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## SRC Software Upgrades



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*SRC Software Upgrades*

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# About the Documentation

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## Documentation and Release Notes

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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>.

## Documentation Conventions

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Table 1 on page viii 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.

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## Documentation Conventions

[Table 1 on page viii](#) defines the notice icons used in this guide. [Table 3 on page ix](#) defines text conventions used throughout this documentation.



Table 2: 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 3: Text Conventions

Convention	Description	Examples
<b>Bold text like this</b>	<ul style="list-style-type: none"> <li>Represents keywords, scripts, and tools in text.</li> <li>Represents a GUI element that the user selects, clicks, checks, or clears.</li> </ul>	<ul style="list-style-type: none"> <li>Specify the keyword <b>exp-msg</b>.</li> <li>Run the <b>install.sh</b> script.</li> <li>Use the <b>pkgadd</b> tool.</li> <li>To cancel the configuration, click <b>Cancel</b>.</li> </ul>
<b>Bold text like this</b>	Represents text that the user must type.	<b>user@host# set cache-entry-age</b> <i>cache-entry-age</i>
Fixed-width text like this	Represents information as displayed on your terminal's screen, such as CLI commands in output displays.	<pre> nic-locators {   login {     resolution {       resolver-name /realms/       login/A1;       key-type LoginName;       value-type SaeId;     }   } } </pre>
Regular sans serif typeface	<ul style="list-style-type: none"> <li>Represents configuration statements.</li> <li>Indicates SRC CLI commands and options in text.</li> <li>Represents examples in procedures.</li> <li>Represents URLs.</li> </ul>	<ul style="list-style-type: none"> <li><b>system ldap server{</b> <b>stand-alone;</b></li> <li>Use the <b>request sae modify device failover</b> <b>command</b> with the force option</li> <li><b>user@host# ...</b></li> <li><a href="https://www.juniper.net/techpubs/software/management/sdx/api-index.html">https://www.juniper.net/techpubs/software/management/sdx/api-index.html</a></li> </ul>

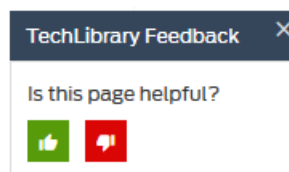
Table 3: Text Conventions (continued)

<i>Italic sans serif typeface</i>	Represents variables in SRC CLI commands.	<code>user@host# set local-address local-address</code>
Angle brackets	In text descriptions, indicate optional keywords or variables.	Another runtime variable is <gfwif>.
Key name	Indicates the name of a key on the keyboard.	Press Enter.
Key names linked with a plus sign (+)	Indicates that you must press two or more keys simultaneously.	Press Ctrl + b.
<i>Italic typeface</i>	<ul style="list-style-type: none"> <li>Emphasizes words.</li> <li>Identifies book names.</li> <li>Identifies distinguished names.</li> <li>Identifies files, directories, and paths in text but not in command examples.</li> </ul>	<ul style="list-style-type: none"> <li>There are two levels of access: <i>user</i> and <i>privileged</i>.</li> <li><i>SRC-PE Getting Started Guide</i>.</li> <li><i>o=Users, o=UMC</i></li> <li>The <i>/etc/default.properties</i> file.</li> </ul>
Backslash	At the end of a line, indicates that the text wraps to the next line.	<code>Plugin.radiusAcct-1.class=\ net.juniper.smgmt.sae.plugin\ RadiusTrackingPluginEvent</code>
Words separated by the   symbol	Represent a choice to select one keyword or variable to the left or right of this symbol. (The keyword or variable may be either optional or required.)	<code>diagnostic   line</code>

## 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](mailto:techpubs-comments@juniper.net). Include the document or topic name, URL or page number, and software 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 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/>.



## PART 1

# Overview

- [Software Features Overview on page 3](#)



## CHAPTER 1

# Software Features Overview

- [SRC Component Overview on page 3](#)

## SRC Component Overview

The SRC software is a dynamic system. It contains many components that you use to build a subscriber management environment. You can use these tools to customize and extend the SRC software for your use and to integrate the SRC software with other systems. The SRC software also provides the operating system and management tools for C Series Controllers.

[Table 4 on page 3](#) gives a brief description of the components that make up the SRC software.

