JUNOS™ Software

J-Web Interface User Guide

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April 2007—Restructured content to describe J-Web operation and use on all routing platforms. Removed routing-platform-specific configuration, monitoring, and administrative instructions.
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14 September 2005—Added Quick Configuration pages.
7 July 2005—Added J–Web software installation procedure.
15 June 2005—Initial version.

The information in this document is current as of the date listed in the revision history.

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Juniper Networks hardware and software products are Year 2000 compliant. The JUNOS software has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

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Abbreviated Table of Contents

Table of Contents

About This Guide

This preface provides the following guidelines for using the *JUNOS Software J-Web Interface User Guide*:

Objectives

This guide describes how to use the J-Web user interface to configure, monitor, and manage Juniper Networks routing platforms.

This guide is not directly related to any particular release of the JUNOS software. To obtain the most current version of this manual, refer to the product documentation page on the Juniper Networks Web site, which is located at http://www.juniper.net.

Juniper Networks routing platform operations are controlled by the JUNOS software. You can configure and manage the JUNOS software through either a command-line interface (CLI) or a Web browser called the J-Web user interface. The J-Web interface works with most Web browsers, including Microsoft Internet Explorer and Netscape Navigator. To use the J-Web interface, you must have access to a Web browser application on your system.

Audience

This guide is designed for individuals who prefer using a graphical user interface (GUI) for installing, configuring, and managing a Juniper Networks routing platform. The guide is intended for the following audiences:

- Customers with technical knowledge of and experience with networks and the Internet

- Network administrators who install, configure, and manage Internet routing platforms but are unfamiliar with the JUNOS software
- Network administrators who install, configure, and manage products of Juniper Networks

Personnel operating the equipment must be trained and competent; must not conduct themselves in a careless, willfully negligent, or hostile manner; and must abide by the instructions provided by the documentation.

Supported Routing Platforms

The J-Web user interface is supported on the following routing platforms running the JUNOS software:

- J-series
- M-series
- MX-series
- T-series

How to Use This Guide

This guide provides a comprehensive two-part overview of the J-Web user interface. Part 1 describes how to install and start the J-Web interface, explains its layout, and identifies the elements that comprise the interface. Part 2 describes the tasks you perform on a routing platform with the J-Web interface. The chapters describing J-Web tasks follow the order in which the tasks appear in the interface.

Although this guide does not include a description of each J-Web page, much of this information appears elsewhere in Juniper Networks documentation. See Table 1 on page xii for the location of J-Web information and Table 4 on page xv for a comprehensive list of documentation for routing platforms operating on the JUNOS software.

Table 1: Location of J-Web Information

J-Web Information	Location
How to install the J-Web interface.	"Installing, Starting, and Managing J-Web" on page 3
■ J-Web layout and elements. ■ How to navigate the J-Web interface.	"J-Web User Interface Overview" on page 17

Table 1: Location of J-Web Information *(continued)*

J-Web Information	Location
How to perform typical tasks—Monitor, Configuration, Diagnose, Manage, Events, Alarms—on your routing platform with the J-Web interface.	■ Monitor Tasks on page 29 ■ Configuration Tasks on page 45 ■ Manage Tasks on page 85 ■ Diagnose Tasks on page 73 ■ Events Tasks on page 93 ■ Alarms Tasks (J-series Routing Platforms Only) on page 103
How to use each field on the Quick Configuration task pages and many fields on the View and Edit configuration task pages.	■ J-Web Help (see "Getting J-Web Help" on page 24) ■ *J-series Services Router Basic LAN and WAN Access Configuration Guide* ■ *J-series Services Router Advanced WAN Access Configuration Guide*
How to use each field on the Monitor, Manage, Diagnose, Events, and Alarms task pages.	■ J-Web Help (see "Getting J-Web Help" on page 24) ■ *J-series Services Router Administration Guide*

Document Conventions

Table 2 on page xiii defines the notice icons used in this guide.

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.

Table 3 on page xiv defines the text and syntax conventions used in this guide.

Table 3: Text and Syntax Conventions

Convention	Description	Examples
Bold sans serif typeface	Represents text that you type.	To enter configuration mode, type the **configure** command: user@host> **configure**
`Fixed-width typeface`	Represents output that appears on the terminal screen.	`user@host> show chassis alarms` `No alarms currently active`
Italic typeface	■ Introduces important new terms. ■ Identifies book names. ■ Identifies RFC and Internet draft titles.	■ A policy *term* is a named structure that defines match conditions and actions. ■ *JUNOS System Basics Configuration Guide* ■ RFC 1997, *BGP Communities Attribute*
Italic sans serif typeface	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# **set system domain-name** *domain-name*
Sans serif typeface	Represents names of configuration statements, commands, files, and directories; IP addresses; configuration hierarchy levels; or labels on routing platform components.	■ To configure a stub area, include the **stub** statement at the **[edit protocols ospf area area-id]** hierarchy level. ■ The console port is labeled **CONSOLE**.
< > (angle brackets)	Enclose optional keywords or variables.	stub <default-metric *metric*>;
| (pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	broadcast | multicast (*string1* | *string2* | *string3*)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[ ] (square brackets)	Enclose a variable for which you can substitute one or more values.	community name members [*community-ids*]

Indention and braces ({ })	Identify a level in the configuration hierarchy.	[edit]
		routing-options {
		  static {
		  route default {
		  nexthop *address*;
		  retain;
		  }
		  }
		}

; (semicolon)	Identifies a leaf statement at a configuration hierarchy level.	

Table 3: Text and Syntax Conventions *(continued)*

Convention	Description	Examples
J-Web GUI Conventions		
Bold typeface	Represents J-Web graphical user interface (GUI) items you click or select.	■ In the Logical Interfaces box, select **All Interfaces**. ■ To cancel the configuration, click **Cancel**.
> (bold right angle bracket)	Separates levels in a hierarchy of J-Web selections.	In the configuration editor hierarchy, select **Protocols > Ospf**.

List of Technical Publications

Table 4 on page xv lists the software and hardware guides and release notes for Juniper Networks J-series, M-series, MX-series, and T-series routing platforms and describes the contents of each document. Table 5 on page xviii lists the books included in the *Network Operations Guide* series.

Table 4: Technical Documentation for Supported Routing Platforms

Book	Description
JUNOS Internet Software for Supported Routing Platforms	
Class of Service	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.
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*.
Feature Guide	Provides a detailed explanation and configuration examples for several of the most complex features in the JUNOS software.
High Availability Guide	Provides an overview of hardware and software resources that ensure a high level of continuous routing platform operation and describes how to configure high availability (HA) features such as nonstop routing (NSR) and graceful Routing Engine switchover (GRES).
MPLS Applications	Provides an overview of traffic engineering concepts and describes how to configure traffic engineering protocols.
Multicast Protocols	Provides an overview of multicast concepts and describes how to configure multicast routing protocols.

Table 4: Technical Documentation for Supported Routing Platforms *(continued)*

Book	Description
Network Interfaces	Provides an overview of the network interface functions of the JUNOS software and describes how to configure the network interfaces on the routing platform.
Network Management	Provides an overview of network management concepts and describes how to configure various network management features, such as SNMP and accounting options.
Policy Framework	Provides an overview of policy concepts and describes how to configure routing policy, firewall filters, and forwarding options.
Routing Protocols	Provides an overview of routing concepts and describes how to configure routing, routing instances, and unicast routing protocols.
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.
Services Interfaces	Provides an overview of the services interfaces functions of the JUNOS software and describes how to configure the services interfaces on the router.
Software Installation and Upgrade Guide	Describes the JUNOS software components and packaging and explains how to initially configure, reinstall, and upgrade the JUNOS system software. This material was formerly covered in the *JUNOS System Basics Configuration Guide*.
System Basics	Describes Juniper Networks routing platforms and explains how to configure basic system parameters, supported protocols and software processes, authentication, and a variety of utilities for managing your router on the network.
VPNs	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	
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*.
Interfaces Command Reference	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot interfaces.
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.

Table 4: Technical Documentation for Supported Routing Platforms *(continued)*

Book	Description
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. Also describes commands for monitoring and troubleshooting services such as class of service (CoS), IP Security (IPSec), stateful firewalls, flow collection, and flow monitoring.
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.
J-Web User Guide	
J-Web Interface User Guide	Describes how to use the J-Web graphical user interface (GUI) to configure, monitor, and manage Juniper Networks routing platforms.
JUNOS API and Scripting Documentation	
JUNOScript API Guide	Describes how to use the JUNOScript application programming interface (API) to monitor and configure Juniper Networks routing platforms.
JUNOS XML API Configuration Reference	Provides reference pages for the configuration tag elements in the JUNOS XML API.
JUNOS XML API Operational Reference	Provides reference pages for the operational tag elements in the JUNOS XML API.
NETCONF API Guide	Describes how to use the NETCONF API to monitor and configure Juniper Networks routing platforms.
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.
Hardware Documentation	
Hardware Guide	Describes how to install, maintain, and troubleshoot routing platforms and components. Each platform has its own hardware guide.
PIC Guide	Describes the routing platform's Physical Interface Cards (PICs). Each platform has its own PIC guide.
DPC Guide	Describes the Dense Port Concentrators (DPCs) for all MX-series routers.
JUNOScope Documentation	
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 routing platform configuration files and monitor routing platform operations.

Table 4: Technical Documentation for Supported Routing Platforms *(continued)*

Book	Description
J-series Routing Platform Documentation	
Getting Started Guide	Provides an overview, basic instructions, and specifications for J-series routing platforms. 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.
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.
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.
Administration Guide	Shows how to manage users and operations, monitor network performance, upgrade software, and diagnose common problems on J-series Services Routers.
Release Notes	
JUNOS Release Notes	Summarize new features and known problems for a particular software release, provide corrections and updates to published JUNOS, JUNOScript, and NETCONF manuals, provide information that might have been omitted from the manuals, and describe upgrade and downgrade procedures.
Hardware Release Notes	Describe the available documentation for the routing platform and summarize known problems with the hardware and accompanying software. Each platform has its own release notes.
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.
J-series Services Router Release Notes	Briefly describe Services Router features, identify known hardware problems, and provide upgrade and downgrade instructions

Table 5: JUNOS Internet Software Network Operations Guides

Book	Description
Baseline	Describes the most basic tasks for running a network using Juniper Networks products. Tasks include upgrading and reinstalling JUNOS software, gathering basic system management information, verifying your network topology, and searching log messages.
Interfaces	Describes tasks for monitoring interfaces. Tasks include using loopback testing and locating alarms.

Table 5: JUNOS Internet Software Network Operations Guides *(continued)*

Book	Description
MPLS	Describes tasks for configuring, monitoring, and troubleshooting an example MPLS network. Tasks include verifying the correct configuration of the MPLS and RSVP protocols, displaying the status and statistics of MPLS running on all routing platforms in the network, and using the layered MPLS troubleshooting model to investigate problems with an MPLS network.
MPLS Log Reference	Describes MPLS status and error messages that appear in the output of the show mpls lsp extensive command. The guide also describes how and when to configure Constrained Shortest Path First (CSPF) and RSVP trace options, and how to examine a CSPF or RSVP failure in a sample network.
Hardware	Describes tasks for monitoring M-series and T-series routing platforms.

Documentation Feedback

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

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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).

Part 1
Introduction to J-Web

Chapter 1

Installing, Starting, and Managing J-Web

Your routing platform comes with the JUNOS software installed on it. When you power on the routing platform, all software starts automatically. On J-series routing platforms, the J-Web software is part of the JUNOS software available by default. However, on M-series and T-series routing platforms you need to install the J-Web software because it is not shipped on the routing platform.

This chapter contains the following topics:

Installing the J-Web Software

If your routing platform is not shipped with the J-Web software on it, you must download the J-Web software package from the Juniper Networks Web page and install it on your routing platform. After the installation, you must enable Web management of the routing platform with the CLI.

NOTE: M-series or T-series routing platforms must be running JUNOS software version 7.3 or later to support the J-Web interface.

To install and enable the J-Web software:

1. Using a Web browser, navigate to the Juniper Networks Customer Support Center at https://www.juniper.net/customers/csc/software/.
2. Log in to the Juniper Networks authentication system with the username (generally your e-mail address) and password supplied by Juniper Networks representatives.

3. Download the J-Web software to your local host. Select the version that is the same as the JUNOS software version running on the routing platform.
4. Copy the software package to the routing platform. We recommend that you copy it to the /var/tmp directory.
5. If you have previously installed the J-Web software on the routing platform, you must delete it before installing the new version. To do so, from operational mode in the CLI, enter the following command:

   user@host> **request system software delete jweb**

6. Install the new package on the routing platform. From operational mode in the CLI, enter the following command:

   user@host> **request system software add** *path/filename*

   Replace *path* with the full pathname to the J-Web software package. Replace *filename* with the filename of the J-Web software package.
7. Enable Web management of the routing platform. From configuration mode in the CLI, enter the following command:

   user@host# **system services web-management http**

Before You Begin

Before you start the user interface, you must perform the initial routing platform configuration described in the routing platform hardware guide. After the initial configuration, you use your username and password and the hostname or IP address of the routing platform to start the user interface.

Starting the J-Web Interface

To start the J-Web interface:

1. Launch a Web browser that has Hypertext Transfer Protocol (HTTP) or HTTP over Secure Sockets Layer (HTTPS) enabled.

   To use HTTPS, you must have installed a certificate on the routing platform and enabled HTTPS.

NOTE: If the routing platform is running the worldwide version of the JUNOS software and you are using the Microsoft Internet Explorer Web browser, you must disable the Use SSL 3.0 option in the Web browser to access the routing platform.

2. After http:// or https:// in your Web browser, type the hostname or IP address of the routing platform, and press Enter.

   The J-Web login page appears.
3. On the login page, type your username and password, and click **Log In**.

To correct or change the username or password you typed, click **Reset**, type the new entry or entries, and click **Log In**.

NOTE: The default username is root with no password. You must change this during initial configuration or the system does not accept the configuration.

The J-Web **Quick Configuration > Set Up** or **Monitor > System** page appears.

To explicitly terminate a J-Web session at any time, click **Logout** in the top pane.

Configuring Basic Settings on the Routing Platform

To configure the basic settings on your routing platform, first gather the information described in “Before You Begin” on page 5 and then follow instructions described in “Configuring Basic Settings” on page 6.

Before You Begin

Before you begin initial configuration, complete the following tasks:

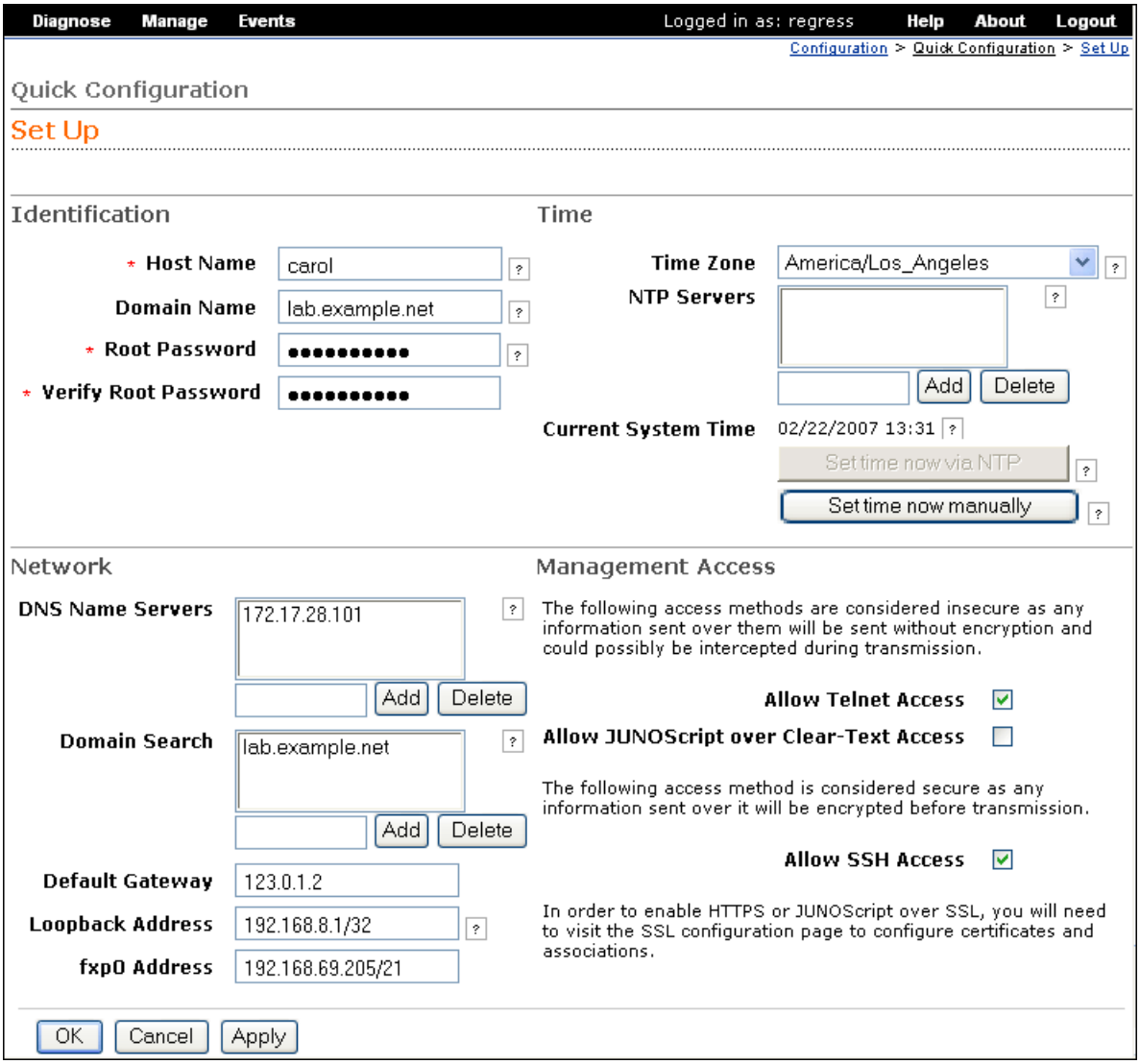
- Install the routing platform in its permanent location, as described in the hardware installation guide or Getting Started Guide for your routing platform.
- Gather the following information:
  - Hostname for the routing platform on the network
  - Domain that the routing platform belongs to on the network
  - Password for the root user
  - Time zone where the routing platform is located
  - IP address of a Network Time Protocol (NTP) server (if NTP is used to set the time on the routing platform)
  - IP address of a Domain Name System (DNS) server
  - List of domains that can be appended to hostnames for DNS resolution
  - IP address of the default gateway
  - IP address to be used for the loopback interface
  - IP address of the built-in Ethernet interface that you will use for management purposes
- Collect the following equipment:
  - A management device, such as a laptop, with an Ethernet port
  - An Ethernet cable

Configuring Basic Settings

To configure basic settings with J-Web Quick Configuration:

1. Navigate to the Set Up Quick Configuration page by selecting **Configuration > Quick Configuration > Set Up** (see Figure 1 on page 7).
2. Enter information into the Set Up Quick Configuration page, as described in Table 6 on page 8.
3. Click one of the following buttons:
   - To apply the configuration and stay in the Set Up Quick Configuration page, click **Apply**.
   - To apply the configuration and return to the Quick Configuration page, click **OK**.
   - To cancel your entries and return to the Quick Configuration page, click **Cancel**.

Figure 1: J-Web Set Up Quick Configuration Page



NOTE: For J-series routing platforms only, after initial configuration is complete, the routing platform stops functioning as a DHCP server. If you change the IP address of the management interface and have the management device configured to use DHCP, you lose your DHCP lease and your connection to the routing platform through the J-Web interface. To reestablish a connection, either set the IP address on the management device manually, or connect the management interface to the management network and access the routing platform another way—for example, through the console port.

Table 6: Set Up Quick Configuration Summary

Field	Function	Your Action
Identification		
Host Name (required)	Defines the hostname of the routing platform.	Type the hostname.
Domain Name	Defines the network or subnetwork that the machine belongs to.	Type the domain name.
Root Password (required)	Sets the root password that user "root" can use to log in to the routing platform.	Type a plain-text password that the system encrypts. **NOTE:** After a root password has been defined, it is required when you log in to the J-Web user interface or the CLI.
Verify Root Password (required)	Verifies the root password has been typed correctly.	Retype the password.
Time		
Time Zone	Identifies the time zone that the routing platform is located in.	From the list, select the appropriate time zone.
NTP Servers	Specify an NTP server that the routing platform can reach to synchronize the system time.	To add an IP address, type it in the box to the left of the Add button, then click **Add**. To delete an IP address, click it in the box above the Add button, then click **Delete**.
Current System Time	Synchronizes the system time with the NTP server, or manually sets the system time and date.	■ To immediately set the time using the NTP server, click **Set Time via NTP**. The routing platform sends a request to the NTP server and synchronizes the system time. **NOTE:** If you are configuring other settings on this page, the routing platform also synchronizes the system time using the NTP server when you click **Apply** or **OK**. ■ To set the time manually, click **Set Time Manually**. A pop-up window allows you to select the current date and time from lists.
Network		
DNS Name Servers	Specify a DNS server that the routing platform can use to resolve hostnames into addresses.	To add an IP address, type it in the box to the left of the Add button, then click **Add**. To delete an IP address, click it in the box above the Add button, then click **Delete**.
Domain Search	Adds each domain name that the routing platform is included in to the configuration so that they are included in a DNS search.	To add a domain name, type it in the box to the left of the Add button, then click **Add**. To delete a domain name, click it in the box above the Add button, then click **Delete**.

Table 6: Set Up Quick Configuration Summary *(continued)*

Field	Function	Your Action
Default Gateway	Defines a default gateway through which to direct packets addressed to networks not explicitly listed in the routing table.	Type a 32-bit IP address, in dotted decimal notation.
Loopback Address	Defines a reserved IP address that is always available on the routing platform. If no address is entered, this address is set to 127.0.0.1/32.	Type a 32-bit IP address and prefix length, in dotted decimal notation.
fe-0/0/0 Address (on J2300, J4300 and J6300 routing platforms) ge-0/0/0 Address (on J4350 and J6350 routing platforms) fxp0 Address (on M-series routing platforms)	Defines the IP address and prefix length of the management interface. The management interface is used for accessing the routing platform. The DHCP client sets this address to 192.168.1.1/24 if no DHCP server is found.	Type a 32-bit IP address and prefix length, in dotted decimal notation. **NOTE:** You must enter the address for the management interface on the Quick Configuration Set Up page before you click **Apply** or **OK**. If you do not manually configure this address, you will lose your connection to the J-Web interface when you click **Apply** or **OK**.
Management Access		
Allow Telnet Access	Allows remote access to the routing platform using Telnet.	To enable Telnet access, select the check box.
Allow JUNOScript over Clear-Text Access	Allows JUNOScript to access the routing platform using a protocol for sending unencrypted text over a TCP connection.	To enable JUNOScript access over clear text, select the check box.
Allow SSH Access	Allows remote access to the routing platform using SSH.	To enable SSH access, select the check box.

