

SRX110 Services Gateway Hardware Guide for H Model Numbers

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SRX110 Services Gateway Hardware Guide for H Model Numbers
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Use this guide to install hardware and perform initial software configuration, routine maintenance, and troubleshooting for the SRX110 Services Gateway (H model numbers). After completing the installation and basic configuration procedures covered in this guide, refer to the Junos OS documentation for information about further software configuration.

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 <https://www.juniper.net/documentation/>.

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

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at <https://www.juniper.net/books>.

Using the Examples in This Manual

If you want to use the examples in this manual, you can use the **load merge** or the **load merge relative** command. These commands cause the software to merge the incoming configuration into the current candidate configuration. The example does not become active until you commit the candidate configuration.

If the example configuration contains the top level of the hierarchy (or multiple hierarchies), the example is a *full example*. In this case, use the **load merge** command.

If the example configuration does not start at the top level of the hierarchy, the example is a *snippet*. In this case, use the **load merge relative** command. These procedures are described in the following sections.

Merging a Full Example

To merge a full example, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration example into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following configuration to a file and name the file **ex-script.conf**. Copy the **ex-script.conf** file to the **/var/tmp** directory on your routing platform.

```
system {
  scripts {
    commit {
      file ex-script.xsl;
    }
  }
}
interfaces {
  fxp0 {
    disable;
    unit 0 {
      family inet {
        address 10.0.0.1/24;
      }
    }
  }
}
```

2. Merge the contents of the file into your routing platform configuration by issuing the **load merge** configuration mode command:

```
[edit]
user@host# load merge /var/tmp/ex-script.conf
load complete
```

Merging a Snippet

To merge a snippet, follow these steps:

1. From the HTML or PDF version of the manual, copy a configuration snippet into a text file, save the file with a name, and copy the file to a directory on your routing platform.

For example, copy the following snippet to a file and name the file **ex-script-snippet.conf**. Copy the **ex-script-snippet.conf** file to the **/var/tmp** directory on your routing platform.

```
commit {  
    file ex-script-snippet.xml; }
```

2. Move to the hierarchy level that is relevant for this snippet by issuing the following configuration mode command:

```
[edit]  
user@host# edit system scripts  
[edit system scripts]
```

3. Merge the contents of the file into your routing platform configuration by issuing the **load merge relative** configuration mode command:

```
[edit system scripts]  
user@host# load merge relative /var/tmp/ex-script-snippet.conf  
load complete
```

For more information about the **load** command, see [CLI Explorer](#).

Documentation Conventions

[Table 1 on page xii](#) 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 xii 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>

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

Convention	Description	Examples
<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>
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 <i>metric</i> >;
(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 (<i>string1</i> <i>string2</i> <i>string3</i>)
# (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 [<i>community-ids</i>]
Indentation and braces ({ })	Identifies a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
GUI Conventions		

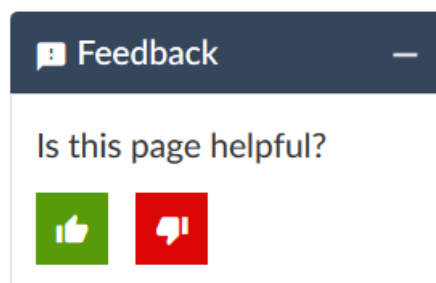
Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
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 so that we can improve our documentation. You can use either of the following methods:

- Online feedback system—Click TechLibrary Feedback, on the lower right of any page on the [Juniper Networks TechLibrary](#) site, and do one of the following:



- Click the thumbs-up icon if the information on the page was helpful to you.
- Click the thumbs-down icon if the information on the page was not helpful to you or if you have suggestions for improvement, and use the pop-up form to provide 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 Juniper Care or Partner Support Services 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 <https://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <https://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: <https://www.juniper.net/customers/support/>
- Search for known bugs: <https://prsearch.juniper.net/>
- Find product documentation: <https://www.juniper.net/documentation/>
- Find solutions and answer questions using our Knowledge Base: <https://kb.juniper.net/>
- Download the latest versions of software and review release notes: <https://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://kb.juniper.net/InfoCenter/>
- Join and participate in the Juniper Networks Community Forum: <https://www.juniper.net/company/communities/>
- Create a service request online: <https://myjuniper.juniper.net>

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

Creating a Service Request with JTAC

You can create a service request with JTAC on the Web or by telephone.

- Visit <https://myjuniper.juniper.net>.
- 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 <https://support.juniper.net/support/requesting-support/>.

1

PART

Overview

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System Overview

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- [SRX110 Services Gateway Description | 2](#)
- [SRX110 Services Gateway Hardware Features | 4](#)
- [SRX110 Services Gateway Integrated VDSL2 Interface Overview | 5](#)
- [SRX110 Services Gateway Integrated VDSL2 Interface Key Features | 6](#)
- [SRX110 Services Gateway Integrated VDSL2 Interface Supported Profiles | 6](#)

SRX110 Services Gateway Description

IN THIS SECTION

- [About the SRX110 Services Gateway | 2](#)
- [SRX110 Services Gateway Models | 3](#)
- [Accessing the SRX110 Services Gateway | 3](#)

This topic includes the following sections:

About the SRX110 Services Gateway

The Juniper Networks SRX110 Services Gateway offers complete functionality and flexibility for delivering secure and reliable data along with multiple integrated interfaces that support WAN and LAN connectivity. The SRX110 Services Gateway supports interfaces such as 3G USB modem and integrated very-high-bit-rate digital subscriber line version 2 (VDSL2).

The VDSL2 feature enables faster data transmission. VDSL lines connect service provider networks and customer sites to provide high-bandwidth applications such as high-speed Internet access, telephone services such as voice over IP (VoIP), high-definition TV (HDTV), and interactive gaming services over a

single connection. On the SRX Series Services Gateway, the integrated VDSL2 interface provides ADSL backward compatibility.

The 3G USB modem enables wireless connectivity. The 3G-WAN USB port located at the back panel of the device supports the external 3G USB modem using a Universal Serial Bus (USB) modem extension cable.

The services gateway also provides security features such as IP Security (IPsec), virtual private network (VPN), and firewall services for small and medium-sized companies and enterprise branch and remote offices. Additional security features also include Unified Threat Management (UTM), which consists of IPS antispam, antivirus, and Web filtering.

The SRX110 Services Gateway can be connected directly to traditional private networks such as Multi Protocol Label Switching (MPLS) or to the public Internet.

The SRX110 Services Gateway runs the Junos operating system (Junos OS).

SRX110 Services Gateway Models

[Table 3 on page 3](#) lists the SRX110 Services Gateway models with 1 GB memory. For information on the models with 2 GB memory, see *SRX110 Services Gateway Hardware Guide for H2 Model Numbers*.

Table 3: SRX110 Services Gateway Models

Product Name	Device Type	Model
SRX110 Services Gateway	High Memory	SRX110H-VA
SRX110 Services Gateway	High Memory	SRX110H-VB

Accessing the SRX110 Services Gateway

Two user interfaces are available for monitoring, configuring, troubleshooting, and managing the SRX110 Services Gateway:

- **J-Web interface:** 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):** 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.

For more details on the SRX110 Services Gateway software features, see [Feature Explorer](#). For information about how to purchase a software license, contact your Juniper Networks sales representative at <https://www.juniper.net/in/en/contact-us/>.

RELATED DOCUMENTATION

[SRX110 Services Gateway Hardware Features | 4](#)
[SRX110 Services Gateway Specifications | 28](#)

SRX110 Services Gateway Hardware Features

[Table 4 on page 4](#) lists the hardware features supported on the SRX110 Services Gateway models with 1 GB memory. For information on the models with 2 GB memory, see *SRX110 Services Gateway Hardware Guide for H2 Model Numbers*.

Table 4: SRX110 Services Gateway Hardware Features

Feature	Description
DDR Memory	1 GB
Power supply adapter	60 W (12 VDC and 5 A)
AC input voltage	100 to 240 VAC
AC input line frequency	50 to 60 Hz
AC adapter current rating	1.5 A maximum
Fast Ethernet ports	8
Console port	1
USB port	1
CompactFlash card	1 GB
LEDs	Status, Alarm, Power, and 3G <ul style="list-style-type: none"> • For SRX110H-VA—VDSL/ADSL-POTS (TX/RX and SYNC) • For SRX110H-VB—VDSL/ADSL-ISDN (TX/RX and SYNC)
3G-WAN USB port (rear side)	1

NOTE: If there is any problem with the CompactFlash card, you must return the services gateway for repair or replacement. For this, you need to contact Juniper Networks Technical Assistance Center (JTAC).

For more details on Junos OS features and licenses for the SRX110 Services Gateway, see the following guides:

- [Initial Configuration for Security Devices](#)
- [Monitoring and Troubleshooting for Security Devices](#)

RELATED DOCUMENTATION

[SRX110 Services Gateway Description | 2](#)

[SRX110 Services Gateway Specifications | 28](#)

SRX110 Services Gateway Integrated VDSL2 Interface Overview

Very-high-bit-rate digital subscriber line (VDSL) technology is part of the xDSL family of modem technologies. It provides fast data transmission over a single flat untwisted or twisted pair of copper wires.

VDSL lines connect service provider networks and customer sites to provide high-bandwidth applications (Triple Play services) such as high-speed Internet access, telephone services such as voice over IP (VoIP), high-definition TV (HDTV), and interactive gaming services over a single connection. VDSL2 is an enhancement to VDSL and permits the transmission of asymmetric (half-duplex).

VDSL2 uses:

- RJ-11 connector to connect to the VDSL/ADSL-POTS port.
- RJ-45 connector to connect to the VDSL/ADSL-ISDN port.

The services gateway supports integrated VDSL2. The integrated VDSL2 carries the Ethernet backplane. On the SRX Series Services Gateway, integrated VDSL2 provides ADSL backward compatibility.

Integrated VDSL2 is compatible with the ITU-T G.993.2 (VDSL2) standard.

For more information, see the [Interfaces for Security Devices](#).

RELATED DOCUMENTATION

[SRX110 Services Gateway Integrated VDSL2 Interface Key Features | 6](#)

[SRX110 Services Gateway Integrated VDSL2 Interface Supported Profiles | 6](#)

[SRX110 Services Gateway Integrated VDSL2 Interface LEDs | 21](#)

[Configuring the Integrated VDSL2 Interface on the SRX110 Services Gateway | 109](#)

SRX110 Services Gateway Integrated VDSL2 Interface Key Features

The following features are supported on integrated VDSL2:

- ADSL/ADSL2/ADSL2+ backward compatibility with POTS supporting Annex-A (Annex-M) and ISDN supporting Annex-B
- Packet Mode Transfer (PTM) or Ethernet in the First Mile (EFM) (802.3ah)
- Operation, Administration, and Maintenance (OAM) support for ADSL/ADSL2/ADSL2+ mode
- Asynchronous Transfer Mode (ATM) quality of service (QoS) (supported only when the VDSL2 interface is operating in ADSL2 mode)
- Multilink Point-to-Point Protocol (MLPPP) (supported only when the VDSL2 interface is operating in ADSL2 mode)
- Support for a maximum of 10 permanent virtual connections (PVCs) (only in ADSL/ADSL2/ADSL2+ mode)
- Dying Gasp support (ADSL/ADSL2/ADSL2+ and VDSL2 modes)

RELATED DOCUMENTATION

[SRX110 Services Gateway Integrated VDSL2 Interface Overview | 5](#)

[SRX110 Services Gateway Integrated VDSL2 Interface LEDs | 21](#)

[Configuring the Integrated VDSL2 Interface on the SRX110 Services Gateway | 109](#)

SRX110 Services Gateway Integrated VDSL2 Interface Supported Profiles

A profile is a table that contains a list of preconfigured VDSL2 settings. [Table 5 on page 7](#) lists the different profiles supported on integrated VDSL2, along with their data rates.

Table 5: Profiles Supported on the Integrated VDSL2 Interface

Profile	Data Rate (Mbps)
8a	50
8b	50
8c	50
8d	50
12a	68
12b	68
17a	100
Auto	Auto-negotiated (based on profile)

RELATED DOCUMENTATION

[SRX110 Services Gateway Integrated VDSL2 Interface Overview | 5](#)

[SRX110 Services Gateway Integrated VDSL2 Interface LEDs | 21](#)

[Configuring the Integrated VDSL2 Interface on the SRX110 Services Gateway | 109](#)

Hardware Component Overview

IN THIS CHAPTER

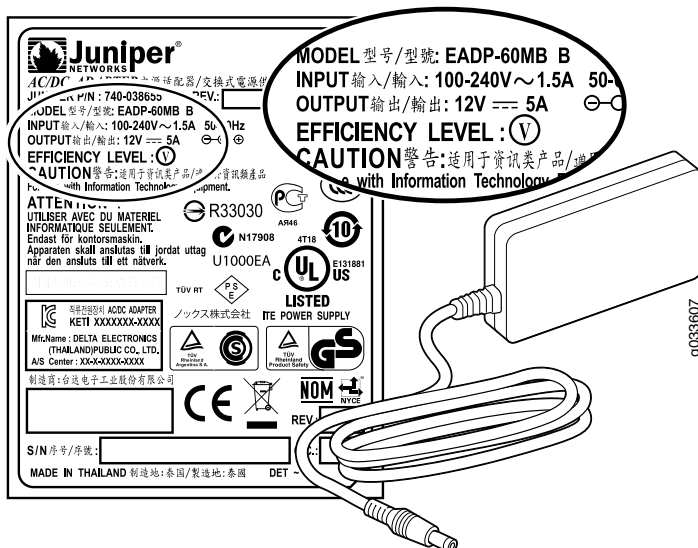
- SRX110 Services Gateway Power Supply | 8
- SRX110 Services Gateway 3G USB Modem Overview | 9
- SRX110 Services Gateway 3G USB Modem Key Features | 11

SRX110 Services Gateway Power Supply

The power supply for the SRX110 Services Gateway is external. You must use the power supply adapter provided by Juniper Networks to provide power to the services gateway.

Figure 1 on page 8 shows the label for the 12 V power supply.

Figure 1: SRX110 Services Gateway — 12 V Power Supply



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[Monitoring the SRX110 Services Gateway Power System | 119](#)

[Powering On the SRX110 Services Gateway | 79](#)

[Powering Off the SRX110 Services Gateway | 79](#)

SRX110 Services Gateway 3G USB Modem Overview

IN THIS SECTION

- [Introduction to the SRX110 Services Gateway 3G USB Modem | 9](#)
- [SRX110 Services Gateway 3G USB Modem—Supported Modem Types | 9](#)
- [Using the SRX110 Services Gateway 3G USB Modem | 10](#)

This topic includes the following sections:

Introduction to the SRX110 Services Gateway 3G USB Modem

Wireless WAN access is becoming widely available and comparably priced with Integrated Services Digital Network (ISDN) and Digital Subscriber Line (DSL). The SRX110 Services Gateway supports a wireless interface as a backup for primary interfaces such as Fast Ethernet.

To facilitate wireless connectivity, the device has a 3G-WAN USB port on the back panel that supports the external 3G USB modem using a USB modem extension cable. For more information on the back panel of the device, see [“SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2” on page 13](#).

SRX110 Services Gateway 3G USB Modem—Supported Modem Types

[Table 6 on page 9](#) lists the wireless modems supported on the SRX110 Services Gateway.

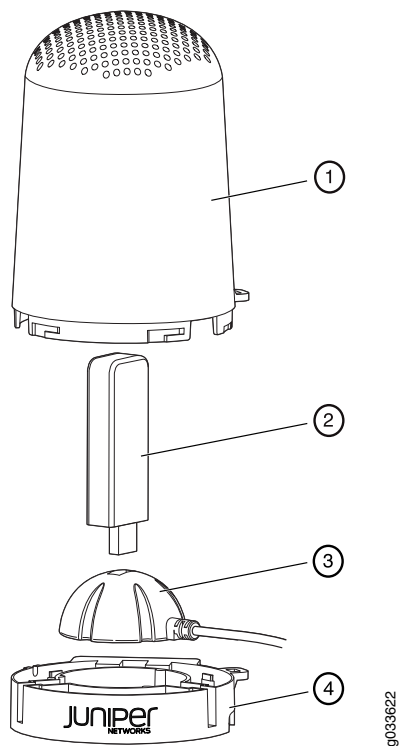
Table 6: Wireless USB Modems Supported by the SRX110 Services Gateway

Wireless USB Modem	Release Supported
Sierra Wireless Compass 888. Not available from Juniper Networks.	Junos OS Release 11.2 R3 and later.
Sierra Wireless AirCard 319U. Not available from Juniper Networks.	Junos OS Release 11.2 R3 and later.

Using the SRX110 Services Gateway 3G USB Modem

To use the 3G USB modem, you plug one end of the USB modem extension cable into the 3G-WAN USB port on the rear side of the device, and then plug the 3G USB modem into the USB modem extension cable-mount slot. This enables you to dial a wireless call to the 3G wireless service provider network, which acts as an Internet gateway. To use the 3G USB modem as a backup interface, you can use the dialer feature available in the services gateway. The 3G USB modem is secured with a USB protection cover as shown in [Figure 2 on page 10](#).

Figure 2: 3G USB Modem with USB Protection Cover



[Table 7 on page 10](#) lists the components of the 3G USB modem with USB protection cover.

Table 7: 3G USB Modem with USB Protection Cover Components

Number	Component
1	USB mount top cover
2	USB modem
3	USB mount (magnetic/non-magnetic)
4	USB mount base

Table 7: 3G USB Modem with USB Protection Cover Components (*continued*)

Number	Component
5	Lock

RELATED DOCUMENTATION

[Installing a 3G USB Modem in the SRX110 Services Gateway USB Port | 65](#)

[SRX110 Services Gateway 3G-WAN USB Port Physical Specifications | 30](#)

[Configuring the 3G USB Modem on the SRX110 Services Gateway | 107](#)

SRX110 Services Gateway 3G USB Modem Key Features

The 3G USB modem provides the following key features:

- Onboard Subscriber Identity Module (SIM)—All GSM cards have an onboard SIM. The service provider populates this SIM with the subscriber service parameters.
- Unlocking support—You can unlock GSM USB modems from the Junos OS CLI. If the SIM is locked, you need to unlock it before making a call.

NOTE: Only GSM cards support locking and unlocking of the SIM.

- Interface support—The 3G USB modem interface supports the IP-over-PPP interface from the network through the wireless link.
- Dial-out support—The dialer interface can place calls and has multiple features such as dial-backup, dialer-watchlist, and dialer-filter. The dialer interface can use the 3G USB modem to support the dial-out feature.

NOTE: The 3G USB modem does not support the dial-in feature.

- Card information availability—You can use CLI commands to obtain information about a 3G USB modem, such as type, version, wireless status, and user profiles.

- Security:
 - PIN lock support—GSM cards support PIN lock, which prevents unauthorized access and use of the wireless account.
 - SIM card lock/unlock—You can use CLI request commands to lock or unlock the SIM card.
 - PIN code storage option—You can store the PIN code you provide in the services gateway configuration so that the SIM can be unlocked without the need for user intervention every time the device is rebooted or reset.

NOTE: Currently, all GSM cards support PIN-protected SIMs.

RELATED DOCUMENTATION

[SRX110 Services Gateway 3G USB Modem Overview | 9](#)

[Installing a 3G USB Modem in the SRX110 Services Gateway USB Port | 65](#)

[SRX110 Services Gateway 3G-WAN USB Port Physical Specifications | 30](#)

Chassis Description

IN THIS CHAPTER

- [SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2 | 13](#)
- [SRX110 Services Gateway Built-In Interfaces | 16](#)
- [SRX110 Services Gateway LEDs | 18](#)
- [SRX110 Services Gateway Integrated VDSL2 Interface LEDs | 21](#)
- [SRX110 Services Gateway Boot Devices and Dual-Root Partitioning Scheme | 22](#)

SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2

IN THIS SECTION

- [SRX110 Services Gateway Front Panel View with 3G and Integrated VDSL2 | 13](#)
- [SRX110 Services Gateway Back Panel View | 15](#)

This topic includes the following sections:

SRX110 Services Gateway Front Panel View with 3G and Integrated VDSL2

[Figure 3 on page 14](#) and [Figure 4 on page 14](#) show the front panels of the SRX110 Services Gateway models SRX110H-VA and SRX110H-VB.

