

# SRC PE Software Release Notes

Release 4.12.0  
October 2018  
Revision 1

These release notes cover Release 4.12.0 of the Juniper Networks Session and Resource Control (SRC) portfolio. The SRC software runs on C Series Controllers and acts as a VM. 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 4.12.0:

- These *SRC 4.12.0 Release Notes*, which describe the changes between Releases 4.11.0 and 4.12.0.
- The 4.12.0 SRC Policy Engine (SRC PE) software documentation set, which provides detailed information about features available in Release 4.12.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 4.12.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.



**NOTE:** The configurations and features explained in the SRC 4.12.x SRC PE software documentation set for the C Series Controllers are also applicable to virtualized SRC software unless otherwise specified.

Task	Related Documentation
Install SRC software on 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.	<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>

Task	Related Documentation
Use the SAE, Juniper Networks routers, NIC, ACP, 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>
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"> <li>• CLI and system</li> <li>• Juniper Networks database</li> <li>• Service Activation Engine (SAE)</li> <li>• Network Information Collector (NIC)</li> <li>• Subscriber Information Collector (SIC)</li> <li>• SNMP agent</li> <li>• SRC Admission Control Plug-In (SRC ACP)</li> <li>• Volume Tracking Application (VTA)</li> <li>• SRC License Management</li> <li>• Common Object Services (COS) Naming Service</li> </ul>	<i>SRC PE CLI Command Reference, Volume 1</i>
Get specific information about commands and statements for: <ul style="list-style-type: none"> <li>• Services</li> <li>• Policies</li> <li>• Subscribers</li> <li>• Redirect server</li> <li>• External Subscriber Monitor</li> <li>• Application Server</li> <li>• Dynamic Service Activator</li> <li>• IP Multimedia Subsystem (IMS)</li> <li>• Diameter application</li> </ul>	<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:

[https://www.juniper.net/documentation/en\\_US/release-independent/src/information-products/pathway-pages/c-series/product/index.html](https://www.juniper.net/documentation/en_US/release-independent/src/information-products/pathway-pages/c-series/product/index.html)

## SRC Software

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

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

You must download the SRC iso, qcow2, or vmdk image from the Juniper Networks website for deploying the SRC software as a virtual machine (VM).

## Release Highlights

Highlights include the following product enhancements:



**NOTE:** The SRC software runs as VMs and runs on C Series Controllers—a range of hardware platforms. The SRC 4.12.0 software contains the features found in the SRC 4.11.0 release plus the features listed in this section. The SRC 4.12.0 software may contain references to the service activation engine (SAE) Release version 7.17.0. SRC 4.12.0 software does not run on the discontinued C2000 and C4000 controllers because of hardware incompatibility.

## Security Vulnerabilities Addressed in SRC 4.12.0 Release

The following changes related to security vulnerabilities have been made in SRC 4.12.0 release. For more information about the individual CVEs, see <http://web.nvd.nist.gov/view/vuln/search>.

### Redirect Server

- TLSv1.1 and TLSv1.2 version supports have been added.
- SSLv2 version support has been disabled.
- Vulnerable weak ciphers (NULL, EXPORT, DES, RC4, 3DES, MD5, PSK, and IDEA) have been disabled.
- The following CVEs have been fixed:
  - CVE-2016-2183: TLS/SSL Birthday attacks on 64-bit block ciphers (SWEET32) (ssl-cve-2016-2183-sweet32)
  - CVE-2013-2566: TLS/SSL Server supports RC4 Cipher Algorithms (CVE-2013-2566) (rc4-cve-2013-2566)
  - CVE-2011-3389: TLS/SSL Server enables the BEAST attack (ssl-cve-2011-3389-beast)
  - CVE-2014-3566: TLS/SSL Server enables the POODLE attack (ssl3-cve-2014-3566-poodle)
  - CVE-2015-4000: TLS Server supports DHE\_EXPORT Cipher Algorithms (tls-dhe-export-ciphers-cve-2015-4000)

### SSH Server

- SSH version 1 has been disabled, and CVE-2001-1473 has been fixed.

