J-series Services Router Release Notes for JUNOS 8.1

Release 8.1R4
28 August 2007
Part Number: 530-016828-01
Revision 4

These release notes introduce the newest release of Juniper Networks J-series Services Routers and Release 8.1R4 of the JUNOS Internet software. They briefly describe J-series hardware features, identify known firmware and hardware problems, describe new J-Web features, and explain how to upgrade and downgrade the JUNOS Internet software and firmware on a Services Router.

For information about software features and problems, see the *JUNOS Internet Software Release Notes*. You can find the release notes on the Juniper Networks Technical Publications Web page, which is located at http://www.juniper.net/techpubs/.

Contents

J-series Services Router Features 3
- Interfaces and Chassis 3
- Class of Service 3
- Services Router User Interface and Configuration 3

Changes in J-series Services Router Default Behavior 4
- Platform and Infrastructure 4
- Interfaces and Chassis 4
- User Interface and Configuration 5

Outstanding J-series Services Router Issues 5
- Platform and Infrastructure 5
- Services Router User Interface and Configuration 5
- Interfaces and Chassis 6
- Class of Service 7

Resolved Issues 8
Errata 9
Supported Third-Party Hardware 9

J-series Compact Flash and Memory Requirements 10
J-series Upgrade and Downgrade Instructions 10
Upgrade and Downgrade Overview 10
Upgrade Software Packages 11
Recovery Software Packages 11
Before You Begin 12
Downloading Software Upgrades from Juniper Networks 12
Installing Software Upgrades 13
Installing Software Upgrades with the J-Web Interface 13
Installing Software Upgrades with the CLI 14
Downgrade Instructions 15
Downgrading the Software with the J-Web Interface 16
Downgrading the Software with the CLI 16
Related Juniper Networks Documentation 16
Documentation Feedback 19
Requesting Support 19
Revision History 20

J-series Services Router Features

This section describes the new J-series Services Routers features, available with the JUNOS 8.1R4 release. For more information, see the following manuals:

- *J2300, J4300, and J6300 Services Router Getting Started Guide*
- *J4350 and J6350 Services Router Getting Started Guide*
- *J-series Services Router Basic LAN and WAN Access Configuration Guide*
- *J-series Services Router Advanced WAN Access Configuration Guide*
- *J-series Services Router Administration Guide*

For more information about the JUNOS Internet software that runs on Services Routers, see the manuals listed in Table 5 on page 16.

Interfaces and Chassis

2-port Channelized T1/E1 PIM—Enables you to configure a single Physical Interface Module (PIM) interface as a channelized T1 interface or a channelized E1 interface. The Channelized T1/E1 PIM supports channelization to the *N*xDS0 level in addition to all the functionality supported by regular T1 and E1 PIMs. Each interface can be configured in clear-channel, fractional, or channelized mode. To configure channelized T1 interfaces, include the ct1-*pim/0/port* statement at the [edit interfaces] hierarchy level. To configure channelized E1 interfaces, include the ce1-*pim/0/port* statement at the [edit interfaces] hierarchy level.

NOTE: You cannot configure a channelized T1 or E1 PIM through a J-Web Quick Configuration page. The Quick Configuration pages do not display the channelized T1 and E1 interfaces. To configure a channelized T1 or E1 PIM, you must use the J-Web configuration editor or the JUNOS command-line interface (CLI).

Class of Service

Low-latency queuing support—Low-latency, strict priority CoS queuing allows delay-sensitive data, such as voice, to be sent before packets in other queues. By detecting congestion and managing the queues, a J-series Services Router can give preference to delay-sensitive data over other traffic without impacting the lower priority queues. To configure low-latency queuing, include the strict-high statement at the [edit class-of-service schedulers *scheduler-name* priority] hierarchy level and the out-of-profile statement at the [edit firewall policer *policer-name* then] hierarchy level.

Services Router User Interface and Configuration

RPM timestamp in the forwarding subsystem—To improve latency and reduce jitter in real-time performance monitoring (RPM) from a Services Router, you can set a timestamp for the probes. The RPM probes that can be timestamped are icmp-ping and icmp-ping-timestamp. To allow probes to be timestamped by the forwarding process, include the hardware-timestamp statement at the [edit services rpm probe *owner-name* test *test-name*] hierarchy level.