Figure 3: SRX110 Services Gateway Front Panel (SRX110H-VA)

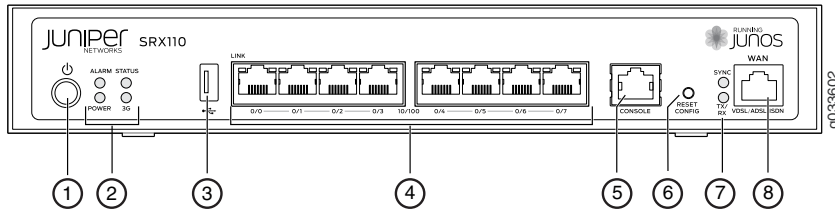


Figure 4: SRX110 Services Gateway Front Panel (SRX110H-VB)

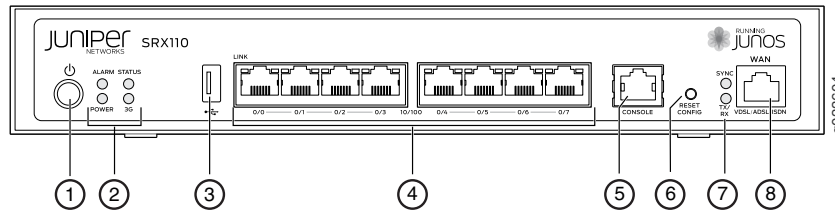


Table 8 on page 14 lists the front panel components of the SRX110 Services Gateway.

Table 8: SRX110 Services Gateway Front Panel Components

Number	Component
1	Power button
2	LEDs: Alarm, Status, Power, and 3G
3	Universal Serial Bus (USB) port
4	Fast Ethernet ports
5	Console port
6	Reset Config button
7	LEDs: SYNC and TX/RX
8	<ul style="list-style-type: none"> For SRX110H-VA—VDSL/ADSL-POTS For SRX110H-VB—VDSL/ADSL-ISDN

For more information on the front panel components, see the following topics:

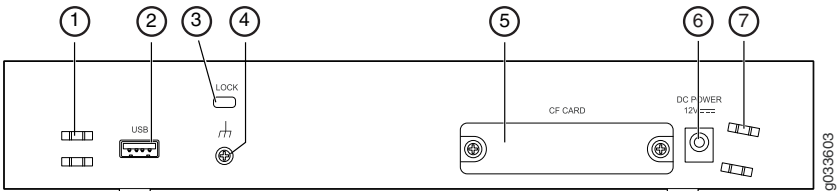
- [SRX110 Services Gateway Built-In Interfaces on page 16](#)
- [SRX110 Services Gateway LEDs on page 18](#)

- [SRX110 Services Gateway Boot Devices and Dual-Root Partitioning Scheme on page 22](#)

SRX110 Services Gateway Back Panel View

[Figure 5 on page 15](#) shows the back panel of the SRX110 Services Gateway.

Figure 5: SRX110 Services Gateway Back Panel



[Table 9 on page 15](#) lists the back panel components of the SRX110 Services Gateway.

Table 9: SRX110 Services Gateway Back Panel Components

Number	Component
1	Cable tie holder
2	3G-WAN USB port
3	Lock
4	Grounding point
5	CompactFlash card
6	Power supply unit
7	Cable tie holder

NOTE:

- If there is any problem with the CompactFlash card, you must return the services gateway for repair or replacement. For this, you need to contact Juniper Networks Technical Assistance Center (JTAC).
- The cable tie holder provides support for holding the power cord to the power supply point.
- The lock allows you to lock and secure the device to the installation site.

RELATED DOCUMENTATION

[SRX110 Services Gateway Specifications | 28](#)[SRX110 Services Gateway Built-In Interfaces | 16](#)[SRX110 Services Gateway LEDs | 18](#)[SRX110 Services Gateway Power Supply | 8](#)

SRX110 Services Gateway Built-In Interfaces

Table 10 on page 16 summarizes the interface ports supported on the SRX110 Services Gateway.

Table 10: SRX110 Services Gateway Built-In Hardware Interfaces

Interface	Specification	Description
Fast Ethernet	<p>The Fast Ethernet ports:</p> <ul style="list-style-type: none">• Consist of eight fixed ports• Are labeled as port 0/0 to port 0/7 on the front panel• Provide link speeds of 10/100 Mbps• Operate in full-duplex and half-duplex modes• Support flow control• Support autonegotiation• Support autosensing	<p>The Fast Ethernet ports can be used:</p> <ul style="list-style-type: none">• To provide LAN connectivity to hubs, switches, local servers, and workstations.• To forward incoming data packets to the device.• To receive outgoing data packets from the device.

Table 10: SRX110 Services Gateway Built-In Hardware Interfaces (*continued*)

Interface	Specification	Description
Universal Serial Bus (USB)	<p>The USB port:</p> <ul style="list-style-type: none"> • Consists of one port • Supports the following modes: <ul style="list-style-type: none"> • Full-speed • High-speed • Complies with USB revision 2.0 	<p>The USB port can be used:</p> <ul style="list-style-type: none"> • To support a USB storage device that functions as a secondary boot device in case of internal flash memory device failure on startup (if the USB storage device is installed and configured). <p>NOTE: You must install and configure the USB storage device on the USB port to use it as a secondary boot device. Additionally, the USB device must have Junos OS installed.</p> <ul style="list-style-type: none"> • To provide the USB interfaces that are used to communicate with many types of USB storage devices supported by Juniper Networks.
Console	<p>The console port:</p> <ul style="list-style-type: none"> • Consists of one port • Uses an RJ-45 serial cable connector • Supports the RS-232 (EIA-232) standard 	<p>The console port can be used:</p> <ul style="list-style-type: none"> • To provide the console interface. • To function as a management port for logging in to a device directly. • To configure the device using the CLI.
Integrated VDSL2 interface	<p>The VDSL2 port:</p> <ul style="list-style-type: none"> • Consists of one port • Uses an RJ-11 connector for VDSL/ADSL-POTS • Uses an RJ-45 connector for VDSL/ADSL-ISDN 	<p>The VDSL2 port can be used to provide LAN and WAN functionality, along with connectivity to various media types.</p>
3G USB modem	<p>The 3G-WAN USB port on the rear side uses a USB modem extension cable to support the external 3G USB modem.</p>	<p>The 3G USB modem provides wireless connectivity.</p>

RELATED DOCUMENTATION

SRX110 Services Gateway Specifications 28
SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2 13
SRX110 Services Gateway LEDs 18

SRX110 Services Gateway LEDs

IN THIS SECTION

- [SRX110 Services Gateway Front Panel LEDs | 18](#)
- [SRX110 Services Gateway Ethernet Port LEDs | 20](#)

This topic includes the following sections:

SRX110 Services Gateway Front Panel LEDs

Figure 6 on page 18 shows the SRX110 Services Gateway Front Panel LEDs.

Figure 6: SRX110 Services Gateway Front Panel LEDs

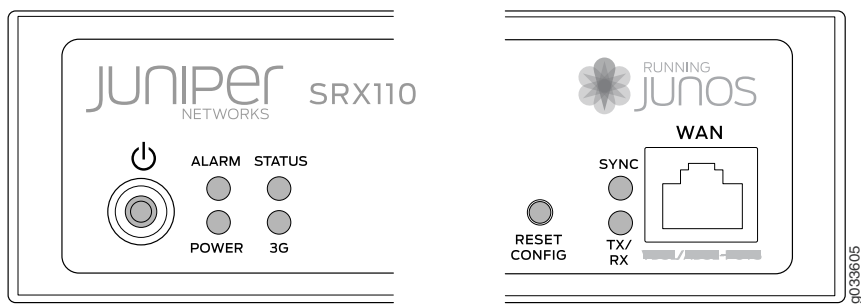


Table 11 on page 19 lists the LED indicators on the SRX110 Services Gateway front panel.

Table 11: SRX110 Services Gateway Front Panel Components LEDs

Component	Description	Usage
Alarm LED	<p>The Alarm LED has the following indicator colors:</p> <ul style="list-style-type: none"> • Solid red indicates a critical alarm. • Solid amber and steadily on indicates a major alarm. • Green indicates that the device is functioning normally with no alarms. • Off indicates that the device is not powered on. <p>NOTE: When the system is up and running, if the Alarm LED is off, it indicates that no alarms are present on the device.</p>	<p>The Alarm LED can be used to gather information on critical, major, or minor alarms or to determine if the device is functioning normally.</p>
Status LED	<p>The Status LED has the following indicator colors:</p> <ul style="list-style-type: none"> • Solid green indicates that the device is functioning normally. • Solid amber and steadily on indicates that the device is starting up. • Solid red indicates that the device has failed. • Off indicates that the device is not powered on. 	<p>The Status LED can be used to determine whether the device is starting up, is functioning normally, or has failed.</p>
Power LED	<p>The Power LED has the following indicator colors:</p> <ul style="list-style-type: none"> • Solid green indicates that the device is functioning normally. • Solid amber indicates that the Power button has been pressed and quickly released. The device is gracefully shutting down. • Solid red indicates that there is a problem with the power supply. • Off indicates that the device is not receiving power. 	<p>The Power LED can be used to determine if the device is receiving power.</p>
3G LED	<p>The 3G LED has the following indicator colors:</p> <ul style="list-style-type: none"> • Solid green indicates that the 3G USB modem is functioning normally or connected to network. • Solid red indicates that the 3G USB modem is not registered with network. • Solid amber indicates that the 3G USB modem is registered with network. • Off indicates that the 3G USB modem is not detected. 	<p>The 3G LED can be used to determine if the 3G USB modem is plugged in.</p> <p>NOTE: The 3G LED will be functional only if you reboot the services gateway after plugging in the modem.</p>

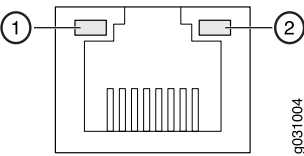
Table 11: SRX110 Services Gateway Front Panel Components LEDs (continued)

Component	Description	Usage
SYNC LED	<p>The SYNC LED for the VDSL2 interface has the following indicator colors:</p> <ul style="list-style-type: none">• Solid green indicates that the VDSL2 link is up.• Blinking green indicates that the VDSL2 link is in training and there is no connection to CO. <p>NOTE: Training refers to the negotiation of the best mode for a DSL connection.</p> <ul style="list-style-type: none">• Off indicates that interface has not yet booted up.	The SYNC LED can be used to determine if the VDSL2 link is connected.
TX/RX LED	<p>The TX/RX LED for the VDSL2 interface has the following indicator colors:</p> <ul style="list-style-type: none">• Blinking green indicates that there is traffic.• Solid green indicates an invalid state.• Off indicates that there is no traffic.	The TX/RX LED can be used to determine if there is any traffic through the VDSL interface.

SRX110 Services Gateway Ethernet Port LEDs

On the device, each Fast Ethernet port has two LEDs. [Figure 7 on page 20](#) shows the device Ethernet port LEDs.

Figure 7: SRX110 Services Gateway Ethernet Port LEDs



[Table 12 on page 21](#) describes the built-in Ethernet port LEDs.

Table 12: SRX110 Services Gateway Built-In Ethernet Port LEDs

Number	Function	Color	State	Description
1	LINK/ACTIVE LED	Green	On, blinking	Link is active. Data communication is taking place.
			On, not blinking	Link is active. No data communication is taking place.
			Off	Link is inactive.

NOTE: The LED marked as 2 in [Figure 7 on page 20](#) is not functional in this release.

RELATED DOCUMENTATION

[SRX110 Services Gateway Specifications | 28](#)

[SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2 | 13](#)

[SRX110 Services Gateway Boot Devices and Dual-Root Partitioning Scheme | 22](#)

SRX110 Services Gateway Integrated VDSL2 Interface LEDs

The integrated VDSL2 interface has two LEDs. [Table 13 on page 21](#) describes the LED states.

Table 13: Integrated VDSL2 LEDs

LED	Color	State	Description
SYNC	Green	On	Indicates that the VDSL2 interface link is up.
		Blinking	Indicates training is in progress and there is no connection to CO. NOTE: Training refers to the negotiation of the best mode for a DSL connection.
		Off	Indicates that interface has not yet booted up.

Table 13: Integrated VDSL2 LEDs (continued)

LED	Color	State	Description
TX/RX	Green	Blinking	Indicates that traffic is passing through.
		On	Indicates that it is an invalid state.
		Off	Indicates that no traffic is passing through.

RELATED DOCUMENTATION

SRX110 Services Gateway Integrated VDSL2 Interface Overview 5
Configuring the Integrated VDSL2 Interface on the SRX110 Services Gateway 109

SRX110 Services Gateway Boot Devices and Dual-Root Partitioning Scheme

IN THIS SECTION

- [Boot Devices | 22](#)
- [Dual-Root Partitioning Scheme | 22](#)

This topic includes the following sections:

Boot Devices

The SRX110 Services Gateway can boot from two devices:

- CompactFlash (default; always present)
- USB storage key (alternate)

Dual-Root Partitioning Scheme

Dual-root partitions allow services gateways to remain functional if the file system becomes corrupted, and they 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 becomes corrupted, the system can boot from the backup Junos OS image in the other root partition and remain fully functional.

When the SRX110 Services Gateway powers up, it tries to boot Junos OS from the default storage medium. If the device fails to boot from the default storage medium, it tries to boot from the alternate storage medium. With the dual-root partitioning scheme, the services gateway first tries to boot Junos OS from the primary root partition and then from the backup root partition on the default storage medium. If both primary and backup root partitions of a storage medium fail to boot, then the device tries to boot from the next available type of storage media. The services gateway remains fully functional even if it boots Junos OS from the backup root partition of the storage medium.

RELATED DOCUMENTATION

[SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2 | 13](#)

[SRX110 Services Gateway LEDs | 18](#)

[SRX110 Services Gateway Power Supply | 8](#)

[SRX110 Services Gateway Specifications | 28](#)

2

PART

Site Planning and Specifications

Planning and Preparing the Site | 25

Power Requirements and Specifications | 35

Cable Specifications and Pinouts | 39

Planning and Preparing the Site

IN THIS CHAPTER

- Site Preparation Checklist for the SRX110 Services Gateway | 25
- General Site Guidelines for Installing the SRX110 Services Gateway | 28
- SRX110 Services Gateway Specifications | 28
- SRX110 Services Gateway 3G-WAN USB Port Physical Specifications | 30
- SRX110 Services Gateway Cabinet Requirements | 31
- SRX110 Services Gateway Rack Requirements | 32
- Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33

Site Preparation Checklist for the SRX110 Services Gateway

The checklist in [Table 14 on page 25](#) summarizes the tasks you need to perform when preparing a site for installing the services gateway.

Table 14: Site Preparation Checklist for Services Gateway Installation

Item or Task	Additional Information	Performed By	Date	Notes
Environment				
Verify that the environmental factors such as temperature and humidity do not exceed device tolerances.	“SRX110 Services Gateway Specifications” on page 28			
Power				

Table 14: Site Preparation Checklist for Services Gateway Installation (*continued*)

Item or Task	Additional Information	Performed By	Date	Notes
<ul style="list-style-type: none"> • Measure the distance between the external power sources and the device installation site. • Locate sites for connection of system grounding. • Calculate the power consumption and requirements. 	“SRX110 Services Gateway Site Electrical Wiring Guidelines” on page 35 “SRX110 Services Gateway Power Specifications and Requirements” on page 37			
Rack Requirements				
Verify that your rack meets the minimum requirements.	“SRX110 Services Gateway Rack Requirements” on page 32			
Rack Installation				
<ul style="list-style-type: none"> • Plan the rack location, including the required space clearances. • Secure the rack to the floor and the building structure. 	“Preparing the SRX110 Services Gateway for Rack-Mount Installation” on page 52			
Cabinet Requirements				
<ul style="list-style-type: none"> • Verify that your cabinet meets the minimum requirements. • Plan the cabinet location, including the required space clearances. 	“SRX110 Services Gateway Cabinet Requirements” on page 31			
Wall Installation				

Table 14: Site Preparation Checklist for Services Gateway Installation (*continued*)

Item or Task	Additional Information	Performed By	Date	Notes
<ul style="list-style-type: none"> • Verify that the area selected meets the minimum requirements. • Verify that you have the required hardware for proceeding with the installation. 	“Preparing the SRX110 Services Gateway for Wall-Mount Installation” on page 54			
Desktop Installation				
<ul style="list-style-type: none"> • Verify that the area selected meets the minimum requirements. • Plan the installation location, including required space clearances and airflow requirements. 	“Preparing the SRX110 Services Gateway for Desk-Mount Installation” on page 53			
Cables				
<ul style="list-style-type: none"> • Acquire cables and connectors. • Review the maximum distance allowed for each cable. Choose the length of cable based on the distance between the hardware components being connected. • Plan the cable routing and management. 	“Interface Cable and Wire Specifications for the SRX110 Services Gateway” on page 39			

RELATED DOCUMENTATION

[SRX110 Services Gateway Specifications | 28](#)
[Installation Overview for the SRX110 Services Gateway | 45](#)
[General Site Guidelines for Installing the SRX110 Services Gateway | 28](#)
[SRX110 Services Gateway Cabinet Requirements | 31](#)

[SRX110 Services Gateway Rack Requirements | 32](#)

[Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33](#)

General Site Guidelines for Installing the SRX110 Services Gateway

The following precautions help you plan an acceptable operating environment for your services gateway and avoid environmentally caused equipment failures:

- The SRX110 Services Gateway requires unrestricted circulation of air to maintain an optimal operating temperature. 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 electrostatic discharge (ESD) procedures to avoid damaging the equipment. Static discharge can cause components to fail completely or intermittently over time.

NOTE: Install the device 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

[SRX110 Services Gateway General Safety Guidelines and Warnings | 136](#)

[SRX110 Services Gateway Rack Requirements | 32](#)

[SRX110 Services Gateway Cabinet Requirements | 31](#)

[Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33](#)

SRX110 Services Gateway Specifications

The SRX110 Services Gateway chassis is a rigid sheet metal structure of 1 rack unit (U) height, which houses all the other hardware components.

Figure 8 on page 29 shows the SRX110 Services Gateway with 3G and VDSL2 (VDSL/ADSL-POTS).

Figure 8: SRX110 Services Gateway with 3G and VDSL2 (VDSL/ADSL-POTS)

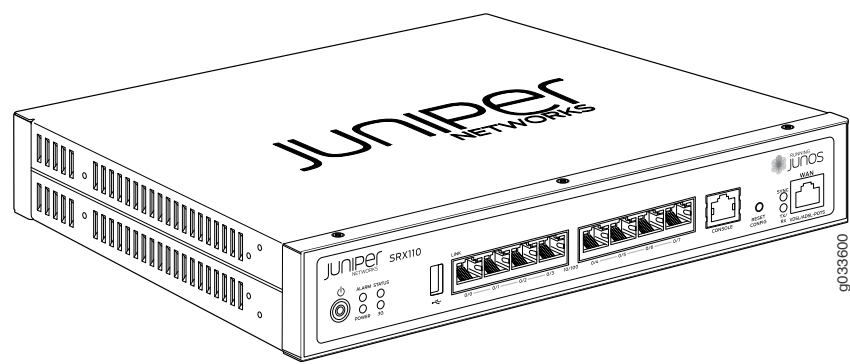


Figure 9 on page 29 shows the SRX110 Services Gateway with 3G and VDSL2 (VDSL/ADSL-ISDN).

Figure 9: SRX110 Services Gateway with 3G and VDSL2 (VDSL/ADSL-ISDN)

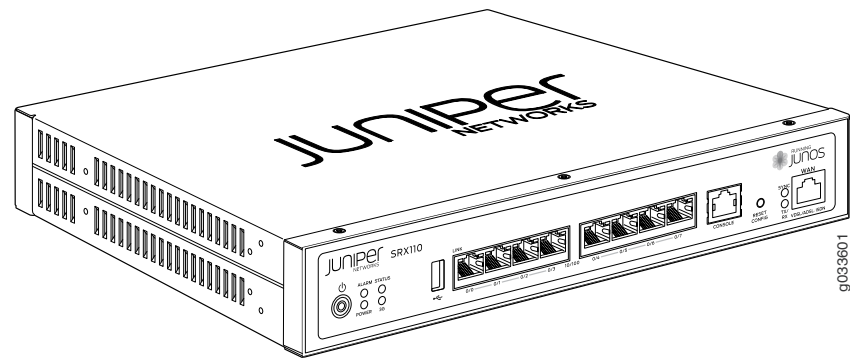


Table 15 on page 29 provides information on the physical specifications of the SRX110 Services Gateway.