Enabling Secure Web Access

This section contains the following topics:

Secure Web Access Overview

A routing platform uses the Secure Sockets Layer (SSL) protocol to provide secure management of routing platforms through the Web interface. SSL uses public-private key technology that requires a paired private key and an authentication certificate for the SSL service. SSL encrypts communication between your routing platform and the Web browser with a session key negotiated by the SSL server certificate.

An SSL certificate includes identifying information such as a public key and a signature made by a certificate authority (CA). When you access the routing platform through HTTPS, an SSL handshake authenticates the server and the client and begins a secure session. If the information does not match or the certificate has expired, you are not able to access the routing platform through HTTPS.

Without SSL encryption, communication between your routing platform and the browser is sent in the open and can be intercepted. We recommend that you enable HTTPS access on your WAN interfaces.

On J-series routing platforms, HTTP access is enabled by default on the built-in management interfaces. By default, HTTPS access is supported on any interface with an SSL server certificate.

Generating SSL Certificates

To enable secure Web access, you must first generate a digital SSL certificate, and then enable HTTPS access on the routing platform.

To generate an SSL certificate:

1. Enter the following openssl command in your Secure Shell command-line interface. The openssl command generates a self-signed SSL certificate in the privacy-enhanced mail (PEM) format. It writes the certificate and an unencrypted 1024-bit RSA private key to the specified file.

   % openssl req –x509 –nodes –newkey rsa:1024 –keyout *filename*.pem -out *filename*.pem

   Replace *filename* with the name of a file in which you want the SSL certificate to be written—for example, new.pem.

2. When prompted, type the appropriate information in the identification form. For example, type US for the country name.

3. Display the contents of the file new.pem.

   cat new.pem

   Copy the contents of this file for installing the SSL certificate.

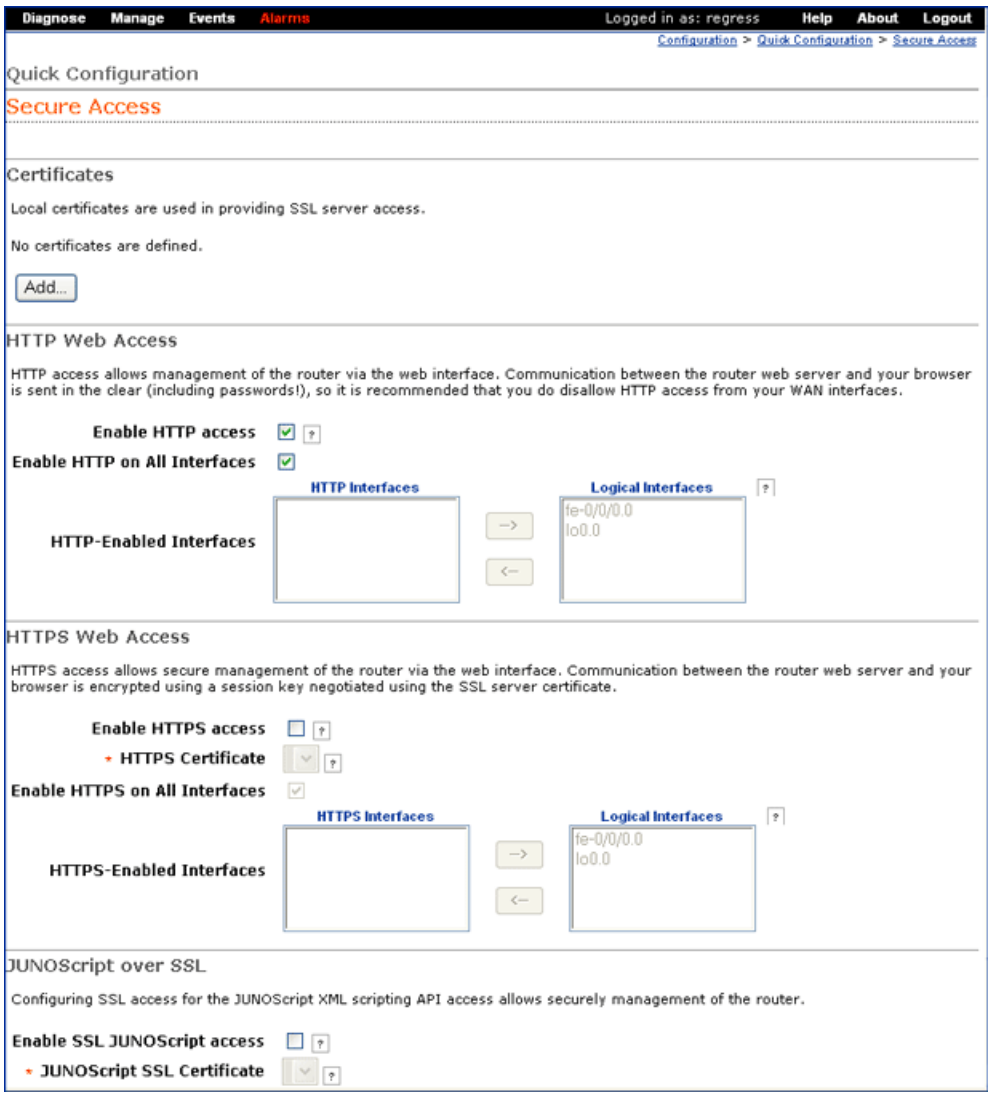
Go on to “Configuring Secure Web Access” on page 10 to install the SSL certificate and enable HTTPS.

Configuring Secure Web Access

Navigate to the Secure Access Quick Configuration page by selecting **Configuration > Quick Configuration > Secure Access**. On this page, you can enable HTTP and HTTPS access on interfaces for managing routing platforms through the Web interface. You can also install SSL certificates and enable JUNOScript over SSL with the Secure Access page.

Figure 2 on page 11 shows the Secure Access Quick Configuration page.

Figure 2: Quick Configuration Secure Access Page



To configure Web access settings in the J-Web interface:

1. Enter information into the Secure Access Quick Configuration page, as described in Table 7 on page 12.
2. Click one of the following buttons:
   - To apply the configuration and stay on the Quick Configuration page, click **Apply**.
   - To apply the configuration and return to the Quick Configuration page, click **OK**.
   - To cancel your entries and return to the Quick Configuration page, click **Cancel**.

3. To verify that Web access is enabled correctly, connect to the router using one of the following methods:
   - For HTTP access—In your Web browser, type http://*URL* or http://*IP address*.
   - For HTTPS access—In your Web browser, type https://*URL* or https://*IP address*.
   - For SSL JUNOScript access—A JUNOScript client such as JUNOScope is required. For information about how to log in to JUNOScope, see the *JUNOScope Software User Guide*.

Table 7: Secure Access Quick Configuration Summary

Field	Function	Your Action
Certificates		
Certificates	Displays digital certificates required for SSL access to the routing platform. Allows you to add and delete SSL certificates. For information about how to generate an SSL certificate, see "Generating SSL Certificates" on page 10.	To add a certificate: 1. Click **Add**. Opens the Add a Local Certificate page. 2. Type a name in the Certificate Name box—for example, new. 3. Paste the generated certificate and RSA private key in the Certificate box. To delete a certificate, select it and click **Delete**.
HTTP Web Access		
Enable HTTP Access	Enables HTTP access on interfaces.	To enable HTTP access, select the **Enable HTTP access** check box.
Enable HTTP on All Interfaces	Enables HTTP access on all interfaces at one time.	To enable HTTP access on all interfaces, select the **Enable HTTP on All Interfaces** check box.
HTTP-Enabled Interfaces	Specifies interfaces on which you want to enable HTTP access.	Select and deselect interfaces by clicking the direction arrows: ■ To enable HTTP access on an interface, add the interface to the HTTP Interfaces list. ■ To disable HTTP access on an interface, add the interface to the Logical Interfaces list.
HTTPS Web Access		
Enable HTTPS Access	Enables HTTPS access on interfaces.	To enable HTTPS access, select the **Enable HTTPS access** check box.
HTTPS Certificate	Specifies SSL certificates to be used for encryption. This field is available only after you have created an SSL certificate.	To specify the HTTPS certificate, select a certificate from the HTTPS Certificate list—for example, **new**.
Enable HTTPS on All Interfaces	Enables HTTPS on all interfaces at one time.	To enable HTTPS on all interfaces, select the **Enable HTTPS on All Interfaces** check box.

Table 7: Secure Access Quick Configuration Summary *(continued)*

Field	Function	Your Action
HTTPS-Enabled Interfaces	Allows you to specify interfaces on which you want to enable HTTPS access.	Select and deselect interfaces by clicking the direction arrows: ■ To enable HTTPS access on an interface, add the interface to the HTTPS Interfaces list. ■ To disable HTTPS access on an interface, add the interface to the Logical Interfaces list.
JUNOScript over SSL		
Enable SSL JUNOScript access	Enables secured SSL access to the JUNOScript XML scripting API.	To enable SSL access, select the **Enable SSL JUNOScript access** check box.
JUNOScript SSL Certificate	Specifies SSL certificates to be used for encryption. This field is available only after you create at least one SSL certificate.	To enable an SSL certificate, select a certificate from the JUNOScript SSL Certificate list—for example, **new**.

Managing J-Web Sessions

You establish a J-Web session with the routing platform through an HTTP-enabled or HTTPS-enabled Web browser. The HTTPS protocol, which uses 128-bit encryption, is available only in domestic versions of the JUNOS software. To use HTTPS, you must have installed a certificate on the routing platform and enabled HTTPS.

When you attempt to log in through the J-Web interface, the routing platform authenticates your username with the same methods used for Telnet and SSH.

Terminating J-Web Sessions

To explicitly terminate a J-Web session at any time, click **Logout** in the top pane. You must log in again to begin a new session.

By default, if the routing platform does not detect any activity through the J-Web interface for 24 hours, the session times out and is terminated. For information about changing the idle time limit, see “Setting J-Web Session Limits” on page 13.

Setting J-Web Session Limits

By default, an unlimited number of users can log in to the J-Web interface on a routing platform, and each session remains open for 24 hours (1440 minutes). Using CLI commands, you can limit the maximum number of simultaneous J-Web user sessions and set a default session timeout for all users.

- To limit the number of simultaneous J-Web user sessions, enter the following commands:

```
user@host# edit system services web-management session
user@host# set session-limit session-limit
```

Range: 1 through 1024. Default: Unlimited

- To change the J-Web session idle time limit, enter the following commands:

  user@host# **edit system services web-management session**
  user@host# **set idle-timeout** *minutes*

  Range: 1 through 1440. Default: 1440

You can also configure the maximum number of simultaneous subordinate HTTP processes that the routing platform creates in response to user requests.

To configure the maximum number of subordinate httpd processes, enter the following commands:

user@host# edit system services web-management limits

user@host# active-child-process *process-limit*

The default is 5, and the range is 0 through 32.

For more information about system services statements, see the *JUNOS System Basics Configuration Guide*.

Viewing Current Users

To view a list of users logged in to the routing platform, select **Monitor > System** in J-Web and scroll down to the Users section, or enter the show system users command in the CLI. The J-Web page and CLI output show all users logged into the routing platform from either J-Web or the CLI.

Troubleshooting J-Web Installation and Management

Use the following information to solve common J-Web operation and access problems.

Lost Router Connectivity

Problem—After completing initial configuration, I lost connectivity to the routing platform through J-Web.

Solution—For J-series routing platforms only, after initial configuration is complete, the routing platform stops functioning as a DHCP server. If you change the IP address of the management interface and have the management device configured to use DHCP, you lose your DHCP lease and your connection to the routing platform through the J-Web interface. To reestablish a connection, either set the IP address on the management device manually, or connect the management interface to the management network and access the routing platform another way—for example, through the console port.

Unpredictable J-Web Behavior

Problem—I have multiple J-Web windows open and am experiencing unpredictable results.

Solution—Close the extra windows. The routing platform can support multiple J-Web sessions for a single user who logs in to each session. However, if a single user attempts to launch multiple J-Web windows —for example, by right-clicking a link to launch another instance of a Web browser—the session can have unpredictable results.

No J-Web Access

Problem—I am unable to access J-Web from my browser.

Solution 1—On an M-series or T-series routing platform, verify that you have successfully installed the J-Web software package and enabled Web management on the platform, as described in "Installing the J-Web Software" on page 3.

Solution 2—If the routing platform is running the worldwide version of the JUNOS software and you are using the Microsoft Internet Explorer Web browser, you must disable the Use SSL 3.0 option in the Web browser to access J-Web on the routing platform.

Chapter 2

J-Web User Interface Overview

You can use the J-Web interface to monitor, configure, troubleshoot, and manage a routing platform.

This chapter contains the following topics:

J-Web Overview

The J-Web interface allows you to monitor, configure, troubleshoot, and manage the routing platform by means of a Web browser enabled with Hypertext Transfer Protocol (HTTP) or HTTP over Secure Sockets Layer (HTTPS). J-Web provides access to all the configuration statements supported by the routing platform, so you can fully configure it without using the JUNOS CLI.

You can perform the following tasks with the J-Web interface:

- Monitoring—Display the current configuration and information about the system, interfaces, chassis, routing protocols, routing tables, routing policy filters, and other features. For more information, see “Monitor Tasks” on page 29.
- Configuring—View the current configurations at a glance, configure the routing platform, and manage configuration files. The J-Web interface provides the following different configuration methods:
  - Configure the routing platform quickly and easily without configuring each statement individually.
  - Edit a graphical version of the JUNOS CLI configuration statements and hierarchy.
  - Edit the configuration in a text file.
  - Upload a configuration file.

The J-Web interface also allows you to manage configuration history and set a rescue configuration. For more information, see “Configuration Tasks” on page 45.

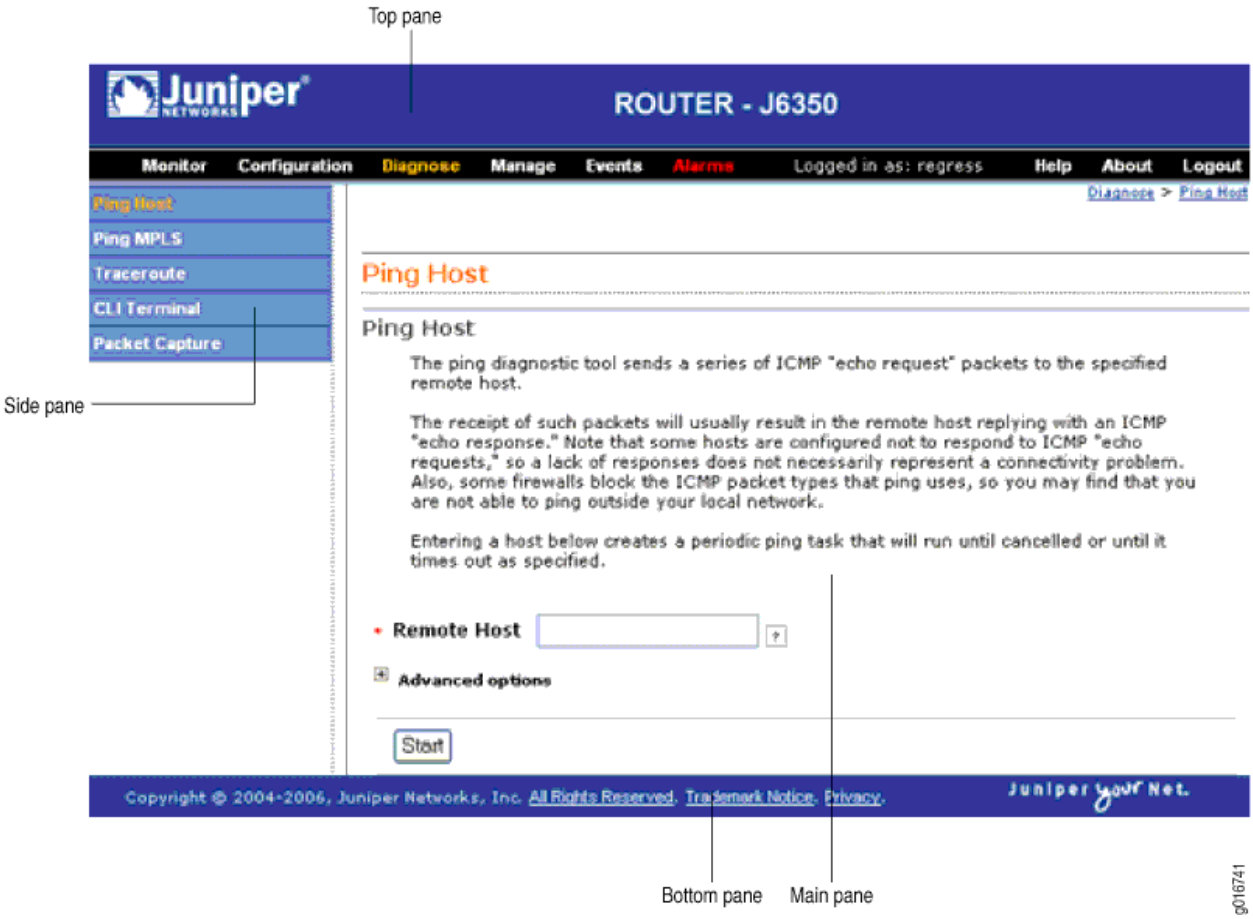
- Diagnosing—Diagnose routing problems by running the ping or traceroute diagnostic tool. The diagnostic tools also allow you to capture and analyze routing platform control traffic. For more information, see “Diagnose Tasks” on page 73.
- Managing—Manage log, temporary, and core (crash) files and schedule reboots on the routing platforms. On J-series routing platforms, you can also manage software packages and licenses and copy a snapshot of the system software to a backup device. For more information, see “Manage Tasks” on page 85.
- Configuring and monitoring events—Filter and view system log messages that record events occurring on the routing platform. You can configure files to log system log messages and also assign attributes, such as severity levels, to messages. For more information, see “Events Tasks” on page 93.
- Configuring and monitoring alarms—On J-series routing platforms only, monitor and diagnose the routing platform by monitoring active alarms that alert you to the conditions on a network interface. You can also set the conditions that trigger alarms on an interface. For more information, see “Alarms Tasks (J-series Routing Platforms Only)” on page 103.

J-Web Layout

Each page of the J-Web interface is divided into the following panes, as shown in Figure 3 on page 19.

- Top pane—Displays identifying information and links.
- Main pane—Location where you monitor, configure, diagnose, and manage the routing platform by entering information in text boxes, making selections, and clicking buttons.
- Side pane—Displays subtasks of the Monitor, Configuration, Diagnose, or Manage task currently displayed in the main pane. For the configuration editor, this pane displays the hierarchy of configuration statements committed on the router. Click an item to access it in the main pane.
- Bottom pane—Displays copyright and trademark information.

Figure 3: J-Web Layout



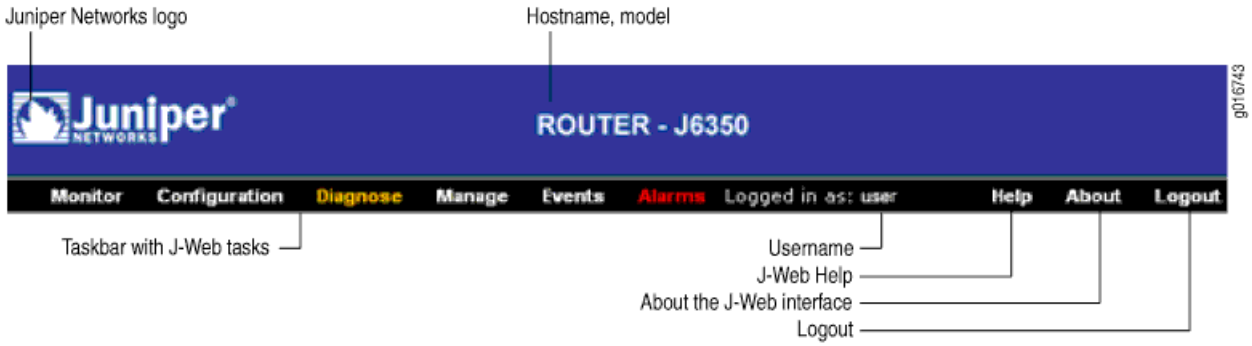
Elements of the J-Web Interface

This section summarizes the elements of the top pane, side pane, and main pane of the J-Web interface.

Top Pane Elements

The top pane comprises the elements shown in Figure 4 on page 20.

Figure 4: Top Pane Elements

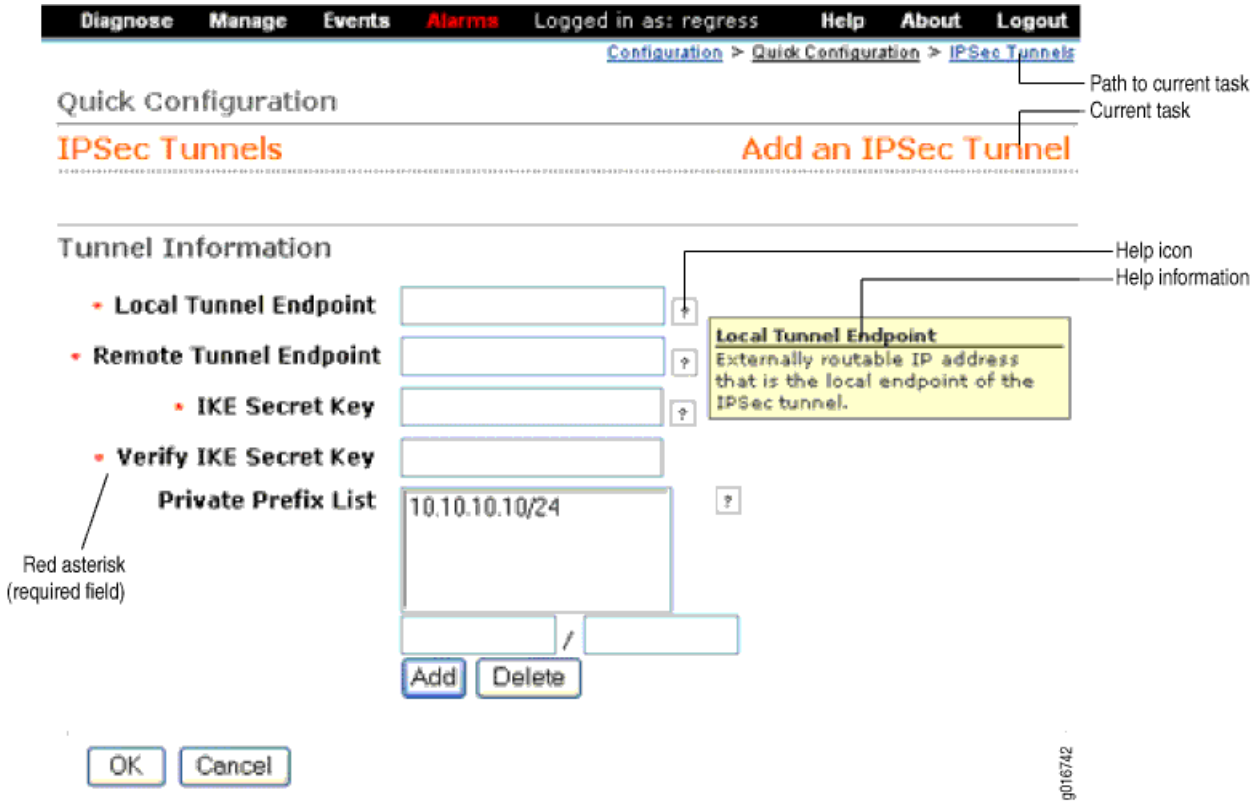


- Juniper Networks logo—Link to http://www.juniper.net in a new browser window.
- *hostname – model*—Hostname and model of the routing platform.
- Logged in as: *username*—Username you used to log in to the routing platform.
- Help—Link to context-sensitive help information.
- About—Link to information about the J-Web interface, such as the version number.
- Logout—Ends your current login session with the routing platform and returns you to the login page.
- Taskbar—Menu of J-Web tasks. Click a J-Web task to access it.
  - **Monitor**—View information about configuration and hardware on the routing platform.
  - **Configuration**—Configure the routing platform with Quick Configuration or the configuration editor, and view configuration history.
  - **Diagnose**—Troubleshoot network connectivity problems.
  - **Manage**—Manage files and licenses, upgrade software, and reboot the routing platform.
  - **Events**—View events and set up filters for an event summary.
  - **Alarms**—View the alarm summary.

