

SRC PE Software Release Notes

Release 4.8.0
January 2015
Revision 1

These release notes cover Release 4.8.0 of the Juniper Networks Session and Resource Control (SRC) portfolio. The SRC software runs on C Series Controllers. If the information in these release notes differs from the information found in the published documentation set, follow these release notes.

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Release Overview

If the information in your current release notes differs from the information found in the other documentation sources, follow the *SRC PE Release Notes*.

Before You Start

Before you use your new software, read these *Release Notes* in their entirety, especially the section *Known Problems and Limitations*. You need the following documentation to fully understand all the features available in Release 4.8.0:

- These *SRC 4.8.0 Release Notes*, which describe the changes between Releases 4.7.0 and 4.8.0.
- The 4.8.0 SRC Policy Engine (SRC PE) software documentation set, which provides detailed information about features available in Release 4.8.x.

If the information in your current release notes differs from the information found in the other documentation sources, follow the *Release Notes*.

Documentation

The SRC 4.8.x SRC PE core documentation set consists of several manuals and is available only in electronic format. Refer to the following table to help you decide which document to use.

Task	Related Documentation
Install the C Series Controller.	<i>C Series Controllers C3000 and C5000 Hardware Guide</i> <i>C Series Controllers C2000 and C4000 Hardware Guide</i>
Get up and running quickly.	<i>C3000 and C5000 Quick Start Guide</i> <i>C2000 and C4000 Quick Start Guide</i>
Learn about the general operation of the SRC software.	<i>SRC PE Getting Started Guide</i>
Perform basic configuration of a C Series Controller.	<i>SRC PE Getting Started Guide</i>
Use the SRC CLI.	<i>SRC PE CLI User Guide</i>
Use the License Manager and directory events.	<i>SRC PE Getting Started Guide</i>
Use the SAE, Juniper Networks routers, NIC, ACP, SSR, and SIC.	<i>SRC PE Network Guide</i>
Use the SNMP agent and logging utilities.	<i>SRC PE Monitoring and Troubleshooting Guide</i>
Integrate external network devices into the SRC network.	<i>SRC PE Network Guide</i>

Task	Related Documentation
Work with SRC services and policies.	<i>SRC PE Services and Policies Guide</i>
Work with SRC subscribers and subscriptions.	<i>SRC PE Subscribers and Subscriptions Guide</i>
Use the enterprise portals.	<i>SRC Sample Applications Guide</i>
Use the residential portal.	<i>SRC Sample Applications Guide</i>
Use the C-Web interface to configure the SRC software.	<i>SRC PE C-Web Interface Configuration Guide</i>
Get specific information about commands and statements for: <ul style="list-style-type: none"> • CLI and system • Juniper Networks database • Service Activation Engine (SAE) • Network Information Collector (NIC) • Session State Registrar (SSR) • Subscriber Information Collector (SIC) • SNMP agent • SRC Admission Control Plug-In (SRC ACP) • Volume Tracking Application (VTA) • SRC License Management • Common Object Services (COS) Naming Service 	<i>SRC PE CLI Command Reference, Volume 1</i>
Get specific information about commands and statements for: <ul style="list-style-type: none"> • Services • Policies • Subscribers • Redirect server • External Subscriber Monitor • Application Server • Dynamic Service Activator • IP Multimedia Subsystem (IMS) • Diameter application • Juniper Policy Server (JPS) 	<i>SRC PE CLI Command Reference, Volume 2</i>

The entire documentation set, including the release notes, in PDF format is available on the Juniper Networks website:

<http://www.juniper.net/techpubs/software/management/src/>

SRC Software

The SRC software for C Series Controllers is preinstalled on the device and available on the USB storage device supplied with the platform.

You can also download the SRC software and the product release notes from the Juniper Networks website at:

<https://www.juniper.net/support/downloads/?p=src#sw>

Release Highlights

Highlights include the following product enhancements:



NOTE: The SRC software runs on C Series Controllers—a range of hardware platforms. The SRC 4.8.0 software contains the features found in the SRC 4.7.0 release plus the features listed in this section. The SRC 4.8.0 software may contain references to the service activation engine (SAE) Release version 7.14.0. The SRC 4.8.0 software does not run on discontinued C2000 and C4000 controllers because of hardware incompatibility.