Table 15: SRX110 Services Gateway Specifications

Specification	Value
Chassis height	1.7 in. (4.4 cm)
Chassis width	11 in. (28 cm)
Chassis depth	8.4 in. (21.3 cm)
Chassis weight	4.3 lb (1.962 kg)
Average power consumption	24 W
Altitude	No performance degradation to 10,000 ft (3048 m)

Table 15: SRX110 Services Gateway Specifications (*continued*)

Specification	Value
Relative humidity	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)
Maximum thermal output	99 BTU/hour
Noise level	< 15 dB(A) or less per EN ISO 7779

RELATED DOCUMENTATION

[SRX110 Services Gateway Description | 2](#)
[SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2 | 13](#)
[Monitoring the SRX110 Services Gateway Components Using LEDs | 115](#)
[SRX110 Services Gateway Electrical Safety Guidelines and Warnings | 166](#)

SRX110 Services Gateway 3G-WAN USB Port Physical Specifications

Table 16 on page 30 lists the physical specifications of the SRX110 Services Gateway 3G-WAN USB port.

Table 16: SRX110 Services Gateway 3G-WAN USB Port Physical Specifications

Specification	Value
Voltage supply	5 V
Current rating	0.5 A
Maximum power consumption	2.5 W

RELATED DOCUMENTATION

SRX110 Services Gateway Cabinet Requirements

The services gateway can be installed in a standard 31.5-in. (80.0-cm) or larger enclosed cabinet.

Table 17 on page 31 provides the details on cabinet size, clearance, and airflow requirements.

Table 17: SRX110 Services Gateway Cabinet Requirements

Cabinet Requirement	Specifications
Size	<p>19 in. (48.3 cm) as defined in <i>Cabinets, Racks, Panels, and Associated Equipment</i> (document number EIA-310-D) published by the Electronics Industry Association (http://www.eia.org).</p> <p>You can mount the services gateway horizontally in the cabinet.</p>
Clearance	<ul style="list-style-type: none"> • The cabinet is at least 1 U (1.75 in. or 4.5 cm) high. • 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. <p>NOTE: The holes for the mounting brackets for the chassis are spaced 1.25 in. (3.2 cm) apart, measured from the center of the hole.</p>
Airflow	<ul style="list-style-type: none"> • Ensure that ventilation through the cabinet is sufficient to prevent overheating. • Ensure that cool air supply is adequate to dissipate the thermal output of the device. • Install the device 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 at the rear of the cabinet for critical airflow. • Route and dress all cables to minimize the blockage of airflow to and from the chassis. <p>NOTE: A cabinet larger than the minimum required size provides better airflow and reduces the chance of overheating.</p>

RELATED DOCUMENTATION

General Site Guidelines for Installing the SRX110 Services Gateway | 28

SRX110 Services Gateway Rack Requirements | 32

Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33

SRX110 Services Gateway Rack Requirements

The services gateway can be installed in a rack. Many types of racks are acceptable, including front-mount racks and four-post (telco) racks.

NOTE: The services gateway cannot be center mounted in a rack.

Table 18 on page 32 provides the details of requirements for rack size, clearance, airflow, spacing of mounting brackets and flange holes, and connecting to the building structure.

Table 18: Rack Requirements for the Services Gateway

Rack Requirement	Specifications
Size	A 19 in. (48.3 cm) rack as defined in <i>Cabinets, Racks, Panels, and Associated Equipment</i> (document number EIA-310-D) published by the Electronics Industry Association (http://www.eia.org).
Clearance	<ul style="list-style-type: none"> The outer edges of the mounting brackets extend the width of either chassis to 19 in. (48.3 cm). The front of the chassis extends approximately 0.5 in. (1.27 cm) beyond the mounting ears. Maximum permissible ambient temperature when two devices are placed side by side in a 19 in. rack is 40° C.
Spacing of Mounting Bracket and Flange Holes	<ul style="list-style-type: none"> The holes within each rack set are spaced at 1 U [1.75 in. (4.5 cm)]. The device can be mounted in any rack that provides holes or hole patterns spaced at 1-U [1.75 in. (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 1 U (1.75 in.). The mounting holes in the mounting brackets provided with the device are spaced 1.25 in. (3.2 cm) apart (top and bottom mounting hole).

Table 18: Rack Requirements for the Services Gateway (continued)

Rack Requirement	Specifications
Connecting to the Building Structure	Always secure the rack in which you are installing the 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 Guidelines for Installing the SRX110 Services Gateway 28
SRX110 Services Gateway Cabinet Requirements 31
Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway 33

Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway

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

- The SRX110 Services Gateway requires unrestricted circulation of air to maintain an optimal operating temperature.

NOTE: The SRX110 Services Gateway does not include a fan and uses natural convection cooling.

- For service personnel to remove and install hardware components, there must be adequate space at the front and back of the device. Allow at least 24 in. (61 cm) both in front of and behind the device.
- If you are mounting the device in a rack with other equipment, or if you are placing it on the desktop near other equipment, ensure that the exhaust from other equipment does not blow into the intake vents of the chassis.

[Table 19 on page 34](#) provides clearance requirements for maintaining optimum airflow and for facilitating maintenance of the device.

Table 19: Clearance Requirements for the Services Gateway

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

RELATED DOCUMENTATION

[General Site Guidelines for Installing the SRX110 Services Gateway](#) | 28

[SRX110 Services Gateway Cabinet Requirements](#) | 31

[SRX110 Services Gateway Rack Requirements](#) | 32

Power Requirements and Specifications

IN THIS CHAPTER

- [SRX110 Services Gateway Site Electrical Wiring Guidelines | 35](#)
- [SRX110 Services Gateway Electrical and Power Requirements | 37](#)
- [SRX110 Services Gateway Power Specifications and Requirements | 37](#)

SRX110 Services Gateway Site Electrical Wiring Guidelines

[Table 20 on page 36](#) describes the factors you must consider while planning the electrical wiring for the 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.



CAUTION: For devices with AC power supplies, an external surge protective device (SPD) must be used at the AC power source.

Table 20: Site Electrical Wiring Guidelines for the 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.
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>NOTE: If your site is susceptible to problems with EMC, particularly from lightning or radio transmitters, you may want to seek expert advice.</p>



CAUTION: To comply with intrabuilding lightning/surge requirements, the intrabuilding wiring must be shielded. The shielding for the wiring must be grounded at both ends.

RELATED DOCUMENTATION

[General Site Guidelines for Installing the SRX110 Services Gateway | 28](#)

[SRX110 Services Gateway Power Specifications and Requirements | 37](#)

SRX110 Services Gateway Electrical and Power Requirements

You must consider the following factors while planning the electrical wiring and power availability at your site:

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

RELATED DOCUMENTATION

[SRX110 Services Gateway Site Electrical Wiring Guidelines | 35](#)

[Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33](#)

SRX110 Services Gateway Power Specifications and Requirements

The AC power system electrical specifications for the SRX110 Services Gateway are listed in [Table 21 on page 37](#).

Table 21: Power Supply Electrical Specifications for the SRX110 Services Gateway

Power Requirement	Specification
AC input voltage	100 to 240 VAC
AC input line frequency	50 to 60 Hz
AC system current rating	1.5 A maximum



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

RELATED DOCUMENTATION

SRX110 Services Gateway Electrical Safety Guidelines and Warnings | **166**

SRX110 Services Gateway Power Supply | **8**

SRX110 Services Gateway Grounding Specifications | **69**

Cable Specifications and Pinouts

IN THIS CHAPTER

- [Interface Cable and Wire Specifications for the SRX110 Services Gateway | 39](#)
- [RJ-45 Connector Pinouts for the SRX110 Services Gateway Ethernet Port | 40](#)
- [RJ-45 Connector Pinouts for the SRX110 Services Gateway Console Port | 41](#)
- [RJ-11 Connector Pinouts for the SRX110 Services Gateway | 42](#)

Interface Cable and Wire Specifications for the SRX110 Services Gateway

Table 22 on page 39 lists the specifications for the cables that connect to ports.

Table 22: Cable and Wire Specifications for Ports

Port	Cable Specification	Cable/Wire Required	Maximum Length	Device Receptacle
Console port	RS-232 (EIA-232) serial cable	One 6 ft (1.83 m) length with DB-9/RJ-45 connectors	6 ft (1.83 m)	RJ-45
Ethernet port	CAT-5e (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
VDSL2 port	<ul style="list-style-type: none">● For VDSL/ADSL-POTS: RJ-11 cable● For VDSL/ADSL-ISDN: RJ-11/RJ-45 cable	<ul style="list-style-type: none">● For VDSL/ADSL-POTS: One 10 ft (3.048 m) with RJ-11 connector● For VDSL/ADSL-ISDN: One 10 ft (3.048 m) with RJ-45 connector	18K ft (5.486K m)	<ul style="list-style-type: none">● For VDSL/ADSL-POTS: RJ-11● For VDSL/ADSL-ISDN: RJ-45

RELATED DOCUMENTATION

RJ-45 Connector Pinouts for the SRX110 Services Gateway Ethernet Port	40
RJ-45 Connector Pinouts for the SRX110 Services Gateway Console Port	41
RJ-11 Connector Pinouts for the SRX110 Services Gateway	42

RJ-45 Connector Pinouts for the SRX110 Services Gateway Ethernet Port

Figure 10 on page 40 shows the RJ-45 cable connector pinouts for Ethernet ports.

Figure 10: Ethernet Cable Connector (RJ-45)

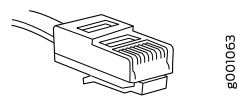


Table 23 on page 40 describes the RJ-45 connector pinouts for the Ethernet port for 10/100 Mbps.

Table 23: RJ-45 Connector Pinouts for the Services Gateway Ethernet Port (10/100 Mbps)

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

Table 24 on page 40 describes the RJ-45 connector pinouts for the Ethernet port for 1 Gbps (1000 Mbps).

Table 24: RJ-45 Connector Pinouts for the Services Gateway Ethernet Port (1 Gbps)

Pin	Signal
1	BI_DA+

Table 24: RJ-45 Connector Pinouts for the Services Gateway Ethernet Port (1 Gbps) (continued)

Pin	Signal
2	BI_DA-
3	BI_DB+
4	BI_DC+
5	BI_DC-
6	BI_DB-
7	BI_DD+
8	BI_DD-

RELATED DOCUMENTATION

Interface Cable and Wire Specifications for the SRX110 Services Gateway 39
RJ-45 Connector Pinouts for the SRX110 Services Gateway Console Port 41

RJ-45 Connector Pinouts for the SRX110 Services Gateway Console Port

Figure 11 on page 41 shows the RJ-45 connector pinouts for the console port.

Figure 11: Console Cable Connector

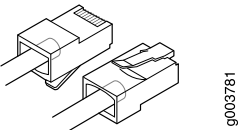


Table 25 on page 41 describes the RJ-45 connector pinouts for the console port.

Table 25: RJ-45 Connector Pinouts for the Services Gateway Console Port

Pin	Signal	Description
1	RTS	Request to Send

Table 25: RJ-45 Connector Pinouts for the Services Gateway Console Port (*continued*)

Pin	Signal	Description
2	DTR	Data Terminal Ready
3	TXD	Transmit Data
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

[Connecting and Organizing the SRX110 Services Gateway Interface Cables | 72](#)

[Interface Cable and Wire Specifications for the SRX110 Services Gateway | 39](#)

RJ-11 Connector Pinouts for the SRX110 Services Gateway

Table 26 on page 42 describes the RJ-11 connector pinouts for the VDSL2 port.

Table 26: RJ-11 Connector Pinouts

Pin	Signal
1	No connect
2	No connect
3	RJ P –Ring
4	RJ N –Tip
5	No connect

Table 26: RJ-11 Connector Pinouts (*continued*)

Pin	Signal
6	No connect

RELATED DOCUMENTATION

[Connecting and Organizing the SRX110 Services Gateway Interface Cables | 72](#)

[Interface Cable and Wire Specifications for the SRX110 Services Gateway | 39](#)

3

PART

Initial Installation and Configuration

Installation Overview | **45**

Unpacking the Services Gateway | **49**

Installing the Mounting Hardware | **52**

Installing the Services Gateway | **56**

Grounding the SRX110 Services Gateway | **69**

Connecting the SRX110 Services Gateway to External Devices | **72**

Providing Power to the SRX110 Services Gateway | **77**

Performing Initial Configuration | **82**

Installation Overview

IN THIS CHAPTER

- [Installation Overview for the SRX110 Services Gateway | 45](#)
- [Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway | 46](#)
- [SRX110 Services Gateway Autoinstallation Overview | 47](#)

Installation Overview for the SRX110 Services Gateway

After you prepare your installation site, you are ready to unpack and install the services gateway. It is important to perform the installation procedure as indicated in [Table 27 on page 45](#).

Table 27: Installation Procedure for the SRX110 Services Gateway

Step	Task	Additional Information
1	Review the safety guidelines.	“SRX110 Services Gateway General Safety Guidelines and Warnings” on page 136
2	Verify that you have prepared your site for the installation of the services gateway in accordance with the checklist.	“Site Preparation Checklist for the SRX110 Services Gateway” on page 25
3	Unpack the services gateway and verify that all parts are received.	“Unpacking the SRX110 Services Gateway” on page 49
4	Prepare the services gateway for installation.	<i>Preparing the SRX110 Services Gateway for Rack-Mount, Desk-Mount, and Wall-Mount Installation</i>
5	Install the services gateway.	“Installing the SRX110 Services Gateway in a Rack” on page 56 “Installing the SRX110 Services Gateway on a Desk” on page 61 “Installing the SRX110 Services Gateway on a Wall” on page 63

Table 27: Installation Procedure for the SRX110 Services Gateway (continued)

Step	Task	Additional Information
6	Connect cables to external devices.	“Connecting and Organizing the SRX110 Services Gateway Interface Cables” on page 72
7	Connect the grounding cables.	“Grounding the SRX110 Services Gateway” on page 70
8	Power on the services gateway.	“Powering On the SRX110 Services Gateway” on page 79 “Powering Off the SRX110 Services Gateway” on page 79

RELATED DOCUMENTATION

[Unpacking the SRX110 Services Gateway | 49](#)
[General Site Guidelines for Installing the SRX110 Services Gateway | 28](#)
[Preparing the SRX110 Services Gateway for Rack-Mount, Desk-Mount, and Wall-Mount Installation](#)

Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway

[Table 28 on page 46](#) lists the tools and equipments required for installing and maintaining the SRX110 Services Gateway.

Table 28: Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway

Task	Tools and Parts	Additional Information
Installing the SRX110 Services Gateway	<ul style="list-style-type: none"> • Phillips (+) screwdriver, number 1 • Phillips (+) screwdriver, number 3 • Tie wrap 	“Installing the SRX110 Services Gateway in a Rack” on page 56 “Installing the SRX110 Services Gateway on a Desk” on page 61 “Installing the SRX110 Services Gateway on a Wall” on page 63
Connecting the SRX110 Services Gateway	Electrostatic discharge (ESD) grounding wrist strap	“Connecting the SRX110 Services Gateway to the Power Supply” on page 77

Table 28: Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway (continued)

Task	Tools and Parts	Additional Information
Grounding the SRX110 Services Gateway	Phillips (+) screwdriver, number 1	“Grounding the SRX110 Services Gateway” on page 70
Packing the SRX110 Services Gateway	<ul style="list-style-type: none"> • Electrostatic bag or antistatic mat, for each component • Electrostatic discharge (ESD) grounding wrist strap 	“Packing the SRX110 Services Gateway and Components for Shipment” on page 129

RELATED DOCUMENTATION

[Unpacking the SRX110 Services Gateway | 49](#)

[Grounding the SRX110 Services Gateway | 70](#)

[Connecting the SRX110 Services Gateway to the Power Supply | 77](#)

[Packing the SRX110 Services Gateway and Components for Shipment | 129](#)

SRX110 Services Gateway Autoinstallation Overview

The autoinstallation process begins any time a services gateway is powered on and cannot locate a valid configuration file in the internal flash memory device. 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 internal flash memory device.

The autoinstallation feature enables you to deploy multiple services gateways from a central location in the network.

If you are setting up many devices, autoinstallation can help automate the configuration process by loading configuration files onto new or existing devices automatically over the network. You can use either the J-Web configuration editor or the command-line interface (CLI) configuration editor to configure a device for autoinstallation.

For the autoinstallation process 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 occurs automatically when you connect an Ethernet port on a new services gateway to the network and power on the device. To simplify the process, you can explicitly enable autoinstallation

on a device and specify a configuration server, an autoinstallation interface, and a protocol for IP address acquisition.

For more information about configuring autoinstallation, see the following topics:

- [Initial Configuration for Security Devices](#)
- [Monitoring and Troubleshooting for Security Devices](#)

RELATED DOCUMENTATION

Connecting the SRX110 Services Gateway to the Power Supply	 77
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Grounding the SRX110 Services Gateway	 70
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Powering On the SRX110 Services Gateway	 79
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Powering Off the SRX110 Services Gateway	 79
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SRX110 Services Gateway Software Configuration Overview	 82
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Unpacking the Services Gateway

IN THIS CHAPTER

- [Unpacking the SRX110 Services Gateway | 49](#)
- [Verifying Parts Received with the SRX110 Services Gateway | 50](#)

Unpacking the SRX110 Services Gateway

The SRX110 Services Gateway is shipped in a cardboard carton. The carton also contains an accessory box and the *SRX110 Services Gateway Quick Start*.

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

To unpack the services gateway:

1. Open the box in which the device is shipped.
2. Verify the parts received against the packing list in [“Verifying Parts Received with the SRX110 Services Gateway” on page 50](#).
3. Store the shipping box and packing material in case you need to return or move the device at a later time.

RELATED DOCUMENTATION

[Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway | 46](#)

Preparing the SRX110 Services Gateway for Rack-Mount, Desk-Mount, and Wall-Mount Installation

[Installation Overview for the SRX110 Services Gateway | 45](#)

Verifying Parts Received with the SRX110 Services Gateway

The services gateway shipment package contains a packing list that includes all parts and accessories available with the device. Check the parts in the shipment against the items on the packing list. The packing list specifies the part numbers and descriptions of each part in your order.

If any part is missing, contact your Juniper Networks customer service representative.

A fully configured SRX110 Services Gateway contains the chassis with installed components, listed in [Table 29 on page 50](#), and an accessory box, which contains the parts listed in [Table 30 on page 50](#).

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

Table 29: Parts List for a Fully Configured SRX110 Services Gateway

Part	Quantity
SRX110 Services Gateway with 8xFE ports, 1xUSB port, 1x3G-WAN USB port, and base memory (1 GB RAM, 1 GB Flash)	1
Power supply adapter of 60 W	1
3-Prong Power Cord	1
DB-9 to RJ-45 Adapter, Straight Through, 7 feet	1
Extension cable for 3G USB modem	1

Table 30: Accessory Parts List for the SRX110 Services Gateway

Part	Quantity
Juniper Networks Product Warranty	1
End User License Agreement	1
Quick Start Guide	1
Security Products Safety Guide	1
Juniper Compliance Form Letter	1
Product Registration	1

NOTE: The mounting kits available for rack, wall, and desk installation of the SRX110 Services Gateway must be ordered separately. Contact your Juniper Networks customer service representative for more information.

RELATED DOCUMENTATION

[Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway | 46](#)

[Unpacking the SRX110 Services Gateway | 49](#)

[Preparing the SRX110 Services Gateway for Rack-Mount, Desk-Mount, and Wall-Mount Installation](#)

Installing the Mounting Hardware

IN THIS CHAPTER

- [Preparing the SRX110 Services Gateway for Rack-Mount Installation | 52](#)
- [Preparing the SRX110 Services Gateway for Desk-Mount Installation | 53](#)
- [Preparing the SRX110 Services Gateway for Wall-Mount Installation | 54](#)

Preparing the SRX110 Services Gateway for Rack-Mount Installation

You can mount an SRX110 Services Gateway on 4-post (telco) racks, enclosed cabinets, and open-frame racks.