Main Pane Elements

The main pane comprises the elements shown in Figure 5 on page 21.

Figure 5: Main Pane Elements

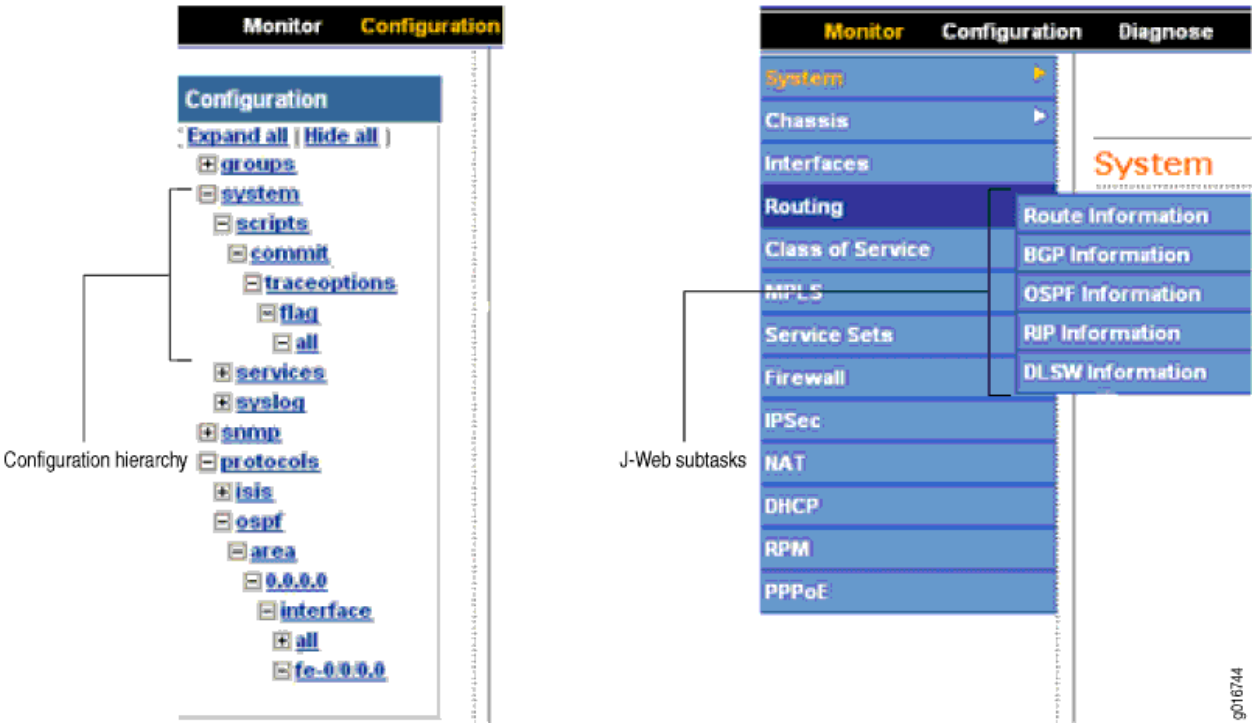


- Help (?) icon—Displays useful information when you move the cursor over the question mark. This help displays field-specific information, such as the definition, format, and valid range of the field.
- Red asterisk (*)—Indicates a required field.
- Path to current task—Shows the successive J-Web tasks and subtasks you selected to display the current main and side panes. Click a task to return to it.
- Icon Legend— For the Edit Configuration subtask (J-Web configuration editor) only, explains icons that appear in the user interface to provide information about configuration statements:
  - C—Comment. Move your cursor over the icon to view a comment about the configuration statement.
  - I—Inactive. The configuration statement does not affect the routing platform.
  - M—Modified. The configuration statement is added or modified.
  - *—Mandatory. The configuration statement must have a value.

Side Pane Elements

The side pane comprises the elements shown in Figure 6 on page 22.

Figure 6: Side Pane Elements



- Subtask—Displays options related to the selected task in the J-Web taskbar.
- Configuration hierarchy—For the J-Web configuration editor, displays the hierarchy of committed statements in the routing platform configuration.
  - Click **Expand all** to display the entire hierarchy.
  - Click **Hide all** to display only the statements at the top level.
  - Click plus signs (+) to expand individual items.
  - Click minus signs (–) to hide individual items.

Navigating the J-Web Interface

The layout of the panes allows you to quickly navigate through the interface. You navigate the J-Web interface, move forward and backward, scroll pages, and expand and collapse elements as you do in a typical Web browser interface.

From the taskbar, select the J-Web task that you want to perform. Selecting the task displays related subtasks in the side pane. When you select a subtask, related fields are displayed in the main pane. By default, the system selects the first subtask and displays its related fields in the main pane. The side pane and taskbar are available from all pages, allowing you to skip from one task or subtask to the other from any page in the interface.

The path displayed in the top right corner of each page provides a context. Use this path to see your location in a configuration hierarchy. Clicking any link in the path displays the corresponding page.

You can easily navigate to most subtasks by selecting them from the side pane. On pages where you are required to take an action, buttons and links allow you to move to the next or previous page as you perform certain actions. Most buttons and links are self-explanatory. But some buttons have different functions on the Quick Configuration and Edit Configuration (J-Web configuration editor) pages. For more information, see "Navigating the Quick Configuration Pages" on page 23 and "Navigating the J-Web Configuration Editor" on page 23.

Navigating the Quick Configuration Pages

Table 8 on page 23 describes the functions of key Quick Configuration buttons. For more information, see "Using Quick Configuration" on page 47.

Table 8: J-Web Quick Configuration Buttons

Function	Button
Commit your entries into the configuration, and return to the previous J-Web page.	**OK**
Clear the entries you have not yet applied to the configuration, and return to the previous J-Web page.	**Cancel**
Commit your entries into the configuration, and stay on the same J-Web page.	**Apply**

Navigating the J-Web Configuration Editor

When you select **Edit Configuration** (J-Web configuration editor), the side pane displays the top level of the configured hierarchy committed on the routing platform. The main pane displays the configuration hierarchy options.

As you navigate through the configuration, the hierarchy level is displayed at the top of the main pane. You can click a statement or identifier displayed in the main pane, or in the hierarchy in the left pane, to display the corresponding configuration options in the main pane. For more information, see "Using View and Edit" on page 54.

After typing or selecting your configuration edits, click a button in the main pane (described in Table 9 on page 23) to move to the previous page after applying, committing, or canceling the configuration. An updated configuration does not take effect until you commit it.

Table 9: Key J-Web Edit Configuration Buttons

Function	Button
Apply edits to the candidate configuration, and return one level up (previous page) in the configuration hierarchy.	**OK**

Table 9: Key J-Web Edit Configuration Buttons *(continued)*

Function	Button
Clear the entries you have not yet applied to the candidate configuration, and return one level up (previous page) in the configuration hierarchy.	**Cancel**
Verify edits and apply them to the current configuration file running on the routing platform. For details, see "Committing a Configuration" on page 62.	**Commit**

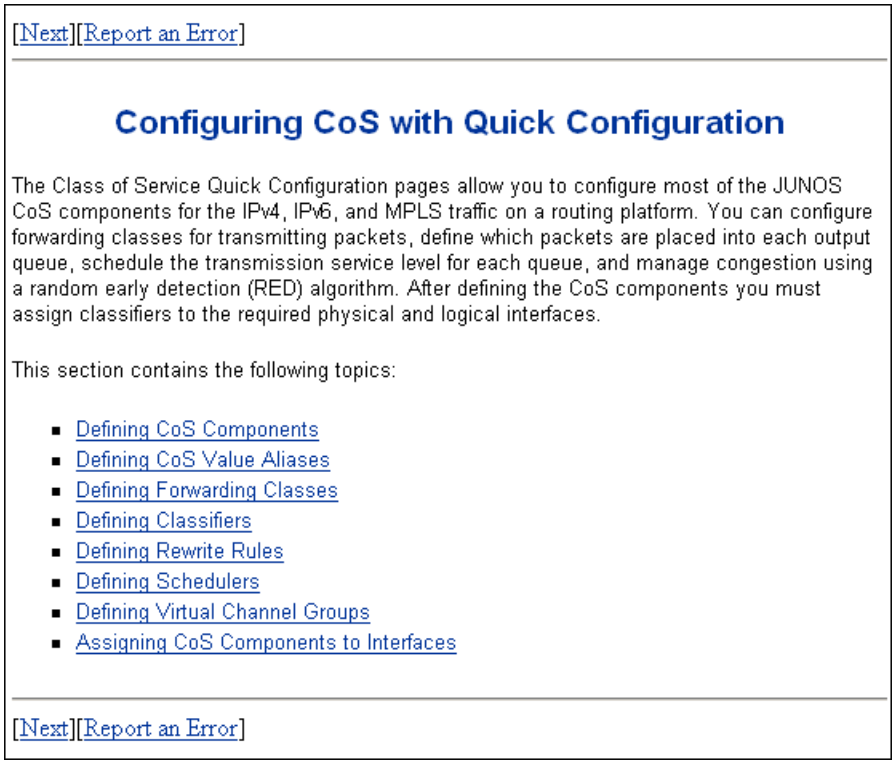
Getting J-Web Help

The J-Web interface provides two ways to display Help for the Monitor, Quick Configuration, Diagnose, Manage, Events, and Alarms tasks. For Help on the View and Edit configuration tasks, see the related documentation provided in the "List of Technical Publications" on page xv.

To get Help in the J-Web interface:

- Field-sensitive Help—Move the cursor over the question mark (**?**) next to the field for which you want more information. The system displays useful information about the field. Typically, this Help includes one line of information about what this field does or what you must enter in a given text box. For example, Help for the Peer Autonomous System Number field states, "the value should be a number between 1 and 65535."
- Context-sensitive Help—Click **Help** in the taskbar to open a separate page displaying the summary of all the fields on that page. To exit Help, close the page. You can navigate Help pages using hypertext links connecting related topics, or click the following options (if available) at the top and bottom of each page. Figure 7 on page 25 shows Help for the CoS Configuration page.
  - **Prev**—Access the previous page.
  - **Next**—Access the next page.
  - **Report an Error**—Access a form for providing feedback.

Figure 7: CoS Help Page



Part 2
J-Web Tasks

Chapter 3

Monitor Tasks

Use the J-Web Monitor tasks to monitor your routing platform. The J-Web interface displays diagnostic information about the routing platform in the browser.

You can also monitor the routing platform with command line interface (CLI) operational mode commands that you type into a CLI emulator in the J-Web interface. The monitoring pages display the same information displayed in the output of show commands entered in the CLI terminal. For more information about the J-Web CLI terminal, see "Using the CLI Terminal" on page 77. For more information about the show commands, see the JUNOS command references.

This chapter contains the following topics:

Monitor Task Overview

J-Web monitoring pages appear when you select **Monitor** in the taskbar. The monitoring pages display the current configuration on your system and the status of your system, chassis, interfaces, and routing and security operations. The monitoring pages have plus signs (+) that you can expand to view details. On some pages, such as the Routing Information page, you can specify search criteria to view selective information. (See "Sample Task—Monitoring Route Information" on page 41.)

Using Monitor Tasks

Each J-Web Monitor task performs a specific function and has one or more corresponding CLI show commands:

System

To view information about system properties such as the name and IP address of the routing platform or the resource usage on the Routing Engine, select **Monitor > System** in the J-Web interface.

Table 10 on page 30 shows a summary of the information displayed on System pages and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 10: System Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Current time and information about how long the routing platform, routing platform software, and routing protocols have been running.	show system uptime
Information about users who are currently logged in to the routing platform.	show system users
Statistics about the amount of free disk space in the routing platform's file systems.	show system storage
Software processes running on the routing platform.	show system processes

Chassis

To view chassis properties on the routing platform, select **Monitor > Chassis** in the J-Web interface.

Table 11 on page 31 shows a summary of the information displayed on the Chassis page and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 11: Chassis Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Conditions that have been configured to trigger alarms.	show chassis alarms
Environmental information about the routing platform chassis, including the temperature and information about the fans, power supplies, and Routing Engine.	show chassis environment
Status information about the installed FPCs and PICs.	show chassis fpc
List of all FPCs and PICs installed in the routing platform chassis, including the hardware version level and serial number.	show chassis hardware

Interfaces

The J-Web interface hierarchically displays all routing platform physical and logical interfaces, including state and configuration information. This information is divided into multiple parts. To view general interface information such as available interfaces, operation states of the interfaces, and descriptions of the configured interfaces, select **Monitor > Interfaces** in the J-Web interface. To view interface-specific properties such as administrative state or traffic statistics in the J-Web interface, select the interface name on Interfaces Summary page. (See "Sample Task—Monitoring Interfaces" on page 39.)

Table 12 on page 31 shows a summary of the information displayed on the Interfaces pages and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 12: Interfaces Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Status information about the specified Protocol Independent Multicast (PIM).	show interfaces terse
Detailed information about all interfaces configured on the routing platform.	show interfaces detail
Current state of the interface you specify.	show interfaces *interface-name*

Routing

To view information about routes in a routing table or for information about OSPF, BGP, RIP, or DLSw, select **Monitor > Routing** in the J-Web interface.

The routing information includes information about the route's destination, protocol, state, and parameters. To view selective information, type or select information in one or more of the Narrow Search boxes, and click **OK**. (See “Sample Task—Monitoring Route Information” on page 41).

Table 13 on page 32 shows a summary of the information displayed on Routing pages and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 13: Routing Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Route Information	
A high-level summary of the routes in the routing table.	show route terse
Detailed information about the active entries in the routing tables.	show route detail
BGP Information	
Summary about Border Gateway Protocol (BGP).	show bgp summary
BGP peers.	show bgp neighbor
OSPF Information	
Information about Open Shortest Path First (OSPF) neighbors.	show ospf neighbors
OSPF interfaces.	show ospf interfaces
OSPF statistics.	show ospf statistics
RIP Information	
Routing Information Protocol (RIP) statistics about messages sent and received on an interface, as well as information received from advertisements from other routing platforms.	show rip statistics
RIP neighbors.	show rip neighbors
DLSw Information (J-series Routing Platforms only)	
Data link switching (DLSw) capabilities of a specific remote peer or all peers.	show dlsw capabilities
Configured DLSw circuits.	show dlsw circuits
DLSw peer status.	show dlsw peers
Media access control (MAC) and IP addresses of remote DLSw peers.	show dlsw reachability

Class of Service

To display details about the performance of class of service (CoS) on a routing platform, select **Monitor > Class of Service** in the J-Web interface.

Table 14 on page 33 shows a summary of the information displayed on Class of Service pages and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 14: Class of Service Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Interfaces	
Information about the physical and logical interfaces in the system and details about the CoS components assigned to these interfaces.	show class-of-service interface
Classifiers	
Forwarding classes and loss priorities that incoming packets are assigned to based on the packet's CoS values.	show class-of-service classifier
CoS Value Aliases	
CoS value aliases that the system is using to represent Differentiated Services code point (DSCP), DSCP IPv6, MPLS experimental (EXP), and IPv4 precedence bits.	show class-of-service code-point-aliases
RED Drop Profiles	
Detailed information about the drop profiles used by the system. Also, displays a graph of the random early detection (RED) curve that the system uses to determine the queue fullness and drop probability.	show class-of-service drop-profile
Forwarding Classes	
Assignment of forwarding classes to queue numbers.	show class-of-service forwarding-class
Rewrite Rules	
Packet CoS value rewrite rules based on the forwarding classes and loss priorities.	show class-of-service rewrite-rule
Scheduler Maps	
Assignment of forwarding classes to schedulers. Schedulers include transmit rate, rate limit, and buffer size.	show class-of-service scheduler-map

MPLS

To view information about MPLS label-switched paths (LSPs) and virtual private networks (VPNs), select **Monitor > MPLS**.

Table 15 on page 33 shows a summary of the information displayed on MPLS pages and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 15: MPLS Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Interfaces	

Table 15: MPLS Information and Corresponding CLI show Commands *(continued)*

Information Displayed	Corresponding CLI Command
Interfaces on which MPLS is enabled, plus the operational state and any administrative groups applied to an interface.	show mpls interface
LSP Information	
LSP sessions currently active on the routing platform, including inbound (ingress) and outbound (egress) addresses, LSP state, and LSP name.	show mpls lsp
LSP Statistics	
Statistics for LSP sessions currently active on the routing platform, including the total number of packets and bytes forwarded through an LSP.	show mpls lsp statistics
RSVP Sessions	
RSVP-signaled LSP sessions currently active on the routing platform, including inbound (ingress) and outbound (egress) addresses, LSP state, and LSP name.	show rsvp session
RSVP Interfaces	
Interfaces on which RSVP is enabled, including the interface name, total bandwidth through the interface, and total current reserved and reservable (available) bandwidth on the interface.	show rsvp interface

Service Sets

Service set information includes the services interfaces on the routing platform, the number of services sets configured on the interfaces, and the total CPU used by the service sets. To view these service set properties, select **Monitor > Service Sets** in the J-Web interface.

A service set is a group of rules from a stateful firewall filter, Network Address Translation (NAT), intrusion detection service (IDS), or IP Security (IPSec) that you apply to a services interface. IDS, NAT, and stateful firewall filter service rules can be configured within the same service set. However, IPSec services are configured in a separate service set.

Table 16 on page 34 shows a summary of the information displayed on Service Sets pages and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 16: Service Sets Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Service set summary information.	show services service-sets summary
Service set memory usage.	show services service-sets memory-usage

Firewall

To view stateful firewall filter information in the J-Web interface, select **Monitor > Firewall > Stateful Firewall**. To display stateful firewall filter information for a particular address prefix, port, or other characteristic, type or select information in one or more of the Narrow Search boxes, and click **OK**.

Table 17 on page 35 shows a summary of the information displayed on Firewall pages and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 17: Firewall Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Statistics Summary	
Stateful firewall filter statistics.	show services stateful-firewall statistics
Stateful Firewall	
Stateful firewall filter conversations.	show services stateful-firewall conversations
Flow table entries for stateful firewall filters.	show services stateful-firewall flows
IDS Information	
Information about an address under possible attack.	show services ids destination-table
Information about an address that is a suspected attacker.	show services ids source-table
Information about a particular suspected attack source and destination address pair.	show services ids pair-table

IPSec

To view information about configured IPSec tunnels and statistics, and IKE security associations for adaptive services interfaces select **Monitor > IPSec** in the J-Web interface.

Table 18 on page 35 shows a summary of the information displayed on the IPSec page and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 18: IPSec Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
(Adaptive services interface only) IPSec statistics for the selected service set.	show services ipsec-vpn ipsec statistics
(Adaptive services interface only) IPSec security associations for the selected service set.	show services ipsec-vpn ipsec security-associations

Table 18: IPSec Information and Corresponding CLI show Commands *(continued)*

Information Displayed	Corresponding CLI Command
(Adaptive services interface only) Internet Key Exchange (IKE) security associations.	show services ipsec-vpn ike security-associations

NAT

NAT pool information includes information about the address ranges configured within the pool on the routing platform. To view NAT pool information, select **Monitor > NAT** in the J-Web interface.

Table 19 on page 36 shows a summary of the information displayed on the NAT page and the corresponding CLI show command you can enter at the J-Web CLI terminal.

Table 19: NAT Information and Corresponding CLI show Command

Information Displayed	Corresponding CLI Command
Information about Network Address Translation (NAT) pools.	show services nat pool

DHCP (J-series Routing Platforms Only)

A J-series routing platform can operate as a Dynamic Host Configuration Protocol (DHCP) server. To view information about dynamic and static DHCP leases, conflicts, pools, and statistics, select **Monitor > DHCP** in the J-Web interface.

Table 20 on page 36 shows a summary of the information displayed on the DHCP page and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 20: DHCP Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
DHCP server client binding information.	show system services dhcp binding
DHCP client-detected conflicts for IP addresses.	show system services dhcp conflict
DHCP server IP address pools.	show system services dhcp pool
DHCP server statistics.	show system services dhcp statistics

RPM

The real-time performance monitoring (RPM) information includes the round-trip time, jitter, and standard deviation values for each configured RPM test on the routing platform. To view these RPM properties, select **Monitor > RPM** in the J-Web interface.

