

# J-series Services Router Release Notes

**Release 7.5R4**  
**20 November 2006**  
**Part No: 530-014844-01**  
**Revision 4**

These release notes introduce the newest release of Juniper Networks J-series Services Routers and Release 7.5R4 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 these 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 .....	2
Outstanding J-series Services Router Issues .....	4
Resolved Issues .....	5
Errata .....	6
Supported Third-Party Hardware .....	6
J-series Upgrade and Downgrade Instructions .....	6
Upgrade Instructions .....	7
Before You Begin .....	7
About the junos-jservices Package .....	7
Installing Software Upgrades with the J-Web Interface .....	8
Installing Software Upgrades from a Remote Server .....	8
Installing Software Upgrades by Uploading Files .....	9
Installing Software Upgrades with the CLI .....	10
Downgrade Instructions .....	11
Downgrading the Software with the J-Web Interface .....	11
Downgrading the Software with the CLI .....	11
Related Juniper Networks Documentation .....	12
Documentation Feedback .....	14
Requesting Support .....	14
Revision History .....	15

## J-series Services Router Features

---

This section describes the new J-series Services Routers features, available with the JUNOS 7.5R4 release. For more information, see the following manuals:

- *J-series 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 4.

### Interfaces and Chassis

- The J-series Services Router now supports ISDN callback and accepts incoming calls from other locations (ISDN dial-in). These two features allow greater flexibility for ISDN configurations. To configure the router to accept incoming calls, include the `incoming-map` statement at the `[edit interfaces dialer-interface unit logical-unit-number dialer-options]` hierarchy level. To configure the router for callback, include the `callback` statement at the `[edit interfaces dialer-interface unit logical-unit-number dialer-options]` hierarchy level.
- The J2300 Services Routers are now available in the following chassis types:
  - Dual-port G.SHDSL
  - Dual-port G.SHDSL with ISDN BRI S/T

Each new chassis includes a pair of 2-port symmetric high-speed digital subscriber line (G.SHDSL) interfaces that can be configured in 2-port two-wire G.SHDSL Annex A or Annex B mode. Chassis with both G.SHDSL and ISDN interfaces can be configured to use the ISDN interface as a backup connection for the ATM-over-SHDSL interface.

You can configure an Asynchronous Transfer Mode (ATM) interface over G.SHDSL to send network traffic through a point-to-point connection to a DSL access multiplexer (DSLAM).

The G.SHDSL interfaces support ITU-T G.991.2 (G.SHDSL specifications), ITU-T 994.1 (G.HS specifications), and ITU-T 997.1 (Physical layer management). To configure an ATM-over-SHDSL interface:

1. Navigate to **Configuration > Quick Configuration > Interfaces**. Add an `at-pim/0/ port` interface, and assign ATM physical properties.
2. Set the ATM-over-SHDSL annex type (Annex A or Annex B), and configure other ATM-over-SHDSL physical properties.
3. Assign ATM logical interface properties.

You can also use the CLI to configure the ATM-over-SHDSL interface by identifying the chassis slot and mode at the [edit chassis fpc] hierarchy level and then configuring ATM-over-SHDSL properties at the [edit interfaces at-pim / 0 / port] hierarchy level. For more information, see the *J-series Services Router Basic LAN and WAN Access Configuration Guide*.

- The J2300 Services Router now supports an ISDN interface as a backup interface for G.SHDSL. For more information about configuring ISDN interfaces as backup interfaces, see the *J-series Services Router Basic LAN and WAN Access Configuration Guide*.



**NOTE:** J2300 G.SHDSL Services Routers with ISDN BRI S/T backup, ISDN dial-in, and ISDN callback features enabled have undergone only limited field testing. Contact Juniper Networks customer support before implementing ISDN backup, ISDN dial-in, or ISDN callback on a J2300 G.SHDSL router.