NOTE: The SRX110 Services Gateway cannot be center-mounted in a rack.

[Table 31 on page 52](#) lists the tasks you need to perform before installing the device.

Table 31: SRX110 Services Gateway Preinstallation Checklist for Rack-Mount Installation

Task	Additional Information
Verify that the site meets the requirements.	“Site Preparation Checklist for the SRX110 Services Gateway” on page 25
Verify that the racks or cabinets meet the specific requirements.	“SRX110 Services Gateway Rack Requirements” on page 32
Place the rack or cabinet in its permanent location, allowing adequate clearance for airflow and maintenance, and secure it to the building structure.	“Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway” on page 33
Remove the services gateway chassis from the shipping carton.	“Unpacking the SRX110 Services Gateway” on page 49

Table 31: SRX110 Services Gateway Preinstallation Checklist for Rack-Mount Installation (continued)

Task	Additional Information
Verify that you have the following parts available in your rack-mounting kit for the SRX110 Services Gateway: <ul style="list-style-type: none"> • Rack-mounting brackets • Mounting screws • Power supply adapter tray with screws • Adapter stopper bracket 	
Adjust the power supply adapter tray.	“Adjusting the Power Supply Adapter Tray for the SRX110 Services Gateway for Rack-Mount Installation” on page 60

NOTE: The rack-mounting kit is not shipped with the device and must be ordered separately.

RELATED DOCUMENTATION

[Unpacking the SRX110 Services Gateway | 49](#)

[Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33](#)

[Preparing the SRX110 Services Gateway for Desk-Mount Installation | 53](#)

[Preparing the SRX110 Services Gateway for Wall-Mount Installation | 54](#)

Preparing the SRX110 Services Gateway for Desk-Mount Installation

You can mount the services gateway on a desk or other level surface horizontally or vertically. The four rubber feet attached to the chassis provide stability.

[Table 32 on page 53](#) provides the list of tasks you need to perform before installing the device.

Table 32: SRX110 Services Gateway Preinstallation Checklist for Desk-Mount Installation

Task	Additional Information
Verify that the site meets the requirements.	“Site Preparation Checklist for the SRX110 Services Gateway” on page 25

Table 32: SRX110 Services Gateway Preinstallation Checklist for Desk-Mount Installation (*continued*)

Task	Additional Information
Place the desk in its permanent location, allowing adequate clearance for airflow and maintenance, and secure it to the building structure.	“Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway” on page 33
Remove the services gateway chassis from the shipping carton.	“Unpacking the SRX110 Services Gateway” on page 49
Verify that you have the following parts available in your desk-mounting kit to mount the SRX110 Services Gateway vertically: <ul style="list-style-type: none"> • Vertical stand • Screws 	

NOTE: If you are mounting the services gateway horizontally on a desk, ensure that the rubber feet are attached to the chassis.

NOTE: The vertical desk-mounting kit is not shipped with the device and must be ordered separately.

RELATED DOCUMENTATION

[Unpacking the SRX110 Services Gateway | 49](#)

[Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33](#)

[Preparing the SRX110 Services Gateway for Rack-Mount Installation | 52](#)

[Preparing the SRX110 Services Gateway for Wall-Mount Installation | 54](#)

Preparing the SRX110 Services Gateway for Wall-Mount Installation

You can mount an SRX110 Services Gateway on a wall. The four rubber feet attached to the chassis provide stability.

Table 33 on page 55 provides the list of tasks you need to perform before installing the device.

Table 33: SRX110 Services Gateway Preinstallation Checklist for Wall-Mount Installation

Task	Additional Information
Verify that the site meets the requirements.	“Site Preparation Checklist for the SRX110 Services Gateway” on page 25
Remove the services gateway chassis from the shipping carton.	“Unpacking the SRX110 Services Gateway” on page 49
Verify that you have the following parts available in your wall-mounting kit to mount the SRX110 Services Gateway on a wall: <ul style="list-style-type: none">• Wall-mounting brackets• Screws	

NOTE: The wall-mounting kit is not shipped with the device and must be ordered separately.

RELATED DOCUMENTATION

Unpacking the SRX110 Services Gateway 49
Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway 33
Preparing the SRX110 Services Gateway for Rack-Mount Installation 52
Preparing the SRX110 Services Gateway for Desk-Mount Installation 53

Installing the Services Gateway

IN THIS CHAPTER

- Installing the SRX110 Services Gateway in a Rack | 56
- Adjusting the Power Supply Adapter Tray for the SRX110 Services Gateway for Rack-Mount Installation | 60
- Installing the SRX110 Services Gateway on a Desk | 61
- Installing the SRX110 Services Gateway on a Wall | 63
- Installing a 3G USB Modem in the SRX110 Services Gateway USB Port | 65

Installing the SRX110 Services Gateway in a Rack

You can front-mount the SRX110 Services Gateway in a rack. Many types of racks are acceptable, including 4-post (telco) racks, enclosed cabinets, and open-frame racks. For more information about the type of rack or cabinet that the SRX110 Services Gateway can be installed into, see [“SRX110 Services Gateway Rack Requirements” on page 32](#).

NOTE: The rack-mounting kit is not shipped with the device and must be ordered separately.

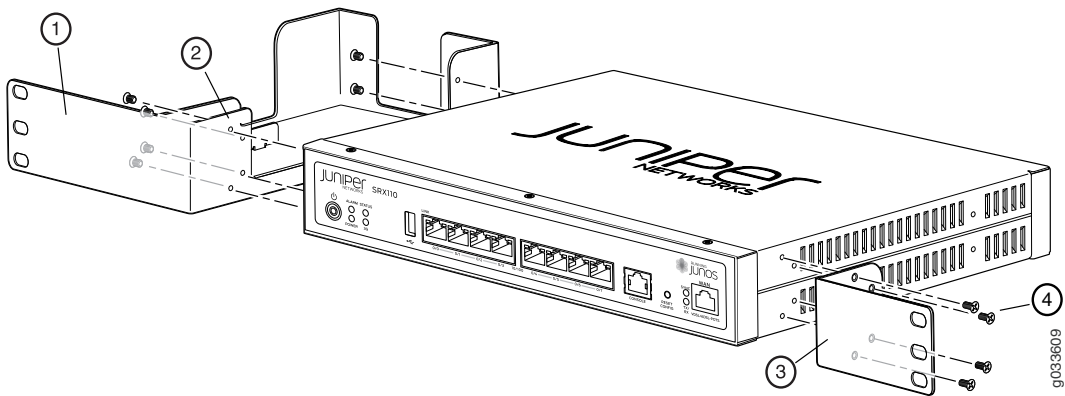
NOTE:

- If you are installing multiple devices in one rack, install the first device in the lowest position in the rack and proceed upward in the rack.
- Ensure that the rubber feet on the base of the chassis are removed for rack installation.

To install the device in a rack:

- 1. Position a mounting bracket on each side of the chassis as shown in [Figure 12 on page 57](#).

Figure 12: SRX110 Services Gateway Installation in a Rack – Positioning Mounting Brackets



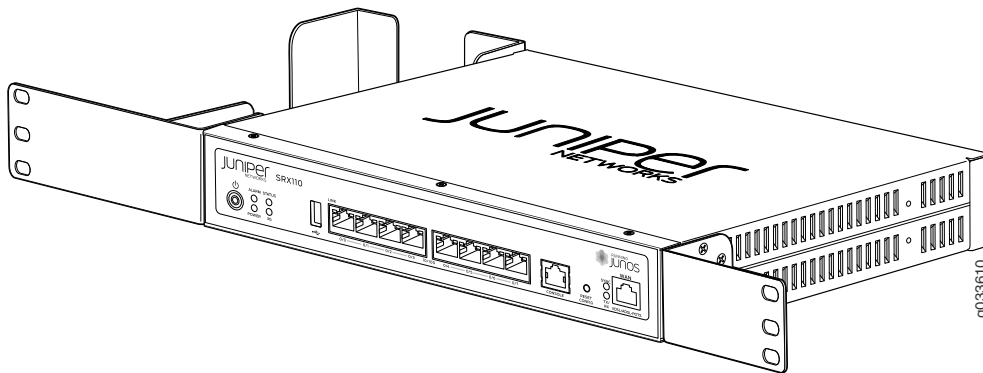
[Table 34 on page 57](#) lists the parts used for installing the device on the rack. The numbers in [Figure 12 on page 57](#) correspond to the numbers in [Table 34 on page 57](#).

Table 34: SRX Services Gateway Rack Installation Parts

Number	Part
1	Power supply adapter tray
2	Adapter stopper bracket
3	Mounting brackets
4	Screws (mounting bracket)

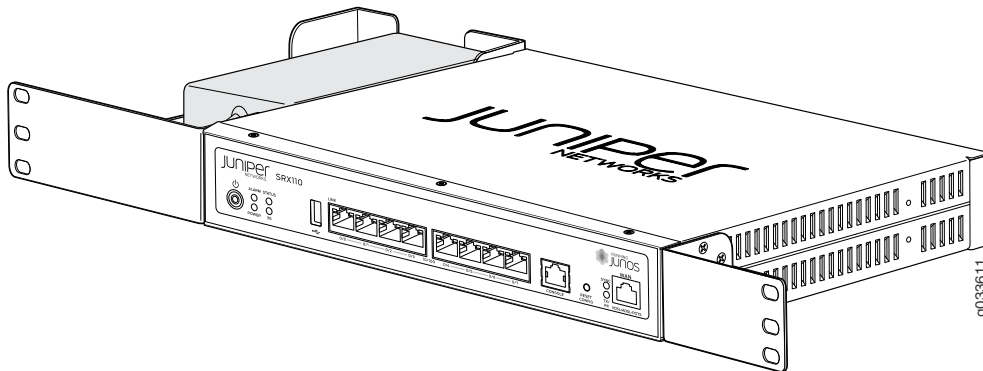
- 2. Use a Phillips (+) screwdriver, number 1, to install the screws that secure the mounting brackets and power supply adapter tray to the chassis as shown in [Figure 13 on page 58](#).

Figure 13: SRX110 Services Gateway Rack Installation — Securing Mounting Brackets and Power Supply Adapter Tray



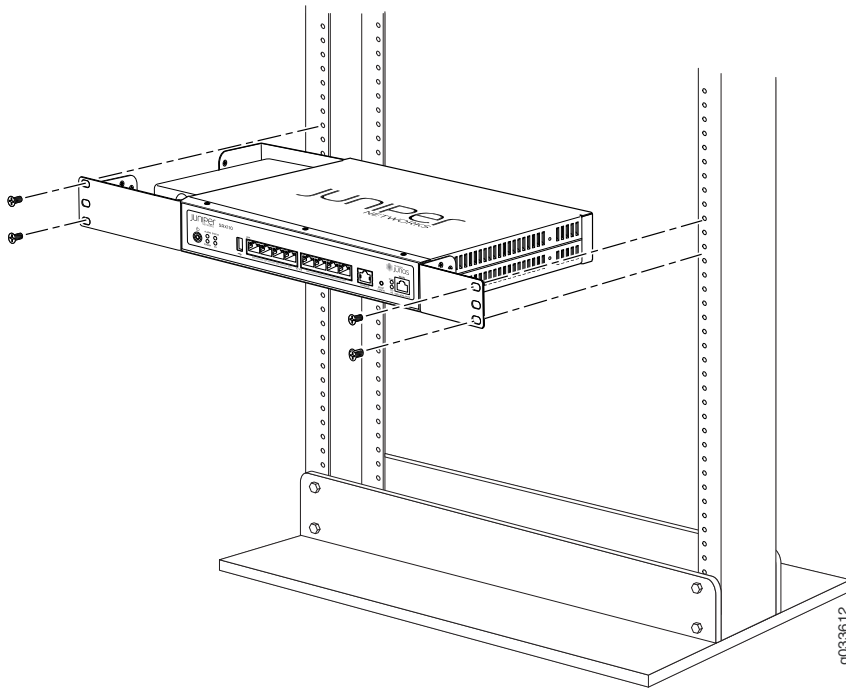
3. Place the power supply adapter in the tray as shown in [Figure 14 on page 58](#).

Figure 14: SRX110 Services Gateway Rack Installation — Positioning Power Supply Adapter Tray



4. Have one person grasp the sides of the device, lift it, and position it in the rack.
5. Align the bottom hole in each mounting bracket with a hole in each rack rail as shown in [Figure 15 on page 59](#), making sure that the chassis is level.

Figure 15: SRX110 Services Gateway Rack Installation – Hanging the Services Gateway in a Rack



6. Have a second person install a mounting screw into each of the two aligned holes. Use a Phillips (+) screwdriver, number 3, to tighten the screws.
7. Install the second screw in each mounting bracket.
8. Verify that the mounting screws on one side of the rack are aligned with the mounting screws on the opposite side and that the device is level.

RELATED DOCUMENTATION

[SRX110 Services Gateway Installation Safety Guidelines and Warnings | 145](#)

[Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway | 46](#)

[SRX110 Services Gateway General Safety Guidelines and Warnings | 136](#)

[Preparing the SRX110 Services Gateway for Rack-Mount Installation | 52](#)

[Adjusting the Power Supply Adapter Tray for the SRX110 Services Gateway for Rack-Mount Installation | 60](#)

[Installing the SRX110 Services Gateway on a Desk | 61](#)

Adjusting the Power Supply Adapter Tray for the SRX110 Services Gateway for Rack-Mount Installation

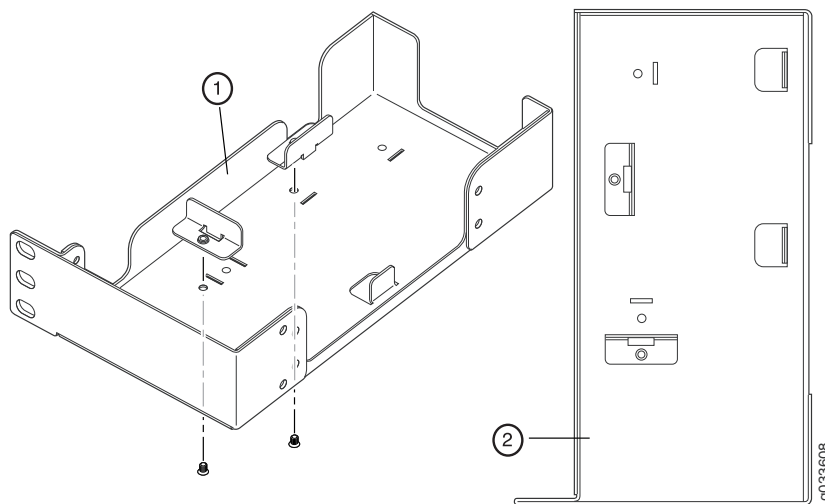
This topic provides details on the power supply adapter for the SRX110 Services Gateway and the procedure for adjusting the power supply adapter tray to hold the power supply adapter.

A 60-watt power supply adapter is provided with the SRX110 Services Gateway.

To accommodate the 60-watt power supply, use the two 420-028535 screws to attach the adapter stopper brackets at the point on the chassis marked B.

[Figure 16 on page 60](#) shows the adjustments to the power supply adapter tray required for the 60-watt power supply.

Figure 16: Adjusting the Power Supply Adapter Tray to Accommodate the 60-Watt Power Supply



1. Locations for the adapter stopper brackets in the power supply adapter tray
2. Fully configured power supply adapter tray

RELATED DOCUMENTATION

Preparing the SRX110 Services Gateway for Rack-Mount, Desk-Mount, and Wall-Mount Installation

[SRX110 Services Gateway Power Supply | 8](#)

Installing the SRX110 Services Gateway on a Desk

Follow these guidelines when installing the device on a desk:

- You can install the SRX110 Services Gateway on a desk, table, or other level surface.
- The device is shipped with the rubber feet attached. The rubber feet are necessary to stabilize the device on the desk.
- You can install the device in a horizontal or vertical position.
- The vertical position requires the vertical installation kit, which consists of a vertical installation stand with the rubber feet attached.

NOTE: The desk-mounting kit is not shipped with the device and must be ordered separately.

To install the device in a horizontal position:

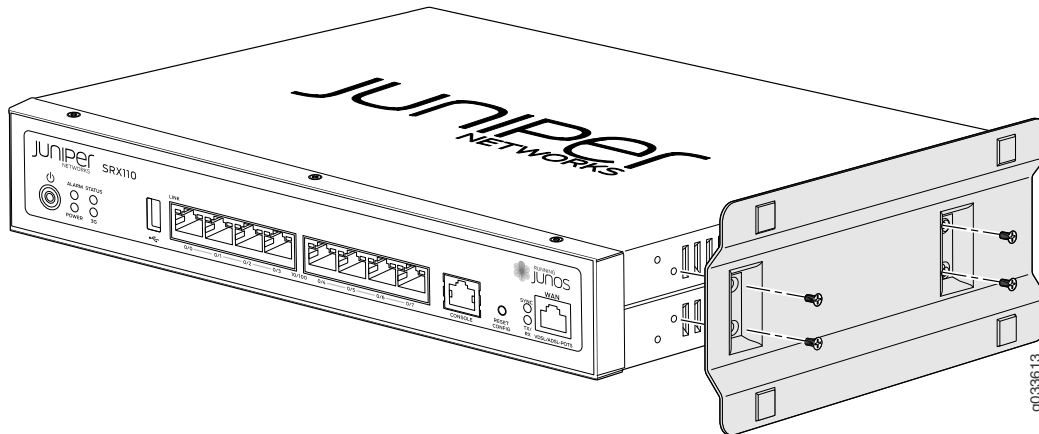
The horizontal position is the standard installation position and does not require the vertical installation kit.

1. Make sure that the rubber feet are attached to the chassis.
2. Place the device on a desk with the Juniper Networks logo facing up. The logo is embossed on the top cover.

To install the device in a vertical position:

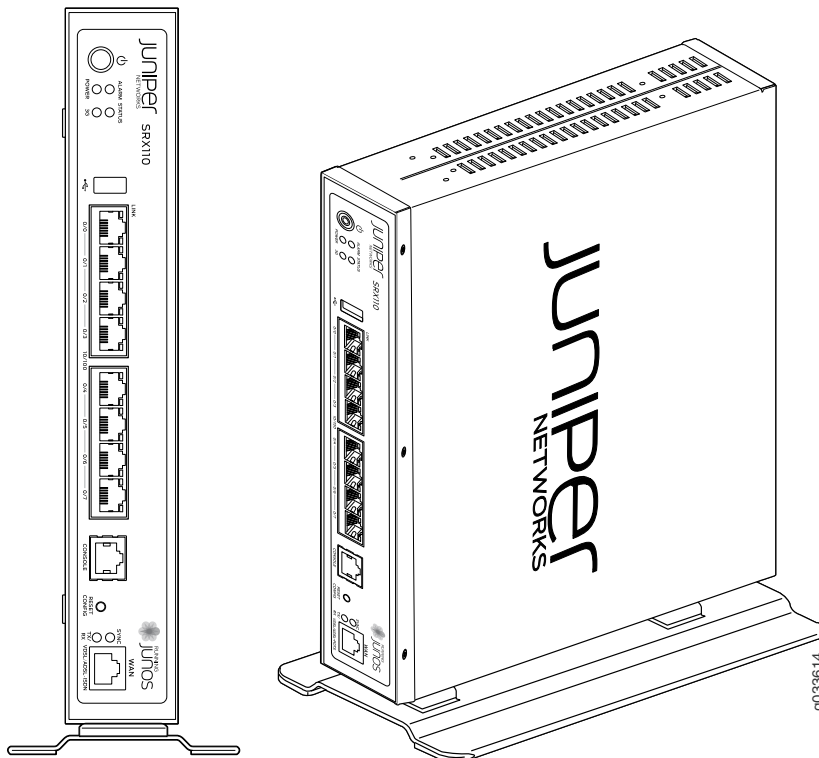
1. Place the device on a flat and level surface, with the Juniper Networks logo facing up. The logo is embossed on the top cover.
2. Attach the vertical stand to the right side of the chassis, using the specified screws as shown in [Figure 17 on page 62](#).