Centos Upgrade

The base operating system of SRC software has now been upgraded from Centos 4.9 to Centos 6.5. To migrate to SRC Release 4.8.0, please see [Migrating the C Series Controller to Software Release 4.8.0 on page 12](#).

SAE Failover Traps Enhanced for Third-Party Device Drivers

The `routerConnUp` and `routerConnDown` traps are now enhanced to notify the SAE when the third-party device driver is appointed or dismissed as a master.

VTA Alarm Support for EJB Connection Status and SAE Fail Queue

Whenever the SAE fails to restore the connection to the SRC VTA, events are added to the SAE fail queue of the SRC VTA. The addition of events to the SAE fail queue increases the fail queue size and leads to the consumption of a substantial amount of disk space in the memory partition. The SAE polls the fail queue size at regular intervals (every 90 seconds) and checks the free space in the disk. If the free disk space is less than the configured minimum free disk space value, the SAE stops adding the events to the fail queue. You can use the `min-free-diskspace-percentage` option under the `[edit shared sae group group-name configuration plug-ins vta-failqueue-size-config]` hierarchy level to configure the minimum free disk space required to add the events in the fail queue.

The `juniSdxSaeVTAFailQueueSize` MIB entry is newly introduced to store the sum of all SAE VTA fail queue sizes. In addition to this, the `saeVtaFailQueueSize` performance trap is introduced to signal the increasing fail queue size of the SRC VTA. To enable the `saeVtaFailQueueSize` performance trap, configure the `saeVtaFailQueueSize` option under the `edit snmp notify alarm category sae alarm` hierarchy level.

The `vtaEjbConnectionStatus` event trap is newly introduced to signal the EJB connection state changes. You can enable the `vtaEjbConnectionStatus` event trap by configuring the `vtaEjbConnectionStatus` option under the `edit snmp notify event category sae-plugin` hierarchy level.

SRC VTA Performance Statistics Output Specific to an Event Queue, Event Handlers, or Actions

The **event-queue**, **event-handler *event-handler-name***, and **actions *action-name*** options are newly introduced in the **show vta statistics performance *group name*** command to view the performance statistics of an event queue, event handlers, or actions separately.

In-Memory Fail Queue Validation During Synchronization of the State Synchronization Plug-in

You can now configure a threshold for the in-memory fail queue size to raise an SNMP event trap by using the **fail-queue-size-during-sync *fail-queue-size-during-sync*** option that is newly introduced under the **edit shared sae configuration plug-ins state-synchronization** hierarchy level. The trap is used to notify about the constant increase in the heap usage due to events stored in the queue. The SRC software adds the events to the queue even after raising the trap.

The newly introduced **sspluginSyncFailQueueSize** event trap is raised if the plug-in events stored in the in-memory fail queue during synchronization exceeds the configured threshold. If the plug-in events stored in the in-memory fail queue decreases and falls below the configured threshold, the raised **sspluginSyncFailQueueSize** event trap is cleared.

Monitor Support for VTA Performance Statistics

The SRC software now enables you to monitor SRC VTA group-specific performance statistics of event queue, event handler, and action collectively or separately at an interval by using the newly introduced **monitor vta statistics *group*** command.

IPv6 Support for Redirect Server

You can now use the newly introduced **redirect-server ipv6-redirect** and **redirect-server ipv6-redirect https** configuration statements to configure the redirect server for handling IPv6 requests. The **redirect-server ipv6-redirect** statement enables you to define the TCP port on which the redirect server runs. The **redirect-server ipv6-redirect https** statement enables you to configure the certificate details for HTTPS IPv6 connection and the HTTPS port on which the redirect server runs.

The redirect server uses the other common configuration details (such as request rate, ports configured for IP traffic redirection, and so on) for handling both IPv4 and IPv6 requests.

Extensible Subscriber Services Manager Daemon Support with JSRC for Policy Provisioning

The SRC software includes support for Extensible Subscriber Services Manager Daemon (ESSMD). This feature enables you to provision JSRC policy rules through operation scripts.