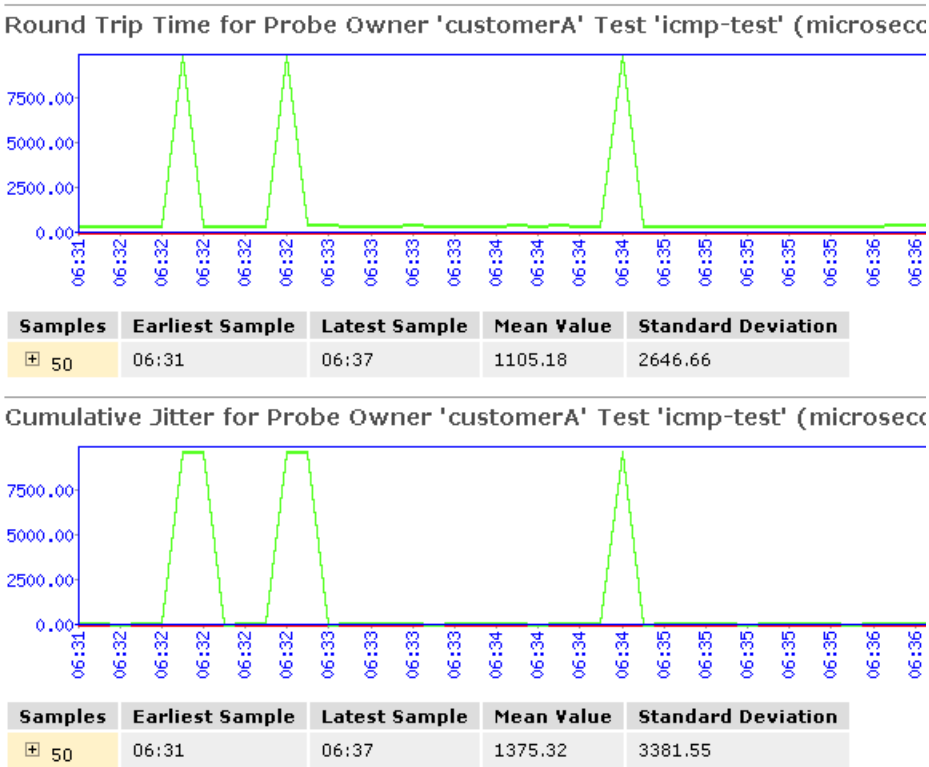
Table 21 on page 37 shows a summary of the information displayed on the RPM page and the corresponding CLI **show** command you can enter at the J-Web CLI terminal.

Table 21: RPM Information and Corresponding CLI show Command

Information Displayed	Corresponding CLI Command
Results of the most recent RPM probes.	show services rpm probe-results

In addition to the RPM statistics for each RPM test, the J-Web interface displays the round-trip times and cumulative jitter graphically. Figure 8 on page 37 shows sample graphs for an RPM test.

Figure 8: Sample RPM Graphs



In Figure 8 on page 37, the round-trip time and jitter values are plotted as a function of the system time. Large spikes in round-trip time or jitter indicate a slower outbound (egress) or inbound (ingress) time for the probe sent at that particular time.

PPPoE (J-series Routing Platforms Only)

The PPPoE monitoring information is displayed in multiple parts. To display the session status for PPPoE interfaces, cumulative statistics for all PPPoE interfaces on the routing platform, and the PPPoE version configured on the routing platform, select **Monitor > PPPoE** in the J-Web interface.

To view interface-specific properties in the J-Web interface, select the interface name on the PPPoE page.

Table 22 on page 38 shows a summary of the information displayed on the PPPoE page and the corresponding CLI show commands you can enter at the J-Web CLI terminal.

Table 22: PPPoE Information and Corresponding CLI show Commands

Information Displayed	Corresponding CLI Command
Session-specific information about the interfaces on which PPPoE is enabled.	show pppoe interfaces
Statistics for PPPoE sessions currently active.	show pppoe statistics
PPPoE protocol currently configured on the routing platform.	show pppoe version

FEB Redundancy (M120 Routing Platforms Only)

On M120 routing platforms, Forwarding Engine Boards (FEBs) provide route lookup and forwarding functions from Flexible PIC Concentrators (FPCs) and compact Flexible PIC Concentrators (cFPCs). You can configure FEB redundancy groups to provide high availability for FEBs.

To view the status of FEBs and FEB redundancy groups, or connectivity between FPCs and FEBs, select **Monitor > Chassis > FEB Redundancy** in the J-Web interface.

Table 23 on page 38 shows a summary of the information displayed on the FEB Redundancy page and the corresponding CLI show command you can enter at the J-Web CLI terminal.

Table 23: FEB Redundancy Information and Corresponding CLI show Command

Information Displayed	Corresponding CLI Command
Forwarding Engine Board (FEB) status information.	show chassis feb

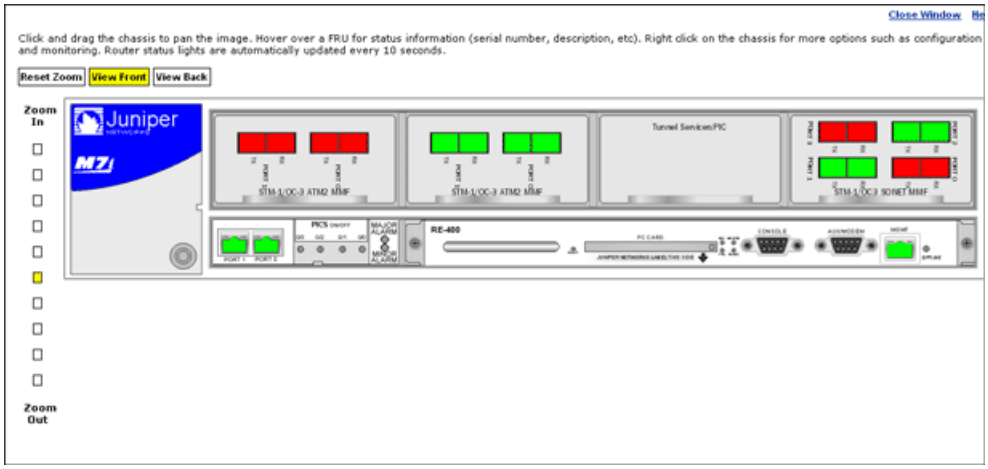
Chassis Viewer (M7i, M10i, and M320 Routing Platforms Only)

On M7i, M10i, and M320 routing platforms, you can use the chassis viewer feature to view images of the chassis and access information about each component similar to what you can obtain using the show chassis alarms and show chassis hardware commands.

To access the chassis viewer, click the Chassis Viewer icon in the upper right corner of any J-Web page for an M7i, M10i, or M320 routing platform. A separate page appears to display the image of the chassis and its component parts, including power supplies, individual Physical Interface Cards (PICs), and ports. Major or minor alarm indicators appear in red.

Figure 9 on page 39 shows the chassis and components of an M7i routing platform. It also shows the status of each port in red or green, the zoom bar selections, and the View Front and View Back buttons that allow you to toggle between front and rear views of the chassis.

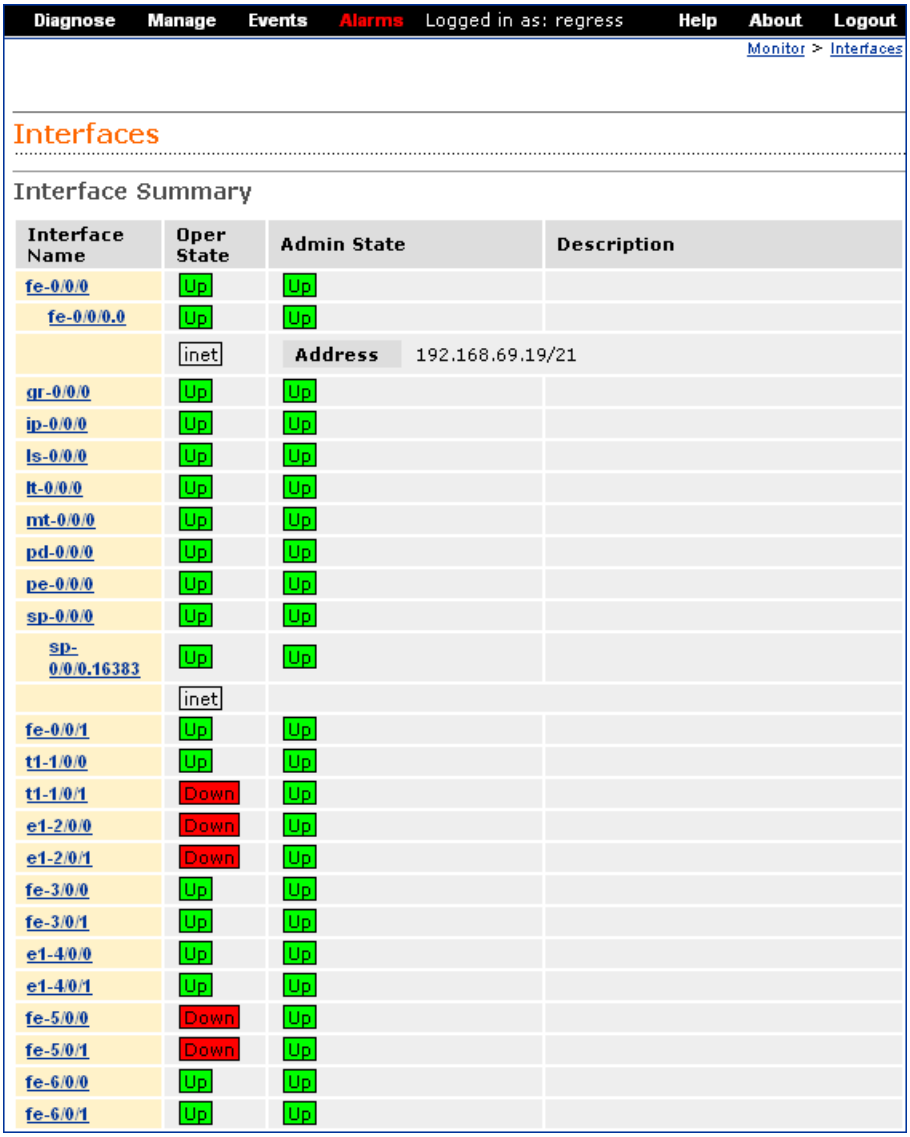
Figure 9: Chassis Viewer Page



Sample Task—Monitoring Interfaces

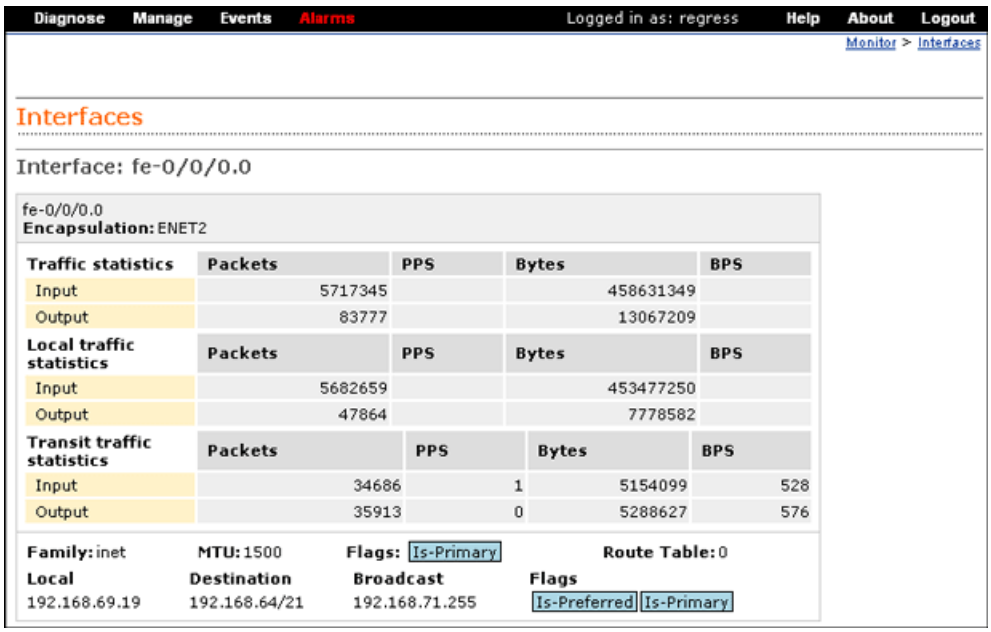
Figure 10 on page 40 shows the Interfaces Summary monitoring page that displays the interfaces installed on your routing platform. At a glance, you can monitor the status of all the configured physical and logical interfaces.

Figure 10: Monitoring Interfaces Page



You can click any interface to view details about its status. For example, clicking fe-0/0/0.0 displays detailed information about the interface (see Figure 11 on page 41).

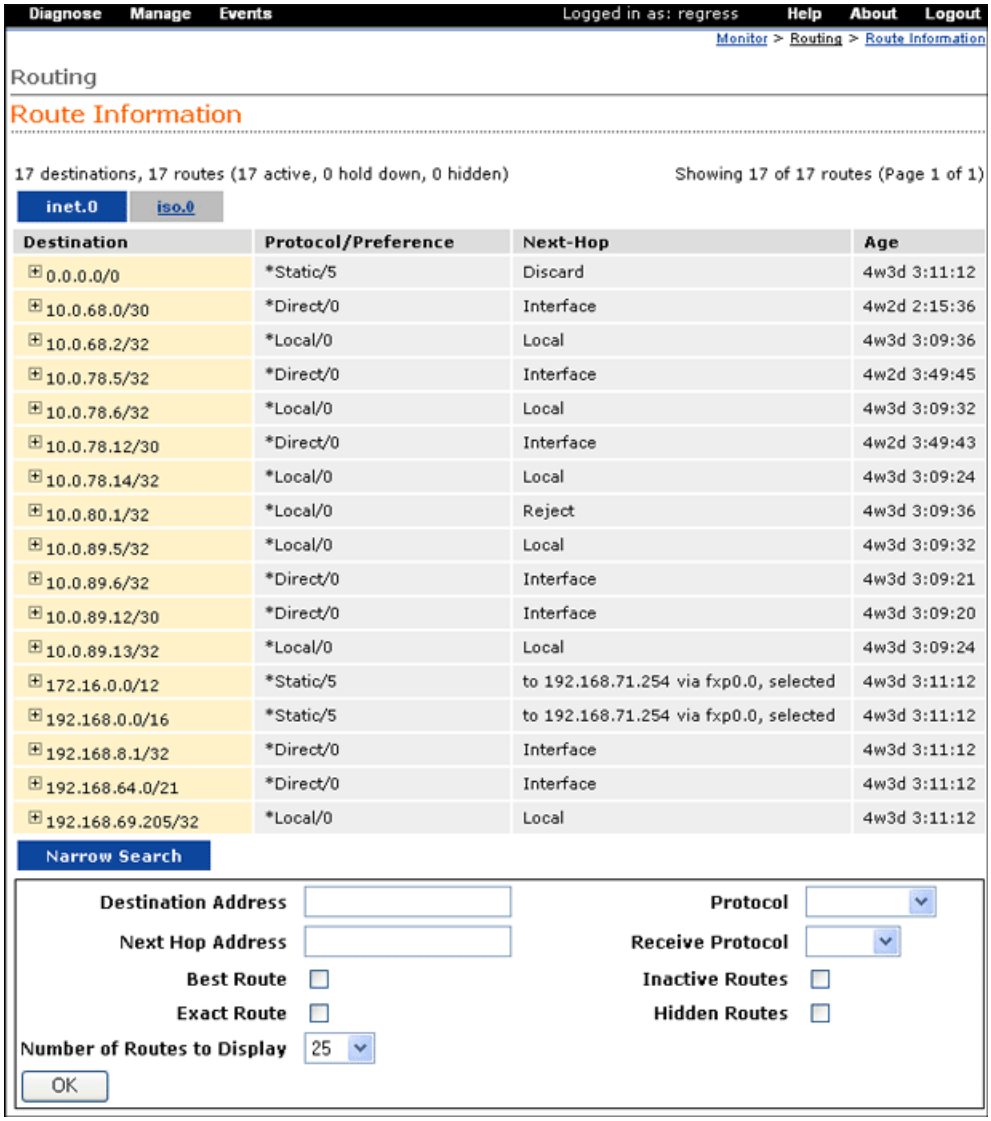
Figure 11: Interface fe-0/0/0.0 Monitoring Page



Sample Task—Monitoring Route Information

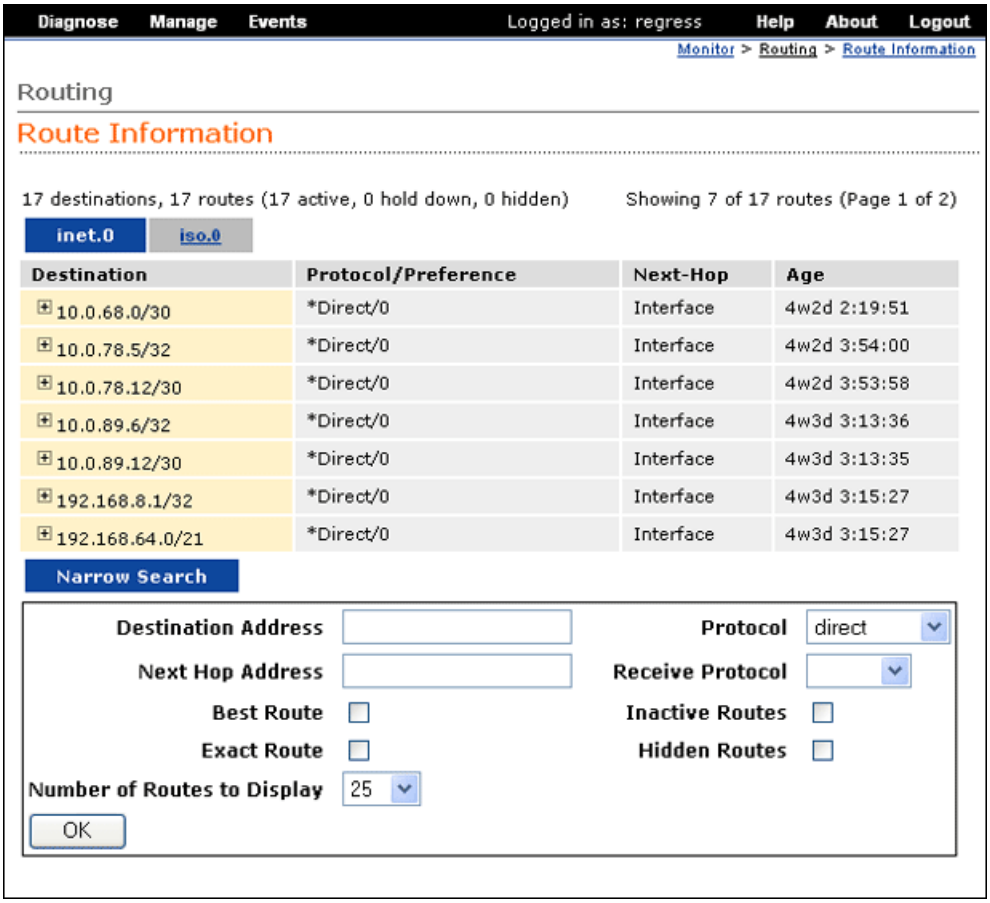
Figure 12 on page 42 shows the Route Information monitoring page that displays information about all 17 routes in the routing table. All routing platforms are active, and there are no hidden routes.

Figure 12: Monitoring Route Information Page with Complete Information



By default, information about all routes in the routing table (up to a maximum of 25 routes on one page) is displayed. To view information about selective routes, type or select information in one or more of the Narrow Search boxes, and click **OK**. For example, typing direct in the box next to Protocol, displays only the 7 routes learned from a directly connected network and have a 0 preference (see Figure 13 on page 43).

Figure 13: Monitoring Route Information Page with Selective Information



Chapter 4

Configuration Tasks

The J-Web user interface provides different methods for configuring your routing platform with the JUNOS software. Choose a configuration method appropriate to your needs and familiarity with the interface.

This chapter contains the following topics:

Configuration Task Overview

Use the J-Web user interface to configure the services supported on a routing platform, including system settings, routing protocols, interfaces, network management, and user access.

Alternatively, you can configure the routing platform services with the JUNOS command-line interface (CLI) from a console connection to the routing platform or a remote network connection. You can also access the CLI from the J-Web interface. For more information, see "Using the CLI Terminal" on page 77. For complete information about using the CLI, see the *JUNOS CLI User Guide*.

Editing and Committing a JUNOS Configuration

When you edit a configuration, you work in a copy of the current configuration to create a candidate configuration. The changes you make to the candidate configuration are visible through the user interface immediately, but do not take effect on the routing platform until you *commit* the changes.

When you commit the configuration, the candidate file is checked for proper syntax, activated, and marked as the current, operational software configuration file. If multiple users are editing the configuration when you commit the candidate configuration, all changes made by all the users take effect. If you are editing the configuration with the CLI, you can edit an *exclusive* or *private* candidate configuration. For more information, see the *JUNOS CLI User Guide*.

When you commit a configuration, the routing platform saves the current operational version and the previous 49 versions of committed configurations. The most recently committed configuration is version 0 (the current operational version), and the oldest saved configuration is version 49. You can roll back the configuration to any saved version.

NOTE: You must assign a root password before committing a configuration and can do so on the J-Web Set Up page. (See "Sample Task—Configuring Setup with Quick Configuration" on page 50.)

To better understand the JUNOS configuration process, become familiar with the terms defined in Table 24 on page 46.

Table 24: JUNOS Configuration Terms

Term	Definition
candidate configuration	A working copy of the configuration that can be edited without affecting the routing platform until it is committed.
configuration group	Group of configuration statements that can be inherited by the rest of the configuration.
commit a configuration	Have the candidate configuration checked for proper syntax, activated, and marked as the current configuration file running on the routing platform.
configuration hierarchy	Set of hierarchically organized configuration statements that make up the JUNOS software configuration on a routing platform. There are two types of statements: *container statements*, which contain other statements, and *leaf statements*, which do not contain other statements. All the container and leaf statements together form the configuration hierarchy.
rescue configuration	On J-series routing platforms only, a configuration that recovers a routing platform from a configuration that denies management access. You set a current committed configuration through the J-Web interface or CLI for emergency use. To load and commit the rescue configuration, you press and release the CONFIG or RESET CONFIG button.
roll back a configuration	Return to a previously committed configuration.

J-Web Configuration Tasks

J-Web configuration pages offer you several different ways to configure your routing platform. Configuration pages provide access to all the configuration statements supported by the routing platform, so you can fully configure it without using the CLI. You can also manage the configuration, monitor user access, and set a rescue configuration.

Table 25 on page 47 provides a summary of the J-Web configuration tasks.