### NTP Server

- New CLI options have been added to configure restricted access to NTP server based on IP address or mask.
- The following CVEs have been fixed:
  - Traffic amplification in listpeers feature of ntpd (ntp-r7-2014-12-listpeers-drdos)
  - Traffic amplification in peers feature of ntpd (ntp-r7-2014-12-peers-drdos)
  - Traffic amplification in reslist feature of ntpd (ntp-r7-2014-12-reslist-drdos)
  - Traffic amplification in clrtap feature of ntpd (ntp-r7-2014-12-unsettrap-drdos)
  - Clock variables information disclosure (ntp-clock-variables-disclosure)

### Apache Axis and Bouncy Castle

- CVE-2012-5784, CVE-2014-3596, and CVE-2007-6721 have been fixed.

### C-Web

- ClickJacking vulnerability has been fixed.
- Auto complete for sensitive HTML form fields have been disabled.
- Jetty has been upgraded from 4.2.24 to 9.2.25.
- TLSv1.2 version support has been added, and older versions SSLv2, SSLv3, TLSv1, and TLSv1.1 have been disabled.
- Vulnerable weak ciphers (NULL, EXPORT, DES, RC4, 3DES, MD5, PSK, IDEA, and CAMELLIA) have been disabled.
- CVE-2005-3747, CVE-2009-1524, and CVE-2011-4461 have been fixed.

### Application Server (JBoss)

- New CLI options have been added for configuring the TLS Protocol versions TLSv1.0, TLSv1.1, and TLSv1.2.
- Vulnerable weak ciphers (NULL, EXPORT, DES, RC4, 3DES, MD5, PSK, IDEA, and CAMELLIA) have been disabled for TLSv1.2.

## License Server Enhancements

In SRC 4.11.0 and earlier releases, if licenses are allotted to a router driver and if the router driver becomes inactive, the allocated licenses will not be released to other router drivers. This causing failure in allocating licenses for other virtual routers due to exhaustion of licenses. A new CLI command **request sae license remove-allocated virtual-router *virtual-router-name*** has been introduced in SRC 4.12.0 release to remove licenses for an

inactive router driver. This command is applicable only for the inactive router drivers and virtual routers managed by the same SAE.

## Enhancements on Gx Router Driver State Changes

The GX router driver is enhanced to synchronize and handle router driver state transitions and connection state messages (events) from the router.

## Diameter Graph Enhancement

The C-Web interface is enhanced to add graphs for statistics values of Diameter component. The following Diameter statistics are added in the C-Web interface for better monitoring purposes:

- Heap Usage
- Messages Handled
- AAR Received Requests
- ACR Received Requests
- CCR Received Requests
- SRQ Requests
- STR-ASR Requests
- PPR-RAR Requests
- Received-Sent Requests
- Average Received Request Processing Time
- Average Sent Request Processing Time

## Device Filter Key Support for SAE Info Log

The SRC software provides device filter key support for SAE info log. This support enables you to configure filters based on the router name, interface name, or login name for SAE info logs.

## SAE Heap Parameter Enhancements

In the **slot *number* sae** command, the **java-min-heap-size-percentage**, **java-heap-size-percentage**, **java-min-new-size-percentage**, and **java-new-size-percentage** options are newly added. These options enable you to configure SAE heap parameters based on the percentage of total memory.

The existing options **java-min-heap-size**, **java-heap-size**, **java-min-new-size**, and **java-new-size** are made read-only and are automatically configured based on the percentage values set to the corresponding new options. By doing so, whenever you increase or decrease the total memory, the existing SAE heap parameters are automatically configured without any manual intervention.

## CLI

In the **shared sae group *group-name* configuration driver session-store** command, the **min-legal-time** and **max-legal-time** options are newly added for configuring minimum legal time and maximum legal time for session store during replication from master to slave. To configure the **min-legal-time** and **max-legal-time** options, you must set the editing level to expert.

## Removal of JPS from SRC Software

The JPS component has been removed from the SRC software.

## Features Not Fully Qualified

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The SRC Release 4.12.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

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You cannot directly upgrade to SRC Release 4.12.0 from releases earlier than SRC Release 4.8.0, because the SRC software uses CentOS 6.5 from Release 4.8.0 onwards. To migrate to SRC Release 4.12.0, please see [Migrating the C Series Controller to Software Release 4.12.0 on page 14](#).

## Recovering Passwords for the Juniper Networks Database

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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

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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

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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 4.12 VTA, contact Juniper Networks Professional Services for assistance in the migration.