Features Not Fully Qualified

The SRC Release 4.8.x documentation set describes some features that are present in the code, but that have not yet been fully qualified by Juniper Networks. These features will be fully tested and supported in a future release. We expect these features to operate

as documented; however, if you use any of these features before they have been fully qualified, it is your responsibility to ensure that the feature operates correctly in your targeted configuration.

The following features are available in the product, but they are not fully qualified in this release.

DMI

- Using the SRC Device Management Interface (DMI) driver and Junos Space, the SRC software can manage DMI devices connected to routers that run on Junos. This feature is supported only for demonstration purposes.

Upgrading the System Software

You cannot directly upgrade to SRC Release 4.8.0 from earlier releases, because the SRC Release 4.8.0 uses Centos 6.5. To migrate to SRC Release 4.8.0, please see [Migrating the C Series Controller to Software Release 4.8.0 on page 12](#).

Recovering Passwords for the Juniper Networks Database

The documentation does not disclose the default passwords that the Juniper Networks database uses. If you need access to these passwords or need to recover a password, contact Juniper Networks Technical Assistance Center (JTAC) for assistance.

Migrating SDX Data to a Juniper Networks Database

If you have an existing SDX installation and want to migrate your data from the directory storing the SDX data to the Juniper Networks database on an SRC platform, contact Juniper Networks Professional Services.

Migrating Solaris-Based VTAs to the SRC VTA Running on the C Series Controller

To run both Solaris-based VTAs and SRC VTAs (running SRC Release 4.2 and later) in the same SRC network, the Solaris-based VTAs must be running SRC Release 4.1 software.

If you have Solaris-based VTAs running and want to migrate to the SRC 4.8 VTA, contact Juniper Networks Professional Services for assistance in the migration.

Known Behavior

This section describes certain SRC software behaviors and related issues to clarify how the system works.

For the most complete and latest information about known defects, use the Juniper Networks online [Problem Report Search](#) application.

Aggregate Services

- NIC does not map primary username to managing SAE in aggregate services.

If you use aggregate services and specify a primary username for a subscriber reference expression, note that the configuration scenarios provided with the NIC do not provide a mapping from a primary username to the managing SAE. Consider using the login name instead. If you want to use the primary username as the subscriber reference expression for a fragment service, contact Juniper Networks Professional Services for assistance with setting up the NIC configuration to resolve the primary username to locate the managing SAE.

Configuration Updates

- When you use the **load merge**, **load override**, or **load replace** command at any hierarchy level, the command loads all the configuration in the specified file.

If you want to load the configuration for a specified hierarchy level:

- Ensure that the file contains the **sdx:current=true** text to identify the level at which the configuration is to be loaded.
- Run a **load** command with the **relative** option at the level at which you want to update the configuration.

If a file contains configuration statements other than those at and below the level identified by **sdx:current=true**, the command disregards the other statements.

If you enter a **load** command with the **relative** option and the file does not contain the text **sdx:current=true**, you receive a message indicating that the configuration cannot be loaded.

Juniper Networks Database

- Recommendations for use of multiple primary Juniper Networks databases.

We recommend that you configure two to four Juniper Networks databases as primary databases in a community. If you plan to use more than two Juniper Networks databases in a primary role and expect to have frequent updates to the Juniper Networks database, we recommend that you test your application scenario with a projected traffic load. For assistance testing your application scenario, contact Juniper Networks Professional Services or JTAC.

MIBs

- Recommendations for use of latest SNMP MIBs that the SRC software supports in this release.

We recommend that you download the latest MIBs from the Juniper Networks website at http://www.juniper.net/techpubs/en_US/src/information-products/pathway-pages/c-series/index.html while using the latest version of the SRC software.

Policy Management

- Use care when modifying configurations with other policy management tools for interfaces on JunosE routers that are managed by the SRC software.

When applying policies to interfaces on JunosE routers that are managed by the SRC software, carefully consider using other policy management tools, such as CLI, RADIUS, CoA, or Service Manager. Policies that are applied to the interface before SRC management begins, such as at access-accept time, are properly replaced. However, if other policy managers change existing policies while SRC management is active, problems can occur.