---

### Services Router User Interface and Configuration

The J-Web graphical user interface provides new Quick Configuration pages that enable you to configure the following features:

- Asymmetric digital subscriber line (ADSL)—Configure physical and logical properties on the ADSL interface. To configure ADSL using Quick Configuration, navigate to **Configuration > Quick Configuration > Interfaces**.
- Class of Service (CoS)—Configure class-of-service properties for network traffic. To configure CoS using Quick Configuration, navigate to **Configuration > Quick Configuration > Class of Service**.
- Data link switching (DLSw)—Configure remote and local DLSw peers as well as LLC2 properties. To configure DLSw using Quick Configuration, navigate to **Configuration > Quick Configuration > Routing and Protocols**.
- Symmetric high-speed digital subscriber line (SHDSL)—Configure physical and logical properties on the SHDSL interface. To configure SHDSL using Quick Configuration, navigate to **Configuration > Quick Configuration > Interfaces**.
- Point-to-Point Protocol over Ethernet (PPPoE)—Configure PPPoE properties on physical interfaces. To configure PPPoE using Quick Configuration, navigate to **Configuration > Quick Configuration > Interfaces**.
- Integrated Services Digital Network (ISDN)—Configure ISDN physical and logical properties as well as dialer interface features. To configure ISDN using Quick Configuration, navigate to **Configuration > Quick Configuration > Interfaces**.

For more information about these J-Web features, see the *J-series Services Router Basic LAN and WAN Access Configuration Guide* and the *J-series Services Router Advanced WAN Access Configuration 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.

- 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 an adaptive 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]
- When you configure the `dialer-watch` option, IPv6 prefixes are not monitored. [PR/59143]
- 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 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]
- Host inbound and outbound packets might experience high latency. This does not affect user data traffic. [PR/61208]
- 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]

- 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]
- 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]
- The Network Control Protocol (NCP) state is shown as *Opened* in the output of the `show interface dlx` command, even when the multilink dialer is inactive. [PR/63141]
- For multilink dialer interfaces, the Network Control Protocol (NCP) *inet6* status in the output of the `show interface dlx` command always displays *not-configured*, even when the IPv6 addresses are configured and are reachable. [PR/63344]
- On a J2300 Services Router with G.SHDSL interfaces installed, the 320-Kbps line rate might not work with an ADTRAN DSLAM. [PR/64727]
- On a J2300 Services Router with G.SHDSL interfaces installed, the 440-Kbps line rate might not work with an ADTRAN DSLAM. [PR/64729]
- 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]
- If you configure an IPSec-over-GRE tunnel, there might be fragmentation issues. As a workaround, delete the `clear-dont-fragment` statement and the `mtu` statement on the GRE interface, and include the `tunnel-mtu 9192` statement at the `[edit services ipsec-vpn rule rule-name term term-name then]` hierarchy level on both sides of the connection. [PR/74377]

## Resolved Issues

---

The following section describes problems resolved since JUNOS Release 7.5R1. The identifier following the description is the tracking number in the bug database.

- A Services Router that is configured to synchronize with an NTP server and then restarted might not synchronize correctly with the server after the reboot. [PR/62621: This issue has been resolved.]
- On Fast Ethernet interfaces, if you configure the interface for autonegotiation while the peer is configured for full-duplex operation, the interface might stop receiving traffic. As a workaround, explicitly set the duplex mode to either half or full on both peers. [PR/69576: This issue has been resolved.]
- You cannot configure clocking on E1 ports using the group configuration. The workaround is to execute a `load merge` command instead of using group configuration. [PR/74254: This issue has been resolved.]

## Errata

- On G.SHDSL interfaces on J-series Services Routers:
  - Only 2-port two-wire mode is supported, and it is enabled by default. [*J-series Services Router Getting Started Guide* and *J-series Services Router Basic LAN and WAN Access Configuration Guide*]
  - Payload loopback functionality is not supported on ATM-over-SHDSL interfaces. [*J-series Services Router Basic LAN and WAN Access Configuration Guide*]
- You cannot use the J-Web interface to configure the accounting option for a discard action for IPv6 firewall filters. You can configure the accounting option for a discard action only for IPv4 (not IPv6) firewall filters. [*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.

