ota pois kaikki korut (sormukset, kaulakorut ja kellot mukaan lukien). Metalliesineet kuumenevat, kun ne ovat yhteydessä sähkövirran ja maan kanssa, ja ne voivat aiheuttaa vakavia palovammoja tai hitsata metalliesineet kiinni liitännänpoihin.

Attention Avant d'accéder à cet équipement connecté aux lignes électriques, ôter tout bijou (anneaux, colliers et montres compris). Lorsqu'ils sont branchés à l'alimentation et reliés à la terre, les objets métalliques chauffent, ce qui peut provoquer des blessures graves ou souder l'objet métallique aux bornes.

Warnung Vor der Arbeit an Geräten, die an das Netz angeschlossen sind, jeglichen Schmuck (einschließlich Ringe, Ketten und Uhren) abnehmen. Metallgegenstände erhitzen sich, wenn sie an das Netz und die Erde angeschlossen werden, und können schwere Verbrennungen verursachen oder an die Anschlußklemmen angeschweißt werden.

Avvertenza Prima di intervenire su apparecchiature collegate alle linee di alimentazione, togliersi qualsiasi monile (inclusi anelli, collane, braccialetti ed orologi). Gli oggetti metallici si riscaldano quando sono collegati tra punti di alimentazione e massa: possono causare ustioni gravi oppure il metallo può saldarsi ai terminali.

Advarsel Fjern alle smykker (inkludert ringer, halskjeder og klokker) før du skal arbeide på utstyr som er koblet til kraftledninger. Metallgjenstander som er koblet til kraftledninger og jord blir svært varme og kan forårsake alvorlige brannskader eller smelte fast til polene.

Aviso Antes de trabalhar em equipamento que esteja ligado a linhas de corrente, retire todas as jóias que estiver a usar (incluindo anéis, fios e relógios). Os objectos metálicos aquecerão em contacto com a corrente e em contacto com a ligação à terra, podendo causar queimaduras graves ou ficarem soldados aos terminais.

¡Atención! Antes de operar sobre equipos conectados a líneas de alimentación, quitarse las joyas (incluidos anillos, collares y relojes). Los objetos de metal se calientan cuando se conectan a la alimentación y a tierra, lo que puede ocasionar quemaduras graves o que los objetos metálicos queden soldados a los bornes.

Varning! Tag av alla smycken (inklusive ringar, halsband och armbandsur) innan du arbetar på utrustning som är kopplad till kraftledningar. Metallobjekt hettas upp när de kopplas ihop med ström och jord och kan förorsaka allvarliga brännskador; metallobjekt kan också sammansvetsas med kontakterna.

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
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Operating Temperature Warning



WARNING: To prevent the services gateway from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 104°F (40°C). To prevent airflow restriction, allow at least 6 in. (15.2 cm) of clearance around the ventilation openings.

Waarschuwing Om te voorkomen dat welke services gateway van de Juniper Networks services gateway dan ook oververhit raakt, dient u deze niet te bedienen op een plaats waar de maximale aanbevolen omgevingstemperatuur van 40°C wordt overschreden. Om te voorkomen dat de luchtstroom wordt beperkt, dient er minstens 15,2 cm speling rond de ventilatie-openingen te zijn.

Varoitus Ettei Juniper Networks services gateway-sarjan reititin ylikuumentuusi, sitä ei saa käyttää tilassa, jonka lämpötila ylittää korkeimman suositellun ympäristölämpötilan 40°C. Ettei ilmanvaihto estyisi, tuuletusaukkojen ympärille on jätettävä ainakin 15,2 cm tilaa.

Attention Pour éviter toute surchauffe des routeurs de la gamme Juniper Networks services gateway, ne l'utilisez pas dans une zone où la température ambiante est supérieure à 40°C. Pour permettre un flot d'air constant, dégagez un espace d'au moins 15,2 cm autour des ouvertures de ventilations.