*Table 4: Descriptions of SRC Components*

Component	Description
<b>Server Components</b>	
Service activation engine (SAE)	<ul style="list-style-type: none"><li>• Authorizes, activates, and deactivates subscriber and service sessions by interacting with systems such as Juniper Networks routers, cable modem termination system (CMTS) devices, RADIUS servers, and directories.</li><li>• Collects accounting information about subscribers and services from routers, and stores the information in RADIUS accounting servers, flat files, and other accounting databases.</li><li>• Provides plug-ins and application programming interfaces (APIs) for starting and stopping subscriber and service sessions and for integrating with systems that authorize subscriber actions and track resource usage.</li></ul>
Subscriber Information Collector (SIC)	The SIC listens for RADIUS accounting events from IP edge devices (accounting clients) and forwards them to a remote AAA server, allowing the SRC software to gain increased subscriber awareness. Additionally, the SIC can optionally edit accounting events before routing them.
Network information collector (NIC)	Collects information about the state of the network and can provide a mapping from a given type of network data to another type of network data.
Redirect Server	Redirects HTTP requests received from IP Filter to a captive portal page.

Table 4: Descriptions of SRC Components (continued)

Component	Description
3GPP Gateway	The SRC Third-Generation Partnership Project (3GPP) gateway is a Diameter-based component in the SRC software, which provides integration with 3GPP Policy and Charging Control environments, to provide fixed-mobile convergence (FMC). The SRC 3GPP gateway provides Gx-based integration with the Policy and Charging Rules Function (PCRF). The SRC 3GPP gateway uses the northbound Gx interface to mediate between the PCRF and Juniper Networks routers like the E Series Broadband Services routers and MX Series routers. The northbound Gx interface on the SRC 3GPP gateway communicates with the PCRF using the Diameter protocol.
3GPP Gy	The SRC 3GPP Gy is a Diameter-based component in the SRC software, which provides Gy-based integration with the Online Charging System (OCS), to provide FMC. The SRC 3GPP Gy uses the northbound Gy interface to handle charging-related information between the OCS and Juniper Networks routers like the E Series Broadband Services routers and MX Series routers. The northbound Gy interface communicates with the OCS using the Diameter protocol.
Web Application Service	The SRC software includes a Web application server that hosts the Web Services Gateway and the Volume Tracking Application (SRC VTA). In production environments, this application server is designed to host only these applications. However, you can load your own applications into this server for testing or demonstration purposes.
Web Services Gateway	Allows a gateway client—an application that is not part of the SRC network—to interact with SRC components through a Simple Object Access Protocol (SOAP) interface.  The Web Services Gateway provides the Dynamic Service Activator which allows a gateway client to dynamically activate and deactivate SRC services for subscribers and to run scripts that manage the SAE.
Monitor Components Connectivity (MCC)	Monitors the connectivity state between SAEs in a community and between SAE and RADIUS server periodically and collects diagnostic information about the connectivity state of components, such as connection error, connection timeout, and socket read/write timeout.
<b>Repository</b>	
Directory	The SRC software includes the Juniper Networks database, which is a built-in Lightweight Directory Access Protocol (LDAP) directory for storing all SRC data including services, policies, and small subscriber databases.  For large subscriber databases, you must supply your own directory.
<b>SRC Configuration and Management Tools</b>	
SRC command line interface (CLI)	Provides a way to configure the SRC software on a C Series Controller from a Junos OS–like CLI. The SRC CLI includes the policies, services, and subscribers CLI, which has separate access privileges.
C-Web interface	Provides a way to configure, monitor, and manage the SRC software on a C Series Controller through a Web browser. The C-Web interface includes a policies, services, and subscribers component, which has separate access privileges.
Simple Network Management Protocol (SNMP) agent	Monitors system performance and availability. It runs on all the SRC hosts and makes management information available through SNMP tables and sends notifications by means of SNMP traps.