Table 1 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	128 MB	SDCFB-256-A10
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 Upgrade and Downgrade Instructions

This section contains the following topics:

- Upgrade Instructions on page 7
- Downgrade Instructions on page 11

## Upgrade Instructions

This section contains the following topics:

- Before You Begin on page 7
- About the junos-jseries Package on page 7
- Installing Software Upgrades with the J-Web Interface on page 8
- Installing Software Upgrades with the CLI on page 10

### 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 the 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
```

### About the junos-jseries Package

All junos-jseries software is delivered in signed packages that contain digital signatures. A package is installed only if the digital signature within it matches the signature recorded in its corresponding `.sig` file. (For example, `-export.tgz` contains `-export.tgz` and `-export.tgz.sig`. The `junos-jseries-release-export.tgz` package is installed only if the digital signatures match in the two `-export.tgz.sig` files.)

The junos-jseries package completely reinstalls the software. This package rebuilds the file system but retains configuration files and similar information from the previous version.

For more information, see the *J-series Services Router Administration Guide*.



**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 7.5R4.

---

## Installing Software Upgrades with the J-Web Interface

You can install software upgrades from a remote server, or by uploading files to the Services Router.

### *Installing Software Upgrades from a Remote Server*

You can use the J-Web interface to install software upgrades on the Services Router from a remote server.

To install software upgrades from a remote server:

1. Using a Web browser, follow the links to the following download URL on the Juniper Networks Web page. Choose 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. Download the software to your local host or internal software distribution site.
4. In the J-Web interface, select **Manage > Software > Install Remote**.
5. On the Install Remote Quick Configuration page, enter information into the fields described in Table 2.
6. Click **Fetch and Install Package**. The software is activated after the router has rebooted.



**Table 2: Install Remote Quick Configuration Field Descriptions**

<b>Field</b>	<b>Function</b>	<b>Your Action</b>
Package Location (required)	Specifies the FTP or HTTP server, file path, and software package name location.	Type the full address of the software package location on the FTP or HTTP server.
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 automatically reboot when the upgrade is complete.

### ***Installing Software Upgrades by Uploading Files***

You can use the J-Web interface to install software upgrades by uploading files to the Services Router.

To install software upgrades by uploading files:

1. Using a Web browser, follow the links to the following download URL on the Juniper Networks Web page. Choose 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. Download the software to your local host or internal software distribution site.
4. In the J-Web interface, select **Manage > Software > Upload Package**.
5. On the Upload Package Quick Configuration page, enter information into the fields described in Table 3.
6. Click **Upload Package**. The software is activated after the router has rebooted.

**Table 3: Upload Package Quick Configuration Field Descriptions**

Field	Function	Your Action
File to Upload (required)	Specifies the location of the software package.	Type the location of the software package, or click <b>Browse</b> 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 automatically reboot when the upgrade is complete.

## Installing Software Upgrades with the CLI

To install software upgrades on a router using the CLI:

1. Using a Web browser, follow the links to the following download URL on the Juniper Networks Web page. Choose 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. Download the software to your local host.
4. Install the new package on the router:

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

Replace *source* with one of the following:

- */pathname/package-name* —For a software package that is installed from a local directory on the router.
- 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 the software package being added is a different release.

The *unlink* option removes the package at the earliest opportunity in order to make room to complete the installation.

Adding the **reboot** command reboots the router after the upgrade is validated and installed. When the reboot is complete, the router displays the login prompt.

Rebooting occurs only if the upgrade is successful.

## Downgrade Instructions

This section contains the following topics:

- Downgrading the Software with the J-Web Interface on page 11
- Downgrading the Software with the CLI on page 11



**NOTE:** You cannot downgrade more than three releases. For example, if your routing platform is running JUNOS Release 7.5, you can downgrade the software to Release 7.2 directly, but not to Release 7.1. As a workaround, first downgrade to Release 7.2 and then downgrade to Release 7.1.

---

### Downgrading the Software with the J-Web Interface

You can downgrade the software using 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 the JUNOS software that your router is downgraded to. For your changes to take effect, you must reboot the router.

1. Go to **Manage > Software > Downgrade**. The previous version (if any) is displayed on this page.