Figure 17: SRX110 Services Gateway Desk Installation — Attaching the Vertical Stand



3. Place the chassis vertically on the desk with the stand resting on the desk as shown in [Figure 18 on page 62](#).

Figure 18: SRX110 Services Gateway Desk Installation — Placing the Services Gateway on a Desk



RELATED DOCUMENTATION

SRX110 Services Gateway Installation Safety Guidelines and Warnings 145
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Installing the SRX110 Services Gateway on a Wall 63

Installing the SRX110 Services Gateway on a Wall

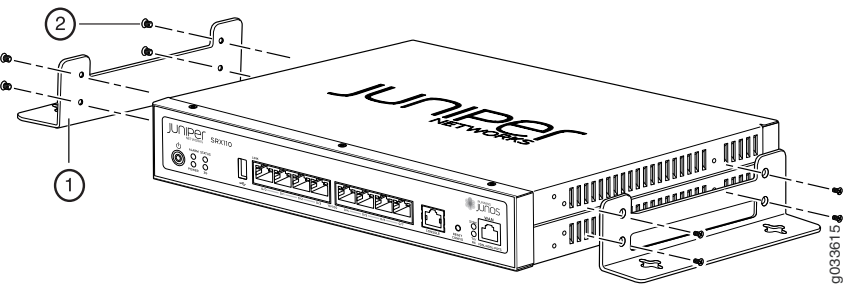
You can install the SRX110 Services Gateway on a wall.

NOTE: The wall-mounting kit is not shipped with the device and must be ordered separately.

To install the device on a wall:

1. Place the device on a flat, level surface, with the Juniper Networks logo facing up. The logo is embossed on the top cover. Ensure that the rubber feet are attached to the bottom of the chassis.
2. Position a mounting bracket on each side of the chassis as shown in [Figure 19 on page 63](#).

Figure 19: SRX110 Services Gateway Wall Installation – Attaching the Mounting Brackets



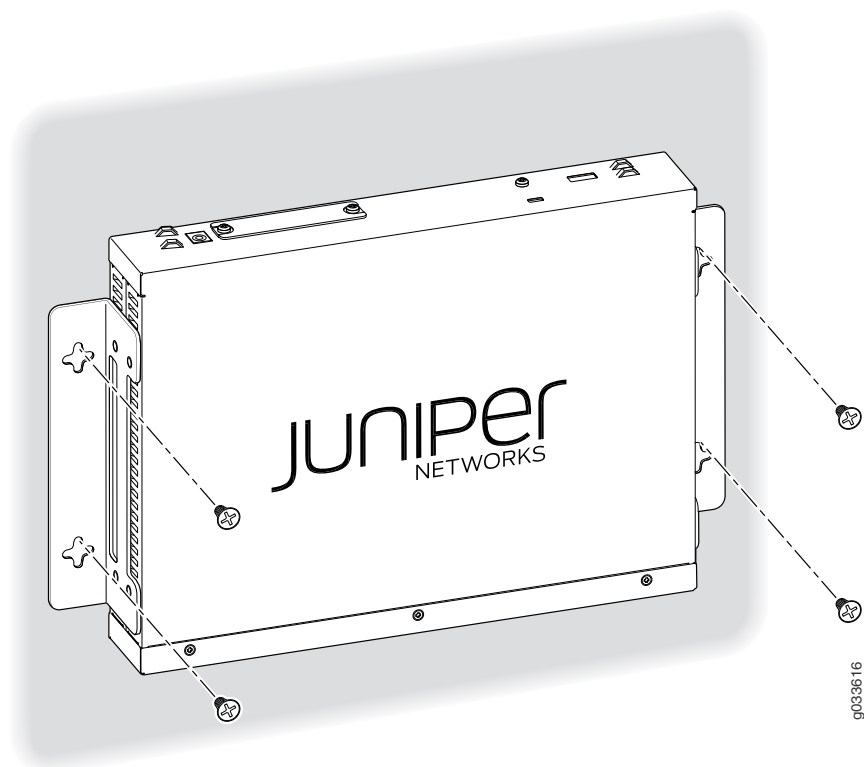
[Table 35 on page 63](#) lists the parts to use to install the SRX110 Services Gateway on a wall. The numbers in [Figure 19 on page 63](#) correspond to the numbers in [Table 35 on page 63](#).

Table 35: SRX110 Services Gateway Wall Installation Parts

Number	Part
1	Mounting brackets
2	Screws (mounting bracket)

3. Use a Phillips (+) screwdriver, number 1, to install the screws that secure the mounting brackets to the chassis.
4. If you are using wall anchors to support the chassis, install two pairs of anchors on the wall.
5. Have one person grasp the sides of the device, lift it, and position it on the wall.
6. Have a second person install two pairs of mounting screws through the bracket holes on either side of the device to secure it to the wall.
7. Verify that the mounting screws on one side are aligned with the mounting screws on the opposite side and that the device is level ([Figure 20 on page 64](#)).

Figure 20: SRX110 Services Gateway Wall Installation – Attaching the Mounting Brackets



RELATED DOCUMENTATION

[General Site Guidelines for Installing the SRX110 Services Gateway](#) | 28

[Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway](#) | 46

[Preparing the SRX110 Services Gateway for Rack-Mount, Desk-Mount, and Wall-Mount Installation](#)

[Adjusting the Power Supply Adapter Tray for the SRX110 Services Gateway for Rack-Mount Installation | 60](#)

[Installing the SRX110 Services Gateway in a Rack | 56](#)

[Installing the SRX110 Services Gateway on a Desk | 61](#)

Installing a 3G USB Modem in the SRX110 Services Gateway USB Port

IN THIS SECTION

- [Connecting the 3G USB Modem on the USB Modem Extension Cable-Mount | 65](#)
- [Installing a 3G USB Modem on the Rear Side of the SRX110 Services Gateway | 67](#)

This topic includes the following sections:

Connecting the 3G USB Modem on the USB Modem Extension Cable-Mount

The 3G USB modem is secured with a USB protection cover as shown in [Figure 21 on page 66](#).

Figure 21: 3G USB Modem with USB Protection Cover

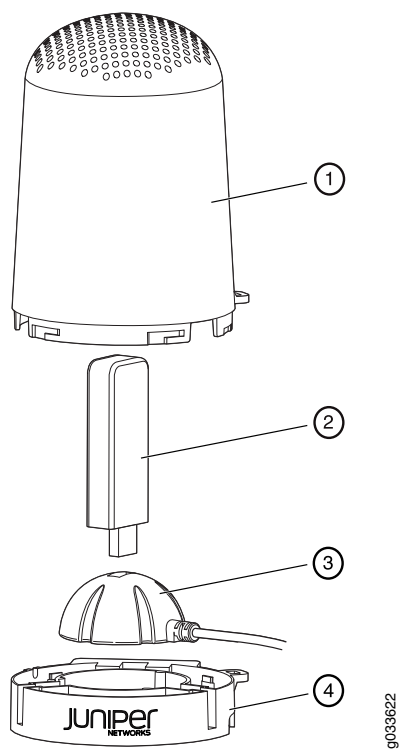


Table 36 on page 66 lists the components of the 3G USB modem with USB protection cover.

Table 36: 3G USB Modem with USB Protection Cover Components

Number	Component
1	USB mount top cover
2	USB modem
3	USB mount (magnetic/non-magnetic)
4	USB mount base
5	Lock

To connect the 3G USB modem on the USB modem extension cable-mount:

1. Place the USB mount on the USB mount base.
2. Insert a 3G USB modem in the USB mount slot.

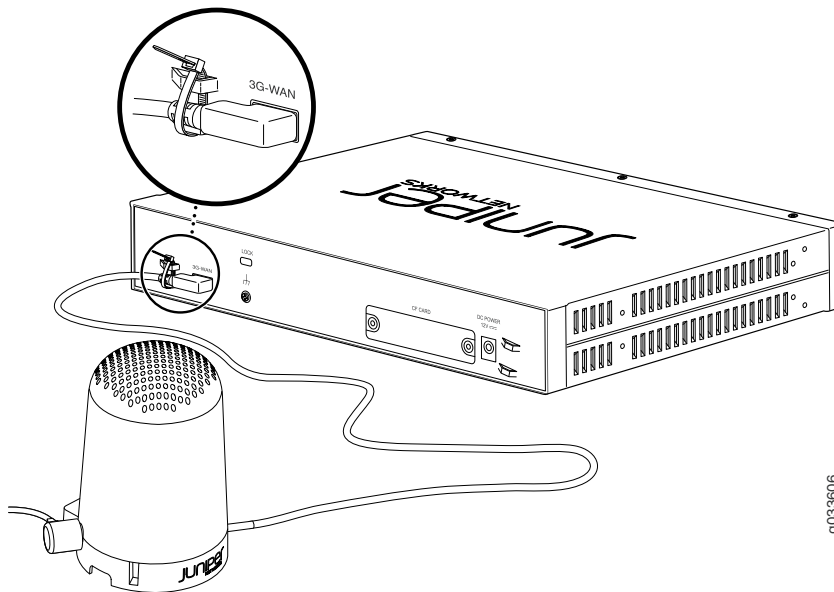
3. Close the USB mount top cover on the USB mount.
4. Lock the USB modem protection cover.

Installing a 3G USB Modem on the Rear Side of the SRX110 Services Gateway

To install the 3G USB modem on the rear side of the SRX110 Services Gateway:

1. Before you begin, ensure that the device is powered off.
2. On the rear side of the device, insert the USB modem extension cable into the 3G-WAN USB port until the cable is engaged (see [Figure 22 on page 67](#)).

Figure 22: Connecting the 3G USB modem to the SRX110 Services Gateway



NOTE:

- The 3G USB modem is not hot-swappable.
- Ensure that the base of the 3G USB extension of the cable mount is 18 inches away from the device.

3. Power on the device. The 3G LED on the front panel of the device indicates the status of the 3G USB modem interface.

NOTE: You can wall-mount the modem using keyholes as shown in [Figure 23 on page 68](#) or ceiling mount the USB protection cover using screw holes as shown in [Figure 24 on page 68](#).

Figure 23: 3G USB Modem Wall Installation—Attaching the USB Protection Cover

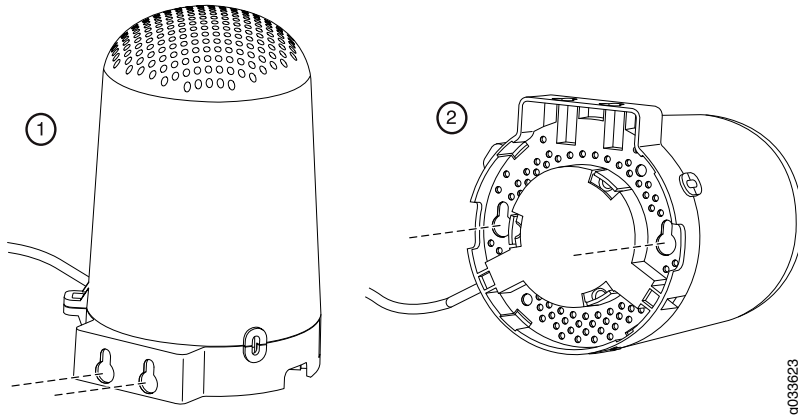
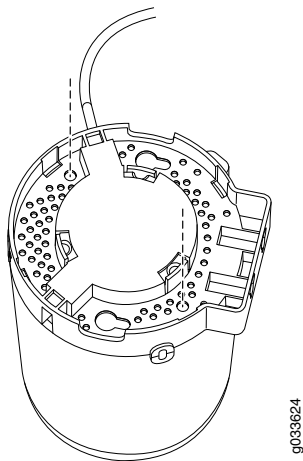


Figure 24: 3G USB Modem Ceiling Installation—Attaching the USB Protection Cover



RELATED DOCUMENTATION

[SRX110 Services Gateway 3G USB Modem Overview | 9](#)

[SRX110 Services Gateway 3G-WAN USB Port Physical Specifications | 30](#)

[Configuring the 3G USB Modem on the SRX110 Services Gateway | 107](#)

Grounding the SRX110 Services Gateway

IN THIS CHAPTER

- [SRX110 Services Gateway Grounding Specifications | 69](#)
- [Grounding the SRX110 Services Gateway | 70](#)

SRX110 Services Gateway Grounding Specifications

To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, the services gateway must be adequately grounded before power is connected. A grounding point available on the rear of the services gateway chassis is used to connect the device to earth ground.



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

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

[Table 37 on page 69](#) lists the specifications for the grounding cable used with the device.

Table 37: Grounding Cable Specifications for the Services Gateway

Grounding Requirement	Specification
Grounding cable	14 AWG single-strand wire cable
Amperage of grounding cable	Up to 4 A
Grounding lug	Ring-type, vinyl-insulated TV14-6R lug or equivalent

RELATED DOCUMENTATION

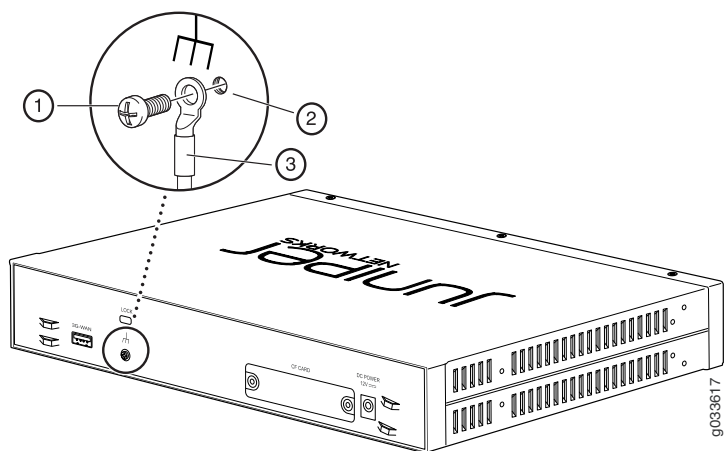
SRX110 Services Gateway Site Electrical Wiring Guidelines 35
SRX110 Services Gateway Power Specifications and Requirements 37
Interface Cable and Wire Specifications for the SRX110 Services Gateway 39
Grounding the SRX110 Services Gateway 70

Grounding the SRX110 Services Gateway

To meet safety and electromagnetic interference (EMI) requirements and to ensure proper operation, you must adequately ground the SRX110 Services Gateway before connecting power.

Figure 25 on page 70 illustrates connecting a grounding cable to the services gateway.

Figure 25: Grounding the SRX110 Services Gateway



To ground the device, connect a grounding cable to earth ground and then attach it to the chassis grounding points, using one M3 screw.

Table 38 on page 70 lists the specifications of the grounding cable used with the device.

Table 38: Grounding Cable Specifications for the Services Gateway

Grounding Requirement	Specification
Grounding cable	14 AWG single-strand wire cable
Amperage of grounding cable	Up to 4 A
Grounding lug	Ring-type, vinyl-insulated TV14-6R lug or equivalent



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

To ground the device:

1. Connect the grounding cable to a proper earth ground.
2. Verify that a licensed electrician has attached the cable lug to the grounding cable.
3. Place the grounding cable lug over the grounding point on the upper rear of the chassis.
4. Secure the grounding cable lug to the grounding point with the screw. Apply between 6 in.-lb (0.67 Nm) and 8 in.-lb (0.9 Nm) of torque to the screws.
5. Dress the grounding cable, and verify that it does not touch or block access to the services gateway components and that it does not cause a tripping hazard.

NOTE: The device should be permanently connected to ground during normal operation.

RELATED DOCUMENTATION

[Connecting the SRX110 Services Gateway to the Power Supply | 77](#)

[Connecting and Organizing the SRX110 Services Gateway Interface Cables | 72](#)

[SRX110 Services Gateway Grounding Specifications | 69](#)

[Powering On the SRX110 Services Gateway | 79](#)

[Powering Off the SRX110 Services Gateway | 79](#)

[SRX110 Services Gateway General Safety Guidelines and Warnings | 136](#)

Connecting the SRX110 Services Gateway to External Devices

IN THIS CHAPTER

- [Connecting and Organizing the SRX110 Services Gateway Interface Cables | 72](#)
- [Connecting the Modem at the SRX110 Services Gateway End | 73](#)
- [Connecting the Modem to the Console Port on the SRX110 Services Gateway | 74](#)
- [Connecting to the CLI at the User End for the SRX110 Services Gateway | 75](#)

Connecting and Organizing the SRX110 Services Gateway Interface Cables

You can connect the interfaces installed in the services gateway to various network media. Each type of interface on the services gateway uses a particular medium to transmit data. You must configure each network interface before it can operate on the device.

To connect and organize an interface cable for the device:

1. Have ready a length of the type of cable used by the interface.
2. Insert the cable connector into the cable connector port on the interface faceplate.
3. 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

[Connecting the SRX110 Services Gateway to the Power Supply | 77](#)

[Grounding the SRX110 Services Gateway | 70](#)

Connecting the Modem at the SRX110 Services Gateway End

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 the equivalent modem commands.

To configure the modem on the services gateway end:

1. Connect the modem to a PC or laptop computer.
2. Power on the modem.
3. From the PC or laptop computer, 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 39 on page 73](#).

Table 39: Port Settings for Configuring the Modem on the Services Gateway End

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

5. In the HyperTerminal window, enter **AT**.
An **OK** response verifies that the modem can communicate successfully with the **COM** port on the PC or laptop.

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

6. Configure the modem to answer a call on the first ring by entering **ATS0=1**.
7. Configure the modem to accept modem control DTR signals by entering **AT&D1**.
8. Disable flow control by entering **AT&K0**.
9. Save modem settings by entering **AT&W**.

RELATED DOCUMENTATION

[Connecting the Modem to the Console Port on the SRX110 Services Gateway | 74](#)

[Connecting to the CLI at the User End for the SRX110 Services Gateway | 75](#)

[SRX110 Services Gateway Software Configuration Overview | 82](#)

Connecting the Modem to the Console Port on the SRX110 Services Gateway

To connect the dial-up modem to the console port on the services gateway:

1. Turn off power to the services gateway.
2. Turn off power to the modem.
3. Plug one end of the Ethernet cable supplied with your services gateway into the console port on the services gateway.
4. Plug the other end of the CAT-5e cable (Ethernet cable) into the RJ-45 to DB-9 serial port adapter supplied with your services gateway.
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 panel. Verify that the **Power** LED on the front panel turns green.

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 the Ethernet cable supplied with the services gateway.

RELATED DOCUMENTATION

[Connecting the Modem at the SRX110 Services Gateway End | 73](#)

[Connecting to the CLI at the User End for the SRX110 Services Gateway | 75](#)

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Connecting to the CLI at the User End for the SRX110 Services Gateway

To remotely connect to the CLI through a dial-up modem connected to the console port on the services gateway:

1. Connect a modem at your remote location to a management device such as a PC or laptop computer.
2. Start your asynchronous terminal emulation application (such as Microsoft Windows HyperTerminal) on the PC or laptop computer.
3. Select the **COM** port to which the modem is connected (for example, **COM1**).
4. Configure the port settings shown in [Table 40 on page 75](#).

Table 40: Port Settings for Connecting to the CLI at User End

Port Setting	Value
Bits per second	9600
Data bits	8
Parity	None

Table 40: Port Settings for Connecting to the CLI at User End (*continued*)

Port Setting	Value
Stop bits	1
Flow control	None

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

An **OK** response verifies that the modem can communicate successfully with the **COM** port on the PC or laptop.

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

6. Dial the modem that is connected to the console port on the services gateway by entering **ATDT remote-modem-number**. For example, if the number of the modem connected to the console port on the services gateway is **0013033033030**, enter **ATDT 0013033033030**.

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 committing any configuration settings.

RELATED DOCUMENTATION

[Connecting the Modem at the SRX110 Services Gateway End | 73](#)

[Connecting the Modem to the Console Port on the SRX110 Services Gateway | 74](#)

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Providing Power to the SRX110 Services Gateway

IN THIS CHAPTER

- Connecting the SRX110 Services Gateway to the Power Supply | 77
- Powering On the SRX110 Services Gateway | 79
- Powering Off the SRX110 Services Gateway | 79

Connecting the SRX110 Services Gateway to the Power Supply

To connect the device to the power supply:

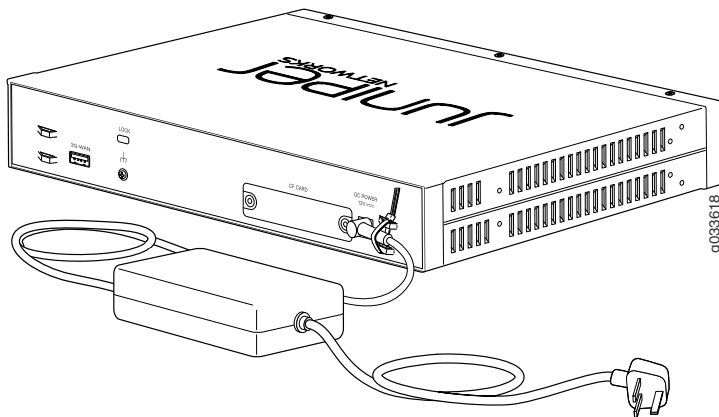


CAUTION: Before connecting the device to the power supply, attach an ESD strap to an ESD point and place the other end of the strap around your bare wrist.