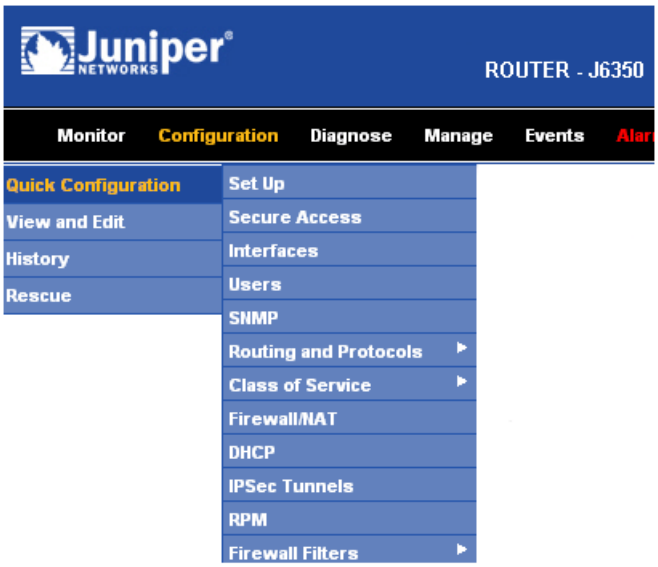
Table 25: J-Web Configuration Tasks Summary

J-Web Configuration Task	Description	More Information
Edit the configuration quickly	Set up, configure, and manage the routing platform quickly and easily without configuring each statement individually.	"Using Quick Configuration" on page 47
Edit the configuration using a clickable interface	Expand the entire configuration hierarchy in the side pane and click a configuration statement to view or edit. The main pane displays all the options for the statement, with a text box for each option.	"Edit Configuration (J-Web Configuration Editor)" on page 56
Edit the configuration in a text format	Paste a complete configuration hierarchy into a scrollable text box, or edit individual lines in the configuration text.	"Edit Configuration Text" on page 63
Upload a configuration file	Upload a complete configuration.	"Upload Configuration File" on page 65
View the configuration in text format	View the entire configuration on the routing platform in text format.	"View Configuration Text" on page 55
Display configuration history	Display the routing platform configuration history and compare, roll back, or download specific versions of the configuration.	"Using History" on page 65
Display users editing the configuration	Display information about all users logged into a routing platform at the same time.	"Using History" on page 65
Set and delete a rescue configuration	On J-series routing platforms, create or delete a rescue configuration.	"Using Rescue (J-series Routing Platforms Only)" on page 71

Using Quick Configuration

To access Quick Configuration, select **Configuration > Quick Configuration**. You select a Quick Configuration task by clicking it in the side pane, or selecting it in the main pane. Quick Configuration pages provide access to the most commonly configured parameters for most supported features. Figure 14 on page 48 shows the Quick Configuration tasks on a J-series routing platform.

Figure 14: J-Web Quick Configuration Tasks



Depending on the complexity of the feature you want to configure, use the Quick Configuration tasks as follows:

- For simple features—Quick Configuration allows you to perform basic configurations easily. It simplifies configuration by combining a few actions in one, so that you are not required to configure each statement individually. For example, the Set Up Quick Configuration page allows you to easily perform all configuration required for setting up basic connectivity from one single page. (See "Sample Task—Configuring Setup with Quick Configuration" on page 50.)
- For complex features—Quick Configuration allows you to view existing configurations at a glance and edit and manage them easily. Because it provides a complete view of configurations on a single page, Quick Configuration is a very useful tool for planning and managing complex features. For example, the Stateless Firewall Filter Quick Configuration page displays multiple filters and terms as rows that you can reorder by simply clicking on up or down arrows. Match conditions and actions are displayed as intuitive icons. (See "Sample Task—Configuring Firewall Filters with Quick Configuration" on page 53.)

  Table 26 on page 48 lists key Quick Configuration tasks and their functions.

Table 26: Quick Configuration Tasks Summary

Quick Configuration Task	Function
System	Define network identification, default gateway, name and time servers, root user authentication, and basic local network access to the system.
Secure Access	Configure certificates, secure access methods, and interfaces to enable HTTP and HTTPS Web management.

Table 26: Quick Configuration Tasks Summary *(continued)*

Quick Configuration Task	Function
Interfaces	List all interfaces installed on the system, and configure logical interfaces and common interface parameters.
Users	Define users allowed to access the routing platform, and configure authentication servers. Pick an authorization level for each user.
SNMP	Configure Simple Network Management Protocol (SNMP) access to a device. Define SNMP communities. Specify which SNMP traps are generated and the recipients of those traps.
Routing and Protocols (J-series routing platforms only)	Define default and static routes, and the basic routing configuration for the following routing protocols: ■ Open Shortest Path First (OSPF) ■ Routing Information Protocol (RIP) ■ Border Gateway Protocol (BGP) ■ Data Link Switching (DLSw)
Class of Service	Define class-of-service (CoS) components to provide differentiated services when best-effort traffic delivery is not sufficient.
FEB Redundancy (M120 routing platform only)	Configure Forwarding Engine Board (FEB) redundancy groups to provide high availability for FEBs. FEBs provide route lookup and forwarding functions from Flexible PIC Concentrators (FPCs) and compact FPCs.
Firewall/NAT (J-series routing platforms only)	Apply a stateful firewall filter to WAN interfaces. Choose the applications that are allowed through the firewall from the WAN. Enable Network Address Translation.
DHCP (J-series routing platforms only)	Provide Dynamic Host Configuration Protocol (DHCP) service to specified LAN networks or hosts. Specify DHCP address ranges.
IPSec Tunnels (J-series routing platforms only)	Create IP Security (IPSec) tunnels to private networks.
RPM	Define performance probes and thresholds for real-time performance monitoring (RPM) verification and network performance.
Firewall Filters	Configure input and output firewall filters—also known as access control lists (ACLs). Apply firewall filters to specific interfaces.

Table 27 on page 49 describes the functions of the buttons that appear on J-Web Quick Configuration pages.

Table 27: J-Web Quick Configuration Buttons

Button	Function
Add	Adds statements or identifiers to the configuration.
Delete	Deletes statements or identifiers from the configuration.

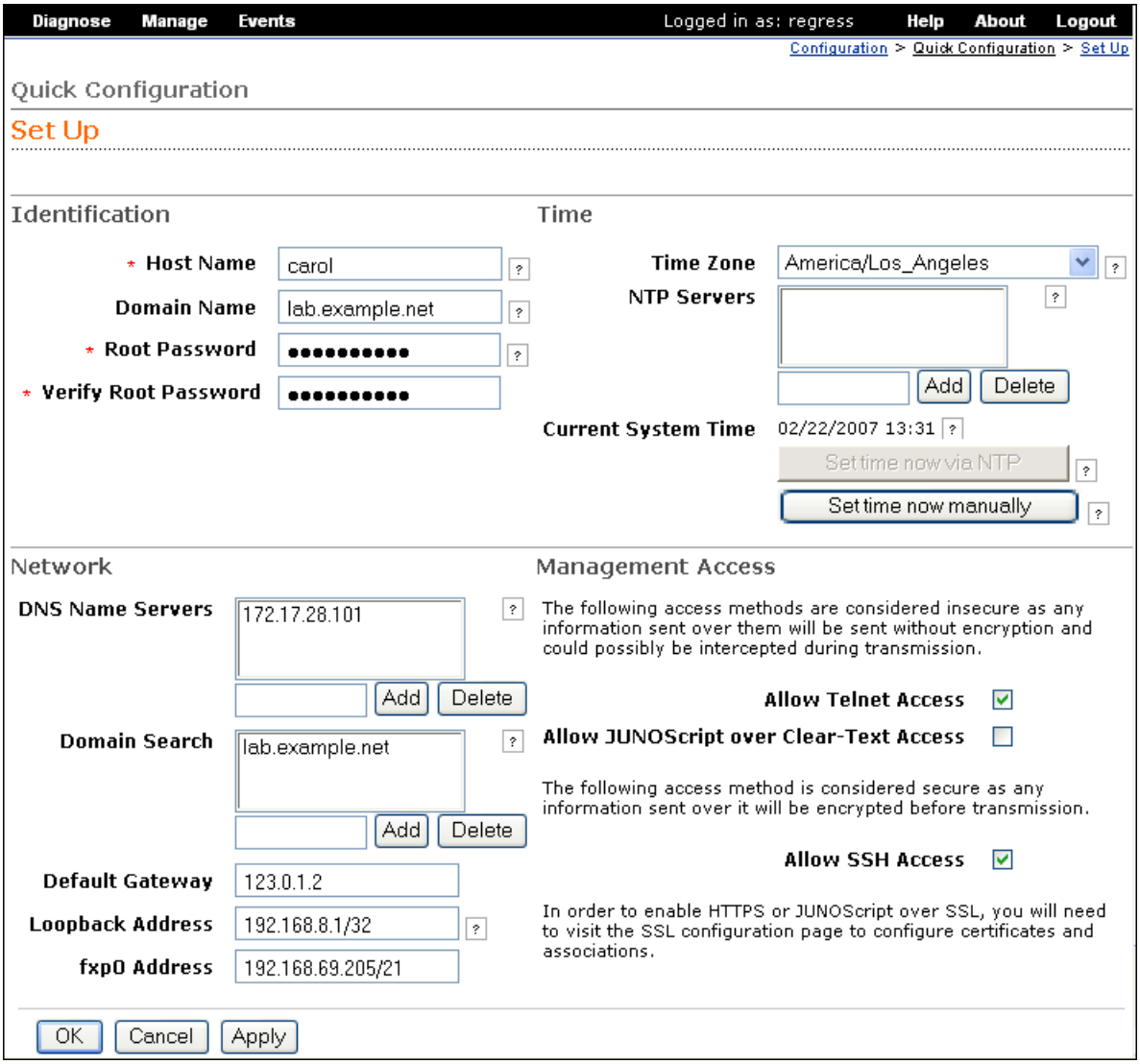
Table 27: J-Web Quick Configuration Buttons *(continued)*

Button	Function
OK	Commits your entries into the configuration, and returns you to the previous J-Web page.
Cancel	Clears the entries you have not yet applied to the configuration, and returns you to the previous J-Web page.
Apply	Commits your entries into the configuration, and stays on the same J-Web page.

Sample Task—Configuring Setup with Quick Configuration

Figure 15 on page 51 shows the Set Up Quick Configuration page. This page allows you to manage and configure basic routing platform setup easily from one location. You name the routing platform, set the root password, assign network addresses and servers. Set the time, and determine your management access by selecting or typing these values.

Figure 15: Set Up Quick Configuration Page



In this example, your are performing the following tasks to configure basic settings on the routing platform:

- Configuring the Router Identification on page 52
- Configuring the Network on page 52
- Configuring the Management Access on page 52

For more information about setting up your system, see "Configuring Basic Settings on the Routing Platform" on page 5 and the *JUNOS Software Installation and Upgrade Guide*.

Configuring the Router Identification

To define a hostname, domain name, password, time zone, and system time of the routing platform:

1. Make sure that the tasks described in "Before You Begin" on page 5 were performed.
2. Navigate to the Set Up Quick Configuration page by selecting **Configuration > Quick Configuration > Set Up** (see Figure 15 on page 51).
3. Next to Host Name, type carol to define the name of the routing platform.
4. Next to Domain Name, type lab.example.net to define the network that the machine belongs to.
5. Next to Root Password, type a plain-text password to set the root password for logging in to the routing platform.
6. Next to Verify Root Password, retype the password to verify that you typed the root password correctly.
7. From the Time Zone list, select **America/Los_Angeles** to specify the time zone that the routing platform is located in.
8. Click **Set Time via NTP** to synchronize the system time with the NTP server. The routing platform sends a request to the NTP server and synchronizes the system time.

Configuring the Network

To define the DNS server, default gateway, loopback address, and management address of the routing platform:

1. Under DNS Name Servers, type 172.17.28.101 and click **Add** to specify the IP address of the DNS server that the routing platform can use to resolve hostnames into addresses.
2. Next to Domain Search, type lab. example.net to include the domain name in a DNS search.
3. Next to Default Gateway, type 123.0.1.2 to define a default gateway through which to direct packets addressed to networks not explicitly listed in the routing table.
4. Next to Loopback Address, type 192.168.8.1/32 to define a reserved IP address that will always be available on the routing platform.
5. Next to fxp0 Address, type 192.168.69.205/21 to define the IP address and prefix length of the management interface. The management interface is used for accessing the routing platform.

Configuring the Management Access

To define the management access settings for the routing platform:

1. Next to Allow Telnet Access, select the check box to allow remote Telnet access to the routing platform.

2. Next to Allow SSH Access, selected the check box to allow remote SSH access to the routing platform.
3. Click **OK** to apply the configuration and return to the Quick Configuration page.

Sample Task—Configuring Firewall Filters with Quick Configuration

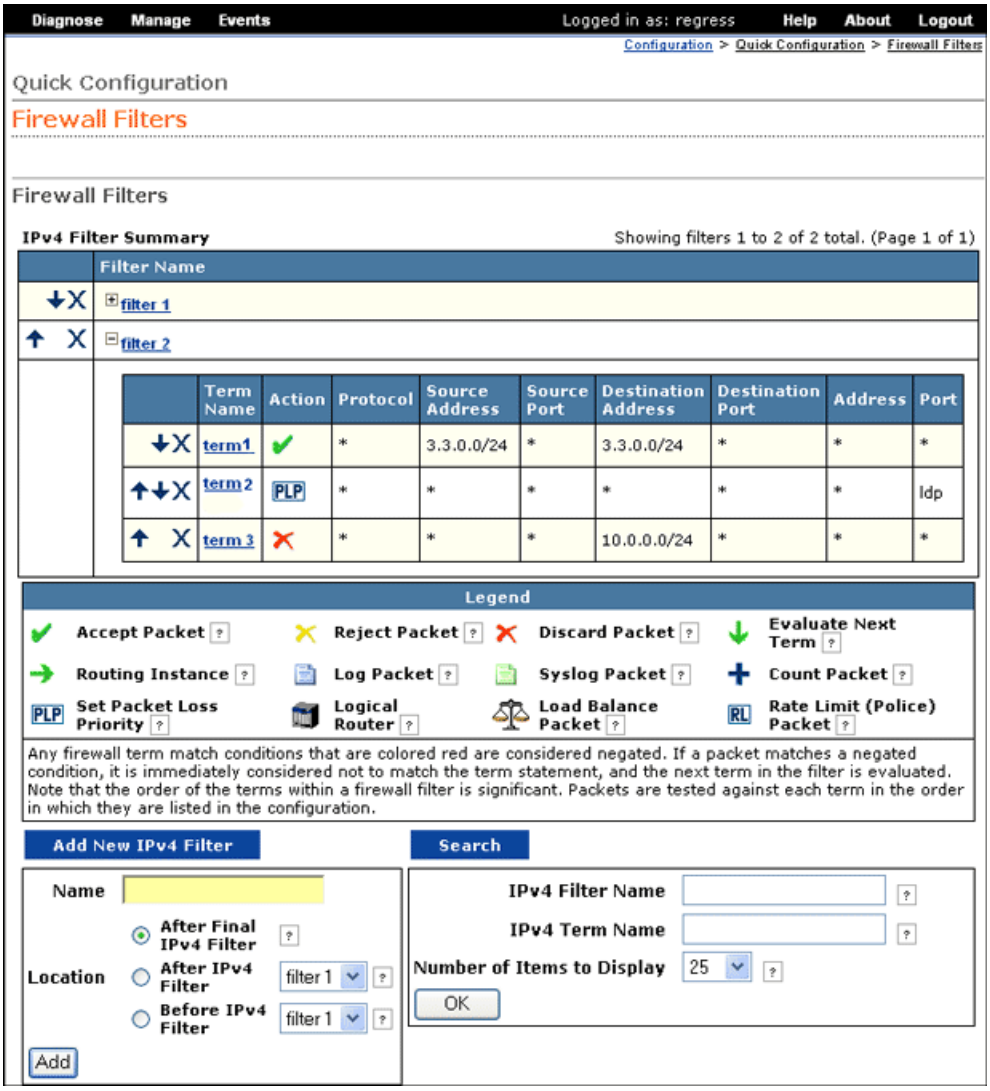
Figure 16 on page 54 shows the Firewall Filter Quick Configuration page. This page allows you to view multiple filters and terms on a single page and reorder them by simply clicking up or down arrows. Match conditions and actions are displayed as intuitive icons. You can also search for a filter by name and display a specified number of filters on the page.

In this example, the Firewall Filters Quick Configuration page shows two filters—filter1 and filter2. The expanded filter2 displays three terms. Each term consists of two components—match conditions and actions. The match conditions define the values or fields that the packet must contain to be considered a match. If a packet is a match, the corresponding action is taken. By default, a packet that does not match a firewall filter is discarded. The icons displayed across each term indicate the associated match condition and action:

- term 1—Accepts any packet with 3.3.0.0/24 as a source or destination address.
- term 2—Matches any packet with an ldp source or destination port and sets a low PLP bit on the packet.
- term 3—Discards any packet with a destination address 10.0.0.0/24.

The order of the terms and filters is important. The routing platform compares a route against the match conditions of each term in a routing policy, starting with the first and moving through the terms in the order in which they are defined, until a match is made. If none of the terms in the policy match the route, the routing platform compares the route against the next policy, and so on, until either an action is taken or the default policy is evaluated. The Firewall Filter Quick Configuration page allows you to reorder terms and filters by clicking up or down arrows and thus simplifies management of complex filters.

Figure 16: Firewall Filter Quick Configuration Page



Using View and Edit

Using View and Edit, you can configure all properties of the JUNOS software, including interfaces, general routing information, routing protocols, and user access, as well as several system hardware properties.

The configuration is stored as a hierarchy of statements. You create the specific hierarchy of configuration statements that you want to use. After you finish entering the configuration statements, you commit them to activate the configuration on the routing platform.

You can create the hierarchy interactively, or you can create an ASCII text file that is loaded onto the routing platform and then committed. Edit Configuration (J-Web

configuration editor) allows you to create the hierarchy interactively, and Edit Configuration Text allows you to create and commit statements as an ASCII text file.

Use the following tasks in View and Edit to configure your routing platform:

View Configuration Text

To view the entire configuration in text format, select **Configuration > View and Edit > View Configuration Text**. The main pane displays the configuration in text format (see Figure 17 on page 55). The displayed configuration is the same as the configuration displayed when you enter the JUNOS CLI command show configuration.

Figure 17: View Configuration Text Page

The configuration statements appear in a fixed order, irrespective of the order in which you configured the routing platform. The top of the configuration displays a timestamp indicating when the configuration was last changed and the current version. Figure 17 on page 55 shows that user joe committed the last configuration on 21 February 2007, and the software version running on the routing platform is JUNOS Release 8.2.

Each level in the hierarchy is indented to indicate each statement's relative position in the hierarchy. Each level is generally set off with braces, using an open brace ({) at the beginning of each hierarchy level and a closing brace (}) at the end. If the statement at a hierarchy level is empty, the braces are not displayed. Each leaf statement ends with a semicolon (;), as does the last statement in the hierarchy.

This indented representation is used when the configuration is displayed or saved as an ASCII file. However, when you load an ASCII configuration file, the format of the file is not so strict. The braces and semicolons are required, but the indention and use of new lines are not required in ASCII configuration files.

Click **OK** to return to the View and Edit page.

Edit Configuration (J-Web Configuration Editor)

To access Edit Configuration, also called the J-Web configuration editor, select **Configuration > View and Edit > Edit Configuration**. This page allows you to configure all routing platform services that you can configure from the JUNOS CLI. Each field in the J-Web configuration editor has the same name as the corresponding configuration statement at the same hierarchy level in the CLI. For example, the Policy Options field corresponds to the policy-options statement in the CLI. As a result, you can easily switch from one interface to the other or follow a CLI configuration example using the J-Web configuration editor.

Table 28 on page 56 lists key J-Web configuration editor tasks and their functions.

Table 28: J-Web Configuration Editor Tasks Summary

J-Web Configuration Editor Task	Function
Access	Configure network access. For example, you can configure the Point-to-Point Protocol (PPP), the tracing access processes, the Layer 2 Tunneling Protocol (L2TP), RADIUS authentication for L2TP, and Internet Key Exchange (IKE) access profiles. For more information, see the *JUNOS System Basics Configuration Guide*.
Accounting options	Configure accounting profiles. An accounting profile represents common characteristics of collected accounting data, including collection interval, accounting data files, and counter names on which to collect statistics. On the Accounting options pages, you can configure multiple accounting profiles, such as the interface, filter, MIB, routing engine and class usage profiles. For more information, see the *JUNOS Network Management Configuration Guide*.
Applications	Define applications by protocol characteristics and group the applications you have defined into a set. On the Applications pages, you can configure application properties such as, Internet Control Message Protocol (ICMP) code and type. You can also specify application protocols—also known as application level gateways (ALGs)—to be included in an application set for service processing, or specify network protocols to match in an application definition. For more information, see the *JUNOS Services Interfaces Configuration Guide*.

Table 28: J-Web Configuration Editor Tasks Summary *(continued)*

J-Web Configuration Editor Task	Function
Chassis	Configure routing platform chassis properties. On the Chassis pages, you can configure different properties of the routing platform chassis, including conditions that activate the red and yellow alarm LEDs on the routing platforms and SONET/SDH framing and concatenation properties for individual Physical Interface Cards (PICs). For more information, see the *JUNOS System Basics Configuration Guide*.
Class of service	Define class-of-service (CoS) components, such as CoS value aliases, classifiers, forwarding classes, rewrite rules, schedulers, and virtual channel groups. The Class of service pages also allow you to assign CoS components to interfaces. For more information, see the *JUNOS Class of Service Configuration Guide*.
Event options	Configure event policies. An event policy is an if-then-else construct that defines actions to be executed by the software on receipt of a system log message. For each policy, you can configure multiple actions, as follows—ignore the event, upload a file to a specified destination, execute JUNOS software operational mode commands, or execute JUNOS event scripts (op scripts). For more information, see the *JUNOS Configuration and Diagnostic Automation Guide*.
Firewall	Configure stateless firewall filters. With stateless firewall filters—also known as ACLs—you can control packets transiting the routing platform to a network destination and packets destined for and sent by the routing platform. On the Firewall pages, you can create filters and add terms to them. For each term, you can set the match conditions and associate actions to be performed on packets matching these conditions. For more information, see the *JUNOS Policy Framework Configuration Guide*.
Forwarding options	Configure traffic forwarding and traffic sampling options. You can sample IP traffic based on particular input interfaces and various fields in the packet header. You can also use traffic sampling to monitor any combination of specific logical interfaces, specific protocols on one or more interfaces, a range of addresses on a logical interface, or individual IP addresses. Traffic forwarding policies allow you to control the per-flow load balancing, port mirroring, and Domain Name System (DNS) or Trivial File Transfer Protocol (TFTP) forwarding. For more information, see the *JUNOS Policy Framework Configuration Guide*.
Interfaces	Configure physical and logical interface properties. For the physical interface on the routing platform, you can modify default values for general interface properties, such as the interface's maximum transmission unit (MTU) size, link operational mode, and clock source. For each logical interface, you can specify the protocol family and other logical interface properties. For more information, see the *JUNOS Network Interfaces Configuration Guide*.
Policy options	Configure policies by specifying match conditions and associating actions with the conditions. On the Policy options page you can create a named community and define autonomous system (AS) paths, damping parameters, and routing policies. You can also create a named prefix list and include it in a routing policy. For more information, see the *JUNOS VPNs Configuration Guide*.
Protocols	Configure routing protocols such as Border Gateway Protocol (BGP), Distance Vector Multicast Routing Protocol (DVMRP), Intermediate System-to-Intermediate System (IS-IS), Multiprotocol Label Switching (MPLS), Open Shortest Path First (OSPF), Resource Reservation Protocol (RSVP) and Routing Information Protocol (RIP). For more information, see the *JUNOS Routing Protocols Configuration Guide* and the *JUNOS MPLS Applications Configuration Guide*.
Routing instances	Configure routing instances. A routing instance is a collection of routing tables, interfaces, and routing protocol parameters. On the Routing instances pages, you can configure the following types of routing instances: forwarding, Layer 2 virtual private network (VPN), nonforwarding, VPN routing and forwarding (VRF), virtual rourter, and virtual private LAN service (VPLS). For more information, see the *JUNOS Routing Protocols Configuration Guide*.