NOTE: Please contact Juniper Networks customer support before implementing RPM timestamping on Services Routers. [PR/79847]

Changes in J-series Services Router Default Behavior

Platform and Infrastructure

- **Operational mode command outputs changed**—The show chassis hardware and show chassis environment commands now show the status of redundant power supply modules in the J6300 and J6350 Services Routers. In addition, the output of the show chassis alarms and show system alarms commands now includes power-module-related alarms, if present.

  [*J-series Services Router Administration Guide*]

- **Unsupported encapsulation type removed**—Because flexible VLAN tagging is not supported on Fast Ethernet interfaces installed in J-series Services Routers, the flexible-vlan-tagging statement has been removed from the [edit interfaces fe-*fpc/pic/port*] hierarchy level in the CLI.

Interfaces and Chassis

- **Gigabit Ethernet interfaces (J4350 and J6350 Services Routers)**—By default, Gigabit Ethernet interfaces installed in J4350 and J6350 Services Routers autonegotiate the link mode and speed settings. For JUNOS Release 8.1 and later:

  - When you manually configure either the link mode or speed setting (not both settings), the system ignores the configuration and generates a system log message.
  - When you configure both the link mode and the speed, the link negotiates with your manually configured settings whether autonegotiation is enabled or disabled. Previously, your settings were ignored when autonegotiation was enabled.
  - If you disable autonegotiation and do not manually configure the link mode and the speed, the link is negotiated at 1000 Mbps full duplex.

  [*J-series Services Router Basic LAN and WAN Access Configuration Guide*]

- **MTU change for Gigabit Ethernet interfaces (J4350 and J6350 Services Routers)**—The maximum configurable MTU value has been changed to 9018 bytes. If you configure an MTU value greater than 9018, the system does not accept the configuration and generates an error message similar to the following:

```
Sep 5 15:55:48 aspen /kernel: ge-0/0/1: Illegal media change. MTU invalid:
 9192.
Max MTU supported on this PIC: 9018
```

[*J-series Services Router Basic LAN and WAN Access Configuration Guide*]

- **MTU change for 4-Port Fast Ethernet ePIM interfaces (J4350 and J6350 Services Routers)**—The maximum configurable MTU value has been changed to 1514 bytes. If you configure an MTU value greater than 1514, the system does not accept the configuration and generates an error message similar to the following:

```
Sep 5 15:55:48 aspen /kernel: fe-3/0/1: Illegal media change. MTU invalid:
 9192.
Max MTU supported on this PIC: 1514
```

[*J-series Services Router Basic LAN and WAN Access Configuration Guide*]

- **MAC address filtering not supported on Gigabit Ethernet and Fast Ethernet interfaces**—MAC address filtering is not supported on Gigabit Ethernet and 4-port Fast Ethernet interfaces. In previous software releases, the unsupported source-filtering statement at the [edit interfaces *interface-name* fastether-options] hierarchy level was available for these routers. However, this statement is no longer available in the CLI.

User Interface and Configuration

J-Web support for RPM hardware timestamping—The J-Web user interface now includes a setting for the hardware-timestamp statement.

[*J-series Services Router Administration Guide*]

Outstanding J-series Services Router Issues

The following problems currently exist in J-series Services Routers. The identifier following the description is the tracking number in the Juniper Networks bug database.

Platform and Infrastructure

If you include the vrf-table-label statement at the [edit routing-instances routing-instance-name] hierarchy level, the incoming traffic is considered to come from the internal label-switched interface (LSI) associated with the VRF instance. The traffic is not accounted for by the original incoming logical unit, because the original incoming logical interface is unknown and the LSI, being an internal interface, does not have accounting support. [PR/53148]

Services Router User Interface and Configuration

If you include the explicit-priority statement at the [edit system syslog file messages] hierarchy level, the event ID is not displayed for any event in the J-Web event viewer. Moreover, if you include system syslog time-format millisecond in the configuration, you cannot filter events in the J-Web event viewer. [PR/70523]