NOTE: If you are installing your services gateway on a desk, ensure that your device is adequately grounded using the grounding point on the back panel of the chassis.

1. Plug the DC connector end of the power cable into the power connector on the back of the device (see [Figure 26 on page 78](#)).
2. Plug the AC adapter end of the power cable into an AC power outlet.

Figure 26: Connecting the SRX110 Services Gateway to the Power Supply



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



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

NOTE: Use the cable tie holder to secure the power cord on the power supply point.

NOTE: We strongly recommend that you use only the 3-prong power cord supplied with your services gateway. If you are using a 2-prong power cord, then ensure that your device is adequately grounded using the grounding point available on the back panel of the chassis.

RELATED DOCUMENTATION

[Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway | 46](#)

[Grounding the SRX110 Services Gateway | 70](#)

[Connecting and Organizing the SRX110 Services Gateway Interface Cables | 72](#)

[SRX110 Services Gateway General Safety Guidelines and Warnings | 136](#)

Powering On the SRX110 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 power source receptacle.
3. Turn on the power to the services gateway.

The device starts automatically as the power supply completes its startup sequence. The Power LED lights up during startup and remains on when the device is operating normally.

NOTE: After the power supply is turned on, it can take up to 60 seconds for status indicators—such as the Status and Power LEDs—to show that the power supply is functioning normally.

NOTE: We recommend you issue the CLI command **request system power-off** when you want to power off the device immediately after powering it on.

RELATED DOCUMENTATION

[Powering Off the SRX110 Services Gateway | 79](#)

[Resetting the SRX110 Services Gateway | 120](#)

[Connecting the SRX110 Services Gateway to the Power Supply | 77](#)

[Grounding the SRX110 Services Gateway | 70](#)

[Using the Reset Config Button on the SRX110 Services Gateway | 120](#)

[SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2 | 13](#)

[SRX110 Services Gateway LEDs | 18](#)

Powering Off the SRX110 Services Gateway

You can power off the services gateway in one of two ways:

- Graceful shutdown — Press and release the Power button. The device begins gracefully shutting down the operating system and then powers itself off.
- Forced shutdown — Press the Power button and hold it for more than 10 seconds. The device immediately powers itself off without shutting down the operating system.

NOTE: Do not press the Power button while the device is shutting down.



CAUTION: Use the graceful shutdown method to halt, power off, or reboot the services gateway. Use the forced shutdown method as a last resort to recover the services gateway if the services gateway operating system is not responding to the graceful shutdown method.



CAUTION: Forced shutdown can result in data loss and corruption of the file system.

NOTE: To remove power completely from the device, unplug the AC power cord or switch off the power source.

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

The Power button on the services gateway is a standby power switch.

If you press the Power button to power off the device when it is still connected to a power source, 12-V power will still be available in the chassis and the device will be fully powered off.

NOTE: When you are powering off the device, the system displays the following message: **Turning the system power off.** You can now safely remove the power cable to completely disconnect the power from the device.

NOTE: You can use the **request system reboot** command to schedule a reboot of the services gateway.

For more information about halting, powering off, or rebooting the services gateway using the CLI, see the following topics:

- [Initial Configuration for Security Devices](#)
- [Monitoring and Troubleshooting for Security Devices](#)

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Performing Initial Configuration

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- [SRX110 Services Gateway Software Configuration Overview | 82](#)
- [Connecting the SRX110 Services Gateway to the J-Web Interface | 85](#)
- [SRX110 Services Gateway Secure Web Access Overview | 87](#)
- [Connecting the Services Gateway to the CLI Locally | 87](#)
- [Viewing Factory-Default Settings of the SRX110 Services Gateway | 90](#)
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SRX110 Services Gateway Software Configuration Overview

IN THIS SECTION

- [Preparing the SRX110 Services Gateway for Configuration | 82](#)
- [Understanding Built-In Ethernet Ports | 83](#)
- [Understanding Management Access | 84](#)

This topic includes the following sections:

Preparing the SRX110 Services Gateway for Configuration

When the device powers on, it tries to boot Junos OS from the default storage medium. If the device fails to boot from the default storage medium, it tries to boot from the alternate storage medium.

[Table 41 on page 83](#) provides information on the storage media available on the services gateway.

Table 41: Storage Media on the Services Gateway

Storage Media	Type
CompactFlash	Default; always present
USB storage device	Alternate

NOTE: The SRX Series devices that ship with Junos OS Release 10.0 or later are formatted with dual-root partitions from the factory. SRX Series devices that are running Junos OS Release 9.6 or earlier can be formatted with dual-root partitions when they are upgraded to Junos OS Release 10.0 or later.

For more information on dual-root partitioning, see the following topics:

- [Initial Configuration for Security Devices](#)
- [Monitoring and Troubleshooting for Security Devices](#)

You configure the services gateway by issuing Junos OS command-line interface (CLI) commands.

Gather the following information before configuring the device:

- Device name to be used on the network
- Domain name the device will use
- IP address and prefix length information for the Ethernet interface
- IP address of a default router
- IP address of a DNS server
- Password for the root user

Understanding Built-In Ethernet Ports

Note the following points about the services gateway management ports:

- The services gateway uses **fe-0/0/1** to **fe-0/0/7** as management ports to perform initial device setup. Before initial configuration, when the factory-default configuration is active, the device attempts to perform autoinstallation by obtaining a device configuration through all of its connected interfaces.
- The services gateway acts as a DHCP client out of the built-in Ethernet ports. If the services gateway does not find a DHCP server within a few seconds, the device acts as a DHCP server and assigns an IP address as 192.168.1.1/24. With the device temporarily acting as a DHCP server, you can manually configure it with the J-Web interface.

- Any DHCP client host, for example, a PC or laptop computer, directly connected to any of **fe-0/0/1** to **fe-0/0/7** ports receives an address on the 192.168.1.1/24 network.
- Any DHCP client host, for example, a PC or laptop computer, directly connected to any of **fe-0/0/1** to **fe-0/0/7** ports receives an address on the 192.168.1.1/24 network.

Understanding Management Access

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

NOTE: Telnet access to the root user is prohibited. 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 device and access the CLI to execute commands from a remote system
- Encrypts traffic so that it cannot be intercepted (unlike Telnet)
- 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 management protocol server to configure and monitor devices, you can activate cleartext access on the device to allow unencrypted text to be sent directly over a Transmission Line Protocol (TCP) connection without using any additional protocol (such as SSH, SSL, or Telnet). For more information about the Junos XML management protocol application programming interface (API), see the [NETCONF XML Management Protocol Guide](#).

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

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

RELATED DOCUMENTATION

[Connecting the SRX110 Services Gateway to the J-Web Interface | 85](#)
[Connecting the Services Gateway to the CLI Locally | 87](#)
[Connecting the SRX110 Services Gateway to the CLI Remotely](#)
[Performing Initial Software Configuration on the SRX110 Services Gateway Using the CLI | 99](#)

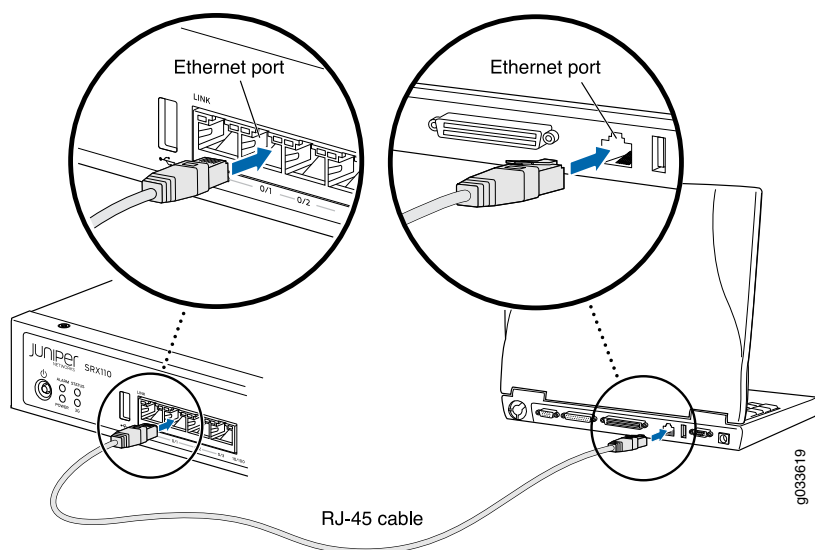
Connecting the SRX110 Services Gateway to the J-Web Interface

If you plan to use the J-Web interface to configure the SRX110 Services Gateway, you must connect through one of the built-in Ethernet management ports.

When the services gateway is powered on for the first time, the system looks for a Dynamic Host Configuration Protocol (DHCP) server. If it does not find one, the system assigns an IP address within the **192.168.1.0/24** subnetwork to any devices connected to the system.

To connect to the J-Web interface through any of the ports **fe-0/0/1** through **fe-0/0/7** on the services gateway, see [Figure 27 on page 85](#).

Figure 27: Connecting to the Ethernet Port on an SRX110 Services Gateway



To connect to the Ethernet port:

1. From the management device that you use to access the J-Web interface (such as a PC or a laptop), verify that the address of the port you connect to is set to one of the following values:
 - Ethernet address on the **192.168.1.0/24** subnetwork other than **192.168.1.1**

- Ethernet address from a DHCP server
2. Plug one end of the CAT-5e (Ethernet cable) into the Ethernet port on the management device.
 3. Connect the other end of the Ethernet cable to any of the built-in Ethernet ports **fe-0/0/1** through **fe-0/0/7** on the services gateway.
 4. Wait until the Status LED on the front panel of the services gateway turns solid green.
 5. 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** subnetwork if the management device is configured to use DHCP.

NOTE: After connecting the management device to the services gateway, the DHCP server process on the services gateway assigns an IP address automatically to the management device. Ensure that the management device acquires an IP address on the **192.168.1.0/24** subnetwork (other than **192.168.1.1**) from the device.

6. From the management device, open a Web browser and enter the IP address **192.168.1.1** in the address field if the management device is configured using the DHCP.
7. Configure basic settings for your services gateway.

NOTE: You must manually configure the IP address for the management port 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

[Performing Initial Software Configuration on the SRX110 Services Gateway Using the CLI | 99](#)

[Connecting the Services Gateway to the CLI Locally | 87](#)

[SRX110 Services Gateway Software Configuration Overview | 82](#)

[SRX110 Services Gateway Secure Web Access Overview | 87](#)

SRX110 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 no encryption. The data that is transmitted between the Web browser and the services gateway by means of HTTP is vulnerable to interception and attack. To enable secure Web access, the 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. SSL uses public-private key technology that requires a paired private key and an authentication certificate for providing 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.

RELATED DOCUMENTATION

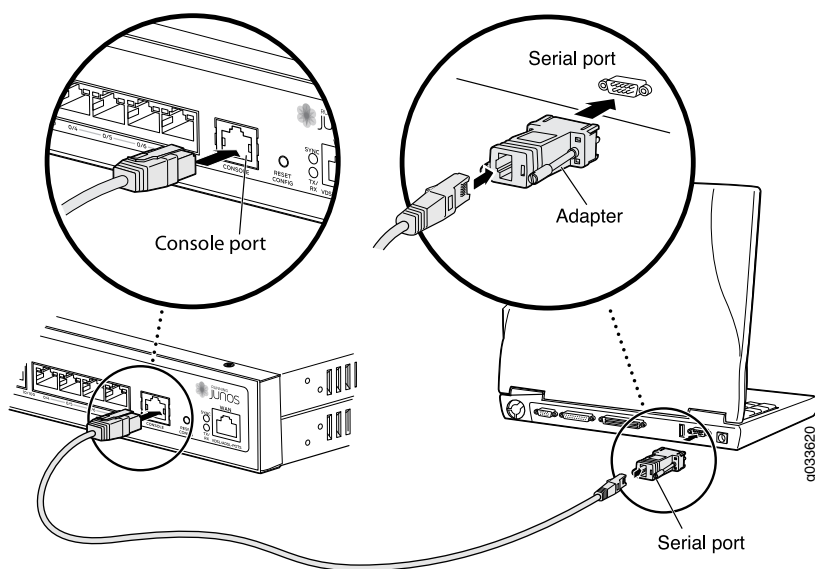
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[Performing Initial Software Configuration on the SRX110 Services Gateway Using the CLI | 99](#)

Connecting the Services Gateway to the CLI Locally

If you plan to use the command-line interface (CLI) to configure the SRX110 Services Gateway, you must connect through the Console port, as shown in [Figure 28 on page 88](#).

Figure 28: Connecting to the Console Port on an SRX110 Services Gateway



NOTE: Figure 28 on page 88 shows a connection to a local management device. A remote connection to the services gateway through a modem requires the cable and connector shown (provided in the services gateway accessory box), plus a DB-9 plug to DB-25 plug (or similar) 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 PC or laptop computer, that you are using to access the CLI.
3. Plug one end of the Ethernet cable supplied with your services gateway into the RJ-45 to DB-9 serial port adapter supplied with your services gateway (see [Figure 28 on page 88](#)).
4. Plug the RJ-45 to DB-9 serial port adapter into the serial port on the management device (see [Figure 28 on page 88](#)).
5. Connect the other end of the Ethernet cable to the Console port on the services gateway (see [Figure 28 on page 88](#)).
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 42 on page 89](#).

Table 42: Port Settings for Connecting to the Console Port

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

9. Power on the services gateway by pressing the Power button on the front panel.
10. 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.
11. 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 the SRX110 Services Gateway to the CLI Remotely

[Performing Initial Software Configuration on the SRX110 Services Gateway Using the CLI | 99](#)

[Connecting the SRX110 Services Gateway to the J-Web Interface | 85](#)

[SRX110 Services Gateway Software Configuration Overview | 82](#)

[SRX110 Services Gateway Secure Web Access Overview | 87](#)

Viewing Factory-Default Settings of the SRX110 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-vb-defaults.conf
srx110b-vb-factory.conf
srx110b-vb-defaults.conf
srx110b-vb-factory.conf
srx110b-wl-defaults.conf
srx110b-wl-factory.conf
srx110h-defaults.conf
srx110h-vb-defaults.conf
srx110h-vb-factory.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
```

```

srx110h-va-wl-defaults.conf      srx240h-dc-factory.conf
srx110h-va-wl-factory.conf       srx240h-defaults.conf
srx110h-vb-defaults.conf        srx240h-factory.conf
srx110h-vb-factory.conf         srx240h-poe-defaults.conf
srx110h-vb-wl-defaults.conf     srx240h-poe-factory.conf
srx110h-vb-wl-factory.conf      srx240h2-dc-defaults.conf
srx110h-wl-defaults.conf        srx240h2-dc-factory.conf
srx110h-wl-factory.conf         srx240h2-defaults.conf
srx110h2-va-defaults.conf       srx240h2-factory.conf
srx110h2-va-factory.conf        srx240h2-poe-defaults.conf
srx110h2-vb-defaults.conf      srx240h2-poe-factory.conf
srx110h2-vb-factory.conf       srx550-6xge-factory.conf
srx210-2xge-6xfe-factory.conf   srx550-defaults.conf
srx210-poe-2xge-6xfe-factory.conf srx550-factory.conf
srx210b-defaults.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;
            }
        }
    }
}
}
vlangs {
    vlan-trust {
        vlan-id 3;
        l3-interface vlan.0;
    }
}
protocols {
    stp;
}

```

RELATED DOCUMENTATION

[SRX110 Services Gateway Autoinstallation Overview | 47](#)

[SRX110 Services Gateway Software Configuration Overview | 82](#)

[Performing Initial Software Configuration on the SRX110 Services Gateway Using the CLI | 99](#)

Performing Initial Software Configuration on the SRX110 Services Gateway Using the CLI

This procedure connects the device to the network but does not enable it to forward traffic. For complete information about enabling the device to forward traffic, including examples, see the appropriate Junos OS configuration guides.

To configure the Junos OS:

1. Verify that the device is powered on.
2. Log in as the root user. There is no password.
3. Start the CLI.

```
root# cli  
root@>
```

4. Enter configuration mode.

```
configure  
[edit]  
root@#
```

5. Set the root authentication password by entering a cleartext password, an encrypted password, or an SSH public key string (DSA or RSA).

```
[edit]  
root@# set system root-authentication plain-text-password  
New password: password  
Retype new password: password
```

6. Configure an administrator account on the device.

```
[edit]  
root@# set system login user admin class super-user authentication plain-text-password
```

7. Commit the configuration to activate it on the device.

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

8. Log in as the administrative user you configured in Step 6.

9. Configure the name of the device. If the name includes spaces, enclose the name in quotation marks (" ").

```
configure  
[edit]  
admin@# set system host-name host-name
```

10. Configure the traffic interface.

```
[edit]  
admin@# set interfaces fe-0/0/1 unit 0 family inet address address/prefix-length
```

11. Configure the default route.

```
[edit]  
admin@# set routing-options static route 0.0.0.0/0 next-hop gateway
```

12. Configure basic security zones and bind them to traffic interfaces.

```
[edit]  
admin@# set security zones security-zone untrust interfaces fe-0/0/1
```

13. Configure basic security policies.

```
[edit]
admin@# set security policies from-zone trust to-zone untrust policy policy-name match source-address any
      destination-address any application any
root@# set security policies from-zone trust to-zone untrust policy policy-name then permit
```

14. Create a NAT rule for source translation of all Internet bound traffic.

```
[edit]
admin@# set security nat source rule-set interface-nat from zone trust
admin@# set security nat source rule-set interface-nat to zone untrust
admin@# set security nat source rule-set interface-nat rule rule1 match source-address 0.0.0.0/0
      destination-address 0.0.0.0/0
admin@# set security nat source rule-set interface-nat rule rule1 then source-nat interface
```

15. Check the configuration for validity.

```
[edit]
admin@# commit check
configuration check succeeds
```

16. Commit the configuration to activate it on the device.

```
[edit]
admin@# commit
commit complete
```

17. Optionally, display the configuration to verify that it is correct.

```
[edit]
user@host# show
system {
  host-name devicea;
  domain-name lab.device.net;
  domain-search [ lab.device.net device.net ];
  backup-device 192.168.2.44;
  time-zone America/Los_Angeles;
  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 {
    fe-0/0/0 {
        unit 0 {
            family inet {
                address 192.168.1.1/24;
            }
        }
    }
    lo0 {
        unit 0 {
            family inet {
                address 172.16.1.24/32;
            }
        }
    }
}
}

```

18. Commit the configuration to activate it on the device.

```

[edit]
admin@# commit

```

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

```

[edit]
admin@host# commit

```

20. When you have finished configuring the device, exit configuration mode.

