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Documentation and Release Notes

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

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

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 http://www.juniper.net/books.

Documentation Conventions

Table 1 on page vi defines notice icons used in this guide.
Table 1: Notice Icons

<table>
<thead>
<tr>
<th>Icon</th>
<th>Meaning</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="i" /></td>
<td>Informational note</td>
<td>Indicates important features or instructions.</td>
</tr>
<tr>
<td>![!]</td>
<td>Caution</td>
<td>Indicates a situation that might result in loss of data or hardware damage.</td>
</tr>
<tr>
<td>![!]</td>
<td>Warning</td>
<td>Alerts you to the risk of personal injury or death.</td>
</tr>
<tr>
<td>![Laser]</td>
<td>Laser warning</td>
<td>Alerts you to the risk of personal injury from a laser.</td>
</tr>
<tr>
<td>![Tip]</td>
<td>Tip</td>
<td>Indicates helpful information.</td>
</tr>
<tr>
<td>![Best practice]</td>
<td>Best practice</td>
<td>Alerts you to a recommended use or implementation.</td>
</tr>
</tbody>
</table>

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

Table 2: Text and Syntax Conventions

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bold text like this</strong></td>
<td>Represents text that you type.</td>
<td>To enter configuration mode, type the <code>configure</code> command:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>user@host&gt; configure</code></td>
</tr>
<tr>
<td><strong>Fixed-width text like this</strong></td>
<td>Represents output that appears on the terminal screen.</td>
<td><code>user@host&gt; show chassis alarms</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>No alarms currently active</code></td>
</tr>
<tr>
<td><strong>Italic text like this</strong></td>
<td>• Introduces or emphasizes important new terms.</td>
<td>• A policy term is a named structure that defines match conditions and actions.</td>
</tr>
<tr>
<td></td>
<td>• Identifies guide names.</td>
<td>• Junos OS CLI User Guide</td>
</tr>
<tr>
<td></td>
<td>• Identifies RFC and Internet draft titles.</td>
<td>• RFC 1997, BGP Communities Attribute</td>
</tr>
<tr>
<td><strong>Italic text like this</strong></td>
<td>Represents variables (options for which you substitute a value) in commands or configuration statements.</td>
<td>Configure the machine’s domain name:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>[edit]</code></td>
</tr>
<tr>
<td></td>
<td></td>
<td><code>root@# set system domain-name domain-name</code></td>
</tr>
</tbody>
</table>
Table 2: Text and Syntax Conventions (continued)

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
<th>Examples</th>
</tr>
</thead>
</table>
| **Text like this** | Represents names of configuration statements, commands, files, and directories; configuration hierarchy levels; or labels on routing platform components. | • To configure a stub area, include the `stub` statement at the `[edit protocols ospf area area-id]` hierarchy level.  
• The console port is labeled `CONSOLE`. |
| `< >` (angle brackets) | Encloses optional keywords or variables. | `stub <default-metric metric>;` |
| `|` (pipe symbol) | Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity. | `broadcast | multicast (string1 | string2 | string3)` |
| `#` (pound sign) | Indicates a comment specified on the same line as the configuration statement to which it applies. | `rsvp [# Required for dynamic MPLS only` |
| `[ ]` (square brackets) | Encloses a variable for which you can substitute one or more values. | `community name members [community-ids]` |
| Indention and braces `{ }` | Identifies a level in the configuration hierarchy. | `[edit] routing-options {static {next-hop address; retain;}} ]` |
| `:` (semicolon) | Identifies a leaf statement at a configuration hierarchy level. |  |

**GUI Conventions**

| **Bold text like this** | Represents graphical user interface (GUI) items you click or select. | • 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>Osfp. |

**Documentation Feedback**

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

• Online feedback rating system—On any page at the Juniper Networks Technical Documentation site at [http://www.juniper.net/techpubs/index.html](http://www.juniper.net/techpubs/index.html), simply click the stars to rate the content, and use the pop-up form to provide us with information about your experience. Alternately, you can use the online feedback form at [https://www.juniper.net/cgi-bin/docbugreport/](https://www.juniper.net/cgi-bin/docbugreport/).
• E-mail—Send your comments to techpubs-comments@juniper.net. Include the document or topic name, URL or page number, and software version (if applicable).