**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.

### 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.

You can issue the `request system software rollback` command only once. 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 4 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 4: Juniper Networks Technical Documentation**

Title	Description
<b>J-series Guides</b>	
<i>J-series Services Router Getting Started Guide</i>	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.
<i>J-series Services Router Basic LAN and WAN Access Configuration Guide</i>	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.
<i>J-series Services Router Advanced WAN Access Configuration Guide</i>	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.
<i>J-series Services Router Administration Guide</i>	Shows how to manage users and operations, monitor network performance, upgrade software, and diagnose common problems on J-series Services Routers.
<b>JUNOS Configuration Guides</b>	
<i>JUNOS Class of Service Configuration Guide</i>	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.
<i>JUNOS Feature Guide</i>	Provides a detailed explanation and configuration examples for several of the most complex features in the JUNOS software.
<i>JUNOS System Basics Configuration Guide</i>	Provides an overview of the JUNOS software and describes how to install and upgrade the software. This manual also describes how to configure system management functions and how to configure the chassis, including user accounts, passwords, and redundancy.
<i>JUNOS Network Interfaces Configuration Guide</i>	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.

<b>Title</b>	<b>Description</b>
<i>JUNOS Multicast Protocols Configuration Guide</i>	Provides an overview of multicast concepts and describes how to configure multicast routing protocols.
<i>JUNOS Network Management Configuration Guide</i>	Provides an overview of network management concepts and describes how to configure various network management features, such as SNMP and accounting options.
<i>JUNOS Policy Framework Configuration Guide</i>	Provides an overview of policy concepts and describes how to configure routing policy, firewall filters, forwarding options, and cflowd.
<i>JUNOS Routing Protocols Configuration Guide</i>	Provides an overview of routing concepts and describes how to configure routing, routing instances, and unicast routing protocols.
<i>JUNOS Services Interfaces Configuration Guide</i>	Provides an overview of the services interfaces functions of the JUNOS software and describes how to configure the services interfaces on the router.
<b>JUNOS References</b>	
<i>JUNOS System Basics and Services Command Reference</i>	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.
<i>JUNOS Interfaces Command Reference</i>	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot interfaces.
<i>JUNOS Routing Protocols and Policies Command Reference</i>	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot routing policies and protocols, including firewall filters.
<i>JUNOS System Log Messages Reference</i>	Describes how to access and interpret system log messages generated by JUNOS software modules and provides a reference page for each message.
<b>JUNOScript API and Scripting Documentation</b>	
<i>JUNOScript API Guide</i>	Describes how to use the JUNOScript application programming interface (API) to monitor and configure Juniper Networks routers.
<i>JUNOS XML API Configuration Reference</i>	Provides reference pages for the configuration tags in the JUNOScript API.
<i>JUNOS XML API Operational Reference</i>	Provides reference pages for the operational tags in the JUNOScript API.
<i>NETCONF API Guide</i>	Describes how to use the NETCONF API to monitor and configure Juniper Networks routing platforms.
<i>JUNOS Configuration and Diagnostic Automation Guide</i>	Provides an overview, instructions for using, and examples of the commit script and self-diagnosis features of the JUNOS software. This guide explains how to enforce custom configuration rules defined in scripts that run at commit time; how to use commit script macros to provide simplified aliases for frequently used configuration statements; and how to configure diagnostic event policies and actions associated with each policy.
<b>JUNOS Comprehensive Index and Glossary</b>	

<b>Title</b>	<b>Description</b>
<i>JUNOS Comprehensive Index and Glossary</i>	Provides a complete index of all JUNOS Internet software books and the <i>JUNOScript API Guide</i> . Also provides a comprehensive glossary.
<b>JUNOScope Software Documentation</b>	
<i>JUNOScope Software User Guide</i>	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.
<b>Release Notes</b>	
<i>J-series Services Router Release Notes</i>	Summarize new features, identify hardware problems, provide information omitted from the manual, and contain upgrade and downgrade instructions.
<i>JUNOS Internet Software Release Notes</i>	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.
<i>JUNOScope Software Release Notes</i>	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](mailto: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

---

20 November 2006—Revision 4, JUNOS Release 7.5R4

31 July 2006—Revision 3, JUNOS Release 7.5R3

28 March 2006—Revision 2, JUNOS Release 7.5R2

8 February 2006—Revision 1, JUNOS Release 7.5R1

Copyright © 2006, Juniper Networks, Inc. All rights reserved.

Juniper Networks, the Juniper Networks logo, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. JUNOS and JUNOSe are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Products made or sold by Juniper Networks or components thereof might be covered by one or more of the following patents that are owned by or licensed to Juniper Networks: U.S. Patent Nos. 5,473,599, 5,905,725, 5,909,440, 6,192,051, 6,333,650, 6,359,479, 6,406,312, 6,429,706, 6,459,579, 6,493,347, 6,538,518, 6,538,899, 6,552,918, 6,567,902, 6,578,186, and 6,590,785.