```

[edit]

```

```
admin@host# exit  
admin@host>
```

RELATED DOCUMENTATION

[SRX110 Services Gateway Secure Web Access Overview | 87](#)

[SRX110 Services Gateway Software Configuration Overview | 82](#)

Performing Initial Software Configuration on the SRX110 Services Gateway Using the J-Web Interface

IN THIS SECTION

- [Establishing Basic Connectivity | 103](#)
- [Configuring Basic System Properties | 105](#)

This topic includes the following sections:

Establishing Basic Connectivity

To establish basic connectivity:

1. Connect an Ethernet cable from any of the **fe-0/0/1** to **fe-0/0/7** ports to the Ethernet port on the management device (workstation or laptop).
2. Connect the power cable to the device and a power source. (We recommend using a surge protector.)
Note the following indications:
 - Power LED (steadily green): The device is receiving power.
 - Status LED (steadily green): The device is operating normally.

NOTE: The services gateway functions as a DHCP server and will assign an IP address to the management device.

3. Ensure that the management device acquires an IP address on the 192.168.1.0/24 subnetwork (other than 192.168.1.1) from the device.

NOTE: If an IP address is not assigned to the management device, manually configure an IP address in the 192.168.1.0/24 subnetwork. Do not assign the 192.168.1.1 IP address to the management device, as this IP address is assigned to the device.

4. Access the J-Web interface:
 - a. Launch a Web browser from the management device.
 - b. Enter **192.168.1.1** in the Address box.
 - c. Specify the default user name as **root**. Do not enter any value in the Password box.
 - d. Press **Enter**. The J-Web Setup Wizard page opens.
5. Use the wizard to configure the basic settings, such as Hostname, Domain Name, and Root Password, for your services gateway.

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.

You can also use the wizard to configure the following settings:

- Default gateway
- DNS servers
- Domain search
- VLANs
- Interfaces

NOTE: All network and management access settings are optional.

[“Configuring Basic System Properties” on page 105](#) provides the configuration details for the initial setup.

6. Click **Commit** on the Review & Commit page to apply the configuration.

NOTE: After you configure the basic settings, the J-Web Setup wizard redirects you to the J-Web pages where you can continue working in the J-Web interface.

SEE ALSO

Configuring Basic System Properties

[Table 43 on page 105](#) through [Table 44 on page 106](#) summarizes the configuration details for initial setup.

Table 43: Required Setup Fields

Setup Wizard Page	Field	Your Action
Introduction		Read the introduction page for basic instructions on using the setup wizard. Click Start to continue.
Configure System: Identification		
	Host Name	Type the name of the services gateway.
	Domain Name	Type the name of the network or subnetwork to which the services gateway belongs
	Root Password (required)	Type the password that user root will use to log in to the device.
	Verify Root Password (required)	Retype the root password.

Table 43: Required Setup Fields (*continued*)

Setup Wizard Page	Field	Your Action
Configure J-Web Preferences		
	J-Web starting page options	Specify the tab you want to appear when J-Web starts.
	J-Web commit options	Specify when you want J-Web to commit your configuration changes.

Table 44: Optional Setup Fields

Field	Function	Your Action
Configure System: Identification		
	Default Gateway	Type the IP address of the default gateway.
	DNS Name Servers	Type the IP address of each server that maintains databases for resolving hostnames and IP addresses and click Add.
	Domain Search	Type the IP address or domain name of each domain that includes the services gateway to include it in a DNS search
Interface Groups (VLANs)		Use buttons to add, edit, or delete VLANs
Configure Interfaces		Use buttons to add, edit, or delete interfaces other than VLANs. NOTE: Make sure that you have selected the required services and protocols under Services (Inbound) and Protocols (Inbound). Select all to permit all protocols and services.
Configure System: Time		

Table 44: Optional Setup Fields (*continued*)

Field	Function	Your Action
	Current System Time	Use Reset Manually button to reset time.
	Time Zone	Choose the time zone from the list
	NTP Servers	Add Network Time Protocol (NTP) servers that the gateway can reach to synchronize the system time.

After you configure the basic setup, the Setup wizard is no longer available, unless you reset the device to the factory default and reboot it. To make changes to the configuration, use the J-Web interface or the command-line interface (CLI).

You can use other wizards to configure basic firewall policies, VPN settings, and NAT rules. Choose **Configure > Wizards** to use the available wizards. Use the J-Web interface or the CLI for more extensive configuration.

For more instructions on managing users and operations, monitoring network performance, upgrading software, and diagnosing common problems on an SRX110 Series Services Gateway, see [Network Management and Monitoring](#).

RELATED DOCUMENTATION

- [Performing Initial Software Configuration on the SRX110 Services Gateway Using the CLI | 99](#)
- [SRX110 Services Gateway Software Configuration Overview | 82](#)
- [SRX110 Services Gateway Secure Web Access Overview | 87](#)

Configuring the 3G USB Modem on the SRX110 Services Gateway

[Table 45 on page 108](#) lists the basic CLI commands for operating the 3G USB modem on the services gateway.

The 3G wireless interface uses the prefix `cl` in the syntax `cl-slot-number/0/port number`.

Table 45: SRX110 Services Gateway 3G USB Modem Basic CLI Commands

Action	Command
Checks the status of the 3G USB modem.	show modem wireless interface cl-0/0/8 show interfaces terse
GSM	
Unlocks the GSM SIM.	request modem wireless gsm sim-unlock cl-0/0/8 pin
Unlocks the SIM automatically on reboot.	set interfaces cl-0/0/ 8 cellular-options gsm-options sim-unlock-code
Recovers the SIM from the Pin Unlock Key (PUK) state. When you attempt to unlock the SIM, if you enter a wrong PIN three times in a row, the SIM enters the PUK state.	request modem wireless gsm sim-unblock cl-0/0/8 puk new-puk-number pin new-pin-number NOTE: You must obtain the PUK value from your cellular service provider.
Changes the PIN on the SIM.	request modem wireless gsm change-pin cl-0/0/8 old-pin current-pin-number new-pin new-pin-number

For more details on configuration examples, see the [Junos OS Interfaces Configuration Guide for Security Devices](#).

RELATED DOCUMENTATION

[SRX110 Services Gateway 3G USB Modem Overview | 9](#)

[Installing a 3G USB Modem in the SRX110 Services Gateway USB Port | 65](#)

[SRX110 Services Gateway 3G-WAN USB Port Physical Specifications | 30](#)

Configuring the Integrated VDSL2 Interface on the SRX110 Services Gateway

To use J-Web to perform basic configuration for the integrated VDSL2 interface and to configure network interfaces for the services gateway:

1. In J-Web, select **Configure>Interfaces**.

The Interfaces page appears and lists the network interfaces present on the services gateway, along with configuration information (if configured).

2. To configure properties for a network interface, select the interface name (**pt-1/0/0**), and click **Edit**.
3. To use the VDSL2 port, you must assign it to a security zone other than the Null zone. Optionally, you can also assign the port an IP address (for example, 192.168.3.1/24). Enter or select the following settings:
 - a. Select **Configure>Security>Zones/Screens**.
 - b. Add or select a security zone other than Null; for example, **Trust**.
 - c. For host inbound traffic, set the following:
 - System Services=**Allow All**.
 - Protocols=**Allow All**.
 - d. Click **OK** to save changes, and click **Commit** to apply the configuration and other pending changes.
4. To use the VDSL2 port (VDSL/ADSL-POTS or VDSL/ADSL-ISDN), you must also set security policies. Select the following settings:
 - a. Select **Configure>Security>Apply Policy**.
 - b. Set Policy Action: Default Policy Action=**Permit-All**.
 - c. Click **OK** to save changes, and click **Commit** to apply the configuration and other pending changes (if any).

For more information, in the J-Web user interface, select **Configure>Interfaces**, and click **Help**.

To use the CLI to perform basic configuration of the integrated VDSL2 interface and to configure network interfaces for the services gateway:

- Verify that the VDSL2 interface is installed on the device:

show chassis hardware

- Verify the status of the interface:

show interfaces terse

- Assign the port an IP address:

set interface pt-1/0/0 unit 0 family inet address *interface address/destination prefix*

- Add or select a security zone; for example, Zone1:

set security zones security-zone trust interfaces pt-1/0/0.0 host-inbound-traffic system-services all

- Add or select security zones for host inbound traffic option protocols:

set security zones security-zone trust interfaces pt-1/0/0.0 host-inbound-traffic protocols all

- Set security policies:

set security policies default-policy permit-all

For more details, see the [Junos OS Interfaces Configuration Guide for Security Devices](#).

RELATED DOCUMENTATION

[SRX110 Services Gateway Integrated VDSL2 Interface Overview | 5](#)

[SRX110 Services Gateway Integrated VDSL2 Interface Key Features | 6](#)

[SRX110 Services Gateway Integrated VDSL2 Interface LEDs | 21](#)

4

PART

Maintaining and Troubleshooting Components

Maintaining Components | **112**

Troubleshooting Components | **113**

Maintaining Components

IN THIS CHAPTER

- [Maintaining the SRX110 Services Gateway Hardware Components | 112](#)

Maintaining the SRX110 Services Gateway Hardware Components

[Table 46 on page 112](#) describes the common tasks to maintain the hardware components of the services gateway.

Table 46: Maintenance Procedures for the Services Gateway Hardware Components

Maintenance Procedure	Description
Routine Maintenance Procedures	<p>To maintain optimum performance of the services gateway, you should regularly perform the following preventive maintenance procedures:</p> <ul style="list-style-type: none">● Inspect the installation site for moisture, loose wires or cables, and excessive dust.● Make sure that airflow is unobstructed around the device and into the air intake vents.
Maintaining the Power Supply	<p>To maintain the power supply on the services gateway:</p> <ul style="list-style-type: none">● Make sure that the power and grounding cables are arranged so that they do not obstruct access to other device components.● Periodically inspect the site to ensure that the grounding and power cables connected to the device are securely in place and that there is no moisture accumulating near the device. <p>CAUTION: We recommend using a surge protector for the power connection.</p>

RELATED DOCUMENTATION

- [Connecting the SRX110 Services Gateway to the Power Supply | 77](#)
- [Clearance Requirements for Airflow and Hardware Maintenance of the SRX110 Services Gateway | 33](#)

Troubleshooting Components

IN THIS CHAPTER

- [Monitoring the SRX110 Services Gateway Chassis Using the CLI | 113](#)
- [Monitoring the SRX110 Services Gateway Components Using LEDs | 115](#)
- [Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions | 117](#)
- [Monitoring the SRX110 Services Gateway Power System | 119](#)
- [Resetting the SRX110 Services Gateway | 120](#)
- [Using the Reset Config Button on the SRX110 Services Gateway | 120](#)
- [Changing the Reset Config Button Behavior on the SRX110 Services Gateway | 122](#)
- [Juniper Networks Technical Assistance Center | 123](#)

Monitoring the SRX110 Services Gateway Chassis Using the CLI

You can monitor alarms to troubleshoot hardware problems on a services gateway. The chassis properties include the status of active chassis alarms and environment measurements on the device.

To view these chassis properties, select **Monitor** in the J-Web interface, or enter the following CLI show commands:

- **show chassis hardware**
- **show chassis hardware detail**
- **show chassis environment**
- **show chassis fpc**
- **show chassis alarms**

Examples

The following examples provide the sample output of commands:

For SRX110 Services Gateway (SRX110H-VA)

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

Hardware inventory:

Item	Version	Part number	Serial number	Description
Chassis			AX0021AF0037	SRX110h-va
Routing Engine	REV 01	650-035910	AX0021AF0037	RE-SRX110H-VA
FPC 0				FPC
PIC 0				8x FE Base PIC
FPC 1				FPC
PIC 0				Internal VDSL2/ADSL-POTS
Power Supply 0				

show chassis environment

user@host > show chassis environment

Class	Item	Status	Measurement
Temp	Routing Engine	OK	64 degrees C / 147 degrees F
	Routing Engine CPU	Absent	
Power	Power Supply 0	OK	

show chassis fpc

user@host > show chassis fpc

Slot	State	Temp (C)	CPU Utilization (%) Total Interrupt	Memory DRAM (MB)	Utilization (%) Heap Buffer
0	Online	-----	CPU less FPC	-----	-----
1	Online	-----	CPU less FPC	-----	-----

show chassis alarms

user@host > show chassis alarms

No alarms currently active

RELATED DOCUMENTATION

[Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions | 117](#)

[Monitoring the SRX110 Services Gateway Components Using LEDs | 115](#)

Monitoring the SRX110 Services Gateway Components Using LEDs

You can monitor the chassis condition by using the LEDs. [Table 47 on page 115](#) lists the LEDs, their condition, the possible causes and corrective actions.

Table 47: Component LEDs on the Services Gateway

LED	State	Meaning	Possible Causes and Corrective Actions
Status LED	Green	Indicates that the device is functioning normally.	Normal condition. No action is required.
	Amber	<ul style="list-style-type: none">• The device is starting up.• The Reset Config button is pressed.	Normal condition. No action is required.
	Red	Indicates an error in the device.	Contact the Juniper Networks Technical Assistance Center (JTAC). See “Juniper Networks Technical Assistance Center” on page 123 .

Table 47: Component LEDs on the Services Gateway (*continued*)

LED	State	Meaning	Possible Causes and Corrective Actions
Alarm LED	Green	Indicates that the device is functioning normally.	Normal condition. No action is required.
	Red	The device indicates a critical alarm.	<p>A critical alarm indicates a critical situation on the gateway that requires immediate action.</p> <p>See “Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions” on page 117.</p>
	Amber	The device indicates a major alarm.	<p>A major alarm requires monitoring or maintenance. If left unchecked, it might cause an interruption in service or degradation in performance.</p> <p>See “Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions” on page 117.</p>
	Off	<p>The device is starting up.</p> <p>NOTE: When the system is up and running, if the Alarm LED is off, it indicates that no alarms are present on the device.</p>	Normal condition. No action is required.

Table 47: Component LEDs on the Services Gateway (*continued*)

LED	State	Meaning	Possible Causes and Corrective Actions
Power LED	Green	The device is receiving power and is functioning normally.	Normal condition. No action is required.
	Amber	The Power button has been pressed and quickly released.	Normal condition. No action is required.
	Off	The device is not receiving power.	<p>Normal condition if the services gateway is switched off. No action is required.</p> <p>If you have not powered off the services gateway, verify that the AC power cord from the power source to the device is not damaged, the socket is in working condition, and the device has an AC input voltage between 110 and 240 VAC.</p> <p>See “Monitoring the SRX110 Services Gateway Power System” on page 119.</p>

RELATED DOCUMENTATION

[Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions | 117](#)
[Monitoring the SRX110 Services Gateway Chassis Using the CLI | 113](#)
[Monitoring the SRX110 Services Gateway Power System | 119](#)
[Maintaining the SRX110 Services Gateway Hardware Components | 112](#)

Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions

When the services gateway detects an alarm condition, the alarm LED on the front panel turns red or amber as appropriate.

To view a more detailed description of the cause of the alarm, issue the **show chassis alarms** CLI command.

For more information on the **show chassis alarms** command, see the following topics:

- [Initial Configuration for Security Devices](#)
- [Monitoring and Troubleshooting for Security Devices](#)

[Table 48 on page 118](#) describes alarms that can occur for an SRX110 Services Gateway chassis component.

Table 48: SRX110 Services Gateway Chassis Alarm Conditions and Corrective Actions

Component	Alarm Condition	Action	Alarm Severity
Boot media	The services gateway boots from an alternate boot device.	<ul style="list-style-type: none"> • If the internal flash memory fails at startup, the services gateway automatically boots from the alternative boot device (USB storage device). <p>NOTE: If you configured your services gateway to boot from an alternative boot device, ignore this alarm condition.</p> <ul style="list-style-type: none"> • Reformat the internal flash memory, and install a bootable image. (See the Initial Configuration for Security Devices and the Monitoring and Troubleshooting for Security Devices.) • If you did not configure the services gateway to boot from an alternative boot device, contact Juniper Networks Technical Assistance Center (JTAC). See “Juniper Networks Technical Assistance Center” on page 123. 	Amber (minor)
Hardware components on the services gateway	The services gateway chassis temperature or chassis is too warm.	<ul style="list-style-type: none"> • Check the room temperature. See “SRX110 Services Gateway Specifications” on page 28. • Check the airflow. See “General Site Guidelines for Installing the SRX110 Services Gateway” on page 28. 	Amber (minor)
	The services gateway temperature is too high, either because of an internal overheating condition or because the maximum recommended room temperature has been exceeded.	The services gateway shuts down automatically in 4 minutes.	Red (major)

RELATED DOCUMENTATION

[Monitoring the SRX110 Services Gateway Chassis Using the CLI | 113](#)

[Monitoring the SRX110 Services Gateway Power System | 119](#)

[Using the Reset Config Button on the SRX110 Services Gateway | 120](#)

[Changing the Reset Config Button Behavior on the SRX110 Services Gateway | 122](#)

[Juniper Networks Technical Assistance Center | 123](#)

Monitoring the SRX110 Services Gateway Power System

The LEDs on the services gateway enable you to determine the performance and operation. The Power LED, located on the front panel of the services gateway, indicates the different settings with respect to the power system.

[Table 49 on page 119](#) describes different Power LED status settings and their corrective actions.

Table 49: Services Gateway Power LED Status

Status	Meaning	Possible Cause and Corrective Action
Green	The device is receiving power, and the internal power supply is functional.	Normal indication. No action is required.
Amber	The Power button has been pressed and quickly released. The device is shutting down or starting up.	Normal indication. No action is required.
Off	The device is not receiving power.	<ul style="list-style-type: none"> • Verify that the AC power cord from the power source to the device is not damaged. If the insulation is cracked or broken, immediately replace the cord or cable. • Ensure that the socket you plug in is in working condition. • Ensure the device has an AC input voltage between 110 and 240 VAC. • If you cannot determine the cause of the problem or need additional assistance, contact the Juniper Networks Technical Assistance Center (JTAC). See "Juniper Networks Technical Assistance Center" on page 123.

RELATED DOCUMENTATION

Monitoring the SRX110 Services Gateway Components Using LEDs 115
Monitoring the SRX110 Services Gateway Chassis Using the CLI 113
Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions 117
Using the Reset Config Button on the SRX110 Services Gateway 120
Changing the Reset Config Button Behavior on the SRX110 Services Gateway 122
Juniper Networks Technical Assistance Center 123

Resetting the SRX110 Services Gateway

The Reset Config button on the front panel of the services gateway can be used to remove the current configuration and reset the device to the default (factory) configuration. The button is recessed in the front panel to prevent it from being pressed accidentally.

NOTE: Pressing and holding the Reset Config button for 15 seconds or more deletes all configurations on the device and loads and commits the default (factory) configuration.

RELATED DOCUMENTATION

Powering On the SRX110 Services Gateway 79
Powering Off the SRX110 Services Gateway 79
Connecting the SRX110 Services Gateway to the Power Supply 77
Grounding the SRX110 Services Gateway 70
Using the Reset Config Button on the SRX110 Services Gateway 120
SRX110 Services Gateway Front Panel and Back Panel Views with 3G and Integrated VDSL2 13
SRX110 Services Gateway LEDs 18

Using the Reset Config Button on the SRX110 Services Gateway

If a configuration fails or denies management access to the services gateway, you can use the Reset Config button to restore the device 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.

NOTE: The Reset Config 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.

- By default, pressing and quickly releasing the Reset Config button loads and commits the rescue configuration through the J-Web interface or the CLI. The Status LED glows amber during this time.
- By default, pressing and holding the Reset Config button for 15 seconds or more—until the Status LED glows amber—deletes all configurations on the device, including the backup configurations and rescue configuration, and loads and commits the factory configuration.

For details about factory-default settings, see the following topics:

- [Initial Configuration for Security Devices](#)
- [Monitoring and Troubleshooting for Security Devices](#)

RELATED DOCUMENTATION

[Changing the Reset Config Button Behavior on the SRX110 Services Gateway | 122](#)

[Monitoring the SRX110 Services Gateway Components Using LEDs | 115](#)

[Monitoring the SRX110 Services Gateway Chassis Using the CLI | 113](#)

[Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions | 117](#)

[Monitoring the SRX110 Services Gateway Power System | 119](#)

[Juniper Networks Technical Assistance Center | 123](#)

Changing the Reset Config Button Behavior on the SRX110 Services Gateway

You can change the default operation of the Reset Config button by limiting how the button resets the services gateway:

- To prevent the Reset Config button from setting the device to the factory-default configuration and deleting all other configurations:

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

You can still press and quickly release the button to reset it to the rescue configuration.

- To prevent the Reset Config button from setting the device to the rescue configuration:

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

You can still press and hold the button for 15 seconds or more to reset the gateway to the factory-default configuration.

- To disable the button and prevent the device from resetting to either configuration:

```
admin@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 device configuration.

RELATED DOCUMENTATION

[Using the Reset Config Button on the SRX110 Services Gateway | 120](#)

[Monitoring the SRX110 Services Gateway Components Using LEDs | 115](#)

[Monitoring the SRX110 Services Gateway Chassis Using the CLI | 113](#)

[Monitoring the SRX110 Services Gateway Using Chassis Alarm Conditions | 117](#)

[Monitoring the SRX110 Services Gateway Power System | 119](#)

[Juniper Networks Technical Assistance Center | 123](#)

Juniper Networks Technical Assistance Center

If you need assistance while troubleshooting a services gateway, open a support case using the Case Manager link at <https://www.juniper.net/support/>, or call 1-888-314-JTAC (within the United States) or 1-408-745-9500 (from outside the United States).