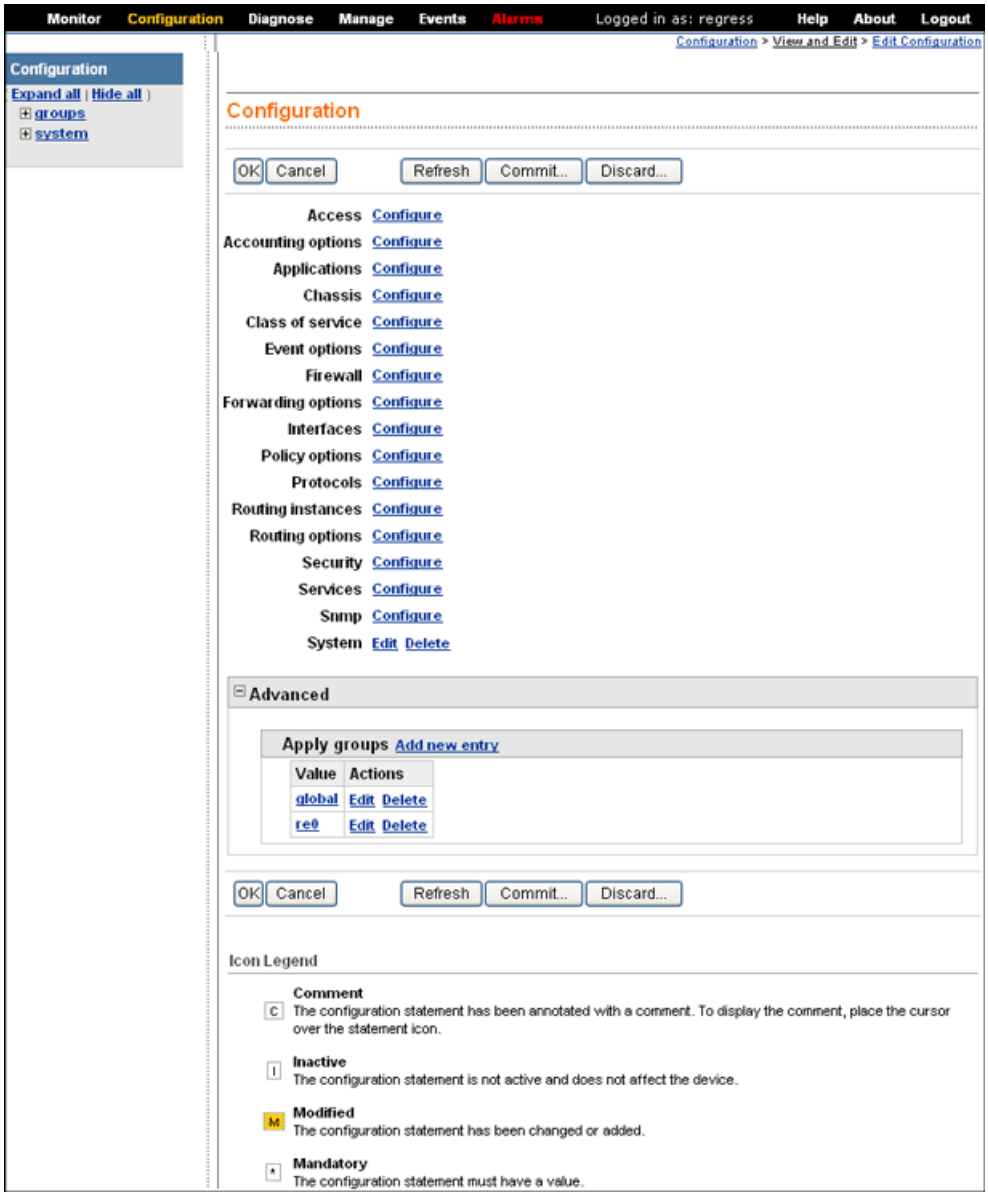
Table 28: J-Web Configuration Editor Tasks Summary *(continued)*

J-Web Configuration Editor Task	Function
Routing options	Configure protocol-independent routing options that affect system-wide routing operations. On the Routing options pages, you can perform the following tasks: ■ Add routing table entries, including static routes, aggregated (coalesced) routes, generated routes (routes of last resort), and martian routes (routes to ignore). ■ Create additional routing tables and routing table groups. ■ Set the AS number of the routing platform for use by BGP. ■ Set the router ID, which is used by BGP and OSPF to identify the routing platform from which a packet originated. ■ Define BGP confederation members for use by BGP. ■ Configure how much system logging information to log for the routing protocol process. ■ Configure system-wide tracing (debugging) to track standard and unusual routing operations and record this information in a log file. For more information, see the *JUNOS Routing Protocols Configuration Guide*
Security	Configure Internet Protocol Security (IPSec) for authentication of origin, data integrity, confidentiality, replay protection, and nonrepudiation of source. In addition to IPSec, you can configure the Internet Key Exchange (IKE), which defines mechanisms for key generation and exchange, and manages security associations (SAs). You can also configure the SSH known host list, and the trace options for IPSec key management. For more information, see the *JUNOS System Basics Configuration Guide*.
Services	Configure application settings for services interfaces, such as dynamic flow capture parameters, the Intrusion Detection System (IDS), IPSec VPN service, RPM, stateful firewalls, and Network Address Translation (NAT). For more information, see the *JUNOS Services Interfaces Configuration Guide*.
Snmp	Configure SNMP to monitor network devices from a central location. You can specify an administrative contact and location and add a description for each system being managed by SNMP. You can also configure SNMP community strings, trap options, and interfaces on which SNMP requests can be accepted. For more information, see the *JUNOS Network Management Configuration Guide*.
System	Configure system management functions, including the router's hostname, address, and domain name; the addresses of Domain Name System (DNS) servers; user login accounts, including user authentication and the root-level user account; time zones and Network Time Protocol (NTP) properties; and properties of the router's auxiliary and console ports. For more information, see the *JUNOS System Basics Configuration Guide*.

Editing a Configuration

To edit the configuration on a series of pages of clickable options that step you through the hierarchy, select **Configuration > View and Edit > Edit Configuration**. The side pane displays the top level of the configuration hierarchy, and the main pane displays configured hierarchy options and the Icon Legend (see Figure 18 on page 59).

Figure 18: Edit Configuration Page



To expand or hide the hierarchy of all the statements in the side pane, click **Expand all** or **Hide all**. To expand or hide an individual statement in the hierarchy, click the expand (+) or collapse (–) icon to the left of the statement.

NOTE: Only those statements included in the committed configuration are displayed in the side pane hierarchy.

The configuration information in the main pane consists of configuration options that correspond to configuration statements. Configuration options that contain subordinate statements are identified by the term *Nested configuration*.

To include, edit, or delete statements in the candidate configuration, click one of the links described in Table 29 on page 60 in the main pane. Then specify configuration information by typing into a field, selecting a value from a list, or clicking a check box (toggle).

Table 29: J-Web Edit Configuration Links

Link	Function
Add new entry	Displays fields and lists for a statement identifier, allowing you to add a new identifier to a statement.
Configure	Displays information for a configuration option that has not been configured, allowing you to include a statement.
Delete	Deletes the corresponding statement or identifier from the configuration. All subordinate statements and identifiers contained within a deleted statement are also discarded.
Edit	Displays information for a configuration option that has already been configured, allowing you to edit a statement.
identifier	Displays fields and lists for an existing statement identifier, allowing you to edit the identifier.

As you navigate through the configuration, the hierarchy level is displayed at the upper right of the main pane. You can click a statement or identifier in the hierarchy to return to the corresponding configuration options in the main pane.

The main pane includes icons that display information about statements and identifiers when you place your cursor over them. Table 30 on page 60 describes the meaning of these icons.

Table 30: J-Web Edit Configuration Icons

Icon	Meaning
C	Displays a comment about a statement.
I	Indicates that a statement is inactive.
M	Indicates that a statement has been added or modified, but has not been committed.
*	Indicates that the statement or identifier is required in the configuration.
?	Provides help information.

NOTE: You can annotate statements with comments or make them inactive only through the CLI. For more information, see the *JUNOS CLI User Guide*.

After typing or selecting your configuration edits, click a button in the main pane (described in Table 31 on page 61) to apply your changes or cancel them, refresh the display, or discard parts of the candidate configuration. An updated configuration does not take effect until you commit it.

Table 31: J-Web Edit Configuration Buttons

Button	Function
OK	Applies edits to the candidate configuration, and returns you to the previous level in the configuration hierarchy.
Cancel	Clears the entries you have not yet applied to the candidate configuration, and returns you to the previous level in the configuration hierarchy.
Refresh	Updates the display with any changes to the configuration made by other users.
Commit	Verifies edits and applies them to the current configuration file running on the routing platform. For details, see "Committing a Configuration" on page 62.
Discard	Removes edits applied to, or deletes existing statements or identifiers from, the candidate configuration. For details, see "Discarding Parts of a Candidate Configuration" on page 61.

Discarding Parts of a Candidate Configuration

Before committing a candidate configuration, you can discard changes you applied or delete existing statements or identifiers.

To discard parts of a candidate configuration:

1. Navigate to the level of the hierarchy you want to edit, and click **Discard**.

   The main pane displays a list of target statements based on the hierarchy level and the changes you have made.

2. Select an option button (also known as a radio button) to specify the appropriate discard operation or deletion. (Not all buttons appear in all situations.)

   - **Discard Changes Below This Point**—Discards changes made to the candidate configuration at the displayed hierarchy level and below. All subordinate statements and identifiers contained within a discarded statement are also discarded.
   - **Discard All Changes**—Discards all changes made to the candidate configuration.
   - **Delete Configuration Below This Point**—Deletes all changes and statements in the candidate configuration at the displayed hierarchy level and below. All subordinate statements and identifiers contained within a deleted statement are also deleted.

3. To confirm the discard operation or deletion, click **OK**.

To cancel a discard operation or deletion, click **Cancel**.

The updated candidate configuration does not take effect on the routing platform until you commit it.

Committing a Configuration

When you finish making changes to a candidate configuration with the J-Web configuration editor, you must commit the changes to use them in the current operational software running on the routing platform.

If another user is editing an exclusive candidate configuration with the CLI, you cannot commit a configuration until the user has committed the configuration. To display a list of users, see "Displaying Users Editing the Configuration" on page 68. For more information about editing an exclusive candidate configuration, see the *JUNOS CLI User Guide*.

To commit a candidate configuration:

1. In the J-Web configuration editor, click **Commit**.

   The main pane displays a summary of your changes in statement form.

2. To confirm the commit operation, click **OK**.

   To cancel a commit operation, click **Cancel**.

   If multiple users are editing the configuration when you commit the candidate configuration, all changes made by all users take effect.

3. To display all the edits applied to the running configuration, click **Refresh**.

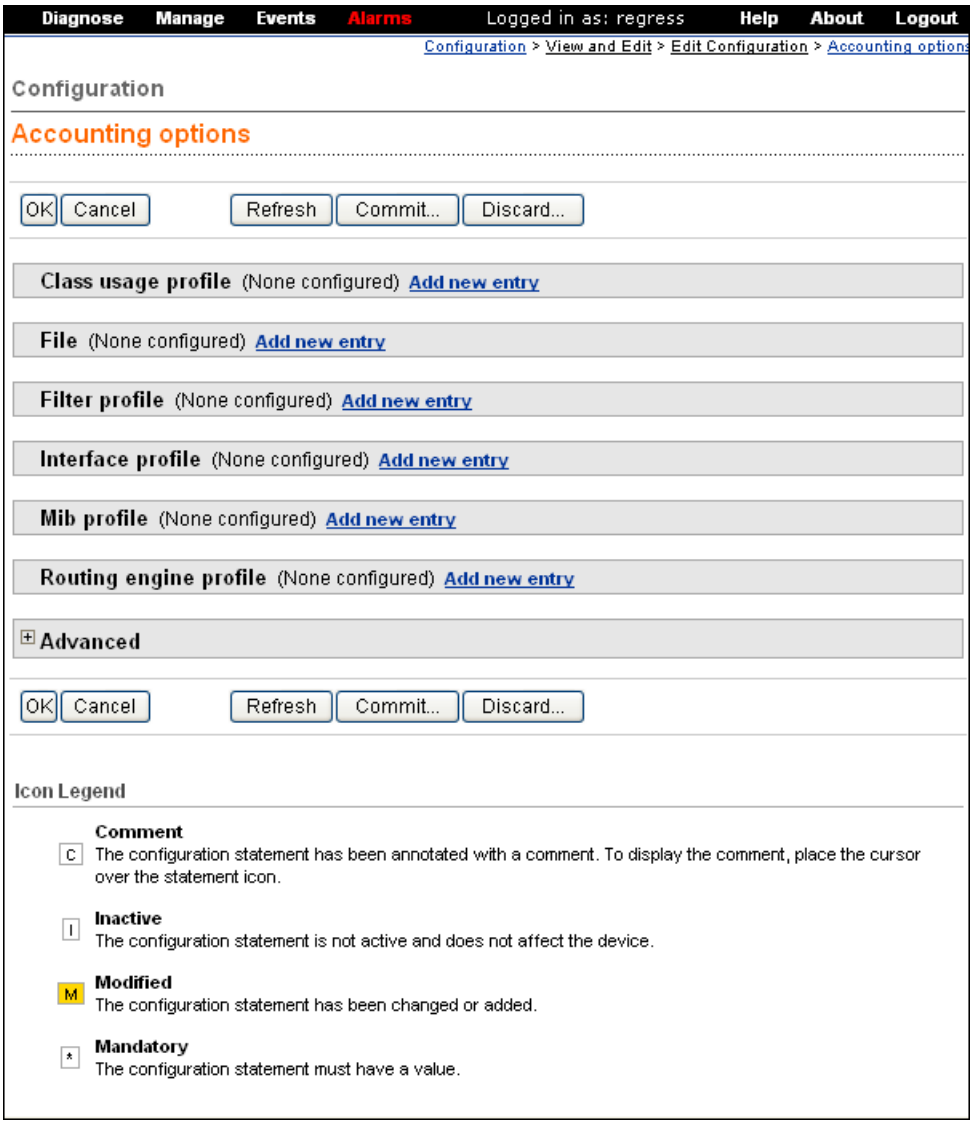
Sample Task—Configuring Accounting Options

Figure 19 on page 63 shows the Accounting options configuration page. This page displays the different settings that you can configure at the accounting options hierarchy level. Because each field in the J-Web configuration editor has the same name as the corresponding configuration statement at the same hierarchy level in the CLI, the options on this page match the options displayed when you enter edit accounting options in the CLI:

```
user@router# edit accounting-options ?
Possible completions:
  <[Enter]>            Execute this command
> class-usage-profile  Class usage profile for accounting data
> file                 Accounting data file configuration
> filter-profile       Filter profile for accounting data
> interface-profile    Interface profile for accounting data
> mib-profile          MIB profile for accounting data
> routing-engine-profile  Routing Engine profile for accounting data
  |                    Pipe through a command
[edit]
```

On the Accounting options page, click any option to view and configure related options.

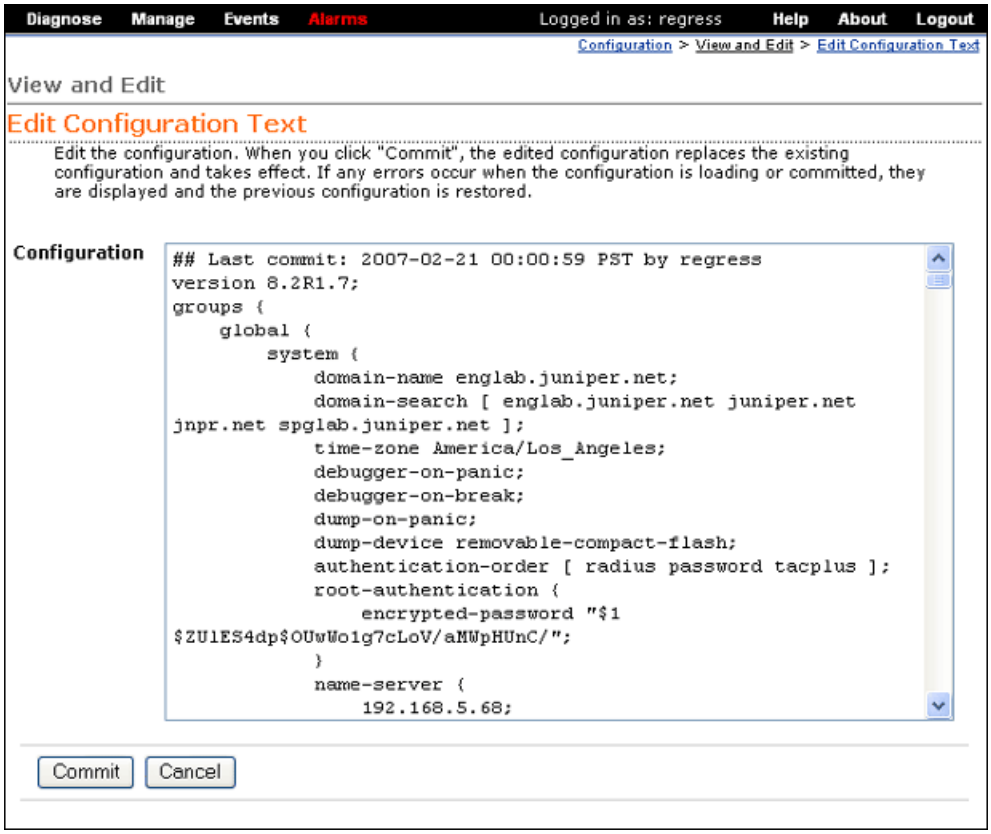
Figure 19: Accounting Options Configuration Editor Page



Edit Configuration Text

To edit the entire configuration in text format, select **Configuration > View and Edit > Edit Configuration Text**. The main pane displays the configuration in a text editor (see Figure 20 on page 64).

Figure 20: Edit Configuration Text Page



For more information about the format of an ASCII configuration file, see “View Configuration Text” on page 55.

CAUTION: We recommend that you use this method to edit and commit the configuration only if you have experience editing configurations through the CLI.

To edit the entire configuration in text format:

1. Navigate to the hierarchy level you want to edit.
2. Edit the candidate configuration using standard text editor operations—insert lines (with the Enter key), delete lines, and modify, copy, and paste text.
3. Click **Commit** to load and commit the configuration.

   The routing platform checks the configuration for the correct syntax before committing it.

When you edit the ASCII configuration file, you can add comments of one or more lines. Comments must precede the statement they are associated with. If you place the comments in other places in the file, such as on the same line after a statement or on a separate line following a statement, they are removed when you click Commit.

Comments must begin and end with special characters. For more information, see the *JUNOS CLI User Guide*.

Upload Configuration File

To upload a configuration file from your local system:

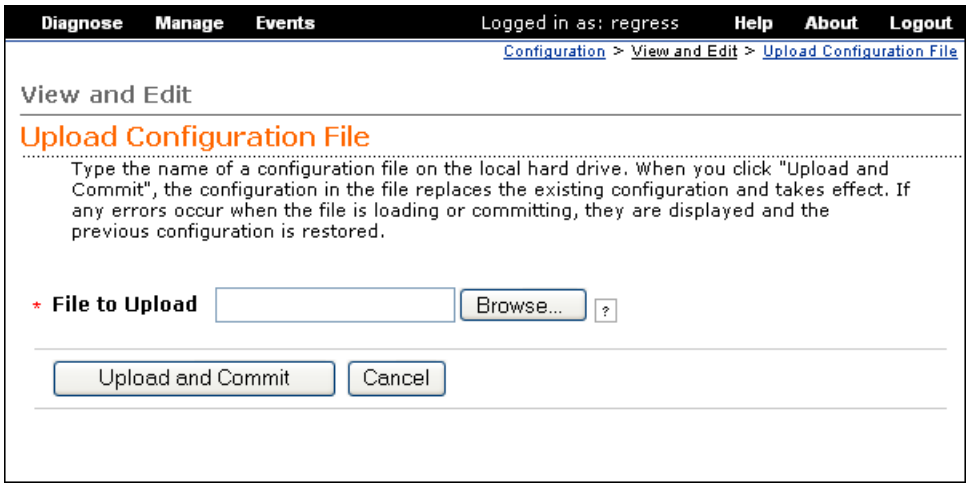
1. Select **Configuration > View and Edit > Upload Configuration File**.

   The main pane displays the File to Upload box (see Figure 21 on page 65).

2. Specify the name of the file to upload using one of the following methods:
   - Type the absolute path and filename in the File to Upload box.
   - Click **Browse** to navigate to the file.
3. Click **OK** to upload and commit the configuration.

   The routing platform checks the configuration for the correct syntax before committing it.

Figure 21: J-Web Upload Configuration File Page



Using History

The J-Web interface provides configuration database and history information that allows you to manage configuration files. You can perform the following tasks:

- Displaying Configuration History on page 66
- Displaying Users Editing the Configuration on page 68
- Comparing Configuration Files on page 69
- Downloading a Configuration File on page 70
- Loading a Previous Configuration File on page 71

Displaying Configuration History

When you commit a configuration, the routing platform saves the current operational version and the previous 49 versions of committed configurations. To manage these configuration files with the J-Web interface, select **Configuration > History**. The main pane displays Database Information and Configuration History (see Figure 22 on page 67).

Table 32 on page 67 summarizes the contents of the display.

The configuration history display allows you to perform the following operations:

- View a configuration.
- Compare two configurations.
- Download a configuration file to your local system.
- Roll back the configuration to any of the previous versions stored on the routing platform.