- If you have a preconfigured policy through CLI or RADIUS as part of subscriber PVC/VLAN provisioning, the existing policy becomes inactive and the SAE manages the subscriber interface. When the SAE stops managing the interface, the preconfigured policy becomes active. However, if you change the policy on the interface using CLI or CoA, problems can occur.

- If you have a policy in Access-Accept, the existing policy becomes inactive and the SAE manages the interface.

SAE

- When you configure an interface classifier rule under the [**edit shared classification-script interface classifier**] hierarchy level, the changes do not take effect immediately on the SRC software. For a workaround, see the PR record. [PR973224](#)

VTA

- In SRC 4.1 and earlier software releases, the SRC VTA provided a public Enterprise Java Bean (EJB)-based API. In the SRC 4.2.x software release, this API has been deprecated. It may be removed in a future release. In SRC 4.2.0 and later software releases, the EJB-based API has been replaced with a SOAP API that provides the same functionality.

Known Problems and Limitations

This section identifies known problems and limitations in this release.

For the most complete and latest information about known defects, use the Juniper Networks online [Problem Report Search](#) application.

CLI

- The SRC software supports VSA definitions only in the format **Vendor-Specific.4874.<vsa#>.<type>**, even though the SRC software accepts other formats too. [PR939170](#)
- When you load backup configuration from XML or text file by using the **load replace** command, the CLI displays a null pointer exception because of the new logrotate files added in the SRC Release 4.8.0. The **load merge** and **load override** commands load the backup configuration without any error. For a workaround, see the PR record. [PR1039688](#)
- Remote authentication (TACACS or RADIUS) is not working after migrating to the SRC Release 4.8.0, because the **remote** user is not getting mapped to the TACACS or RADIUS user. For a workaround, see the PR record. [PR1049786](#)
- File operational commands (for example, the **file list** command) are not working when used with `usb://` url. For a workaround, see the PR record. [PR1050706](#)

DSA

- When upgrading the DSA RPM, a ZIP warning message **Local Entry CRC does not match CD: WEB-INF/bootstrap.properties** is displayed but the RPM is installed successfully. The DSA functionalities are not impacted so you can ignore this warning message. [PR1048403](#)

Hardware

- SRC Release 4.8.0 has been updated to run on Centos 6.5. However, this operating system does not support older C series controllers (C2000 and C4000) because of hardware incompatibility. [PR1049794](#)

JDB

- When deleting the JDB community in secondary node, the SRC software sometimes displays a service unavailable exception but sets the mode to standalone and retains the replication agreement. If the community is configured again, the erroneous attributes in the agreement sometimes affect the replication feature. For a workaround, see the PR record. [PR1042609](#)

PTSP

- Subscribers get some services activated without subscription, if services refer to the same policy group. For example, if a subscriber is only subscribed to Internet-Bronze, Internet-Gold may get activated if both the services refer to the same policy group. [PR906540](#)

SAE

- The **show sae drivers device-name** command displays the number of junos-ise and junos-ptsp devices that are not currently connected. [PR904065](#)
- After you change IP address and then restart the components such as SAE and NIC, the newly changed addresses are not displayed in the *sminfo.log* file. [PR904184](#)
- The service associated with the incorrect ESSMD policy exists in SAE but not in the MX series router if the Diameter component in the SRC software or Diameter service in the router is restarted before the router sends a session-sync-AAR message with failed policy information to SAE. [PR1049102](#)
- SAE RADIUS local address and SAE real portal address are not getting updated properly after installing the SRC Release 4.8.0. As a workaround, you must manually configure these attributes. For more information on the workaround, see the PR record. [PR1039725](#)

Migration

This section provides information about migrating from earlier SRC software releases to SRC Release 4.8.0.

Policy Changes

Starting with SRC Release 4.2.0, an action configured for a policy rule no longer requires a name to identify the action. Old configurations with a name are accepted.



NOTE: You cannot have multiple instances of the same action configured for one rule.

Migrating VTAs Running on Solaris to SRC VTA Running on the C Series Controller

If you have Solaris-based VTAs running and want to migrate to the SRC 4.8 VTA, which runs on the C Series Controller, contact Juniper Networks Professional Services.