Warnung Um einen services gateway der services gateway vor Überhitzung zu schützen, darf dieser nicht in einer Gegend betrieben werden, in der die Umgebungstemperatur das empfohlene Maximum von 40°C überschreitet. Um Lüftungsverschluß zu verhindern, achten Sie darauf, daß mindestens 15,2 cm lichter Raum um die Lüftungsöffnungen herum frei bleibt.

Avvertenza Per evitare il surriscaldamento dei services gateway, non adoperateli in un locale che ecceda la temperatura ambientale massima di 40°C. Per evitare che la circolazione dell'aria sia impedita, lasciate uno spazio di almeno 15.2 cm di fronte alle aperture delle ventole.

Advarsel Unngå overoppheting av eventuelle rutere i Juniper Networks services gateway Disse skal ikke brukes på steder der den anbefalte maksimale omgivelsestemperaturen overstiger 40°C. Sørg for at klaringen rundt lufteåpningene er minst 15,2 cm for å forhindre nedsatt luftsirkulasjon.

Aviso Para evitar o sobreaquecimento do encaminhador Juniper Networks services gateway, não utilize este equipamento numa área que exceda a temperatura máxima recomendada de 40°C. Para evitar a restrição à circulação de ar, deixe pelo menos um espaço de 15,2 cm à volta das aberturas de ventilação.

¡Atención! Para impedir que un encaminhador de la serie Juniper Networks services gateway se recaliente, no lo haga funcionar en un área en la que se

supere la temperatura ambiente máxima recomendada de 40°C. Para impedir la restricción de la entrada de aire, deje un espacio mínimo de 15,2 cm alrededor de las aperturas para ventilación.

Varning! Förhindra att en Juniper Networks services gateway överhettas genom att inte använda den i ett område där den maximalt rekommenderade omgivningstemperaturen på 40°C överskrids. Förhindra att luftcirkulationen inskränks genom att se till att det finns fritt utrymme på minst 15,2 cm omkring ventilationsöppningarna.

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Battery Handling Warning on page 175](#)
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Product Disposal Warning



WARNING: Disposal of this product must be handled according to all national laws and regulations.

Waarschuwing Dit produkt dient volgens alle landelijke wetten en voorschriften te worden afgedankt.

Varoitus Tämän tuotteen lopullisesta hävittämisestä tulee huolehtia kaikkia valtakunnallisia lakeja ja säännöksiä noudattaen.

Attention La mise au rebut définitive de ce produit doit être effectuée conformément à toutes les lois et réglementations en vigueur.

Warnung Dieses Produkt muß den geltenden Gesetzen und Vorschriften entsprechend entsorgt werden.

Avvertenza L'eliminazione finale di questo prodotto deve essere eseguita osservando le normative italiane vigenti in materia

Advarsel Endelig disponering av dette produktet må skje i henhold til nasjonale lover og forskrifter.

Aviso A descartagem final deste produto deverá ser efectuada de acordo com os regulamentos e a legislação nacional.

¡Atención! El desecho final de este producto debe realizarse según todas las leyes y regulaciones nacionales

Varning! Slutlig kassering av denna produkt bör skötas i enlighet med landets alla lagar och föreskrifter.

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**Related
Documentation**

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- [Operating Temperature Warning on page 179](#)

CHAPTER 29

Electrical Safety Guidelines and Warnings

- [In Case of Electrical Accident on page 183](#)
- [General Electrical Safety Guidelines and Warnings on page 183](#)
- [AC Power Electrical Safety Guidelines and Warnings on page 184](#)
- [DC Power Electrical Safety Guidelines and Warnings on page 185](#)

In Case of Electrical Accident

If an electrical accident results in an injury, take the following actions in this order:

1. Use caution. Be aware of potentially hazardous conditions that could cause further injury.
2. Disconnect power from the services gateway.
3. If possible, send another person to get medical aid. Otherwise, assess the condition of the victim, then call for help.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [General Electrical Safety Guidelines and Warnings on page 183](#)
- [AC Power Electrical Safety Guidelines and Warnings on page 184](#)
- [DC Power Electrical Safety Guidelines and Warnings on page 185](#)
- [SRX550 Services Gateway Power Requirements on page 54](#)
- [Grounding the SRX550 Services Gateway on page 78](#)

General Electrical Safety Guidelines and Warnings

- Install the services gateway in compliance with the following local, national, or international electrical codes:
 - United States—National Fire Protection Association (NFPA 70), United States National Electrical Code
 - Canada—Canadian Electrical Code, Part 1, CSA C22.1

- Other countries—International Electromechanical Commission (IEC) 60364, Part 1 through Part 7
- Evaluated to the TN power system
- Locate the emergency power-off switch for the room in which you are working so that if an electrical accident occurs, you can quickly turn off the power.
- Do not work alone if potentially hazardous conditions exist anywhere in your workspace.
- Never assume that power is disconnected from a circuit. Always check the circuit before starting to work.
- Carefully look for possible hazards in your work area, such as moist floors, ungrounded power extension cords, and missing safety grounds.
- Operate the services gateway within marked electrical ratings and product usage instructions.
- For the services gateway and peripheral equipment to function safely and correctly, use the cables and connectors specified for the attached peripheral equipment, and make certain they are in good condition.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [In Case of Electrical Accident on page 183](#)
- [AC Power Electrical Safety Guidelines and Warnings on page 184](#)
- [DC Power Electrical Safety Guidelines and Warnings on page 185](#)
- [SRX550 Services Gateway Power Requirements on page 54](#)
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AC Power Electrical Safety Guidelines and Warnings



CAUTION: For services gateways with AC power supplies, an external surge protective device (SPD) must be used at the AC power source.

The following electrical safety guidelines apply to AC-powered services gateways:

- AC-powered services gateways are shipped with a three-wire electrical cord with a grounding-type plug that fits only a grounding-type power outlet. Do not circumvent this safety feature. Equipment grounding should comply with local and national electrical codes.
- You must provide an external certified circuit breaker rated minimum 15 A in the building installation.
- The power cord serves as the main disconnecting device. The socket outlet must be near the switch and be easily accessible.

- When a services gateway is equipped with multiple AC power supplies, all power cords (one for each power supply) must be unplugged to completely disconnect power to the switch.
- Note the following warnings printed on the label next to the power supplies:

“**CAUTION:** THIS UNIT HAS MORE THAN ONE POWER SUPPLY CORD. DISCONNECT ALL POWER SUPPLY CORDS BEFORE SERVICING TO AVOID ELECTRIC SHOCK.”

“**ATTENTION:** CET APPAREIL COMPORTE PLUS D'UN CORDON D'ALIMENTATION. AFIN DE PRÉVENIR LES CHOCS ÉLECTRIQUES, DÉBRANCHER TOUT CORDON D'ALIMENTATION AVANT DE FAIRE LE DÉPANNAGE.”

Power Cable Warning (Japanese)

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。

The preceding translates as follows:



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

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [General Electrical Safety Guidelines and Warnings on page 183](#)
- [In Case of Electrical Accident on page 183](#)
- [DC Power Electrical Safety Guidelines and Warnings on page 185](#)
- [SRX550 Services Gateway Power Requirements on page 54](#)
- [Grounding the SRX550 Services Gateway on page 78](#)

DC Power Electrical Safety Guidelines and Warnings

When working with DC-powered equipment, observe the following guidelines and warnings:

- DC Power Electrical Safety Guidelines
- DC Power Disconnection Warning
- DC Power Grounding Requirements and Warning
- DC Power Wiring Sequence Warning
- DC Power Wiring Terminations Warning

DC Power Electrical Safety Guidelines

The following electrical safety guidelines apply to a DC-powered services gateway:

- A DC-powered services gateway is equipped with a DC terminal block that is rated for the power requirements of a maximally configured services gateway. To supply sufficient power, terminate the DC input wiring on a facility DC source capable of supplying at least 65 A at –48 VDC for the system, or at least 48 A at –48 VDC for each power supply. We recommend that the 48 VDC facility DC source be equipped with a circuit breaker rated at 60 A (–48 VDC) minimum, or as required by local code. Incorporate an easily accessible disconnect device into the facility wiring. In the United States and Canada, the –48 VDC facility should be equipped with a circuit breaker rated a minimum of 125% of the power provisioned for the input in accordance with the National Electrical Code in the USA and the Canadian Electrical Code in Canada. Be sure to connect the ground wire or conduit to a solid office (earth) ground. A closed loop ring is recommended for terminating the ground conductor at the ground stud.
- Run two wires from the circuit breaker box to a source of 48 VDC. Use appropriate gauge wire to handle up to 60 A.
- A DC-powered services gateway that is equipped with a DC terminal block is intended only for installation in a restricted access location. In the United States, a restricted access area is one in accordance with Articles 110-16, 110-17, and 110-18 of the National Electrical Code ANSI/NFPA 70.



NOTE: Primary overcurrent protection is provided by the building circuit breaker. This breaker should protect against excess currents, short circuits, and earth faults in accordance with NEC ANSI/NFPA70.

- Ensure that the polarity of the DC input wiring is correct. Under certain conditions, connections with reversed polarity might trip the primary circuit breaker or damage the equipment.
- For personal safety, connect the green and yellow wire to safety (earth) ground at both the services gateway and the supply side of the DC wiring.
- The marked input voltage of –48 VDC for a DC-powered services gateway is the nominal voltage associated with the battery circuit, and any higher voltages are only to be associated with float voltages for the charging function.
- Because the services gateway is a positive ground system, you must connect the positive lead to the terminal labeled **RETURN**, the negative lead to the terminal labeled **–48V**, and the earth ground to the chassis grounding points.

DC Power Disconnection Warning



WARNING: Before performing any of the following procedures, ensure that power is removed from the DC circuit. To ensure that all power is off, locate the circuit breaker on the panel board that services the DC circuit, switch the

circuit breaker to the off position (O), and tape the switch handle of the circuit breaker in the off position (O).

Waarschuwing Voordat u een van de onderstaande procedures uitvoert, dient u te controleren of de stroom naar het gelijkstroom circuit uitgeschakeld is. Om u ervan te verzekeren dat alle stroom UIT is geschakeld, kiest u op het schakelbord de stroomverbreker die het gelijkstroom circuit bedient, draait de stroomverbreker naar de UIT positie en plakt de schakelaarhendel van de stroomverbreker met plakband in de UIT positie vast.

Varoitus Varmista, että tasavirtapiirissä ei ole virtaa ennen seuraavien toimenpiteiden suorittamista. Varmistaaksesi, että virta on KATKAISTU täysin, paikanna tasavirrasta huolehtivassa kojetaulussa sijaitseva suojakytkin, käännä suojakytkin KATKAISTU-asentoon ja teippaa suojakytkimen varsi niin, että se pysyy KATKAISTU-asennossa.

Attention Avant de pratiquer l'une quelconque des procédures ci-dessous, vérifiez que le circuit en courant continu n'est plus sous tension. Pour en être sûr, localiser le disjoncteur situé sur le panneau de service du circuit en courant continu, placer le disjoncteur en position fermée (OFF) et, à l'aide d'un ruban adhésif, bloquer la poignée du disjoncteur en position OFF.

Warnung Vor Ausführung der folgenden Vorgänge ist sicherzustellen, daß die Gleichstromschaltung keinen Strom erhält. Um sicherzustellen, daß sämtlicher Strom abgestellt ist, machen Sie auf der Schalttafel den Unterbrecher für die Gleichstromschaltung ausfindig, stellen Sie den Unterbrecher auf AUS, und kleben Sie den Schaltergriff des Unterbrechers mit Klebeband in der AUS-Stellung fest.