## Known Behavior

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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.

## Application Server

- If the application server (**edit slot 0 application-server https**) is configured to use TLSv1 or TLSv1.1 or all TLSv1, TLSv1.1, and TLSv1.2, then the following ciphers (including weak ciphers) are supported. We recommend you to configure TLSv1.2 alone to avoid vulnerabilities.
  - ECDHE-RSA-AES128-SHA256
  - ECDHE-RSA-AES128-SHA
  - ECDHE-RSA-AES128-SHA
  - EDH-RSA-DES-CBC3-SHA
  - AES128-SHA256
  - AES128-SHA
  - DES-CBC3-SHA
  - DHE-RSA-AES128-SHA256
  - DHE-RSA-AES128-SHA
- If the application server (**edit slot 0 application-server https**) is configured to use the TLSv1.2 version, then the following strong ciphers are only supported:

- TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA256
- TLS\_ECDHE\_RSA\_WITH\_AES\_128\_CBC\_SHA
- TLS\_DHE\_RSA\_WITH\_AES\_128\_CBC\_SHA256
- TLS\_DHE\_RSA\_WITH\_AES\_128\_CBC\_SHA

## 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.

## Hardware

- From Release 4.8.0 onwards, the SRC software runs on CentOS 6.5. However, this operating system does not support older C series controllers (C2000 and C4000) because of hardware incompatibility. [PR1049794](#)

## 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.

## Memory Test Utility

- From Release 4.8.0 onwards, the SRC software does not support the memory test utility. Hence, the boot menu in SRC Release 4.8.0 and later does not display the option for memory test utility. In addition, you cannot execute the memory test utility in SRC Release 4.7.0 and earlier even though the utility option is displayed in the boot menu if you have restored SRC to Release 4.7.0 and earlier from Release 4.8.0 and later.

We recommend that you use a bootable USB storage device for executing the memory test utility. To test the SRC system memory using the memory test utility:

1. Download the **memtest86-usb.img** image file to your Linux workstation from the <http://www.memtest86.com/download.htm> link.
2. Insert your USB storage device into the USB port on your Linux workstation.
3. Determine the system device of your USB storage device by executing the **fdisk -l** command.
4. Copy the downloaded image onto your USB storage device by using the **dd** command. For example, if **sda** is the system device of the USB storage device then the **dd** command should be executed as:  
  
**dd if=/tmp/memtest86-usb.img of=/dev/sda**
5. Remove the USB storage device from the Linux workstation.
6. Plug the USB storage device into the USB port on the SRC system.
7. Restart the SRC system.
8. Change the boot order to boot from the USB storage device while the SRC system is rebooting.

## 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

[https://www.juniper.net/documentation/en\\_US/src/information-products/pathway-pages/c-series/index.html](https://www.juniper.net/documentation/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](#)
- When policies are installed via RAR, service mismatch between SRC and SCG occurs if there are partial charging rule install failures at SCG side. For a workaround, see the PR record. [PR1127708](#)
- For JSRC dual-stack subscribers, if dynamic-profile in MX Series router has either one of the inet or inet6 policies and if the corresponding family gets deactivated, MX Series router triggers an ACR-Stop for the service. This results in deactivation of that service in SRC. As SRC does not reprovision the service when the family gets reactivated, we recommend to have dynamic-profiles with both inet and inet6 families at the MX Series router end.
- MX Series router does not send Framed-IPv6-Netmask and the prefix length of the Framed-IPv6-Address is always considered as 128. Hence, the ignore-framed-ipv6-netmask configuration will not have any effect.

## Software Upgrade

- Unsupported class version error is displayed while upgrading SRC release 4.9.0 to 4.10.0 or later. [PR1180633](#)

## Known Problems and Limitations

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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.

## 3GPP Gy

- If SRC's Gy is enabled after the SAE, SRC's plug-ins are not initialized for certain subscribers. For a workaround, see the PR record. [PR1097126](#)

## C-Web

- An existing HTTP session will get logged out automatically if you log in to C-Web through HTTPS and then try to log in to C-Web through HTTP in the same browser. For a workaround, see [PR1389011](#).