The basic procedure to migrate from Solaris-based VTAs to a VTA running on SRC 4.8 C Series Controllers is:

1. Copy your VTA configuration data into the Juniper Networks database (if necessary).
2. Execute a shell script to copy the VTA configuration to a new version compatible with the SRC VTA. This script is specific to your environment. Please contact Juniper Networks Professional Services for assistance.
3. Configure and start the SRC VTA.
4. Shut down the Solaris VTA.
5. Modify the SAE EJB plug-ins to send their events to the SRC VTA.

To run both Solaris-based VTAs and SRC-based VTAs, the Solaris-based VTAs must be running a minimum of SRC Release 4.1 software.



NOTE: With the inclusion of the VTA in the SRC software package that runs on the C-Series Controller, there is no longer a separate application library package. If you wish to continue running your VTA on a Solaris host, use the SRC 4.1 Application Library package. The SRC 4.1 VTA is compatible with SRC 4.8.

Migrating the C Series Controller to Software Release 4.8.0

You cannot upgrade the C Series Controller software to Release 4.8.0 from an earlier release by using the **request system upgrade url url** command, because SRC 4.8.0 uses a different operating system (Centos 6.5). You must reimage the controller by using the USB storage device. For more information about using the USB storage device to reimage the controller, see *Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks*.

The basic procedure to migrate the C Series Controller from earlier release to Release 4.8.0 is:

1. Back up the configuration to the USB storage device or to a remote server by using the **save** and **file copy** commands.



NOTE: We recommend that you back up the configuration to the remote server.

2. Create an installation medium by using the read/write USB storage device.
3. Boot the controller from the USB storage device and install the software.
4. Load the backup configuration by using the **load** command.

You can load backup configuration from the XML, text, or LDAP LDIF file. Before loading backup configuration from XML or text file, you must perform the following steps in the backup configuration to avoid errors:

- For all router drivers, set the minimum thread pool size to 100.
- For all SRC components, set the maximum file size to 2,000,000.
- Define network device type and SAE connection.
- Delete logrotate configurations.
- Delete the external interface configurations.

Restrictions and Recommendations

VTA

VTAs have been tested with the following databases:

- MySQL version 4.0.13 (<http://www.mysql.com>)
- Oracle Database version 9i (<http://www.oracle.com>)

RADIUS Server

Juniper Networks SRC Release 4.8.0 was tested with Juniper Networks Steel-Belted Radius Carrier server.

Any RADIUS product compliant with RFC 2865 and RFC 2866 should be suitable for use with SRC Release 4.8.0.

Web Browsers

The C-Web interface in SRC Release 4.8.0 was tested with and supports only with the following Web browsers:

- Firefox 10.0 or later

- Internet Explorer 8.0 or later
- Chrome 17.0 or later

Resolved Problems

This section lists known problems that have been resolved in the current release. For more information about resolved problems, contact JTAC.

For the most complete and latest information about resolved issues, use the Juniper Networks online [Problem Report Search](#) application.

SAE

The following problems are resolved:

- The JSRC router driver remains in **state-in-transition** state, when a current state changing event is interrupted by a second state changing event and the current state changing event on interruption triggers a new state changing event. [PR998494](#)
- The JSRC router driver remains in **state-in-transition** state when SRQ message is received and if the other messages such as AAR, STR, and ACR are received during the same time frame as SRQ. [PR998440](#)

SRC Software Compatibility Matrix

[Table 1 on page 14](#) shows which versions of the SRC software are compatible with specified versions of the Junos OS and JunosE OS.

For the most current information about supported software releases, contact JTAC.