Avvertenza Prima di svolgere una qualsiasi delle procedure seguenti, verificare che il circuito CC non sia alimentato. Per verificare che tutta l'alimentazione sia scollegata (OFF), individuare l'interruttore automatico sul quadro strumenti che alimenta il circuito CC, mettere l'interruttore in posizione OFF e fissarlo con nastro adesivo in tale posizione.

Advarsel Før noen av disse prosedyrene utføres, kontroller at strømmen er frakoblet likestrømkretsen. Sørg for at all strøm er slått AV. Dette gjøres ved å lokalisere strømbryteren på brytertavlen som betjener likestrømkretsen, slå strømbryteren AV og teipe bryterhåndtaket på strømbryteren i AV-stilling.

Aviso Antes de executar um dos seguintes procedimentos, certifique-se que desligou a fonte de alimentação de energia do circuito de corrente contínua. Para se assegurar que toda a corrente foi DESLIGADA, localize o disjuntor no painel que serve o circuito de corrente contínua e coloque-o na posição OFF (Desligado), segurando nessa posição a manivela do interruptor do disjuntor com fita isoladora.

¡Atención! Antes de proceder con los siguientes pasos, comprobar que la alimentación del circuito de corriente continua (CC) esté cortada (OFF). Para asegurarse de que toda la alimentación esté cortada (OFF), localizar el

interruptor automático en el panel que alimenta al circuito de corriente continua, cambiar el interruptor automático a la posición de Apagado (OFF), y sujetar con cinta la palanca del interruptor automático en posición de Apagado (OFF).

Warning! Innan du utför någon av följande procedurer måste du kontrollera att strömförsörjningen till likströmskretsen är bruten. Kontrollera att all strömförsörjning är BRUTEN genom att slå AV det överspänningskydd som skyddar likströmskretsen och tejpa fast överspänningskyddets omkopplare i FRÅN-läget.

DC Power Grounding Requirements and Warning

An insulated grounding conductor that is identical in size to the grounded and ungrounded branch circuit supply conductors, but that is identifiable by green and yellow stripes, is installed as part of the branch circuit that supplies the unit. The grounding conductor is a separately derived system at the supply transformer or motor generator set.



WARNING: When you install the services gateway, you must always make the ground connection first and disconnect it last.

Waarschuwing Bij de installatie van het toestel moet de aardverbinding altijd het eerste worden gemaakt en het laatste worden losgemaakt.

Varoitus Laitetta asennettaessa on maahan yhdistäminen aina tehtävä ensiksi ja maadoituksen irti kytkeminen viimeiseksi.

Attention Lors de l'installation de l'appareil, la mise à la terre doit toujours être connectée en premier et déconnectée en dernier.

Warnung Der Erdanschluß muß bei der Installation der Einheit immer zuerst hergestellt und zuletzt abgetrennt werden.

Avvertenza In fase di installazione dell'unità, eseguire sempre per primo il collegamento a massa e disconnetterlo per ultimo.

Advarsel Når enheten installeres, må jordledningen alltid tilkobles først og frakobles sist.

Aviso Ao instalar a unidade, a ligação à terra deverá ser sempre a primeira a ser ligada, e a última a ser desligada.

¡Atención! Al instalar el equipo, conectar la tierra la primera y desconectarla la última.

Warning! Vid installation av enheten måste jordledningen alltid anslutas först och kopplas bort sist.

DC Power Wiring Sequence Warning



WARNING: 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. Note that the ground wire should always be connected first and disconnected last.

Waarschuwing De juiste bedradingsvolgorde verbonden is aarde naar aarde, +RTN naar +RTN, en -48 V naar -48 V . De juiste bedradingsvolgorde losgemaakt is en -48 V naar -48 V , +RTN naar +RTN, aarde naar aarde.