Figure 22: Configuration Database and History Page

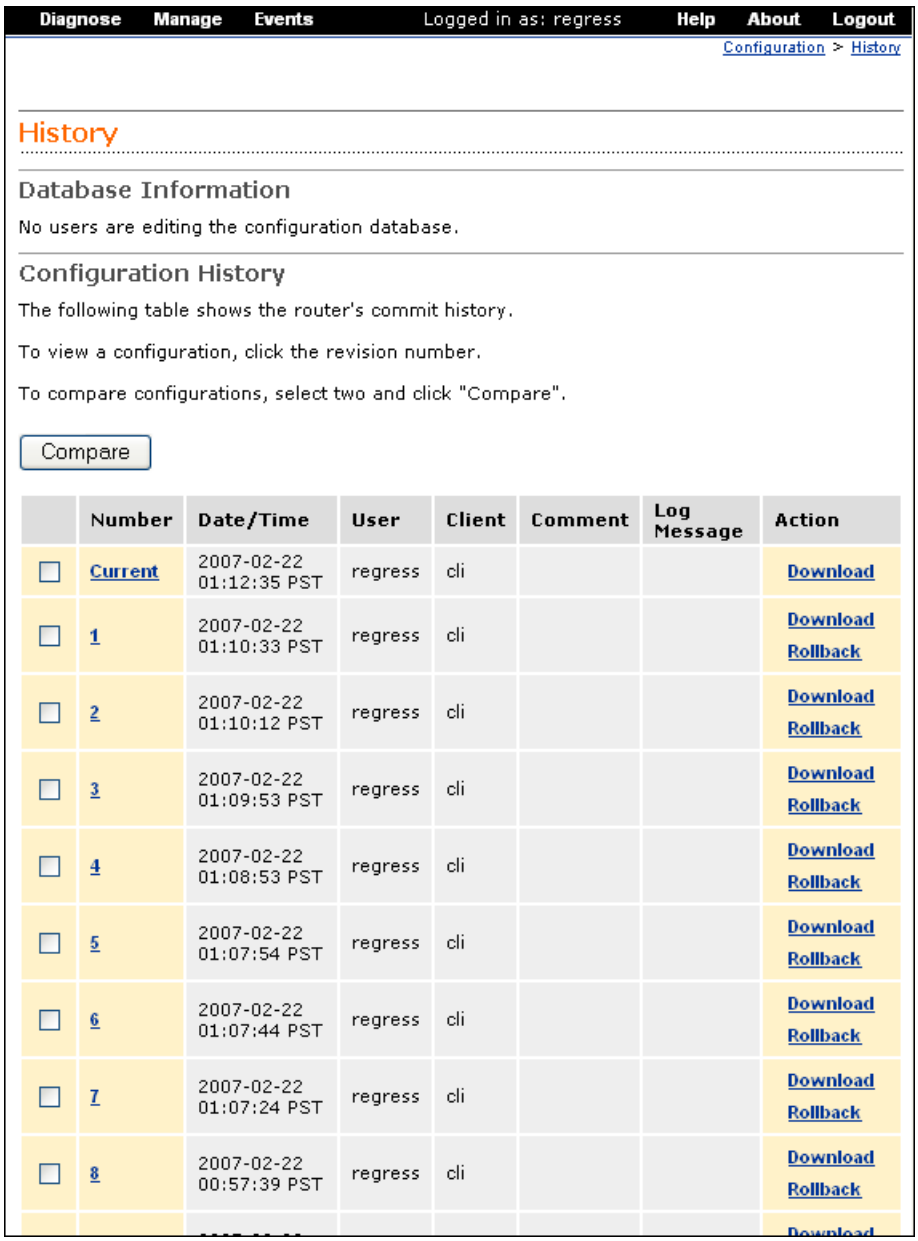


Table 32: J-Web Configuration History Summary

Field	Description
Number	Version of the configuration file.
Date/Time	Date and time the configuration was committed.
User	Name of the user who committed the configuration.

Table 32: J-Web Configuration History Summary *(continued)*

Field	Description
Client	Method by which the configuration was committed: ■ cli—A user entered a JUNOS CLI command. ■ junoscript—A JUNOScript client performed the operation. Commit operations performed by users through the J-Web interface are identified in this way. ■ snmp—An SNMP set request started the operation. ■ button—The CONFIG button on the router was pressed to commit the rescue configuration (if set) or to clear all configurations except the factory configuration. ■ autoinstall—Autoinstallation was performed. ■ other—Another method was used to commit the configuration.
Comment	Comment.
Log Message	Method used to edit the configuration: ■ Imported via paste—Configuration was edited and loaded with the **Configuration > View and Edit > Edit Configuration Text** option. For more information, see "Edit Configuration Text" on page 63. ■ Imported upload [*filename*]—Configuration was uploaded with the **Configuration > View and Edit > Upload Configuration File** option. For more information, see "Upload Configuration File" on page 65. ■ Modified via *quick-configuration*—Configuration was modified with the J-Web Quick Configuration tool specified by *quick-configuration*. For more information, see "Using Quick Configuration" on page 47. ■ Rolled back via *user-interface*—Configuration was rolled back to a previous version through the user interface specified by *user-interface*, which can be Web Interface or CLI. For more information, see "Loading a Previous Configuration File" on page 71.
Action	Action to perform with the configuration file. The action can be **Download** or **Rollback**. For more information, see "Downloading a Configuration File" on page 70 and "Loading a Previous Configuration File" on page 71.

For more information about saved versions of configuration files, see "Editing and Committing a JUNOS Configuration" on page 45.

Displaying Users Editing the Configuration

To display a list of users editing the routing platform configuration, select **Configuration > History**. The list is displayed as Database Information in the main pane (see Figure 23 on page 69). Table 33 on page 69 summarizes the Database Information display.

Figure 23: Database Information Page

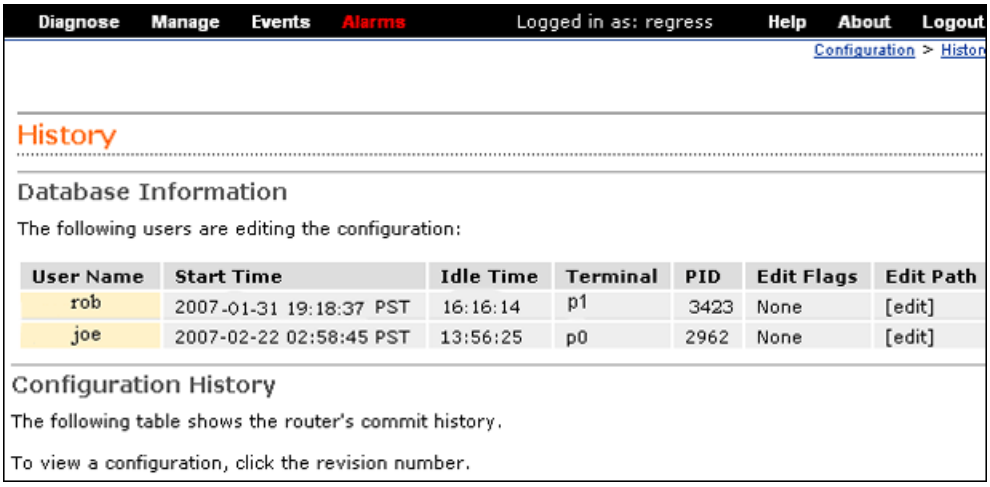


Table 33: J-Web Configuration Database Information Summary

Field	Description
User Name	Name of user editing the configuration.
Start Time	Time of day the user logged in to the routing platform.
Idle Time	Elapsed time since the user issued a configuration command from the CLI.
Terminal	Terminal on which the user is logged in.
PID	Process identifier assigned to the user by the routing platform.
Edit Flags	Designates a private or exclusive edit.
Edit Path	Level of the configuration hierarchy that the user is editing.

Comparing Configuration Files

To compare any two of the past 50 committed configuration files:

1. Select **Configuration > History**.

   A list of the current and previous 49 configurations is displayed as Configuration History in the main pane (see Figure 22 on page 67). Table 32 on page 67 summarizes the Configuration History display.

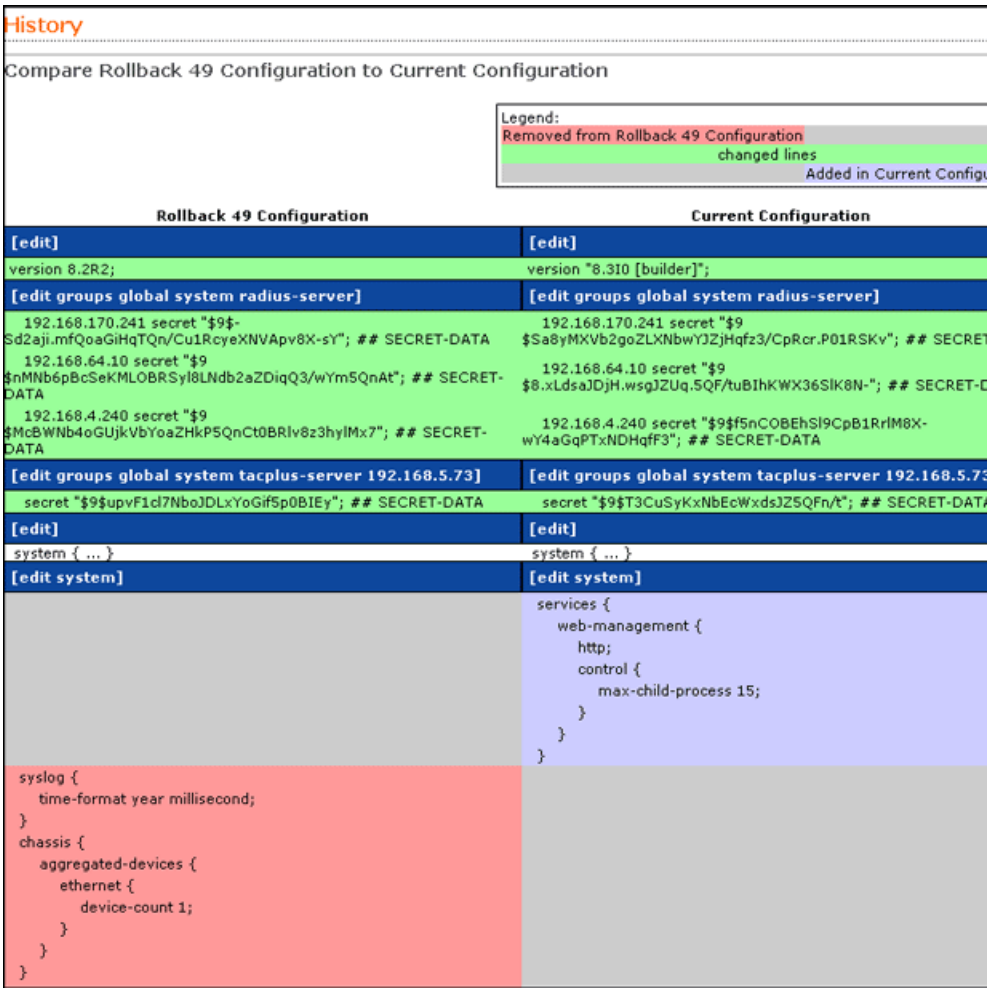
2. Click two of the check boxes to the left of the configuration versions you want to compare.

3. Click **Compare**.

   The main pane displays the differences between the two configuration files at each hierarchy level as follows (see Figure 24 on page 70):

- Lines that have changed are highlighted side by side in green.
- Lines that exist only in the more recent configuration file are displayed in red on the left.
- Lines that exist only in the least recent configuration file are displayed in blue on the right.

Figure 24: J-Web Configuration File Comparison Results



Downloading a Configuration File

To download a configuration file from the routing platform to your local system:

1. Select **Configuration > History**.

   A list of the current and previous 49 configurations is displayed as Configuration History in the main pane (see Figure 22 on page 67). Table 32 on page 67 summarizes the Configuration History display.

2. In the Action column, click **Download** for the version of the configuration you want to download.
3. Select the options your Web browser provides that allow you to save the configuration file to a target directory on your local system.

   The file is saved as an ASCII file.

Loading a Previous Configuration File

To load (roll back) and commit a previous configuration file stored on the routing platform:

1. Select **Configuration > History**.

   A list of the current and previous 49 configurations is displayed as Configuration History in the main pane (see Figure 22 on page 67). Table 32 on page 67 summarizes the Configuration History display.
2. In the Action column, click **Rollback** for the version of the configuration you want to load.

   The main pane displays the results of the rollback operation.

NOTE: When you click **Rollback**, the routing platform loads and commits the selected configuration. This behavior is different from entering the rollback configuration mode command from the CLI, where the configuration is loaded, but not committed.

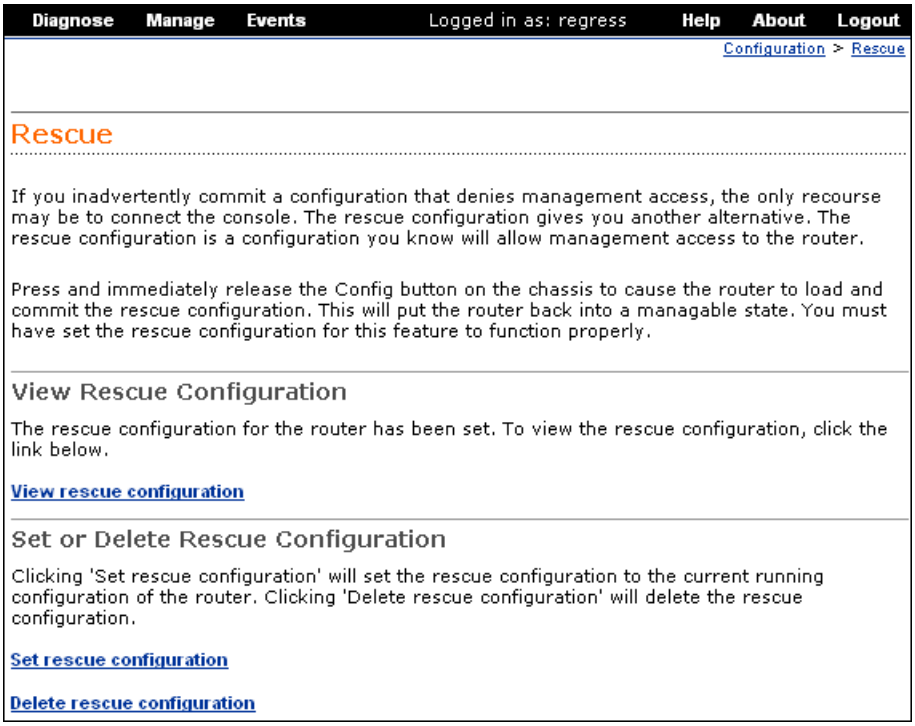
Using Rescue (J-series Routing Platforms Only)

If someone inadvertently commits a configuration that denies management access to a routing platform, you can delete the invalid configuration and replace it with a rescue configuration. You must have previously set the rescue configuration through the J-Web interface or the CLI. The rescue configuration is a previously committed, valid configuration.

To view, set, or delete the rescue configuration, select **Configuration > Rescue**. On the Rescue page (see Figure 25 on page 72), you can perform the following tasks:

- View the current rescue configuration (if one exists)—Click **View rescue configuration**.
- Set the current running configuration as the rescue configuration—Click **Set rescue configuration**. On a J-series routing platform, you can also press the CONFIG or RESET CONFIG button.
- Delete the current rescue configuration—Click **Delete rescue configuration**.

Figure 25: Rescue Configuration Page



Chapter 5

Diagnose Tasks

Use the J-Web Diagnose tasks to evaluate your routing platform's health and performance. Diagnostic tools test the connectivity and reachability of hosts in the network.

You can also enter CLI operational mode commands in the J-Web CLI terminal to diagnose the routing platform. For more information about the CLI terminal, see “Using the CLI Terminal” on page 77.

This chapter contains the following topics:

Using Ping Host

Use the Ping Host page to verify that the host can be reached over the network. The output is useful for diagnosing host and network connectivity problems. The routing platform sends a series of ICMP echo (ping) requests to a specified host to determine:

- Whether a remote host is active or inactive
- The round-trip delay in communicating with the host
- Packet loss

Entering a hostname or address in the Ping Host page creates a periodic ping task that runs until cancelled or until it times out as specified. When you use the ping host tool, the routing platform first sends an echo request packet to an address, then waits for a reply. The ping is successful if it has the following results:

- The echo request gets to the destination host.

- The destination host is able to get an echo reply back to the source within a predetermined time called the round-trip time.

Alternatively, you can enter the ping command at the J-Web CLI terminal. For more information, see “Using the CLI Terminal” on page 77. For more information about the ping command, see the *JUNOS System Basics and Services Command Reference*.

Because some hosts are configured not to respond to ICMP echo requests, a lack of responses does not necessarily represent a connectivity problem. Also, some firewalls block the ICMP packet types that ping uses, so you might find that you are not able to ping outside your local network.

Using Ping MPLS

Use the Ping MPLS page to diagnose the state of label-switched paths (LSPs), Layer 2 and Layer 3 virtual private networks (VPNs), and Layer 2 circuits. You can ping an MPLS endpoint using various options. You can send variations of ICMP echo request packets to the specified MPLS endpoint.

When you use the ping MPLS task from a routing platform operating as the inbound (ingress) node at the entry point of an LSP or VPN, the routing platform sends probe packets into the LSP or VPN. Based on how the LSP or VPN outbound (egress) node at the remote endpoint of the connection replies to the probes, you can determine the connectivity of the LSP or VPN.

Each probe is an echo request sent to the LSP or VPN exit point as an MPLS packet with a UDP payload. If the outbound node receives the echo request, it checks the contents of the probe and returns a value in the UDP payload of the response packet. If the routing platform receives the response packet, it reports a successful ping response.

Responses that take longer than 2 seconds are identified as failed probes.

Table 34 on page 74 lists the ping MPLS tasks, summarizes their functions, and identifies corresponding CLI show commands you can enter at the J-Web CLI terminal. For more information, see “Using the CLI Terminal” on page 77.

Table 34: Ping MPLS Tasks Summary and Corresponding CLI show Commands

Ping MPLS Task	Corresponding CLI Command	Function	Additional Information
Ping RSVP-signaled LSP	ping mpls rsvp	Checks the operability of an LSP that has been set up by the Resource Reservation Protocol (RSVP). The routing platform pings a particular LSP using the configured LSP name.	When an RSVP-signaled LSP has several paths, the routing platform sends the ping requests on the path that is currently active.

Table 34: Ping MPLS Tasks Summary and Corresponding CLI show Commands *(continued)*

Ping MPLS Task	Corresponding CLI Command	Function	Additional Information
Ping LDP-signaled LSP	ping mpls ldp	Checks the operability of an LSP that has been set up by the Label Distribution Protocol (LDP). The routing platform pings a particular LSP using the forwarding equivalence class (FEC) prefix and length.	When an LDP-signaled LSP has several gateways, the routing platform sends the ping requests through the first gateway. Ping requests sent to LDP-signaled LSPs use only the master routing instance.
Ping LSP to Layer 3 VPN prefix	ping mpls l3vpn	Checks the operability of the connections related to a Layer 3 VPN. The routing platform tests whether a prefix is present in a provider edge (PE) router's VPN routing and forwarding (VRF) table, by means of a Layer 3 VPN destination prefix.	The routing platform does not test the connection between a PE router and a customer edge (CE) router.
Locate LSP using interface name	ping mpls l2vpn interface	Checks the operability of the connections related to a Layer 2 VPN. The routing platform directs outgoing request probes out the specified interface.	For information about interface names, see the *JUNOS Interfaces Command Reference*.
Instance to which this connection belongs	ping mpls l2vpn instance	Checks the operability of the connections related to a Layer 2 VPN. The routing platform pings on a combination of the Layer 2 VPN routing instance name, the local site identifier, and the remote site identifier, to test the integrity of the Layer 2 VPN circuit (specified by the identifiers) between the inbound and outbound PE routers.	
Locate LSP from interface name	ping mpls l2circuit interface	Checks the operability of the Layer 2 circuit connections. The routing platform directs outgoing request probes out the specified interface.	
Locate LSP from virtual circuit information	ping mpls l2circuit virtual-circuit	Checks the operability of the Layer 2 circuit connections. The routing platform pings on a combination of the IPv4 prefix and the virtual circuit identifier on the outbound PE router, testing the integrity of the Layer 2 circuit between the inbound and outbound PE routers.	
Ping end point of LSP	ping mpls lsp-end-point	Checks the operability of an LSP endpoint. The routing platform pings an LSP endpoint using either an LDP FEC prefix or an RSVP LSP endpoint address.	

Using Ping ATM (M-series, MX-series, and T-series Routing Platforms only)

On M-series, MX-series, and T-series routing platforms, use the Ping ATM pages to ping an Asynchronous Transfer Mode (ATM) node on an ATM virtual circuit (VC) pathway to verify that the node can be reached over the network. The output is useful for diagnosing ATM node and network connectivity problems. The routing platform sends a series of echo requests to a specified ATM node and receives echo responses.

Alternatively, you can enter the ping atm command at the J-Web CLI terminal. For more information, see "Using the CLI Terminal" on page 77. for more information about the ping atm command, see the *JUNOS System Basics and Services Command Reference*.

Using Traceroute

Use the Traceroute page to trace a route between the routing platform and a remote host. You can use the traceroute task to display a list of routers between the routing platform and a specified destination host. The output is useful for diagnosing a point of failure in the path from the routing platform to the destination host, and addressing network traffic latency and throughput problems.

The routing platform generates the list of routers by sending a series of ICMP traceroute packets in which the time-to-live (TTL) value in the messages sent to each successive router is incremented by 1. (The TTL value of the first traceroute packet is set to 1.) In this manner, each router along the path to the destination host replies with a Time Exceeded packet from which the source IP address can be obtained.

The routing platform sends a total of three traceroute packets to each router along the path and displays the round-trip time for each traceroute operation. If the routing platform times out before receiving a Time Exceeded message, an asterisk (*) is displayed for that round-trip time.

Alternatively, you can enter the traceroute command at the J-Web CLI terminal. For more information, see "Using the CLI Terminal" on page 77. For more information about the traceroute command, see the *JUNOS System Basics and Services Command Reference*.

Using Packet Capture

Use the Packet Capture page when you need to quickly capture and analyze router control traffic on a routing platform. The Packet Capture page allows you to capture traffic destined for or originating from the Routing Engine. You can use the packet capture task to compose expressions with various matching criteria to specify the packets that you want to capture. You can either choose to decode and view the captured packets in the J-Web interface as they are captured, or save the captured packets to a file and analyze them offline with packet analyzers such as Ethereal. The packet capture task does not capture transient traffic.

Alternatively, you can use the CLI monitor traffic command at the J-Web CLI terminal to capture and display packets matching a specific criteria. For more information,

see “Using the CLI Terminal” on page 77. For more information about the monitor traffic command, see the *JUNOS System Basics and Services Command Reference*.

To capture transient traffic and entire IPv4 data packets for offline analysis, you must configure packet capture with the J-Web or CLI configuration editor. For details, see the *J-series Services Router Administration Guide*.