Table 1: SRC Software Compatibility with JunosE OS and Junos OS

SRC Software Release	Tested with JunosE Release	Tested with Junos OS Release
4.2.0	12.2.1, 12.3.0, 13.0.0	11.1R5.4 - 11.2R2.4 - 11.4R1.9
4.3.0	13.0.0, 13.1.0, 13.2.0b1-7	11.4, 12.2, 12.3
4.4.0	13.2.0, 13.3.0, 14.1.0	11.4x27, 12.2x49, 12.3R3
4.5.0	14.2.0, 13.2.2, 14.3.0	12.3R3.1, 11.4X27.46, 13.3
4.6.0	14.3.0, 14.1.1, 13.2.3	11.4X27.55, 12.3R4.6, 13.3
4.7.0	14.3.0, 14.3.1, 15.1.0b1-7	12.3R6.6, 13.3R2.7, 14.1X50 - D40.1
4.8.0	14.3.2, 15.1.0	12.3R8.7, 13.3R5.4, 14.1.X50-D75

Third-Party Software

This section lists the third-party software that is included with SRC Release 4.8.0. The third-party software is required to work with certain SRC components, and Juniper Networks supports issues associated with this software.

- 389 Directory Server v1.2.11.32 (<http://directory.fedoraproject.org/>)
- 4Suite 1.0.2-0 (<http://sourceforge.net/projects/foursuite/>)
- aParse (<http://www.parse2.com/>)
- Apache-Axis 1.4 (<https://axis.apache.org/axis/>)
- Apache-Avalon 4.1.4 (<http://avalon.apache.org>)
- Apache-jakarta-ora 2.0.8 (<http://www.jakarta.org/oro/>)
- Beepcore-java 0.0.08 (<http://www.beepcore.org>)
- BouncyCastle CryptoAPI 1.33 (<http://bouncycastle.org/java.html>)
- Castor 0.9-AA (<http://castor.codehaus.org>)
- Centos 6.5 (<http://centos.org>)
- expect4j 1.0 (<https://github.com/cverges/expect4j>)
- GNUPROLOG for Java (<http://gnuprologjava.sourceforge.net>)
- ini4j 0.4 (<http://ini4j.sourceforge.net>)
- JacORB 2.3.1 (<http://www.jacorb.org>)
- Jakarta Commons Collections 3.1 (<http://jakarta.apache.org/commons/collections>)
- Jakarta Struts 1.1-Beta3 (<http://jakarta.apache.org/struts/index.html>)
- jax 0.0.15 (<http://www.ibr.cs.tu-bs.de/projects/jasmin/jax.html>)
- JBoss J2EE Server 6.0.1 Final Neo (<http://jboss.org>)
- JDBM 0.12 (<http://jdbm.sourceforge.net>)
- Jersey 1.4 (<http://jersey.java.net>)
- JETTY 4.2.24 (<http://www.eclipse.org/jetty>)
- Jython 2.2 (<http://www.jython.org>)
- lksctp-tools 1.0.10-7 (<http://lksctp.sourceforge.net>)
- mozilla rhino javascript engine 1.5 (<http://www.mozilla.org/rhino>)
- MySQL Cluster 7.1 (<http://www.mysql.com/products/cluster>)
- OmniORB 4.2.0-45.1 (<http://omniorb.sf.net>)
- omniORBpy-4.2.0-30.1 (<http://omniorb.sf.net>)
- OpenJDK 1.6.0.26 (<http://openjdk.java.net>)

- pam-radius_auth 1.3.16-1 (http://freeradius.org/pam_radius/)
- pam-tacplus 1.2.9-4 (http://freecode.com/projects/pam_tacplus)
- perl-Config-General 2.38-1 (<http://search.cpan.org/dist/Config-General/General.pm>)
- perl-RRD-Simple 1.44-1 (<http://search.cpan.org/dist/RRD-Simple>)
- proctitle 0.0.2-1
- PYSNMP 1.6.5-1 (<http://pysnmp.sourceforge.net>)
- RRD Bot 0.9.7 (<http://thewalter.net/stef/software/rrdbot>)

SRC Documentation and Release Notes

For a list of related SRC documentation, see http://www.juniper.net/techpubs/en_US/release-independent/src/information-products/pathway-pages/c-series/product/index.html.

If the information in the latest release notes differs from the information in the documentation, follow the *SRC PE 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/>.

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release 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 JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf>.
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/>.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

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

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Search for known bugs: <http://www2.juniper.net/kb/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>
- 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>.

Revision History

January 2015—Revision 1, SRC Release 4.8.0

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