Interfaces and Chassis

- For ISDN dialer interfaces, when you include the no-keepalives statement at the [edit interfaces dl0 unit *logical-unit-number*] hierarchy level and you issue the show interfaces dl0 command, the output might display default keepalive settings. [PR/58520]
- If you disable a services interface by including the disable statement at the [edit interfaces sp-0/0/0] hierarchy level and then delete the disable statement from the configuration, the IPSec service might not reset correctly. As a workaround, either issue the deactivate services command followed by the activate services command, or issue the request chassis pic offline fpc-slot *pim-slot* pic-slot 0 command followed by the request chassis pic online fpc-slot *pim-slot* pic-slot 0 command. [PR/58522]
- If you take an ISDN interface offline, the LEDs on the ISDN PIM might not turn off. [PR/59536]
- For ISDN interfaces, if you include the vrf-table-label statement at the [edit interfaces routing-instances *routing-instance-name*] hierarchy level, packets might be dropped from the connection. [PR/59718]
- For ISDN dialer interfaces, if you include the minimum-links statement at the [edit interfaces dl0 unit *logical-unit-number*] hierarchy level and then deactivate the BRI interface associated with the dialer interface, the output packets counter displayed in the output of the show interfaces command might continue to increment when the specified number of minimum links are not available. [PR/59986]
- For ISDN dialer interfaces, when you configure the load-threshold 100 statement at the [edit interfaces dl0 unit *logical-unit-number* dialer-options] hierarchy level and the 56-Kbps threshold is exceeded, the interface does not support additional network traffic and might not activate another BRI interface. [PR/60045]
- If an ISDN dialer interface is configured as a dialer watch interface and is deactivated and configured as a backup interface, the dialer interface does not dial out when the primary interface becomes unavailable. As a workaround, disable the primary interface and commit the configuration, then enable the primary interface and commit the configuration. [PR/67355]
- On J-series Services Routers with multilink-frame-relay-uni-nni (FRF.16) encapsulation, when you issue the show interfaces queue command, the kernel returns only the bundle statistics for FRF.16 and does not return the queue statistics; hence the command fails. [PR/69565]
- A J4350 or J6350 router running JUNOS Release 8.0 will not function properly if the Channelized T1/E1 PIM is installed on the router. Ensure the following:
  - Before you install a Channelized T1/E1 PIM, upgrade the router to JUNOS Release 8.1.
  - Before you downgrade from JUNOS 8.1 to JUNOS 8.0, remove any Channelized T1/E1 PIMs installed on the router.

[PR/74308]

- If you send an RPM ICMP ping probe through an IPSec tunnel and the probe includes the hardware-timestamp statement at the [edit services rpm probe *owner-name* test *test-name*] hierarchy level, the probe might not work. [PR/75927]
- When two links are part of an MLPPP bundle and the link belonging to the bundle on the remote end is disabled, the output of the show interfaces t1-*pim/01/port* statistics detail command on the local end displays double the value for the Input bytes field. When the link on the remote end is re-enabled, the value for the Input bytes field is correct. [PR/78692]
- On J4350 and J6350 Services Routers, when you insert an Avaya VoIP TGM550 Telephony Gateway Module and the module is in a reset state, the router might not respond to any show chassis commands for up to 5 seconds. [PR/78695]
- For 1-port Gigabit Ethernet ePIMs installed on J-series Services Routers or built-in Gigabit Ethernet interfaces on the J4350 and J6350 Services Routers, if you configure more than one VRRP group on a port to place the port into promiscuous mode and then you issue a ping command, forwarding performance can be affected and duplicate ICMP messages might be sent in response to the ping. [PR/99796]

Class of Service

- If you oversubscribe an E1 interface, latency on the high-priority queue might be higher than expected. As a workaround, configure a shaping rate on the E1 interface that is equal to the line rate minus the E1 framing overhead. [PR/60595]
- J4350 and J6350 Services Routers might not have the requisite data buffers needed to meet expected delay-bandwidth requirements. Lack of data buffers might degrade CoS performance with smaller-sized (500 bytes or less) packets. [PR/73054]

Resolved Issues

The following section describes problems resolved since JUNOS Release 8.1R1. The identifier following the description is the tracking number in the bug database.