Varoitus Oikea yhdistettävä kytkentajarjestys on maajohto maajohtoon, +RTN varten +RTN, -48 V varten -48 V . Oikea irrotettava kytkentajarjestys on -48 V varten -48 V , +RTN varten +RTN, maajohto maajohtoon.

Attention Câblez l'alimentation d'alimentation CC En utilisant les crochets appropriés à l'extrémité de câblage. En reliant la puissance, l'ordre approprié de câblage est rectifié pour rectifier, +RTN à +RTN, puis -48 V à -48 V . En débranchant la puissance, l'ordre approprié de câblage est -48 V à -48 V , +RTN à +RTN, a alors rectifié pour rectifier. Notez que le fil de masse devrait toujours être relié d'abord et débranché pour la dernière fois. Notez que le fil de masse devrait toujours être relié d'abord et débranché pour la dernière fois.

Warnung Die Stromzufuhr ist nur mit geeigneten Ringösen an das DC Netzteil anzuschliessen. Die richtige Anschlusssequenz ist: Erdanschluss zu Erdanschluss, +RTN zu +RTN und dann -48V zu -48V . Die richtige Sequenz zum Abtrennen der Stromversorgung ist -48V zu -48V , +RTN zu +RTN und dann Erdanschluss zu Erdanschluss. Es ist zu beachten dass der Erdanschluss immer zuerst angeschlossen und als letztes abgetrennt wird.

Avvertenza Mostra la morsettiera dell'alimentatore CC. Cablare l'alimentatore CC usando i connettori adatti all'estremità del cablaggio, come illustrato. La corretta sequenza di cablaggio è da massa a massa, da positivo a positivo (da linea ad L) e da negativo a negativo (da neutro a N). Tenere presente che il filo di massa deve sempre venire collegato per primo e scollegato per ultimo.

Advarsel Riktig tilkoples tilkoplingssekvens er jord til jord, +RTN til +RTN, -48 V til -48 V . Riktig frakoples tilkoplingssekvens er -48 V til -48 V , +RTN til +RTN, jord til jord.

Aviso Ate con alambre la fuente de potencia cc Usando los terminales apropiados en el extremo del cableado. Al conectar potencia, la secuencia apropiada del cableado se muele para moler, +RTN a +RTN, entonces -48 V a -48 V . Al desconectar potencia, la secuencia apropiada del cableado es -48 V a -48 V , +RTN a +RTN, entonces molió para moler. Observe que el alambre de tierra se debe conectar siempre primero y desconectar por último. Observe que el alambre de tierra se debe conectar siempre primero y desconectar por último.

Atención! Wire a fonte de alimentação de DC Usando os talões apropriados na extremidade da fiação. Ao conectar a potência, a seqüência apropriada da fiação é moída para moer, +RTN a +RTN, então -48 V a -48 V. Ao desconectar a potência, a seqüência apropriada da fiação é -48 V a -48 V, +RTN a +RTN, moeu então para moer. Anote que o fio à terra deve sempre ser conectado primeiramente e desconectado por último. Anote que o fio à terra deve sempre ser conectado primeiramente e desconectado por último.

Varning! Korrekt kopplingssekvens ar jord till jord, +RTN till +RTN, -48 V till -48 V. Korrekt kopplas kopplingssekvens ar -48 V till -48 V, +RTN till +RTN, jord till jord.

DC Power Wiring Terminations Warning



WARNING: When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and the conductor.

Waarschuwing Wanneer geslagen bedrading vereist is, dient u bedrading te gebruiken die voorzien is van goedgekeurde aansluitingspunten, zoals het gesloten-lus type of het grijperschop type waarbij de aansluitpunten omhoog wijzen. Deze aansluitpunten dienen de juiste maat voor de draden te hebben en dienen zowel de isolatie als de geleider vast te klemmen.