Table 4: Descriptions of SRC Components (continued)

Component	Description
<b>Service Management Applications (Run on external system)</b>	
IMS Services Gateway	Integrates into an IP multimedia system (IMS) environment. The SRC software provides a Diameter protocol-based interface that allows the SRC software to integrate with services found on the application layer of IMS.
<b>SRC Programming Interfaces</b>	
NETCONF API	Allows you to configure or request information from the NETCONF server on a C Series Controller that runs the SRC software. Applications developed with the NETCONF API run on a system other than a C Series Controller.
CORBA plug-in service provider interface (SPI)	Tracks sessions and enables linking the rest of the service provider's operations support system (OSS) with the SRC software so that the OSS can be notified of events in the life cycle of SAE sessions. Hosted plug-ins only.
CORBA remote API	Provides remote access to the SAE core API. Applications that use these extensions to the SRC software run on a system other than a C Series Controller.
NIC access API	Performs NIC resolutions. Applications that use these extensions to the SRC software run on a system other than a C Series Controller.
SAE core API	Controls the behavior of the SRC software. Applications that use these extensions to the SRC software run on a system other than a C Series Controller.
Script services	Provides an interface to call scripts that supply custom services such as provisioning policies on a number of systems across a network.
VTA API	The Volume Tracking Application (VTA) API is a Simple Object Access Protocol (SOAP) interface that allows developers to create gateway clients and that administrators use to manage VTA subscribers and sessions. The SRC Web Services Gateway allows a gateway client—an application that is not part of the SRC network—to interact with SRC components, such as the VTA, through a SOAP interface.
<b>Authorization and Accounting Applications</b>	
AAA RADIUS servers	Authenticates subscribers and authorizes their access to the requested system or service. Accepts accounting data—time active and volume of data sent—about subscriber and service sessions. RADIUS servers run on a system other than a C Series Controller.
SRC Admission Control Plug-In (SRC ACP)	Authorizes and tracks subscribers' use of network resources associated with services that the SRC application manages.
Flat file accounting	Stores tracking data to accounting flat files that can be made available to external systems that send the data to a rating and billing system.

Table 4: Descriptions of SRC Components (continued)

Component	Description
Volume Tracking Application	<p>The SRC Volume Tracking Application (SRC VTA) is an SRC component that allows service providers to track and control the network usage of subscribers and services. You can control volume and time usage on a per-subscriber or per-service basis. This level of control means that service providers can offer tiered services that use volume as a metric, while also controlling abusive subscribers and applications.</p> <p>When a subscriber or service exceeds bandwidth limits (or quotas), the SRC VTA can take actions including imposing rate limits on traffic, sending an e-mail notification, or charging extra for additional bandwidth consumed.</p>
<b>Demonstration Applications (available on the Juniper Networks Website)</b>	
Enterprise Audit Plug-In	Defines a callback interface, which receives events when IT managers complete specified operations.
Enterprise Manager Portal	<p>Allows service providers to provision services for enterprise subscribers on routers running JunosE or Junos OS and allows IT managers to manage services.</p> <p>Enterprise Manager Portal can be used with NAT Address Management Portal to allow service providers to manage public IP addresses for use with NAT services on routers running Junos OS and to all IT managers to make requests about public IP addresses through the Enterprise Manager Portal.</p>
Monitoring Agent application	Integrates IP address managers, such as a DHCP server or a RADIUS server, into an SRC-managed network so that the SAE is notified about subscriber events. The Monitoring Agent application runs on a Solaris platform.
Residential service selection portals	Provides a framework for building Web applications that allow residential and enterprise subscribers to manage their own network services. It comes with several full-featured sample Web applications that are easy to customize and suitable for deployment. The Residential service selection portals run on a Solaris platform.
Sample enterprise service portal	Lets service providers supply an interface to their business customers for managing and provisioning services.

**Related Documentation** • *SRC Product Description*

## PART 2

# Configuration

- [Configuration Tasks for Software Upgrades on page 9](#)



## CHAPTER 2

# Configuration Tasks for Software Upgrades

- [Before You Upgrade the Software on a C Series Controller on page 9](#)
- [Upgrading the System Software on a C Series Controller on page 9](#)
- [Upgrading the System Software When Running Redundant SAEs on page 12](#)
- [Creating a Snapshot of Files on a C Series Controller on page 12](#)
- [Preparing the Software Images on the FTP Server on page 14](#)
- [Restoring the Files in a Snapshot on page 17](#)
- [Recovering System Software on a C Series Controller from a System Snapshot \(SRC CLI\) on page 18](#)
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)

### Before You Upgrade the Software on a C Series Controller

Before you upgrade system software on a C Series Controller:

- Create a snapshot of the software files currently on the C Series Controller.  
See [“Creating a Snapshot of Files on a C Series Controller” on page 12](#).
- Make sure that other C Series Controllers can carry system load during the upgrade.  
The system is not operational during the upgrade.