- If you are using a G.SHDSL interface in two-wire mode with an ADTRAN DSLAM, the 320-Kbps line rate might not work. [PR/62177: This issue has been resolved.]
- A G.SHDSL interface configured in two-wire mode with an ADTRAN DSLAM might show considerable packet loss if the line rate is configured at 448 Kbps. [PR/62179: This issue has been resolved]
- When a G.SHDSL interface initiates negotiations with an ADTRAN DSLAM, the G.SHDSL interface requires more than a minute to negotiate successfully. [PR/62462: This issue has been resolved.]
- On a J2300 Services Router with G.SHDSL interfaces installed, the 320-Kbps line rate might not work with an ADTRAN DSLAM. [PR/64727: This issue has been resolved.]
- On a J2300 Services Router with G.SHDSL interfaces installed, the 440-Kbps line rate might not work with an ADTRAN DSLAM. [PR/64729: This issue has been resolved.]
- If you configure the log-out-on-disconnect statement at the [edit system ports] hierarchy level and the console statement at the [edit system syslog] hierarchy level, and you remove and replace the console cable, the console port might lock. [PR/69459: This issue has been resolved.]
- For Gigabit Ethernet and 4-port Fast Ethernet interfaces installed in J6350 and J4350 Services Routers, MAC address filtering is not supported. [PR/70278: This issue has been resolved.]
- The channelized T1/E1 PIMs in Services Routers do not support a bit error rate test (BERT) at the channel level or interface level. [PR/71435: This issue has been resolved.]
- If you configure a real-time performance monitoring (RPM) UDP ping probe and include the hardware-timestamp statement at the [edit services rpm probe owner-name test test-name] hierarchy level, the round-trip time for the probe does not improve. [PR/75467: This issue has been resolved.]
- On Fast Ethernet interfaces installed in Services Routers, if the interface receives traffic with a destination MAC address set to broadcast (**ff:ff:ff:ff:ff:ff**), it might handle this traffic as keepalive traffic and limit the throughput to approximately 2500 packets per second. [PR/77376: This issue has been resolved.]
- When you configure data link switching (DLSw), the lt-0/0/0 interface, and other interfaces, and then commit the configuration, DLSw might not become established between peers. As a workaround, restart the DLSw process on both peers to establish the DLSw connection. [PR/79493: This issue has been resolved.]

Errata

- Payload loopback functionality is not supported on ATM-over-SHDSL interfaces. [*J-series Services Router Basic LAN and WAN Access Configuration Guide*]
- RS-232 serial interfaces cannot function error-free with a clock rate greater than 200 KHz. [*J-series Services Router Basic LAN and WAN Access Configuration Guide*]
- The power supplies on J6300 and J6350 Services Routers only are field-replaceable units (FRUs). The fixed power supplies on other models are not field replaceable. [Getting Started Guide for your router]
- On Gigabit Ethernet interfaces, autonegotiation is enabled (not disabled) by default. When autonegotiation is disabled and no link mode or speed is configured, the link is negotiated in full duplex mode at 1000 Mbps. [*J-series Services Router Basic LAN and WAN Access Configuration Guide*]
- For 4-port Fast Ethernet ePIMs on J4350 and J6350 Services Routers, if you apply a CoS scheduler map on outgoing (egress) traffic, the router does not divide the bandwidth appropriately among the CoS queues. As a workaround, configure enforced CoS shaping on the ports. [*J-series Services Router Advanced WAN Access Configuration Guide*]
- For J-series Services Routers deploying strict high-priority scheduling, the manuals incorrectly state that the out-of-profile limit does not work when you configure shaping on the interface. The out-of-profile limit does in fact work with shaping. [*J-series Services Router Advanced WAN Access Configuration Guide*]

Supported Third-Party Hardware

The USB slots on J-series Services Routers accept a USB storage device or USB storage device adapter with a compact flash disk installed, as defined in the *CompactFlash Specification* published by the CompactFlash Association. When the USB device is installed and configured, it automatically acts as a secondary boot device if the primary compact flash disk fails on startup. Depending on the size of the USB storage device, you can also configure it to receive any core files generated during a router failure. The USB device must have a storage capacity of at least 256 MB.

Table 1 on page 9 lists USB devices supported for use with the J-series routers.

Table 1: Supported USB Devices on the J-series Services Routers

Manufacturer	Storage Capacity	Part Number
SanDisk—Cruzer Mini 2.0	256 MB	SDCZ2-256-A10
SanDisk—ImageMate USB 2.0 Reader/Writer for CompactFlash Type I and II	N/A	Model# SDDR-91-A15 20-90-0015
SanDisk CompactFlash	512 MB	SDCFB-512-455
SanDisk CompactFlash	1 GB	SDCFB-1000–A10

Contact Juniper Networks customer support before using USB interfaces in a J-series Services Router.

J-series Compact Flash and Memory Requirements

Table 2 on page 10 lists the compact flash and DRAM requirements for all J-series Services Routers.

Table 2: J-series Compact Flash and DRAM Requirements

Model	Minimum Compact Flash Required	Minimum DRAM Required	Maximum DRAM Supported
J2300	256 MB	256 MB	1 GB
J4300	256 MB	256 MB	1 GB
J4350	256 MB	256 MB	2 GB
J6300	256 MB	256 MB	1 GB
J6350	256 MB	256 MB	2 GB

NOTE: If your J2300 Services Router contains a 128-MB compact flash, we recommend you upgrade it to at least 256 MB.