5

PART

Replacing Components

[Contacting Customer Support and Returning Components](#) | 125

Contacting Customer Support and Returning Components

IN THIS CHAPTER

- Contacting Customer Support | 125
- Return Procedure for the SRX110 Services Gateway | 126
- Locating the SRX110 Services Gateway Component Serial Number and Agency Labels | 127
- Information You Might Need to Supply to Juniper Networks Technical Assistance Center | 129
- Packing the SRX110 Services Gateway and Components for Shipment | 129

Contacting Customer Support

Once you have located the serial numbers of the services gateway or component, you can return them 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 Service Request Manager link at <https://support.juniper.net/support/>
- By telephone:
 - From the US and Canada: 1-888-314-JTAC
 - From all other locations: 1-408-745-9500

NOTE: If contacting JTAC by telephone, enter your 12-digit service request number followed by the pound (#) key if this is an existing case, or press the star (*) key to be routed to the next available support engineer.

RELATED DOCUMENTATION

[Return Procedure for the SRX110 Services Gateway | 126](#)

[Locating the SRX110 Services Gateway Component Serial Number and Agency Labels | 127](#)

[Packing the SRX110 Services Gateway and Components for Shipment | 129](#)

[Information You Might Need to Supply to Juniper Networks Technical Assistance Center | 129](#)

Return Procedure for the SRX110 Services Gateway

Follow the tasks list provided in [Table 50 on page 126](#) to return an SRX110 Services Gateway or component to Juniper Networks for repair or replacement:

Table 50: Return Procedure for SRX110 Services Gateway

Step	Task	For more information, see
1	Determine the part number and serial number of the device or component.	“Locating the SRX110 Services Gateway Component Serial Number and Agency Labels” on page 127
2	Obtain a Return Materials Authorization (RMA) number from JTAC.	“Information You Might Need to Supply to Juniper Networks Technical Assistance Center” on page 129
3	Pack the SRX110 Services Gateway or component for shipping.	“Packing the SRX110 Services Gateway and Components for Shipment” on page 129

NOTE: Do not return the device 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.

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

For product problems or technical support issues, open a support case using the Case Manager link at <https://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

Locating the SRX110 Services Gateway Component Serial Number and Agency Labels | 127

Information You Might Need to Supply to Juniper Networks Technical Assistance Center | 129

Contacting Customer Support | 125

Packing the SRX110 Services Gateway and Components for Shipment | 129

Locating the SRX110 Services Gateway Component Serial Number and Agency Labels

IN THIS SECTION

- Listing the SRX110 Services Gateway and Component Details with the CLI | 127
- SRX110 Services Gateway Chassis Serial Number and Agency Labels | 128

This topic includes the following sections:

Listing the SRX110 Services Gateway and Component Details with the CLI

Before contacting Juniper Networks to request an RMA, you must find the serial number on the SRX110 Services Gateway or component.

To list all of the SRX110 Services Gateway components and their serial numbers, enter the following command-line interface (CLI) command:

For SRX110 Services Gateway (SRX110H-VA)

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

Hardware inventory:				
Item	Version	Part number	Serial number	Description
Chassis			AX0021AF0037	SRX110h-va
Routing Engine	REV 01	650-035910	AX0021AF0037	RE-SRX110H-VA
FPC 0				FPC
PIC 0				8x FE Base PIC
FPC 1				FPC
PIC 0				Internal VDSL2/ADSL-POTS

Power Supply 0

For SRX110 Services Gateway (SRX110H-VB)

user@host> show chassis hardware

```
Hardware inventory:
Item            Version  Part number  Serial number  Description
Chassis                               AY1111AF0004  SRX110h-vb
Routing Engine  REV 01   650-038184  AY1111AF0004  RE-SRX110H-VB
FPC 0                                                  FPC
  PIC 0                                              8x FE Base PIC
FPC 1                                                  FPC
  PIC 0                                              Internal VDSL2/ADSL-ISDN

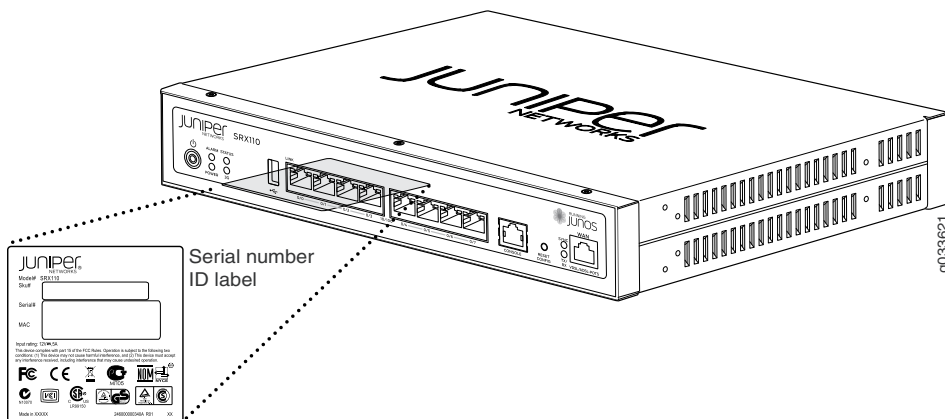
Power Supply 0
```

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

SRX110 Services Gateway Chassis Serial Number and Agency Labels

The SRX110 Services Gateway has a serial number ID label and an agency label located on the bottom of the chassis as shown in [Figure 29 on page 128](#).

Figure 29: Location of SRX110 Serial Number and Agency Labels



RELATED DOCUMENTATION

[Packing the SRX110 Services Gateway and Components for Shipment | 129](#)

[Contacting Customer Support | 125](#)

[Return Procedure for the SRX110 Services Gateway | 126](#)

Information You Might Need to Supply to Juniper Networks Technical Assistance Center

If you are returning a services gateway or hardware component to Juniper Networks for repair or replacement, obtain a Return Materials Authorization (RMA) number from Juniper Networks Technical Assistance Center (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 SRX110 Services Gateway | 126](#)

[Locating the SRX110 Services Gateway Component Serial Number and Agency Labels | 127](#)

[Contacting Customer Support | 125](#)

Packing the SRX110 Services Gateway and Components for Shipment

IN THIS SECTION

- [Packing the Services Gateway | 130](#)
- [Packing the Components for Shipment | 131](#)

This topic includes the following sections:

Packing the Services Gateway

To pack the services gateway for shipment:

1. Retrieve the shipping carton and packing materials in which the device 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.
3. On the console or other management device connected to the services gateway, enter CLI operational mode and issue the following command to shut down the services gateway software:

```
user@host> request system power-off
```

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

4. Shut down power to the device by pressing the Power button on the front panel of the device.
5. Disconnect power from the device.
6. Remove the cables that connect to all external devices.
7. If the device is installed on a wall or rack, have one person support the weight of the device while another person unscrews and removes the mounting screws.
8. Place the device in the shipping carton.
9. Cover the device with an ESD bag, and place the packing foam on top of and around the device.
10. Replace the accessory box on top of the packing foam.
11. Securely tape the box closed.
12. Write the Return Materials Authorization (RMA) number on the exterior of the box to ensure proper tracking.

Packing the 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.
- 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

[Contacting Customer Support | 125](#)

[Locating the SRX110 Services Gateway Component Serial Number and Agency Labels | 127](#)

[Return Procedure for the SRX110 Services Gateway | 126](#)

[Information You Might Need to Supply to Juniper Networks Technical Assistance Center | 129](#)



Safety and Regulatory Compliance Information

General Safety Guidelines and Warnings | **133**

Fire Safety Requirements | **143**

Installation Safety Guidelines and Warnings | **145**

Laser and LED Safety Guidelines and Warnings | **152**

Maintenance and Operational Safety Guidelines and Warnings | **157**

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General Safety Guidelines and Warnings

IN THIS CHAPTER

- [SRX110 Services Gateway Definition of Safety Warning Levels | 133](#)
- [SRX110 Services Gateway General Safety Guidelines and Warnings | 136](#)
- [SRX110 Services Gateway Safety Requirements, Warnings, and Guidelines | 141](#)

SRX110 Services Gateway Definition of Safety Warning Levels

This topic defines the following four levels of safety warnings used in Juniper Networks technical publications:

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 services gateway.



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 Körpervletzung 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

[SRX110 Services Gateway General Safety Guidelines and Warnings | 136](#)

[SRX110 Services Gateway Fire Safety Requirements | 143](#)

[SRX110 Services Gateway Installation Safety Guidelines and Warnings | 145](#)

[SRX110 Services Gateway Laser and LED Safety Guidelines and Warnings | 152](#)

[SRX110 Services Gateway Electrical Safety Guidelines and Warnings | 166](#)

[SRX110 Services Gateway Maintenance and Operational Safety Guidelines and Warnings | 157](#)

SRX110 Services Gateway General Safety Guidelines and Warnings

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 these topics. Ensure 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.

Qualified Personnel Warning



WARNING: Only trained and qualified personnel should install or replace the services gateway.

Waarschuwing Installatie en reparaties mogen uitsluitend door getraind en bevoegd personeel uitgevoerd worden.

Varoitus Ainoastaan koulutettu ja pätevä henkilökunta saa asentaa tai vaihtaa tämän laitteen.

Attention Tout installation ou remplacement de l'appareil doit être réalisé par du personnel qualifié et compétent.

Warnung Gerät nur von geschultem, qualifiziertem Personal installieren oder auswechseln lassen.

Avvertenza Solo personale addestrato e qualificato deve essere autorizzato ad installare o sostituire questo apparecchio.

Advarsel Kun kvalifisert personell med riktig opplæring bør montere eller bytte ut dette utstyret.

Aviso Este equipamento deverá ser instalado ou substituído apenas por pessoal devidamente treinado e qualificado.

¡Atención! Estos equipos deben ser instalados y reemplazados exclusivamente por personal técnico adecuadamente preparado y capacitado.

Varning! Denna utrustning ska endast installeras och bytas ut av utbildad och kvalificerad personal.

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.

Preventing Electrostatic Discharge Damage to the 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:

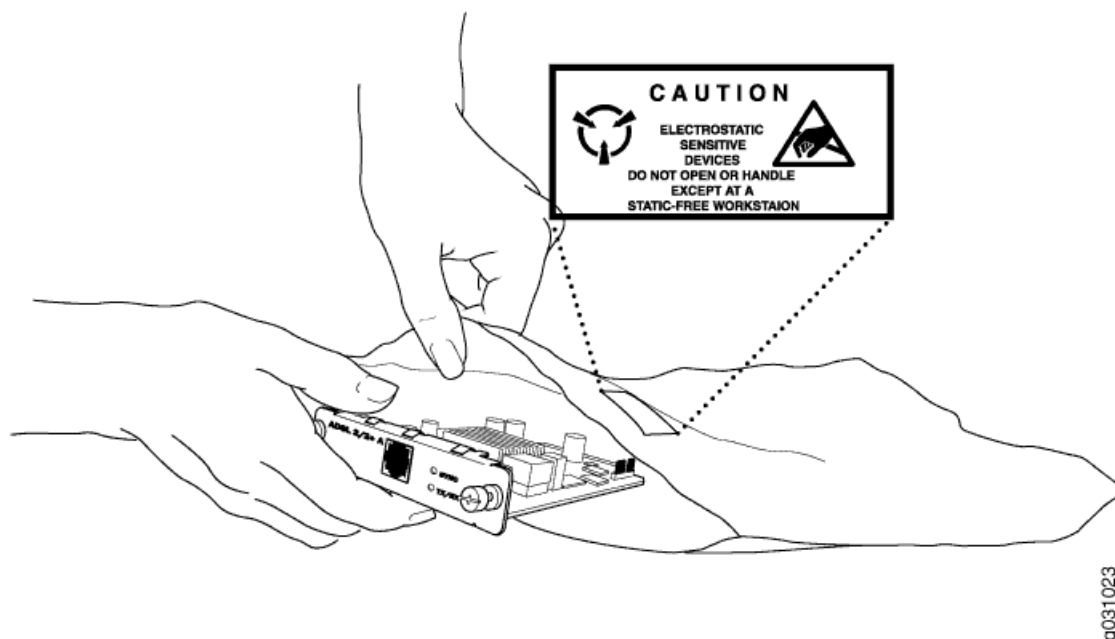
- Always use an ESD wrist strap or ankle strap, and verify that it is in direct contact with your skin.



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

- 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. If you are returning a component, place it into an electrostatic bag before packing it. See [Figure 30 on page 141](#).

Figure 30: Placing a Component into an Electrostatic Bag



RELATED DOCUMENTATION

[SRX110 Services Gateway Definition of Safety Warning Levels](#) | 133

[SRX110 Services Gateway Fire Safety Requirements](#) | 143

SRX110 Services Gateway Safety Requirements, Warnings, and Guidelines

To avoid harm to yourself or the device as you install and maintain it, follow the guidelines for working with and near electrical equipment, as well as the safety procedures for working with devices. For a discussion of how to make the installation site a safe environment and a list of safety warnings, see [“SRX110 Services Gateway Definition of Safety Warning Levels”](#) on page 133.

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

RELATED DOCUMENTATION

[General Site Guidelines for Installing the SRX110 Services Gateway | 28](#)

[Required Tools and Parts for Installing and Maintaining the SRX110 Services Gateway | 46](#)

Preparing the SRX110 Services Gateway for Rack-Mount, Desk-Mount, and Wall-Mount Installation

Fire Safety Requirements

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SRX110 Services Gateway Fire Safety Requirements

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 leaves residue 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

[SRX110 Services Gateway General Safety Guidelines and Warnings | 136](#)

[SRX110 Services Gateway Installation Safety Guidelines and Warnings | 145](#)

Installation Safety Guidelines and Warnings

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- [SRX110 Services Gateway Installation Safety Guidelines and Warnings](#) | 145

SRX110 Services Gateway Installation Safety Guidelines and Warnings

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 virtälähteeseen.

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.

Rack-Mounting Requirements and Warnings

Ensure that the equipment rack into which the services gateway is installed is evenly and securely supported to avoid the hazardous condition 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 into 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 stellage 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.

Warning! 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

[SRX110 Services Gateway Fire Safety Requirements | 143](#)

[SRX110 Services Gateway Laser and LED Safety Guidelines and Warnings | 152](#)

Laser and LED Safety Guidelines and Warnings

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SRX110 Services Gateway Laser and LED Safety Guidelines and Warnings

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- [Class 1 Laser Product Warning | 153](#)
- [Class 1 LED Product Warning | 153](#)
- [Laser Beam Warning | 154](#)
- [Radiation from Open Port Apertures Warning | 155](#)

General Laser Safety Guidelines

When working around devices, 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.

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.

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.

Varning! Lysdiodprodukt av klass 1.

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.

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

Radiation from Open Port Apertures Warning



WARNING: Because invisible radiation may 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 altistumista 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.

Warning! 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.

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SRX110 Services Gateway Maintenance and Operational Safety Guidelines and Warnings | 157

Maintenance and Operational Safety Guidelines and Warnings

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SRX110 Services Gateway Maintenance and Operational Safety Guidelines and Warnings

IN THIS SECTION

- [Safety Guidelines and Warnings | 158](#)

This topic includes the following section:

Safety Guidelines and Warnings

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 ontplofingsgevaar 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 vastaavantyyppistä 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.

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 liitännänapoihin.

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 kraftledning. Metallobjekt hettas upp när de kopplas ihop med ström och jord och kan förorsaka allvarliga brännskador; metallobjekt kan också sammansvetsas med kontakterna.

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 lynr.

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.

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.

Varoituis 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 (104°F). Sørg for at klaringen rundt lufteåpningene er minst 15,2 cm (6 tommer) for å forhindre nedsatt luft sirkulasjon.

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 encaminador 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.

Warning! 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.

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

Warning! Slutlig kassering av denna produkt bör skötas i enlighet med landets alla lagar och föreskrifter.

RELATED DOCUMENTATION

[SRX110 Services Gateway Electrical Safety Guidelines and Warnings | 166](#)

[SRX110 Services Gateway Laser and LED Safety Guidelines and Warnings | 152](#)

Electrical Safety Guidelines and Warnings

IN THIS CHAPTER

- [SRX110 Services Gateway Electrical Safety Guidelines and Warnings | 166](#)

SRX110 Services Gateway Electrical Safety Guidelines and Warnings

IN THIS SECTION

- [Electrical Safety Guidelines and Warnings In Case of Electrical Accident | 166](#)
- [General Electrical Safety Guidelines and Warnings | 167](#)

This topic includes the following sections:

Electrical Safety Guidelines and Warnings In Case of Electrical Accident

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.

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

[SRX110 Services Gateway Power Specifications and Requirements | 37](#)

[SRX110 Services Gateway Maintenance and Operational Safety Guidelines and Warnings | 157](#)

[Grounding the SRX110 Services Gateway | 70](#)

[SRX110 Services Gateway Agency Approvals | 168](#)

Agency Approvals and Regulatory Compliance Information

IN THIS CHAPTER

- [SRX110 Services Gateway Agency Approvals | 168](#)
- [SRX110 Services Gateway Compliance Statements for EMC Requirements | 169](#)
- [SRX110 Services Gateway Compliance Statements for Environmental Requirements | 171](#)
- [SRX110 Services Gateway Compliance Statements for Acoustic Noise | 171](#)

SRX110 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
 - EN 60825-2 (2000) Safety of Laser Products - Part 2: Safety of Optical Fiber Comm. Systems
- EMC
 - EN 300 386 V1.4.1 (2008) Telecom Network Equipment - EMC requirements
- EMI
 - EN 55022 (CISPR 22) (2006)+A1 (2007) Class B European Radiated Emissions
 - AS/NZS CISPR 22 (2006) Class B
 - FCC Part 15 Subpart B Class B (2009) USA Radiated Emissions
 - Industry Canada ICES-003 Issue 4, February 7, 2004 Class B

- VCCI V-3 (2009.04) and V-4 (2009.04) Class B Japanese Radiated Emissions
- SMI CNS 13438 and NCC C6357 Taiwan Radiated Emissions
- TEC/EMI/TEL-001/01/FEB-09 Clause 9.2, Radiated Radio Frequency, Electromagnetic Field
- ETSI EN 300 386 V1.4.1 (2008-04)
- Immunity
 - EN 55024 (2001) +A2 (2003) +EN 55024 (2010) Information Technology Equipment Immunity Characteristics
 - EN-61000-3-2 (2006) +A2 (2009) Power Line Harmonics
 - EN-61000-3-3 (2008) Power Line Voltage Fluctuations

RELATED DOCUMENTATION

[SRX110 Services Gateway Electrical Safety Guidelines and Warnings | 166](#)

[SRX110 Services Gateway Compliance Statements for EMC Requirements | 169](#)

[SRX110 Services Gateway Compliance Statements for Environmental Requirements | 171](#)

SRX110 Services Gateway Compliance Statements for EMC Requirements

IN THIS SECTION

- [Canada | 169](#)
- [European Community | 170](#)
- [Japan | 170](#)
- [Korean | 170](#)
- [United States | 170](#)

This topic includes the following sections:

Canada

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

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

European Community

This is a Class B product.

Japan

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

The preceding translates as follows:

This is a Class B product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this product is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Korean

This is a Class B product.

이 기기는 가정용(B급) 전자파적합기기로서 주로 가정에서 사용하는 것을 목적으로 하며, 모든 지역에서 사용할 수 있습니다.

Korean Class B Warning

g040914

United States

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can

be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

SRX110 Services Gateway Compliance Statements for Environmental Requirements

This topic includes the compliance statement for the following environmental requirement:

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.

SRX110 Services Gateway Compliance Statements for Acoustic Noise

Maschinenlärminformations-Verordnung - 3. GPSGV, der höchste Schalldruckpegel beträgt 70 dB(A) oder weniger gemäss EN ISO 7779

Translation:

The maximum emitted sound pressure level is 70 dB(A) or less per EN ISO 7779.

RELATED DOCUMENTATION

[SRX110 Services Gateway Compliance Statements for Environmental Requirements | 171](#)

[SRX110 Services Gateway Compliance Statements for EMC Requirements | 169](#)

[SRX110 Services Gateway Agency Approvals | 168](#)