#### **Related Documentation**

- [Configuring the SRC Software](#)
- [Software Management on a C Series Controller Overview on page 25](#)

### Upgrading the System Software on a C Series Controller

You can upgrade all the system software or the software changes for an SRC component. If an image file (from which you upgrade) contains updates for all components or a number of components, you specify which component to upgrade if you do not want to upgrade all components.

However, it is recommended that you upgrade a number of components together rather than individual components separately.

For example:

```
user@host>request system install package upgrade url ftp://myserver/SRC-PE-4.0.0-R3.iso
```

For ease of use, you can manage upgrades for a number of C Series Controllers by copying a complete CD image file to be used for an upgrade to an FTP site in your network. You then upgrade each system by using the files on the FTP site. Alternatively, you can copy the contents of the CD to a USB drive and install from there.



**NOTE:** You cannot upgrade the C Series Controller software to Release 4.13.0 from an earlier release by using the `request system upgrade url url` command, because SRC 4.13.0 release uses a different operating system (CentOS 7.6). 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” on page 19](#).

When you install the SRC software from the USB storage device, all system software, including the operating system, is installed, and the system hard drives are partitioned. As a result, any data, including data previously in the snapshot partition (if you do not select the `retainsnapshot` option at the boot prompt during the installation), is lost.

To upgrade C Series Controller software:

- Enter the `request system upgrade` command.

```
user@host> request system upgrade url url
```

where *url* is one of the following:

- **ftp://host/path**—Path on an FTP site or on the local system
- **usb:**—Local USB disk

For example:

```
user@host> request system upgrade url ftp://myserver/SRC-PE-4.0.0R3.iso or .tar.gz
Setting up Upgrade Process
Setting up repositories
Reading repository metadata in from local files
Resolving Dependencies
--> Populating transaction set with selected packages. Please wait.
--> Downloading header for python-ldap to pack into transaction set.
--> Package python-ldap.i386 0:2.0.6-1 set to be updated
--> Running transaction check
```

```
Dependencies Resolved

=====

Package Arch Version Repository Size

=====
Updating:
python-ldap      i386      2.0.6-1      umc-upgrade   150 k

Transaction Summary
=====
Install      0 Package(s)
Update       1 Package(s)
Remove       0 Package(s)
Total download size: 150 k
Downloading Packages:
Running Transaction Test
Finished Transaction Test
Transaction Test Succeeded
Running Transaction

Updating   : python-ldap                ##### [1/1]

Updated: python-ldap.i386 0:2.0.6-1
Complete!
```

The C Series Controller automatically reboots at the end of the upgrade.

**Related Documentation**

- [Before You Upgrade the Software on a C Series Controller on page 9](#)
- [Preparing the Software Images on the FTP Server on page 14](#)
- [Restoring the Files in a Snapshot on page 17](#)
- [Software Management on a C Series Controller Overview on page 25](#)
- [Recovering System Software on a C Series Controller from a System Snapshot \(SRC CLI\) on page 18](#)
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)

## Upgrading the System Software When Running Redundant SAEs

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When running the SRC software with redundant SAEs, we recommend that you run the same release of the SRC software on all C Series Controllers in the same Juniper Networks database community. Mixing SRC software releases in a network may cause shared configuration data to be placed in the Juniper Networks database that is not compatible with all versions of the SRC software. As a result, when running redundant SAEs, we recommend that you postpone any planned configuration changes to the C Series Controllers until you complete the SRC software upgrade on all C Series Controllers running in the Juniper Networks database community.

Use the following procedure to upgrade the SRC software on C Series Controllers in a network environment running redundant SAEs. Perform this procedure on each C Series Controller in a serial fashion.

1. For each router managed by the SAE, issue the **request sae shutdown device** command to shut down the device driver and force a graceful failover to the redundant SAE.
2. Disable the SAE by issuing the **disable component sae** command.
3. Upgrade the SRC software by issuing the **request system upgrade url url** command.
4. Reenable the SAE by issuing the **enable component sae** command.