J-series Upgrade and Downgrade Instructions

This section contains the following topics:

- Upgrade and Downgrade Overview on page 10
- Before You Begin on page 12
- Downloading Software Upgrades from Juniper Networks on page 12
- Installing Software Upgrades on page 13
- Downgrade Instructions on page 15

NOTE: If the router is running a software version previous to JUNOS Release 7.2R3 or 7.3R2, you might need to upgrade to one of these interim software releases before you can upgrade to JUNOS Release 8.1R4.

Upgrade and Downgrade Overview

Typically, you upgrade the JUNOS software on a Internet Router by downloading a set of images onto your router or onto another system on your local network, such

as a PC. You then uncompress the package and install the uncompressed software using the J-Web interface or the CLI. Finally, you boot your system with this upgraded device.

A JUNOS software package is a collection of files that make up a software component. You can download software packages either for upgrading JUNOS software or for recovering a primary compact flash.

All JUNOS software is delivered in signed packages that contain digital signatures, Secure Hash Algorithm (SHA-1) checksums, and Message Digest 5 (MD5) checksums. For more information about JUNOS software packages, see the *JUNOS Software Installation and Upgrade Guide*.

Upgrade Software Packages

Download an upgrade software package, also known as an install package, to install new features and software fixes as they become available.

An upgrade software package name is in the following format: *package-name-m.nZx-distribution*.tgz.

- *package-name* is the name of the package—for example, junos-jseries.
- *m.n* is the software release, with *m* representing the major release number—for example, 8.0.
- *Z* indicates the type of software release. For example, R indicates released software, and B indicates beta-level software.
- *x* represents the version of the major software release—for example, 2.
- *distribution* indicates the area for which the software package is provided—domestic for the United States and Canada and export for worldwide distribution.

A sample J-series upgrade software package name is junos-jseries-8.0R2-domestic.tgz.

Recovery Software Packages

Download a recovery software package, also known as an install media package, to recover a primary compact flash device.

A recovery software package name is in the following format: *package-name-m.nZx*-export-cf*nnn*.gz.

- *package-name* is the name of the package—for example, junos-jseries.
- *m.n* is the software release, with *m* representing the major release number—for example, 8.0.
- *Z* indicates the type of software release. For example, R indicates released software, and B indicates beta-level software.
- *x* represents the version of the major software release—for example, 2.
- export indicates that the recovery software package is the exported worldwide software package version.
- cf*nnn* indicates the size of the target compact flash device in megabytes—for example, cf256.

A sample J-series recovery software package name is junos-jseries-8.0R2-export-cf256.gz.

Before You Begin

Before upgrading, be sure to back up the currently running and active file system and configuration so that you can recover to a known, stable environment in case the upgrade is unsuccessful. To back up the file system, you must have a removable compact flash disk installed on a J4300 or J6300 Services Router, or a USB drive installed on any J-series Services Router. The backup device must have a storage capacity of at least 256 MB.

To back up the file system to the removable compact flash disk, issue the following command:

```
user@host> request system snapshot media removable-compact-flash
```

To back up the file system to the removable USB drive, issue the following command:

```
user@host> request system snapshot media usb
```

Before installing the software upgrade, issue the following command, which frees storage by rotating noncurrent log files in /var/log , deleting files in /var/tmp that have not been modified in two days, and deleting all crash files in /var/crash:

```
user@host> request system storage cleanup
```

Before deleting the files, you can view the files to be deleted by issuing the following command:

```
user@host> request system storage cleanup dry-run
```

Downloading Software Upgrades from Juniper Networks

Follow these steps to download software upgrades from Juniper Networks:

1. Using a Web browser, follow the links to the download URL on the Juniper Networks Web page. Depending on your location, select either **Canada and U.S. Version** or **Worldwide Version**:
   - https://www.juniper.net/support/csc/swdist-domestic/
   - https://www.juniper.net/support/csc/swdist-ww/
2. Log in to the Juniper Networks authentication system using the username (generally your e-mail address) and password supplied by Juniper Networks representatives.
3. Using either the J-Web interface or the CLI, select the appropriate junos-j-series software package for your application. For information about JUNOS software packages, see "Upgrade and Downgrade Overview" on page 10.
4. Download the software to a local host or to an internal software distribution site.