## LDAP

- The scheduler format has been changed, but new attributes (action name, event name, and except name) are not currently supported in Enterprise Manager. [PR1325483](#)

## NTP

- Time synchronization is not observed for unauthenticated NTP broadcast client when default restrict commands are configured. For a workaround, see [PR1389059](#).
- The **kod** option under the **system ntp restrict address address**, **system ntp restrict default-v4**, and **system ntp restrict default-v6** commands may not function properly because there is no option to configure limited requests. The behaviors of **nopeer** and **notrap** options have not been tested by Juniper Networks. [PR1389024](#)

## SAE

- After changing the VM memory of vSRC, the new SAE heap parameter values are not displayed in the CLI even though the new values are properly allotted to the SAE. For a workaround, see [PR1389004](#).

## Software Upgrade

- While upgrading from SRC 4.11R3 release to SRC 4.12.0 release, MIB errors (Bad Format) are displayed. [PR1390411](#)
- JPS component has been removed from the SRC software but SNMP notify alarm and event configurations related to JPS have not been removed. [PR1388388](#)

## Documentation Updates

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There are no errata or changes in the documentation set published for SRC Release 4.12.x.

## Migration

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This section provides information about migrating from earlier SRC software releases to SRC Release 4.12.0.

## 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 4.12 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 4.12 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 and acts as VMs, 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 4.10.

## Migrating the C Series Controller to Software Release 4.12.0

You cannot upgrade the C Series Controller software to Release 4.12.0 from a release earlier than 4.8.0 by using the **request system upgrade url url** command, because a different operating system (CentOS 6.5) is being used from SRC 4.8.0. 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 release earlier than 4.8.0 to Release 4.12.0 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.
- Configure the new SAE heap percentage options (java-min-heap-size-percentage, java-heap-size-percentage, java-min-new-size-percentage, and java-new-size-percentage) based on the values set to the existing heap options (java-min-heap-size, java-heap-size, java-min-new-size, and java-new-size).
- Delete the JPS component and configurations related to JPS.
- If the redirect server is set to SSLv2 for HTTPS, change it to a supported protocol (SSLv23, SSLv3, TLSv1, TLSv1.1, or TLSv1.2).

## Restrictions and Recommendations

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### 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 4.12.0 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 4.12.0.

## Web Browsers

The C-Web interface in SRC Release 4.12.0 was tested with and supports the following Web browsers:

- Firefox 10.0 or later
- Internet Explorer 8.0 or later
- Chrome 17.0 or later

## SRC Virtualization

The SRC 4.12.0 software installation was tested and supported on VMware Workstation 12 Player, VMware Workstation 12 Pro, VMware ESXi 5.5.0 and 6.0 and the KVM hypervisor on CentOS 6.5.

## Resolved Problems

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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.

## 3GPP Gx

- Binding error is displayed when the shared group name of 3GPP Gx is configured to "/". [PR1251628](#)

## CLI

- CLI hangs when loading the backup configuration without VTA configuration pre-loaded. [PR1033586](#)
- Counts of STR, ACR, and PPR are not displayed correctly in the **run show sae drivers** output. [PR1221113](#)
- Few boolean attributes with the default value true are missing in CLI. [PR1350952](#)



## SAE

- During subscriber login, MX Series router responds DIAMETER\_TOO\_BUSY for PPR messages. This is because the policy provisioning for scheduled service is performed through PPR even before the initial provisioning cycle gets completed. [PR1276388](#)

## Software Upgrade

- Retain snapshot may not work properly for upgrades from SRC 4.7.0 release. [PR1306821](#)

## SRC Software Compatibility Matrix

Table 1 on page 17 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, 14.1X50-D75
4.9.0	15.1.0, 15.1.1, 16.1.0 Beta 1	13.3R6.5, 14.1X50-D100.3
4.10.0	15.1.1, 15.1.2, 16.1.0	14.1X50, 15.1R3.6, 16.1
4.11.0	15.1.2, 16.1.0	15.1R6-S1.1, 17.2R1.12, 16.1R5
4.12.0	15.1.2, 16.1.0	15.1R6-S1.1, 17.2R1.12, 16.1R5