Requesting Technical Support

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

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

Self-Help Online Tools and Resources

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

• Find CSC offerings: http://www.juniper.net/customers/support/
• Search for known bugs: http://www2.juniper.net/kb/
• Find product documentation: http://www.juniper.net/techpubs/
• Find solutions and answer questions using our Knowledge Base: http://kb.juniper.net/
• Download the latest versions of software and review release notes: http://www.juniper.net/customers/csc/software/
• Search technical bulletins for relevant hardware and software notifications: http://kb.juniper.net/InfoCenter/
• Join and participate in the Juniper Networks Community Forum: http://www.juniper.net/company/communities/
• Open a case online in the CSC Case Management tool: http://www.juniper.net/cm/

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

Opening a Case with JTAC

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

• Use the Case Management tool in the CSC at http://www.juniper.net/cm/.
• Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).
For international or direct-dial options in countries without toll-free numbers, see http://www.juniper.net/support/requesting-support.html.
PART 1

Air Deflector Kit Overview

• Introduction to the SRX3600 and SRX5400 Services Gateways Air Deflector Kit on page 3
CHAPTER 1

Introduction to the SRX3600 and SRX5400 Services Gateways Air Deflector Kit

- SRX3600 and SRX5400 Services Gateways Air Deflector Kit Description on page 3
- Air Deflector Kit Physical Specifications on page 5

**SRX3600 and SRX5400 Services Gateways Air Deflector Kit Description**

Optional air deflector kits are available that let you install the SRX3600 and SRX5400 Services Gateways in a ventilation environment with designated hot and cold aisles. These kits convert the services gateway from side-to-side ventilation to front-to-back ventilation, by directing ventilation with cold air to enter from the front and warm exhaust to exit from the back. The air deflector kits contain no fans, so they require no additional electrical power.

**NOTE:** The air deflector kit must be installed along with the services gateways. It cannot be installed if the services gateway is already installed on the rack.

The air deflector kit consists of four main components:

- Top plenum
- Bottom plenum
- Right plenum
- Left plenum

The top and bottom plenums are identical to each other, as are the right and left plenums or side plenums. See Figure 1 on page 4 and Table 3 on page 4 for the list of components that comprise the air deflector kit.
Figure 1: Components of the Air Deflector Kit

Table 3: Air Deflector Kit Components

<table>
<thead>
<tr>
<th>Number</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Two side plenums (one for right and one for left)</td>
</tr>
<tr>
<td>2 and 4</td>
<td>Top plenum and bottom plenum</td>
</tr>
<tr>
<td>3</td>
<td>Rear mounting brackets</td>
</tr>
<tr>
<td>5</td>
<td>Perforated screens</td>
</tr>
<tr>
<td>6 (for SRX3600 Services Gateway), and 7 (for SRX5400 Services Gateway)</td>
<td>Mounting brackets (deeper) supplied with the air deflector kit for the services gateways</td>
</tr>
</tbody>
</table>

Air flow in the air deflector kit is from front to rear, and the orientation of the top and bottom plenums is critical to ensure air intake happens from the front and exhausts through the rear.

The plenums are installed above and below the services gateway to direct intake air from the air space in front of the services gateway into the side plenum mounted on the intake side of the device. The intake air plenum directs air into the services gateway, and the exhaust air plenum directs the exhaust air to the opposite side of the device. The exhaust plenum directs the exhausted air into the exhaust plenum above the unit, where it is expelled into the air space behind the services gateway.
Air Deflector Kit Physical Specifications

The air deflector kit requires additional space around the services gateway. Table 4 on page 5 and Table 5 on page 6 summarize the physical specifications and rack space requirements for the air deflector kit. See Figure 2 on page 5 for more information.

Table 4: Air Deflector Kit Physical Specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions and Weights</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Top and Bottom Plenums</td>
<td>Side Plenums</td>
</tr>
<tr>
<td>Width</td>
<td>26.16 in. (66.44 cm)</td>
<td>15.64 in. (39.72 cm)</td>
</tr>
<tr>
<td>Length</td>
<td>17.62 in. (44.75 cm)</td>
<td>19.9 in. (50.54 cm)</td>
</tr>
<tr>
<td>Height</td>
<td>3.5 in. (8.89 cm)</td>
<td>5.55 in. (14.09 cm)</td>
</tr>
<tr>
<td>Weight</td>
<td>16.5 lb (7.45 kg)</td>
<td>10.6 lb (4.8 kg)</td>
</tr>
</tbody>
</table>