Installing Software Upgrades

Use either the J-Web interface or the CLI to install JUNOS software upgrades.

Installing Software Upgrades with the J-Web Interface

You can use the J-Web interface to install software upgrades from a remote server using FTP or HTTP, or by uploading the file to the router. This section contains the following topics:

- Installing Software Upgrades from a Remote Server on page 13
- Installing Software Upgrades by Uploading Files on page 14

Installing Software Upgrades from a Remote Server

You can use the J-Web interface to install software packages on the Internet Router that are retrieved with FTP or HTTP from the location specified.

To install software upgrades from a remote server:

1. Download the software package as described in "Downloading Software Upgrades from Juniper Networks" on page 12.
2. In the J-Web interface, select **Manage > Software > Install Package**.
3. On the Install Remote page, enter information into the fields described in Table 3 on page 14.
4. Click **Fetch and Install Package**. The software is activated after the router has rebooted.

Table 3: Install Remote Summary

Field	Function	Your Action
Package Location (required)	Specifies the FTP or HTTP server, file path, and software package name.	Type the full address of the software package location on the FTP or HTTP server—one of the following: ftp://*hostname/pathname/package-name* http://*hostname/pathname/package-name*
User	Specifies the username, if the server requires one.	Type the username.
Password	Specifies the password, if the server requires one.	Type the password.
Reboot If Required	If this box is checked, the router is automatically rebooted when the upgrade is complete.	Check the box if you want the router to reboot automatically when the upgrade is complete.

Installing Software Upgrades by Uploading Files

You can use the J-Web interface to install software packages uploaded from your computer to the Internet Router.

To install software upgrades by uploading files:

1. Download the software package as described in "Downloading Software Upgrades from Juniper Networks" on page 12.
2. In the J-Web interface, select **Manage > Software > Upload Package**.
3. On the Upload Package page, enter information into the fields described in Table 4 on page 14.
4. Click **Upload Package**. The software is activated after the router has rebooted.

Table 4: Upload Package Summary

Field	Function	Your Action
File to Upload (required)	Specifies the location of the software package.	Type the location of the software package, or click **Browse** to navigate to the location.
Reboot If Required	If this box is checked the router is automatically rebooted when the upgrade is complete.	Select the check box if you want the router to reboot automatically when the upgrade is complete.

Installing Software Upgrades with the CLI

To install software upgrades on a router with the CLI:

1. Download the software package as described in "Downloading Software Upgrades from Juniper Networks" on page 12.
2. Copy the software package to the router. We recommend that you copy it to the /var/tmp directory.
3. Install the new package on the Internet Router:

   user@host> **request system software add validate unlink reboot** *source*

   Replace *source* with one of the following paths:

   - For a software package that is installed from a local directory on the router—*/pathname/package-name*
   - For software packages that are downloaded and installed from a remote location:
     - ftp://*hostname/pathname/package-name*
     - http://*hostname/pathname/package-name*

   The validate option validates the software package against the current configuration as a prerequisite to adding the software package, to ensure that the router reboots successfully. This is the default behavior when you are adding a software package for a different release.

   The unlink option removes the package at the earliest opportunity so that the router has enough room to complete the installation.

   Adding the reboot command reboots the router after the upgrade is validated and installed. Rebooting takes place only if the upgrade is successful.

   When the reboot is complete, the router displays the login prompt.

Downgrade Instructions

This section contains the following topics:

- Downgrading the Software with the J-Web Interface on page 16
- Downgrading the Software with the CLI on page 16

NOTE: Juniper Networks supports direct software downgrades for a maximum of three releases. For example, if your routing platform is running JUNOS Release 7.6, you can typically downgrade without problems to Release 7.3. If you attempt to downgrade more than three releases and validation of your configuration fails, we recommend downgrading to an intermediate release first before downgrading to the desired release.

Downgrading the Software with the J-Web Interface

You can downgrade the software from the J-Web interface. When you downgrade the software to a previous version, the software version that is saved in junos.old is the version of JUNOS that your router is downgraded to. For your changes to take effect, you must reboot the router.

To downgrade software:

1. Go to **Manage > Software > Downgrade**. The previous version (if any) is displayed on this page. For example, you can downgrade to the previously installed version of the router software, /cf/packages/junos-7.0120040930_1745-domestic.

NOTE: After you perform this operation, you cannot undo it.