### Related Documentation

- [Upgrading the System Software on a C Series Controller on page 9](#)
- [Software Management on a C Series Controller Overview on page 25](#)
- [Before You Upgrade the Software on a C Series Controller on page 9](#)

## Creating a Snapshot of Files on a C Series Controller

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You can create one or more snapshots of the system software to serve as a backup. When you create a snapshot, the software backs up the operating system and the SRC software to a partition on the C Series Controller. You can restore the files in a snapshot to the system software if needed.

To create a snapshot of the system software:

1. Verify which version of the software is running on the system.



**NOTE:** When you issue the **show system information** command in a virtualized SRC software, the manufacturer, version, and serial number details are not displayed in the output. In addition, the product name is displayed as vSRC.

```
user@host> show system information
```



2. Enter the **request system snapshot** command. Use the verbose option to view information about the snapshot process.

```
user@host> request system snapshot verbose
Create system snapshot [yes,no] ? (no) yes
```

```
Filesystem label=
mke2fs 1.35 (28-Feb-2004)
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
262144 inodes, 524288 blocks
26214 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=536870912
16 block groups
32768 blocks per group, 32768 fragments per group
16384 inodes per group
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912
```

```
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done
```

```
This filesystem will be automatically checked every 32 mounts or
180 days, whichever comes first. Use tune2fs -c or -i to override.
DUMP: Date of this level 0 dump: Thu Oct 19 09:43:44 2006
DUMP: Dumping /dev/mapper/vg0-root (/) to standard output
restore: cannot open /dev/tty: No such device or address
DUMP: Label: none
DUMP: Writing 64 Kilobyte records
DUMP: mapping (Pass I) [regular files]
DUMP: mapping (Pass II) [directories]
DUMP: estimated 1036678 blocks.
DUMP: Volume 1 started with block 1 at: Thu Oct 19 09:43:45 2006
DUMP: dumping (Pass III) [directories]
DUMP: dumping (Pass IV) [regular files]

DUMP: Volume 1 completed at: Thu Oct 19 09:48:13 2006
DUMP: Volume 1 1035200 blocks (1010.94 MB)
DUMP: Volume 1 took 0:01:10
DUMP: Volume 1 transfer rate: 14788 Kbps
DUMP: 1035200 blocks (1010.94 MB)
DUMP: finished in 70 seconds, throughput 14788 Kbps
DUMP: Date of this level 0 dump: Thu Oct 19 09:47:02 2006
DUMP: Date this dump completed: Thu Oct 19 09:48:13 2006
DUMP: Average transfer rate: 14788 Kbps
```

3. Verify information about the snapshot.

```
user@host> show system snapshot
```

**Related Documentation**

- [Before You Upgrade the Software on a C Series Controller on page 9](#)
- [Restoring the Files in a Snapshot on page 17](#)
- [Deleting the Files in a Snapshot](#)
- [Software Management on a C Series Controller Overview on page 25](#)

## Preparing the Software Images on the FTP Server

---

For easier management of upgrades or installations, you can copy the software image to an FTP site in your network. For more information, see the following procedures:

- [Preparing the CD Image on a Solaris System on page 14](#)
- [Preparing the CD Image on a Linux System on page 15](#)
- [Preparing the Compressed File on a Solaris System on page 15](#)
- [Preparing the Compressed File on a Linux System on page 16](#)

### Preparing the CD Image on a Solaris System

To prepare the CD image on a Solaris system:

1. Attach and mount the CD image from the FTP server.

```
# lofiadm -a pathname/filename  
# mount -F hsfs /dev/lofi/1 /mnt
```

2. Copy the CD image to your FTP server.

```
# cp -r /mnt pathname
```

3. Unmount and detach from the FTP server.

```
# umount /mnt  
# lofiadm -d /dev/lofi/1
```

For example:

```
# lofiadm -a /ftp/public/SRC-PE-4.0.0-R-3-x86_64.iso  
# mount -F hsfs /dev/lofi/1 /mnt  
# cp -r /mnt /ftp/SRC-PE-4.0.0-R-3-x86_64  
# umount /mnt  
# lofiadm -d /dev/lofi/1
```

- See Also**
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)
  - [Recovering System Software on a C Series Controller from a System Snapshot \(SRC CLI\) on page 18](#)
  - [Software Management on a C Series Controller Overview on page 25](#)
  - [Before You Upgrade the Software on a C Series Controller on page 9](#)
  - [Upgrading the System Software on a C Series Controller on page 9](#)