Figure 2: Rack Space Requirements
### Table 5: Rack Space Requirements

<table>
<thead>
<tr>
<th>Description</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rack height</td>
<td>9 RU (40 cm)</td>
</tr>
<tr>
<td></td>
<td>This includes 2 RU (8.89 cm) of the top plenum, 5 RU (22.22 cm) of the services gateway, and 2 RU (8.89 cm) of the bottom plenum.</td>
</tr>
<tr>
<td></td>
<td>During this installation, we recommend that you allocate an optimum rack height of 18.15 RU (80.68 cm) for ease of installation.</td>
</tr>
<tr>
<td>Distance between the rear rack mounting surface and front rack mounting surface</td>
<td>27.5 in. (69.85 cm) to 29.5 in. (75.43 cm)</td>
</tr>
<tr>
<td>Minimum internal space required to install the side plenums (centered horizontally within the rack)</td>
<td>29 in. (73.66 cm)</td>
</tr>
<tr>
<td>Maximum depth of space behind the front and rear rack mounting surfaces</td>
<td>3 in. (7.62 cm)</td>
</tr>
</tbody>
</table>

**NOTE:** As per EIA Standards, the rack mounting surfaces must conform to 19 in. or 48.26 cm.

**Related Documentation**
- *SRX3600 Services Gateway Chassis*
- *SRX5400 Services Gateway Chassis*
- *SRX3600 and SRX5400 Services Gateways Air Deflector Kit Description on page 3*
PART 2

Setting Up the Air Deflector Kit

- Unpacking the Air Deflector Kit on page 9
- Installing the Air Deflector Kit on page 11
CHAPTER 2

Unpacking the Air Deflector Kit

- Tools and Parts Required to Unpack the Air Deflector Kits on page 9
- Verifying Parts Received for the Air Deflector Kit on page 9

Tools and Parts Required to Unpack the Air Deflector Kits

To unpack the air deflector kit and prepare for installation, you need the following tools and parts:

- Phillips (+) screwdriver, number 1 and 2
- Socket wrench to remove bracket bolts from the shipping pallet

Verifying Parts Received for the Air Deflector Kit

A packing list is included in each shipment. 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 a customer service representative.

Table 6 on page 9 lists the parts shipped along with the air deflector.

Table 6: List of Parts

<table>
<thead>
<tr>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top and bottom plenum</td>
<td>2</td>
</tr>
<tr>
<td>Side plenums</td>
<td>2</td>
</tr>
<tr>
<td>Mounting brackets (deeper)</td>
<td>4</td>
</tr>
</tbody>
</table>

With part number 540–059543 for SRX3600 Services Gateway

With part number 540–059544 or 540–059545 for SRX5400 Services Gateway

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Table 6: List of Parts (continued)

<table>
<thead>
<tr>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rear mounting brackets</td>
<td>4</td>
</tr>
<tr>
<td>Perforated screens</td>
<td>2</td>
</tr>
</tbody>
</table>

Related Documentation

- Tools and Parts Required to Unpack the Air Deflector Kits on page 9
Installing the Air Deflector Kit

- Tools and Parts Required to Install the Air Deflector Kit on page 11
- Installing the Top and Bottom Plenums on page 11
- Installing the Side Plenums on page 16

Tools and Parts Required to Install the Air Deflector Kit

To install the air deflector kit, you need the following tools and parts:

- Rear mounting brackets
- Phillips (+) screwdriver, number 2
- Flat-head screws
- Pan-head screws

Related Documentation

- Installing the Top and Bottom Plenums on page 11
- Installing the Side Plenums on page 16

Installing the Top and Bottom Plenums

CAUTION: At least two people are needed to safely install the air deflector kit into the rack. One must hold the front and the other the rear.

NOTE: Ensure that the top and bottom plenums are placed such that the side facing up shows the model number of the services gateway. For example, if you are using the SRX5400 Services Gateway, ensure that the plenums are placed such that the side facing up shows the model number *(THIS SIDE UP: SRX5400)*.
CAUTION: Do not change the orientation of the top and bottom plenums as it will result in reversal of air flow, misdirecting air intake from the rear and exhaust from the front.

You can install the top and bottom plenums of the air deflector kit by following this procedure.

1. Replace the front mounting brackets of the services gateway with the deeper front mounting brackets supplied with the Air Deflector Kit for NEBS compliance, and to ensure all the vents on the sides of the services gateway are closed. See Figure 3 on page 12.

   **NOTE:** If you do not use the deeper front mounting brackets, then air flow performance of the Air Deflector Kit will be adversely affected.

   If you are using an SRX3600 Services Gateway, use the deeper front mounting brackets with part number 540–059543. If you are using an SRX5400 Services Gateway, use the deeper front mounting brackets with part number 540–059544 and 540–059545.