2. Select **Downgrade** to downgrade to the previous version of the software or **Cancel** to cancel the downgrade process.
3. When the downgrade process is complete, for the new software to take effect, click **Manage > Reboot** to reboot the router at your convenience.

Downgrading the Software with the CLI

You can revert to the previous set of software using the request system software rollback command in the CLI. Rollback fails if the junos-jseries software bundle cannot be found in /var/sw/pkg.

You can roll back only to the software release that was installed on the Services Router before the current release. After you issue the request system software rollback command, the old release is loaded and you cannot reload it again. Issuing the request system software rollback command again results in an error.

To downgrade to an earlier version of software, follow the procedure for upgrading, using the junos-jseries software bundle labeled for the appropriate release.

Related Juniper Networks Documentation

Table 5 on page 16 lists and describes the publications for J-series Services Routers, the JUNOS CLI, the JUNOScript application programming interface (API), and the JUNOScope network management software.

Table 5: Juniper Networks Technical Documentation

Title	Description
J-series Guides	
Getting Started Guide	Provides an overview, basic instructions, and specifications for J-series Services Routers. The guide explains how to prepare your site for installation, unpack and install the router and its components, install licenses, and establish basic connectivity. Use the Getting Started Guide for your router model.

Table 5: Juniper Networks Technical Documentation *(continued)*

Title	Description
J-series Services Router Basic LAN and WAN Access Configuration Guide	Explains how to configure the interfaces on J-series Services Routers for basic IP routing with standard routing protocols, ISDN backup, and digital subscriber line (DSL) connections.
J-series Services Router Advanced WAN Access Configuration Guide	Explains how to configure J-series Services Routers in virtual private networks (VPNs) and multicast networks, configure data link switching (DLSw) services, and apply routing techniques such as policies, stateless and stateful firewall filters, IP Security (IPSec) tunnels, and class-of-service (CoS) classification for safer, more efficient routing.
J-series Services Router Administration Guide	Shows how to manage users and operations, monitor network performance, upgrade software, and diagnose common problems on J-series Services Routers.
JUNOS Configuration Guides	
JUNOS Class of Service Configuration Guide	Provides an overview of the class-of-service (CoS) functions of the JUNOS software and describes how to configure CoS features, including configuring multiple forwarding classes for transmitting packets, defining which packets are placed into each output queue, scheduling the transmission service level for each queue, and managing congestion through the random early detection (RED) algorithm.
JUNOS CLI User Guide	Describes how to use the JUNOS command-line interface (CLI) to configure, monitor, and manage Juniper Networks routing platforms. This material was formerly covered in the *JUNOS System Basics Configuration Guide*.
JUNOS Feature Guide	Provides a detailed explanation and configuration examples for several of the most complex features in the JUNOS software.
JUNOS MPLS Applications Configuration Guide	Provides an overview of traffic engineering concepts and describes how to configure traffic engineering protocols.
JUNOS Multicast Protocols Configuration Guide	Provides an overview of multicast concepts and describes how to configure multicast routing protocols.
JUNOS Network Interfaces Configuration Guide	Provides an overview of the network interface functions of the JUNOS Internet software and describes how to configure the network interfaces on the routing platform.
JUNOS Network Management Configuration Guide	Provides an overview of network management concepts and describes how to configure various network management features, such as SNMP and accounting options.
Secure Configuration Guide for Common Criteria and JUNOS-FIPS	Provides an overview of secure Common Criteria and JUNOS-FIPS protocols for the JUNOS Internet software and describes how to install and configure secure Common Criteria and JUNOS-FIPS on a routing platform.
JUNOS Software Installation and Upgrade Guide	Provides a description of JUNOS software components and packaging, and includes detailed information about how to initially configure, reinstall, and upgrade the JUNOS system software. This material was formerly covered in the *JUNOS System Basics Configuration Guide*.
JUNOS Policy Framework Configuration Guide	Provides an overview of policy concepts and describes how to configure routing policy, firewall filters, forwarding options, and cflowd.
JUNOS Routing Protocols Configuration Guide	Provides an overview of routing concepts and describes how to configure routing, routing instances, and unicast routing protocols.
JUNOS Services Interfaces Configuration Guide	Provides an overview of the services interfaces functions of the JUNOS software and describes how to configure the services interfaces on the router.