## Preparing the CD Image on a Linux System

To prepare the CD image on a Linux system:

1. Mount the CD image from the FTP server.

```
# mount -o ro,loop filename /mnt
```

2. Copy the CD image to your FTP server.

```
# cp -r /mnt pathname
```

3. Unmount from the FTP server.

```
# umount /mnt
```

For example:

```
# mount -o ro,loop SRC-PE-4.0.0-R-3-x86_64.iso /mnt
# cp -r /mnt /ftp/SRC-PE-4.0.0-R-3-x86_64
# umount /mnt
```

- See Also**
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)
  - [Recovering System Software on a C Series Controller from a System Snapshot \(SRC CLI\) on page 18](#)
  - [Software Management on a C Series Controller Overview on page 25](#)
  - [Before You Upgrade the Software on a C Series Controller on page 9](#)
  - [Upgrading the System Software on a C Series Controller on page 9](#)

## Preparing the Compressed File on a Solaris System

To prepare the compressed file on a Solaris system:

1. Change directory to the FTP server where the compressed file is located.

```
# cd pathname
```

2. Uncompress the file.

```
# gunzip pathname/filename
```

3. Extract the archive file.

```
# tar xf pathname/filename
```

For example:

```
# cd /ftp  
# gunzip /ftp/SRC-PE-4.0.0-R-3-x86_64.tgz  
# tar xf /ftp/SRC-PE-4.0.0-R-3-x86_64.tar
```

- See Also**
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)
  - [Recovering System Software on a C Series Controller from a System Snapshot \(SRC CLI\) on page 18](#)
  - [Software Management on a C Series Controller Overview on page 25](#)
  - [Before You Upgrade the Software on a C Series Controller on page 9](#)
  - [Upgrading the System Software on a C Series Controller on page 9](#)

## Preparing the Compressed File on a Linux System

To prepare the compressed file on a Linux system:

- Extract the archive file from the compressed file on the FTP server.

```
# tar -C pathname -zxf filename
```

For example:

```
# tar -C /ftp/ -zxf SRC-PE-4.0.0-R-3-x86_64.tgz
```

- See Also**
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)
  - [Recovering System Software on a C Series Controller from a System Snapshot \(SRC CLI\) on page 18](#)
  - [Software Management on a C Series Controller Overview on page 25](#)
  - [Before You Upgrade the Software on a C Series Controller on page 9](#)

- [Upgrading the System Software on a C Series Controller on page 9](#)

#### Related Documentation

- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)
- [Recovering System Software on a C Series Controller from a System Snapshot \(SRC CLI\) on page 18](#)
- [Software Management on a C Series Controller Overview on page 25](#)
- [Before You Upgrade the Software on a C Series Controller on page 9](#)
- [Upgrading the System Software on a C Series Controller on page 9](#)

## Restoring the Files in a Snapshot

To revert to the system software stored in snapshot files:

- Enter the **request system restore** command.

The output lists the available snapshots. Enter the specific number of the snapshot which you want to restore.

```
user@host> request system restore
WARNING: restoring a snapshot will cause the system to
reboot and replace the software with the data from the
system snapshot.

Available Snapshots:
1:Snapshot of SRC-PE Release MAIN [VMAIN.A-1616] taken 2016-04-22 12:29:47 -
2623 MB
2:Snapshot of SRC-PE Release MAIN [VMAIN.A-1616] taken 2016-04-22 12:32:36 -
2623 MB
Select the snapshot[1,2,...,n] ? Snapshot-number
```

The C Series Controller reboots twice during a restoration.

#### Related Documentation

- [Creating a Snapshot of Files on a C Series Controller on page 12](#)
- [Deleting the Files in a Snapshot](#)
- [Upgrading the System Software on a C Series Controller on page 9](#)
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)
- [Software Management on a C Series Controller Overview on page 25](#)

## Recovering System Software on a C Series Controller from a System Snapshot (SRC CLI)

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If you encounter a software failure on a C Series Controller, in most cases you can recover from the failure by restoring the software from a snapshot by using the **request system restore** command.