   **Figure 3: Attaching the Front Mounting Brackets**

2. Install the rear mounting brackets for the bottom plenum on the rear rack mounting post as shown in Figure 4 on page 13.
3. Install the bottom plenum into the rack such that the side facing up shows the model number as shown in Figure 4 on page 13.

4. Mount the rear of the bottom plenum to the rear mounting brackets already installed, and secure them with the pan-head screws provided.

5. Mount the front of the bottom plenum to the front rack post, and secure them with the pan-head screws provided.

6. Using a mechanical lift, position the services gateway in front of the rack, as close as possible to the bottom plenum.

7. Carefully slide the services gateway into the rack, using the bottom plenum as the mounting shelf as shown in Figure 5 on page 14.
8. Move the lift away from the rack.

9. Secure the services gateway to the mounting holes in the rack with screws.

10. Install the rear mounting brackets for the top plenum on the rear rack mounting post as shown in Figure 6 on page 15.

   NOTE: Use Figure 6 on page 15 to guide you through Steps 10, 11, and 12.

11. Install the top plenum into the rack such that the side facing up shows the model number as shown in Figure 6 on page 15.
12. Mount the rear of the top plenum to the rear mounting brackets previously installed, and secure them with the pan-head screws provided.

13. Mount the front of the top plenum to the front rack post, and secure them with the pan-head screws provided.

You have successfully installed the bottom and top plenums of the air deflector kit.

Related Documentation
- Tools and Parts Required to Install the Air Deflector Kit on page 11
- Installing the Side Plenums on page 16
Installing the Side Plenums

You can install the right and left plenums of the air deflector kit by following this procedure.

1. Slide the right plenum from the top such that it fits into the void along the side of the services gateway, resting on the top plenum as shown in Figure 7 on page 17.

   NOTE: If there are no obstructions surrounding the services gateway mounted on the rack, then the side plenums are mounted horizontally from the sides (without having to install them from top), implying, that you do not require 18.15 RU of rack space as mentioned in Table 5 on page 6.

   Position the top plenum over the services gateway such that the model number displayed on it matches the services gateway installed.

2. Secure the right plenum to the bottom plenum (at the front and rear), with captive screws provided.

   NOTE: The two captive screws on top (to the right and left) of the side plenums are not used.

3. Slide the left plenum from the top such that it fits into the void along the side of the services gateway, resting on the top plenum as shown in Figure 7 on page 17.

4. Secure the left plenum to the bottom plenum (at the front and rear), with captive screws provided.

   NOTE: The two captive screws on top (to the right and left) of the side plenums are not used.
5. Secure the right and left plenums to the top plenum with flat-head screws provided as shown in the Figure 8 on page 18.
6. Install the perforated screens in front of the bottom and top plenums as shown in Figure 9 on page 19.
7. Secure the perforated screens to the plenums with screws as shown in Figure 9 on page 19.

You have successfully installed the right and left plenums, and the perforated screens of the air deflector kit. Figure 10 on page 20 shows the completed installation of the air deflector kit with the services gateway.
Figure 10: Completed Air Deflector Kit Installation

Related Documentation
- Tools and Parts Required to Install the Air Deflector Kit on page 11
- Installing the Top and Bottom Plenums on page 11
PART 3

Troubleshooting and Compliance

- Troubleshooting Information on page 23
- Compliance Information on page 25
Troubleshooting Air Flow in Air Deflector Kits

<table>
<thead>
<tr>
<th>Problem</th>
<th>Description: Air flow through the service gateway is not from front to rear.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solution</td>
<td>Verify the orientation of the top and bottom plenums.</td>
</tr>
</tbody>
</table>

The top and bottom plenums must be installed such that the side facing up shows the model number of the services gateway. For example, if you are using the SRX3600 Services Gateway, ensure that the plenums are placed such that side facing up shows the model number **THIS SIDE UP: SRX3600**.

<table>
<thead>
<tr>
<th>Related Documentation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Installing the Top and Bottom Plenums on page 11</td>
<td></td>
</tr>
<tr>
<td>• Installing the Side Plenums on page 16</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 5

Compliance Information

- Air Deflector Kit Agency Approvals on page 25

Air Deflector Kit Agency Approvals

The air deflector kit is designed to comply with the following standards:

- NEBS
  - GR-63-CORE
  - GR-1089-CORE
- Seismic
  - Telcordia Technologies Zone 4 earthquake certified

Related Documentation

- SRX3600 Services Gateway Chassis
- SRX5400 Services Gateway Chassis
PART 4

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- Index on page 29
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