## Third-Party Software

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This section lists the third-party software that is included with SRC Release 4.12.0. 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/>)
- Apache-Axis 1.4 (<https://axis.apache.org/axis/>)
- Apache-Avalon 4.1.4 (<http://avalon.apache.org>)
- Apache-jakarta-oro 2.0.8 (<http://jakarta.apache.org/oro/>)
- asn1crypto 0.24.0 (<https://pypi.python.org/pypi/asn1crypto>)
- Beepcore-java 0.0.08 (<http://www.beepcore.org>)
- BouncyCastle CryptoAPI 1.45 (<http://bouncycastle.org/java.html>)
- Castor 0.9-AA (<http://mvnrepository.com/artifact/castor/castor>)
- CentOS 6.5 (<http://centos.org>)
- cfggen 2.06.00 (<http://avagotech.com>)
- Cryptography 2.1.4 (<https://pypi.python.org/pypi/cryptography>)
- eliben-pycparser 2.18 (<https://github.com/eliben/pycparser>)
- expect4j 1.0 (<https://github.com/cverges/expect4j>)
- GNUPROLOG for Java 0.2.1 (<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>)
- Apache Struts 1.1-Beta3 (<http://struts.apache.org>)
- jax 0.0.15 (<http://www.ibr.cs.tu-bs.de/projects/jasmin/jax.html>)
- JBoss J2EE Server 6.1.0 Final Neo (<http://jboss.org>)
- JDBM 0.12 (<http://jdbm.sourceforge.net>)
- Jersey 1.4 (<http://jersey.java.net>)
- JETTY 9.2.25 (<http://www.eclipse.org/jetty>)
- Jython 2.2 (<http://www.jython.org>)
- kjd-idna 2.6 (<https://github.com/kjd/idna>)
- Libart-lgpl 2.3.20.5-1 (<http://www.levien.com/libart/>)
- Libpng 1.2.49-1 (<http://libpng.sourceforge.net/index.html>)

- lksctp-tools 1.0.8 (<http://lksctp.sourceforge.net>)
- mozilla rhino javascript engine 1.5 (<http://www.mozilla.org/rhino>)
- netconf-java 1.0.2 (<https://github.com/Juniper/netconf-java>)
- OmniORB 4.2.0-45.1 (<http://omniorb.sf.net>)
- omniORBpy-4.2.0-30.1 (<http://omniorb.sf.net>)
- OpenJDK 1.7.0.85 (<http://openjdk.java.net>)
- pam-radius\_auth 1.3.16-1 ([http://freeradius.org/pam\\_radius/](http://freeradius.org/pam_radius/))
- pam-tacplus 1.2.9-4 ([http://freecode.com/projects/pam\\_tacplus](http://freecode.com/projects/pam_tacplus))
- pConfig-General 2.38 (<http://search.cpan.org/~TLINDEN/Config-General-2.29/>)
- perl-RRD-Simple 1.44-1 (<http://search.cpan.org/dist/RRD-Simple>)
- dvarrazzo-py-setproctitle 1.1.8 (<https://pypi.python.org/pypi/setproctitle/>)
- py2-ipaddress 3.4.1 (<https://pypi.python.org/pypi/py2-ipaddress>)
- pyca-pyopenssl 17.5 (<https://pyopenssl.readthedocs.io/>)
- PYSNMP 1.6.5-1 (<http://pysnmp.sourceforge.net>)
- python-enum34 1.1.6 (<https://pypi.python.org/pypi/enum34>)
- python-cffi 1.11.4 (<https://pypi.python.org/pypi/cffi>)
- python-six 1.11.0 (<http://pypi.python.org/pypi/six/>)
- RRD Bot 0.9.7 (<http://thewalter.net/stef/software/rrdbot>)
- rrdtool 1.3.8-6 (<http://oss.oetiker.ch/rrdtool/>)
- SLF4J 1.7.5 (<http://www.slf4j.org>)

## SRC Documentation and Release Notes

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For a list of related SRC documentation, see

[https://www.juniper.net/documentation/en\\_US/release-independent/src/information-products/pathway-pages/c-series/product/index.html](https://www.juniper.net/documentation/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<sup>®</sup> technical documentation, see the product documentation page on the Juniper Networks website at

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

## Documentation Feedback

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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](mailto:techpubs-comments@juniper.net), or fill out the documentation feedback form at <https://www.juniper.net/documentation/feedback/>. 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

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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 <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: <http://www2.juniper.net/kb/>
- 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://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum: <https://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <https://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 <https://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 <https://www.juniper.net/support/requesting-support.html>.

## Revision History

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October 2018—Revision 1, SRC Release 4.12.0

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