If, however, the operating system on the main partition on a C Series Controller is damaged, the operating system tries to boot from the snapshot partition. If the system does not boot from the snapshot partition, you can try to manually reboot the system and use the software snapshot.

If a software failure damages the snapshot partition on a C Series Controller, you can boot the system from the USB storage device supplied with the C Series Controller. After the system boots, it installs the system software from the USB storage device. The USB storage device supplied with the C Series Controller contains a copy of the system software. For more information, see [“Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks” on page 19](#).

To boot a C Series Controller from the system snapshot:

1. Connect a console terminal to the C Series Controller.  
*See your C Series Controller Hardware Guide.*
2. Initiate a system reboot in one of the following ways:
  - Power off and then power on the C Series Controller.
  - To enter the boot menu, press the Spacebar on the console when the **Press any key to continue** prompt is displayed.
3. From the boot menu, select the backup partition.

If a software failure damages the boot partition on a C Series Controller, you can install the system software from the USB storage device that is supplied with a C Series Controller.

### Related Documentation

- [Before You Upgrade the Software on a C Series Controller on page 9](#)
- [Preparing the Software Images on the FTP Server on page 14](#)
- [Restoring the Files in a Snapshot on page 17](#)
- [Software Management on a C Series Controller Overview on page 25](#)
- [Upgrading the System Software on a C Series Controller on page 9](#)
- [Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks on page 19](#)

## Recovering or Installing System Software on a C Series Controller by Using the USB Storage Device Supplied by Juniper Networks

You can recover system software by using the USB storage device supplied with the C Series Controller.



### NOTE:

- Starting from SRC Release 4.5, the USB storage device supplied with the C Series Controller is a read/write or read-only device. Prior to SRC Release 4.5, Juniper Networks shipped the C Series Controller with only a read-only USB storage device that contains a copy of the system software.
- Using the read-only USB storage device supplied by Juniper Networks, you can only recover the system software; whereas, by using the read/write USB storage device, you can create an installation medium and back up the system configuration.
- To determine whether the USB storage device you received from Juniper Networks is a read-only or read/write device, contact Juniper Networks Technical Assistance Center (JTAC).

Using the read/write USB storage device supplied by Juniper Networks, you can create an installation medium that can be updated to the desired release and used to reimage a C Series Controller. You need to download the image file from the Juniper Networks Support website onto your Linux workstation, uncompress the software, and then copy the software image onto your Juniper Networks external USB (4-gigabyte) storage device.



**CAUTION:** When you install the SRC software from the supplied USB storage device, all system software, including the operating system, is installed, and the system hard drives are partitioned. As a result, any data, including data previously in the snapshot partition (if you do not select the **retainsnapshot** option at the boot prompt during the installation), is lost.

You can back up the system configuration to the read/write USB storage device supplied by Juniper Networks or to an external system (such as a computer running a Linux or Windows operating system, or a USB device) by using the **save** and **file copy** commands. The term “USB device” in this case refers to the customer-supplied read/write USB storage device. This should not be confused with the “USB storage device” supplied by Juniper Networks with each C Series Controller. You can also recover the configuration by using the **load** command. For information about managing the SRC configuration, see the *SRC PE CLI User Guide*. For information about how to specify a filename, see *Specifying Filenames and URLs*.

To create an installation medium by using the read/write USB storage device:

1. In a Web browser, go to <https://www.juniper.net/support/products/src/>.  
The **SRC** page appears.
2. Click the **Software** tab and select the image file that you want to download.  
A login screen appears.
3. Enter your username and password and press **Enter**.
4. Log in and save the image file to your Linux workstation.
5. Uncompress the image file on your Linux workstation.

```
gunzip name.*img.gz
```

6. Insert the read/write USB (4-gigabyte) storage device supplied by Juniper Networks into your Linux workstation.
7. Determine the system device of the USB storage device by using the **dmesg | less** command.

```
dmesg | less
scsi 1:0:0:0: Direct-Access          USB Flash Memory 1.04 PQ: 0 ANSI: 0
CCS
usb-storage: device scan complete
sd 1:0:0:0: [sdb] 2004992 512-byte hardware sectors: (1.02 GB/979 MiB)
sd 1:0:0:0: [sdb] Write Protect is off
sd 1:0:0:0: [sdb] Mode Sense: 23 00 00 00
sd 1:0:0:0: [sdb] Assuming drive cache: write through
sd 1:0:0:0: [sdb] Assuming drive cache: write through
sdb: sdb1
sd 1:0:0:0: [sdb] Attached SCSI removable disk
```