Table 5: Juniper Networks Technical Documentation *(continued)*

Title	Description
JUNOS System Basics Configuration Guide	Describes Juniper Networks routing platforms, and provides information about how to configure basic system parameters, supported protocols and software processes, authentication, and a variety of utilities for managing your router on the network.
JUNOS VPNs Configuration Guide	Provides an overview and describes how to configure Layer 2 and Layer 3 virtual private networks (VPNs), virtual private LAN service (VPLS), and Layer 2 circuits. Provides configuration examples.
JUNOS References	
JUNOS Hierarchy and RFC Reference	Describes the JUNOS *configuration mode* commands. Provides a hierarchy reference that displays each level of a configuration hierarchy and includes all possible configuration statements that can be used at that level. This material was formerly covered in the *JUNOS System Basics Configuration Guide*.
JUNOS System Basics and Services Command Reference	Describes the JUNOS software *operational mode* commands you use to monitor and troubleshoot system basics, including commands for real-time monitoring and route (or path) tracing, system software management, and chassis management. This guide also describes commands for monitoring and troubleshooting services such as class of service (CoS), IP Security (IPSec), stateful firewalls, flow collection, and flow monitoring.
JUNOS Interfaces Command Reference	Describes the JUNOS software *operational mode*commands you use to monitor and troubleshoot interfaces.
JUNOS Routing Protocols and Policies Command Reference	Describes the JUNOS software *operational mode* commands you use to monitor and troubleshoot routing policies and protocols, including firewall filters.
JUNOS System Log Messages Reference	Describes how to access and interpret system log messages generated by JUNOS software modules and provides a reference page for each message.
JUNOS API and Scripting Documentation	
JUNOScript API Guide	Describes how to use the JUNOScript application programming interface (API) to monitor and configure Juniper Networks routers.
JUNOS XML API Configuration Reference	Provides reference pages for the configuration tags in the JUNOScript API.
JUNOS XML API Operational Reference	Provides reference pages for the operational tags in the JUNOScript API.
JUNOS Configuration and Diagnostic Automation Guide	Describes how to use the commit script and self-diagnosis features of the JUNOS software. This guide explains how to enforce custom configuration rules defined in scripts, how to use commit script macros to provide simplified aliases for frequently used configuration statements, and how to configure diagnostic event policies.
NETCONF API Guide	Describes how to use the NETCONF API to monitor and configure Juniper Networks routing platforms.
JUNOS Comprehensive Index and Glossary	
JUNOS Internet Software Comprehensive Index and Glossary	Provides a complete index of all JUNOS Internet software books and the *JUNOScript API Guide*. Also provides a comprehensive glossary.
JUNOScope Software Documentation	

Table 5: Juniper Networks Technical Documentation *(continued)*

Title	Description
JUNOScope Software User Guide	Describes the JUNOScope software graphical user interface (GUI), how to install and administer the software, and how to use the software to manage router configuration files and monitor router operations.
Release Notes	
J-series Services Router Release Notes	Summarize new features, identify hardware problems, provide information omitted from the manual, and contain upgrade and downgrade instructions.
JUNOS Release Notes	Summarize new features for a particular software release, provide corrections and updates to published JUNOS and JUNOScript manuals, provide information that might have been omitted from the manuals, and describe upgrade and downgrade procedures.
JUNOScope Release Notes	Contain corrections and updates to the published JUNOScope manual, provide information that might have been omitted from the manual, and describe upgrade and downgrade procedures.

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 http://www.juniper.net/techpubs/docbug/docbugreport.html. If you are using e-mail, be sure to include the following information with your comments:

- Document name
- Document part number
- Page number
- Software release version

Requesting Support

For technical support, open a support case with the Case Manager link at http://www.juniper.net/support/ or call 1-888-314-JTAC (from the United States, Canada, or Mexico) or 1-408-745-9500 (from elsewhere).

If you are reporting a hardware or software problem, issue the following command from the CLI before contacting support:

```
user@host> request support information | save filename
```

To provide a core file to Juniper Networks for analysis, compress the file with the gzip utility, rename the file to include your company name, and copy it to ftp.juniper.net:pub/incoming. Then send the filename, along with software version information (the output of the show version command) and the configuration, to support@juniper.net. For documentation issues, fill out the bug report form located at http://www.juniper.net/techpubs/docbug/docbugreport.html.

Revision History

13 April 2007—Revision 3, JUNOS Release 8.1R3

3 January 2007—Revision 2, JUNOS Release 8.1R2

6 November 2006—Revision 1, JUNOS Release 8.1R1