Varoitus Jos säikeellinen johdin on tarpeen, käytä hyväksyttyä johdinliitäntää, esimerkiksi suljettua silmukkaa tai kourumaista liitäntää, jossa on ylöspäin käännetyt kiinnityskorvat. Tällaisten liitäntöjen tulee olla kooltaan johtimiin sopivia ja niiden tulee puristaa yhteen sekä eristeen että johdinosan.

Attention Quand des fils torsadés sont nécessaires, utiliser des douilles terminales homologuées telles que celles à circuit fermé ou du type à plage ouverte avec cosses rebroussées. Ces douilles terminales doivent être de la taille qui convient aux fils et doivent être refermées sur la gaine isolante et sur le conducteur.

Warnung Wenn Litzenverdrahtung erforderlich ist, sind zugelassene Verdrahtungsanschlüsse, z.B. Ringoesen oder gabelförmige Kabelschuhe mit nach oben gerichteten Enden zu verwenden. Diese Abschlüsse sollten die angemessene Größe für die Drähte haben und sowohl die Isolierung als auch den Leiter festklemmen.

Avvertenza Quando occorre usare trecce, usare connettori omologati, come quelli a occhiello o a forcilla con linguette rivolte verso l'alto. I connettori devono avere la misura adatta per il cablaggio e devono serrare sia l'isolante che il conduttore.

Advarsel Hvis det er nødvendig med flertrådede ledninger, bruges godkendte ledningsavslutninger, som for eksempel lukket sløfje eller spadetype med oppoverbøyd kabelsko. Disse avslutningene skal ha riktig størrelse i forhold til ledningene, og skal klemme sammen både isolasjonen og ledaren.

Aviso Quando forem requeridas montagens de instalação eléctrica de cabo torcido, use terminações de cabo aprovadas, tais como, terminações de cabo em circuito fechado e planas com terminais de orelha voltados para cima. Estas terminações de cabo deverão ser do tamanho apropriado para os respectivos cabos, e deverão prender simultaneamente o isolamento e o fio condutor.

¡Atención! Cuando se necesite hilo trenzado, utilizar terminales para cables homologados, tales como las de tipo "bucle cerrado" o "espada", con las lengüetas de conexión vueltas hacia arriba. Estos terminales deberán ser del tamaño apropiado para los cables que se utilicen, y tendrán que sujetar tanto el aislante como el conductor.

Varning! När flertrådiga ledningar krävs måste godkända ledningskontakter användas, t.ex. kabelsko av sluten eller öppen typ med uppåtvänd tapp. Storleken på dessa kontakter måste vara avpassad till ledningarna och måste kunna hålla både isoleringen och ledaren fastklämda.

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [General Electrical Safety Guidelines and Warnings on page 183](#)
- [In Case of Electrical Accident on page 183](#)
- [AC Power Electrical Safety Guidelines and Warnings on page 184](#)
- [SRX550 Services Gateway Power Requirements on page 54](#)
- [Grounding the SRX550 Services Gateway on page 78](#)

CHAPTER 30

Agency Approvals and Regulatory Compliance Information

- [SRX550 Services Gateway Agency Approvals on page 193](#)
- [SRX550 Services Gateway Acoustic Noise Compliance Statements on page 194](#)
- [SRX550 Services Gateway Compliance Statements for EMC Requirements on page 194](#)
- [SRX550 Services Gateway Compliance Statements for NEBS on page 196](#)
- [Lithium Battery on page 196](#)

SRX550 Services Gateway Agency Approvals

The services gateway complies with the following standards:

- Safety
 - CSA 60950-1 (2003) Safety of Information Technology Equipment
 - UL 60950-1 (2003) Safety of Information Technology Equipment
 - EN 60950-1 (2001) Safety of Information Technology Equipment
 - IEC 60950-1 (2001) Safety of Information Technology Equipment (with country deviations)
 - EN 60825-1 +A1+A2 (1994) Safety of Laser Products - Part 1: Equipment Classification
- EMC
 - EN 300 386 V1.3.3 (2005) Telecom Network Equipment - EMC requirements
- EMI
 - FCC Part 15 Class A (2007) USA Radiated Emissions
 - EN 55022 Class A (2006) European Radiated Emissions
 - VCCI Class A (2007) Japanese Radiated Emissions
- Immunity