**NOTE:** In this case, **sdb** is the system device of the USB storage device.

---

8. Copy the software image that you just downloaded to your Linux workstation onto your external USB storage device by using the **dd** command.

```
dd if=name.img of=/dev/usb-device
```

In this case,

```
dd if=name.img of=/dev/sdb
```

9. Remove the USB storage device from the Linux workstation.



To boot the system from the supplied USB storage device and install the SRC software on a C Series Controller:



**CAUTION:** After you complete this procedure, remember to disconnect the USB storage device. Failure to do so can result in the loss of configuration and data if the system loses power or is rebooted.

1. Plug the USB storage device into the USB port on the C Series Controller.
2. Connect a console terminal to the C Series Controller.  
See your *C Series Controller Hardware Guide*.

3. Power on the system.

The controller starts up from the USB storage device and prints the following message.

```
SRC software -- System recovery software for SRC C series platforms.
```

```
WARNING: This system recovery software replaces all data and software
on the system hard drives. As a result, any data, including data
previously in the snapshot partition(if retainsnapshot is not selected), is
lost.
```

```
After you run the system recovery software, the C-series platform
contains the SRC software, including the C-series operating system,
but no configuration data.
```

```
To continue, press <Enter>.
```

```
To retain the software previously in the snapshot partition, type retainsnapshot
and press <Enter>
```

```
To cancel this operation, power off the C-series platform and remove
the USB storage device from the USB port.
boot:
```

4. At the boot prompt, enter **retainsnapshot** and press the **Enter** key to retain the snapshot of the system software stored in the snapshot partition. If you do not want to retain the snapshot, press the **Enter** key, or follow the instructions on the screen to cancel the operation.
5. When the software installation is complete, unplug the USB storage device from the USB port and reboot the C Series Controller.



**NOTE:** CentOS 7 and later versions use different schemes for naming network interfaces, for example, enpX, ensX, and enoX. SRC works only with the traditional naming ethX. So, it is mandatory to rename the interfaces from ensX, enpX, or enoX to ethX and persist interface names with the corresponding MAC addresses. After the software installation is complete, the interface renaming script is executed for renaming the interfaces.

6. After the interface renaming script is executed, configure the corresponding MAC address for each network interface (for example, eth0, eth1). After verifying the configuration of MAC addresses, reboot the C Series Controller for the changes to take effect.
7. After the C Series Controller reboots and the software installation is complete, set up the initial configuration.

See your *C Series Controller Hardware Guide*.



**NOTE:** The default username and password for grub menu are “root” and “password”, respectively. You can change the default password by executing the `grub2-setpassword` command in shell mode.

#### Related Documentation

- [Before You Upgrade the Software on a C Series Controller on page 9](#)
- [Preparing the Software Images on the FTP Server on page 14](#)
- [Restoring the Files in a Snapshot on page 17](#)
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## PART 3

# Administration

- [Software Management on page 25](#)



## CHAPTER 3

# Software Management

- [Software Management on a C Series Controller Overview on page 25](#)

### Software Management on a C Series Controller Overview

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On a C Series Controller, you can upgrade all the system software or the software package for a component. You can also install and uninstall a software package for an SRC component. [Table 5 on page 25](#) lists the names of the packages for the components that run on the C Series Controller.

*Table 5: Package Names for Components on a C Series Controller*

Component	Package Name
Application server	UMCjboss
Command-line interface (CLI)	UMCcli
C-Web interface	UMCwebadm
External Subscriber Monitor	UMCmonagent
IP multimedia subsystem	UMCims
Juniper Networks database	UMCjdb
License server	UMClicsvr
Network information collector (NIC)	UMCnic
Policies, Services, and Subscribers CLI	UMCeditor
Redirect server	UMCredir
Service activation engine (SAE)	UMCsae
SNMP agent	UMCagent
SRC ACP	UMCacp

- Related Documentation**
- [Before You Upgrade the Software on a C Series Controller on page 9](#)
  - [SRC Component Overview on page 3](#)
  - *Configuring the SRC Software*
  - *Configuring SRC Components*