- EN 55024 +A1+A2 (1998) Information Technology Equipment Immunity Characteristics
- EN-61000-3-2 (2006) Power Line Harmonics
- EN-61000-3-3 +A1 +A2 +A3 (1995) Power Line Voltage Fluctuations
- EN-61000-4-2 +A1 +A2 (1995) Electrostatic Discharge
- EN-61000-4-3 +A1+A2 (2002) Radiated Immunity
- EN-61000-4-4 (2004) Electrical Fast Transients
- EN-61000-4-5 (2006) Surge
- EN-61000-4-6 (2007) Immunity to Conducted Disturbances
- EN-61000-4-11 (2004) Voltage Dips and Sags

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [SRX550 Services Gateway Acoustic Noise Compliance Statements on page 194](#)

SRX550 Services Gateway Acoustic Noise Compliance Statements

The maximum emitted sound pressure level is 70 dB(A) or less per EN ISO 7779.

German Translation:

Maschinenlärminformations-Verordnung - 3. GPSGV, der höchste Schalldruckpegel beträgt 70 dB(A) oder weniger gemäss EN ISO 7779.

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [Lithium Battery on page 196](#)

SRX550 Services Gateway Compliance Statements for EMC Requirements

This section includes the following topics:

- [Canada on page 194](#)
- [European Community on page 195](#)
- [Israel on page 195](#)
- [Japan on page 195](#)
- [United States on page 195](#)

Canada

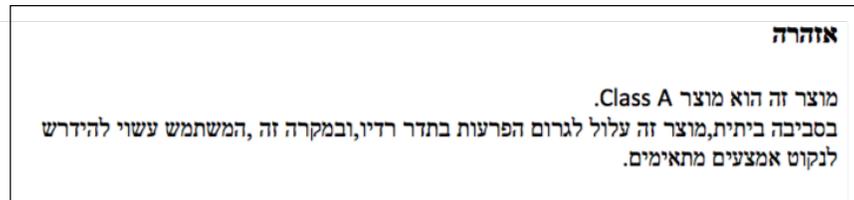
This Class A digital apparatus complies with Canadian ICES-003.

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 might cause radio interference in which case the user might be required to take adequate measures.

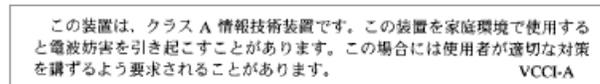
Israel



The preceding translates as follows:

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



The preceding translates as follows:

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 services gateway has been tested and found to comply with the limits for a Class A digital device 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, might 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.

Related Documentation

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [SRX550 Services Gateway Compliance Statements for NEBS on page 196](#)
- [SRX550 Services Gateway Acoustic Noise Compliance Statements on page 194](#)

SRX550 Services Gateway 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 Network Telecommunications Facilities.
- The battery return connection is to be treated as an isolated DC return (i.e. DC-I), as defined in GR-1089-CORE.

**Related
Documentation**

- [SRX550 Services Gateway General Safety Guidelines and Warnings on page 163](#)
- [SRX550 Services Gateway Compliance Statements for EMC Requirements on page 194](#)
- [SRX550 Services Gateway Acoustic Noise Compliance Statements on page 194](#)

Lithium Battery

Batteries in this product are not based on mercury, lead, or cadmium substances. The batteries used in this product are in compliance with EU Directives 91/157/EEC, 93/86/EEC, and 98/101/EEC. The product documentation includes instructional information about the proper method of reclamation and recycling.

**Related
Documentation**

- [SRX550 High Memory Services Gateway General Safety Guidelines and Warnings](#)