Using the CLI Terminal

The J-Web CLI terminal provides access to the JUNOS command line interface (CLI) through the J-Web interface. The functionality and behavior of the CLI available through the CLI terminal page is the same as the JUNOS CLI available through the routing platform console. The CLI terminal supports all CLI commands and other features such as CLI help and autocompletion. Using the CLI terminal page you can fully configure, monitor, and manage your routing platform.

Figure 26 on page 77 shows the CLI terminal displaying all the options that you can configure in CLI configuration mode.

Figure 26: J-Web CLI Terminal

CLI Terminal Requirements

To access the CLI through the J-Web interface, your management device requires the following features:

- SSH access—Enable Secure shell (SSH) on your system. SSH provides a secured method of logging in to the routing platform, to encrypt traffic so that it is not intercepted. If SSH is not enabled on the system, the CLI terminal page displays an error and provides a link to the Set Up Quick Configuration page that allows you to enable SSH. For more information, see "Configuring Basic Settings on the Routing Platform" on page 5.
- Java applet support—Make sure that your Web browser supports Java applets.
- JRE installed on the client—Install Java Runtime Environment (JRE) version 1.4 or later on your system. JRE is a software package that must be installed on a system to run Java applications. Download the latest JRE version from the Java Software Web site http://www.java.com/. Installing JRE installs Java plug-ins, which once installed, load automatically and transparently to render Java applets.

NOTE: The CLI terminal is supported on JRE version 1.4 and later only.

CLI Overview

The JUNOS CLI uses industry-standard tools and utilities to provide a set of commands for monitoring and configuring a routing platform. You type commands on a line and press Enter to execute them. The CLI provides command help, command completion, and Emacs-style keyboard sequences for moving around on the command line and scrolling through a buffer of recently executed commands.

The commands in the CLI are organized hierarchically, with commands that perform a similar function grouped together under the same level. For example, all commands that display information about the routing platform system and system software are grouped under the show command, and all commands that display information about the routing table are grouped under the show route command. The hierarchical organization results in commands that have a regular syntax and provides the following features that simplify CLI use:

- Consistent command names—Commands that provide the same type of function have the same name, regardless of the portion of the software they are operating on. For example, all show commands display software information and statistics, and all clear commands erase various types of system information.
- Lists and short descriptions of available commands—Information about available commands is provided at each level of the CLI command hierarchy. If you type a question mark (?) at any level, you see a list of the available commands along with a short description of each command.
- Command completion—Command completion for command names (keywords) and command options is also available at each level of the hierarchy. In the CLI terminal you can do one of the following for command completions:

- Type a partial command name followed immediately by a question mark (with no intervening space), to see a list of commands that match the partial name you typed.
- Press the Spacebar to complete a command or option that you have partially typed. If the partially typed letters begin a string that uniquely identifies a command, the complete command name appears. Otherwise, a prompt indicates that you have entered an ambiguous command, and the possible completions are displayed.

  The Tab key option is currently not available on the CLI terminal.

The CLI has two modes:

- Operational mode—Complete set of commands to control the CLI environment, monitor and troubleshoot network connectivity, manage the routing platform, and enter configuration mode.
- Configuration mode—Complete set of commands to configure the routing platform.

For more information about the JUNOS CLI, see the *JUNOS CLI User Guide*. For information about configuring and monitoring JUNOS features with the CLI, see the JUNOS manuals in "List of Technical Publications" on page xv.

Starting the CLI Terminal

To get started on the CLI terminal:

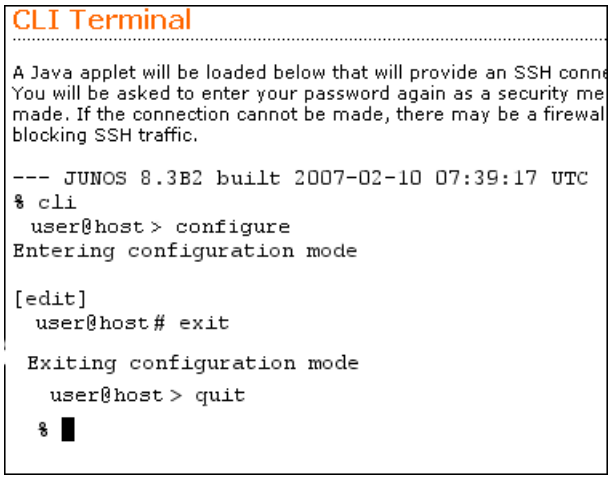
1. Make sure that your system meets the requirements mentioned in "CLI Terminal Requirements" on page 78.
2. In the J-Web interface, select **Diagnose > CLI Terminal**. A Java applet is downloaded into the J-Web interface allowing SSH access to the routing platform.
3. Log in to the CLI by typing your JUNOS password. This is the same password that you use to log in to the J-Web interface.

   After you log in, a percentage sign (%) prompt appears to indicate that you are in the UNIX shell (see Figure 27 on page 80).
4. To start the CLI, type cli.

   The presence of the angle bracket (>) prompt indicates that the CLI has started. By default, the prompt is preceded by a string that contains your username and the hostname of the routing platform. The angle bracket also indicates that you are in operational mode.
5. To enter configuration mode, type configure. The [edit] prompt indicates the current configuration mode.
6. Type exit or quit to return to the previous level of the configuration—for example, to return to operational mode from configuration mode.

For security purposes, each time you log out of the routing platform or leave the CLI terminal page, the CLI terminal session ends and you are required to reenter your password. When you select **Diagnose > CLI Terminal** again, retype your JUNOS password to access the CLI.

Figure 27: Starting the CLI Terminal



Sample Task—Ping Host

Figure 28 on page 81 shows a sample Ping Host page. In this example, you are sending ping requests are sent to two destination hosts—10.10.2.2 and 2.2.2.2. The echo requests reaches 10.10.2.2 and does not reach 2.2.2.2.

To ping the host:

1. Select **Diagnose > Ping Host** from the task bar.
2. Next to Advanced options, click the expand icon (see Figure 28 on page 81).
3. Next to Remote Host, typ 10.10.2.2 to specify the host's IP address.
4. Retain the default values in the following fields:
   - Interface—any—Ping requests to be sent on all interfaces.
   - Count—10—Number of ping requests to send.
   - Type-of-Service—0—TOS value in the IP header of the ping request packet.
   - Routing Instance—default—Routing instance name for the ping attempt.
   - Interval—1—Interval, in seconds, between the transmission of each ping request.
   - Packet Size—56—Size of the ping request packet in bytes. The routing platform adds 8 bytes of ICMP header to this size before sending it.
   - Time-to-Live—32—TTL hop count for the ping request packet.

5. Click **Start**.
6. Repeat Steps 2 through 5 to ping destination host 2.2.2.2.

Figure 28: Ping Host Diagnose Page

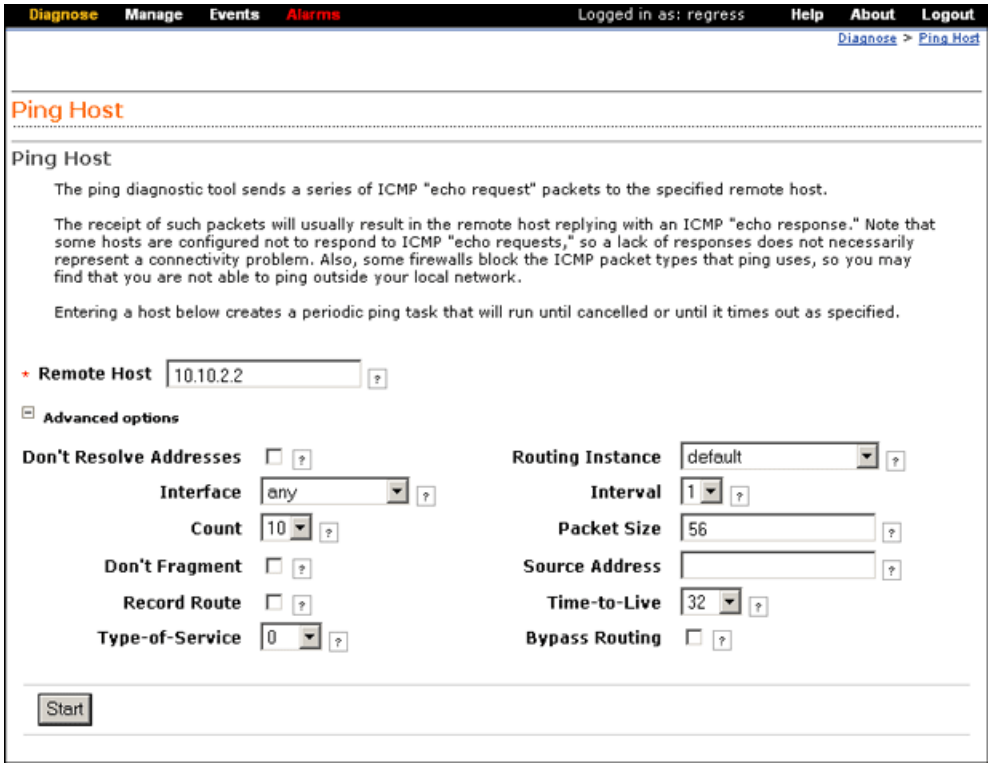


Figure 29 on page 82 displays the results of a successful ping in the main pane, and Table 35 on page 82 provides a summary of the ping host results and output.

Figure 29: Successful Ping Host Results Page

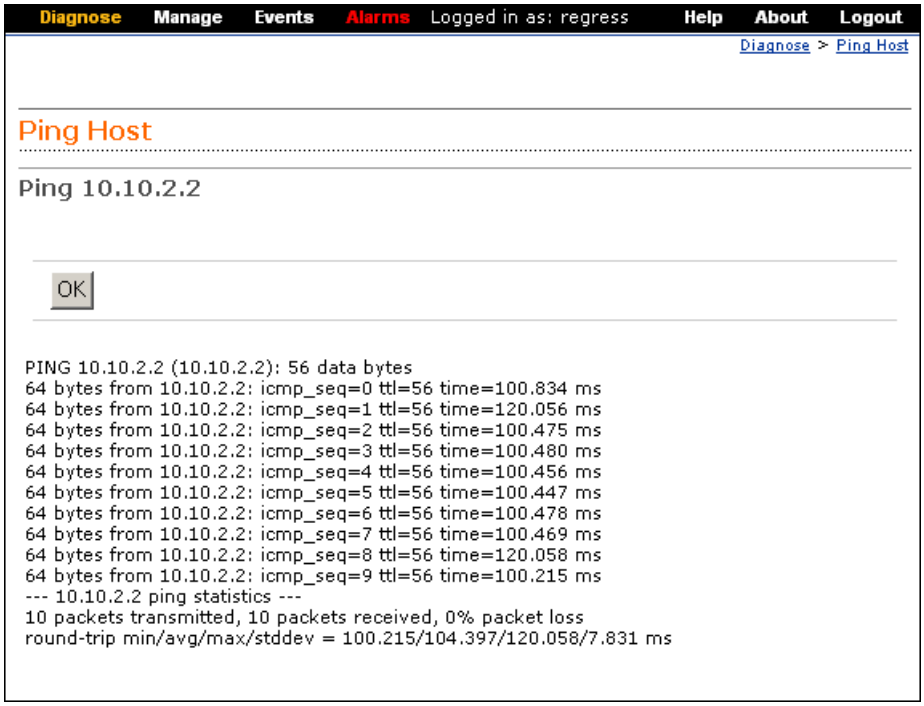
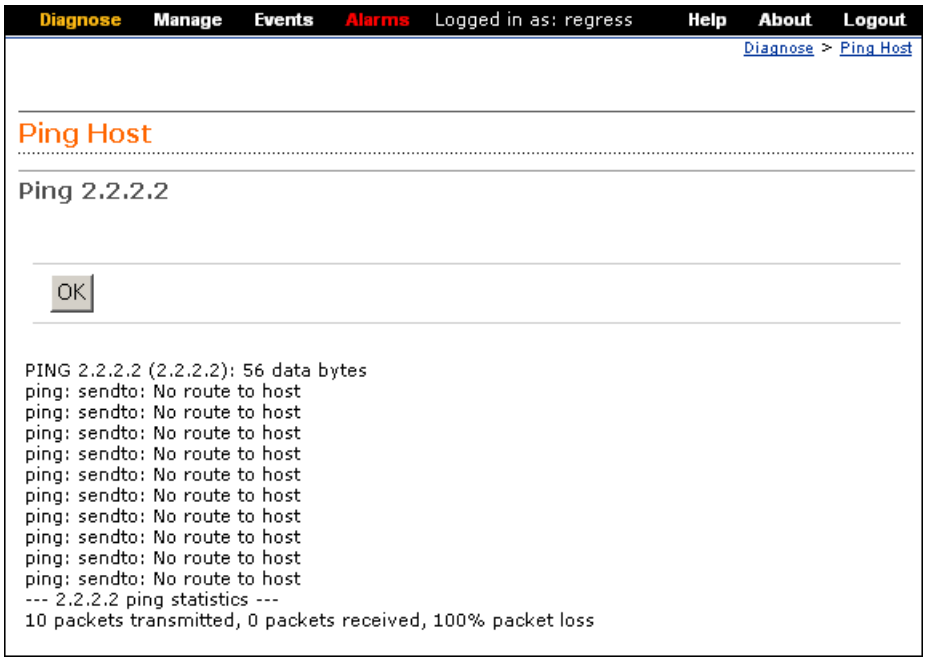


Table 35: J-Web Ping Host Results and Output Summary

Ping Host Result	Description
64 bytes from	Size of ping response packet, which is equal to the default value in the Packet Size box (56), plus 8.
10.10.2.2	IP address of the destination host that sent the ping response packet.
icmp_seq=*number*	Sequence numbers of packets from 0 through 9. You can use this value to match the ping response to the corresponding ping request.
ttl=56	Time-to-live hop-count value of the ping response packet.
100.834 ms	Total time between the sending of the ping request packet and the receiving of the ping response packet, in milliseconds. This value is also called round-trip time.
10 packets transmitted, 10 packets received, 0% packet loss	Ping packets transmitted, received, and lost. 10 ping requests (probes) were sent to the host, and 10 ping responses were received from the host. No packets were lost.
100.215/104.397/120.158/7.831 ms	■ 100.215—Minimum round-trip time ■ 104.397—Average round-trip time ■ 120.158—Maximum round-trip time ■ 7.831—Standard deviation of the round-trip times ■ ms—milliseconds

Figure 30 on page 83 shows the output of an unsuccessful ping. There can be different reasons for an unsuccessful ping. This result shows that the local router did not have a route to the host 2.2.2.2 and thus could not reach it.

Figure 30: Unsuccessful Ping Host Results Page



Chapter 6

Manage Tasks

The J-Web Manage tasks allow you to manage log, temporary, and core (crash) files and schedule reboots on the routing platforms. On J-series routing platforms, you can also manage software packages and licenses and copy a snapshot of the system software to a backup device.

This chapter contains the following topics:

Using Files

Select **Manage > Files** in the J-Web interface to manage log, temporary, and core files on the routing platform.

Table 36 on page 86 lists the different tasks that you can perform from the Manage > Files page.

Table 36: Manage Files Tasks Summary

Manage Files Task	Functions
Clean Up Files	Rotate log files and delete unnecessary files on the routing platform. If you are running low on storage space, the file cleanup procedure quickly identifies files that can be deleted. The file cleanup procedure performs the following tasks. Click **Clean Up Files** to begin. ■ Rotates log files—All information in the current log files is archived, and fresh log files are created. ■ Deletes log files in /cf/var/log—Any files that are not currently being written to are deleted. ■ Deletes temporary files in /cf/var/tmp—Any files that have not been accessed within two days are deleted. ■ Deletes all crash files in /cf/var/crash—Any core files that the routing platform has written during an error are deleted. Alternatively, you can rotate log files and display the files that you can delete by entering the request system storage cleanup command at the J-Web CLI terminal. For more information, see "Using the CLI Terminal" on page 77. For more information about the request system storage cleanup command, see the *JUNOS System Basics and Services Command Reference*.
Download and Delete Files	Download a copy of an individual file or delete it from the routing platform. When you download a file, it is not deleted from the file system. When you delete the file, it is permanently removed. Click one of the following file types, and then select whether to download or delete a file: ■ **Log Files**—Lists the log files located in the /cf/var/log directory on the routing platform. ■ **Temporary Files**—Lists the temporary files located in the /cf/var/tmp directory on the routing platform. ■ **Old JUNOS Software**—Lists the existing JUNOS software packages in the /cf/var/sw directory on the routing platform. ■ **Crash (Core) Files**—Lists the core files located in the /cf/var/crash directory on the routing platform. **CAUTION:** If you are unsure whether to delete a file from the routing platform, we recommend using the **Clean Up Files** task, which determines the files that can be safely deleted from the file system.
Delete Backup JUNOS Package	Delete a backup copy of the previous software installation from the routing platform. When you delete the file, it is permanently removed from the file system. Click **Delete backup JUNOS package** to begin.

Using Software (J-series Routing Platforms Only)

On J-series routing platforms only, you can upgrade and manage JUNOS software packages from the J-Web interface. A JUNOS software package is a collection of files that make up the software components of the routing platform.

Typically, you upgrade the JUNOS software on a routing platform by downloading a set of images onto your routing platform or onto another system on your local network, such as a PC. You then uncompress the package and install the uncompressed software using the Manage > Software page. Finally, you boot your system with this upgraded device.

As new features and software fixes become available, you must upgrade your software to use them. Before an upgrade, we recommend that you back up your primary boot device in case it becomes corrupted or fails during the upgrade. Creating a backup also stores your active configuration files and log files and ensures that you recover to a known, stable environment in case of an unsuccessful upgrade. For more information about creating a system backup, see "Using Snapshot (J-series Routing Platforms Only)" on page 89.

During a successful upgrade, the upgrade package completely reinstalls the existing software. The upgrade process rebuilds the file system but retains configuration files, log files, and similar information from the previous version.

For more information, see the *JUNOS System Basics Configuration Guide*.

Table 37 on page 87 lists the different tasks that you can perform from the Manage > Software pages.

Table 37: Manage Software Tasks Summary

Manage Software Task	Function
Upload Package	Install software packages uploaded from your computer to the routing platform. ■ 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 routing platform is automatically rebooted when the upgrade is complete. Select the check box if you want the routing platform to reboot automatically when the upgrade is complete. Click **Upload Package** to begin, and click **Cancel** to clear the entries and return to the previous page.
Install Package	Install software packages on the routing platform that are retrieved with FTP or HTTP from the location specified. ■ Package Location—Specifies the FTP or HTTP server, file path, and software package name. The software is activated after the router has rebooted. ■ User—Specifies the username, if the server requires one. ■ Password—Specifies the password, if the server requires one. ■ Reboot If Required—If this box is checked, the routing platform is automatically rebooted when the upgrade is complete. Click **Fetch and Install Package** to begin.

Table 37: Manage Software Tasks Summary *(continued)*

Manage Software Task	Function
Downgrade	Downgrade the JUNOS software on the routing platform. 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. **CAUTION:** After you perform this operation, you cannot undo it.

Alternatively, you can install software packages on your routing platform by entering the request system software add command at the J-Web CLI terminal.

Using Licenses (J-series Routing Platform Only)

The Manage > Licenses page displays a summary of the licenses needed and used for each feature that requires a license on a J-series routing platform. This page also allows you to add licenses.

To enable some JUNOS software features on a J-series routing platform, you must purchase, install, and manage separate software licenses. The presence on the router of the appropriate software license keys (passwords) determines the features you can configure and use. Each feature license is tied to exactly one software feature, and that license is valid for exactly one J-series routing platform.

Using the Manage > Licenses page, you can perform the following tasks:

- Add licenses—Add license keys for the following features:
  - Data link switching (DLSw) support
  - J-Flow traffic analysis support
  - Advanced Border Gateway Protocol (BGP) features that enable route reflectors for readvertising BGP routes to internal peers.
- Delete licenses—Delete one or more license keys from a J-series routing platform with the J-Web license manager.
- Display license keys—Display the license keys in text format. Multiple licenses are separated by a blank line.

Alternatively, you can run the following commands at the J-Web CLI terminal. For more information, see “Using the CLI Terminal” on page 77. For more information about the commands, see the *JUNOS System Basics and Services Command Reference*.

- show system license—Display license information.
- request system license add—Add licenses on J-series routing platforms.

For more information about licenses, see the Getting Started Guide for your J-series router.

Using Reboot

The Manage > Reboot page allows you to reboot the routing platform at a specified time. Using the Manage > Reboot page, you can perform the following tasks:

- Reboot the routing platform immediately, after a specified number of minutes or at the absolute time that you specify, on the current day.
- Stop (halt) the routing platform software immediately. After the routing platform software has stopped, you can access the routing platform through the console port only.
- Type a message to be displayed to any users on the routing platform before the reboot occurs.

Click **Schedule** to begin.

If the reboot is scheduled to occur immediately, the routing platform reboots. You cannot access the J-Web interface until the routing platform has restarted and the boot sequence is complete. After the reboot is complete, refresh the browser window to display the J-Web interface login page.

Alternatively, you can reboot the routing platform by running the request system reboot command at the J-Web CLI terminal. For more information, see "Using the CLI Terminal" on page 77. For more information about the request system reboot command, see the *JUNOS System Basics and Services Command Reference*.

Using Snapshot (J-series Routing Platforms Only)

The Manage > Snapshot page allows you to configure storage devices to replace the primary boot device on your router or to act as a backup boot device. To do so, you create a snapshot of the system software running on your router, saving the snapshot to an alternate storage device.

The Manage Snapshot page allows you to perform the following tasks:

- Copy the current system software, along with the current and rescue configurations, to an alternate storage device.

CAUTION: We recommend that you keep your secondary storage medium updated at all times. If the internal compact flash fails at startup, the J-series routing platform automatically boots itself from this secondary storage medium. The secondary storage medium can be either an external compact flash or a USB storage device. When a secondary storage medium is not available, the routing platform is unable to boot and does not come back online. This situation can occur if the power fails during a JUNOS software upgrade and the physical or logical storage media on the routing platform are corrupted. The backup device must have a storage capacity of at least 256 MB.

- Copy only default files that were loaded on the internal compact flash when it was shipped from the factory, plus the rescue configuration, if one has been set.

- Configure a boot device to store snapshots of software failures, for use in troubleshooting.
- Partition the storage medium. This process is usually necessary for storage devices that do not already have software installed on them.
- Create a snapshot for use as the primary boot device to replace the device in the internal compact flash slot or to replicate it for use in another J-series routing platform. You can perform this action only on a removable storage device.
- Specify the size of the following partitions in kilobytes:
  - data—Data partition is not used by the routing platform, and can be used for extra storage.
  - swap—Swap partition is used for swap files and software failure memory snapshots. Software failure memory snapshots are saved to the boot medium only if it is specified as the dump device.
  - config—Config partition is used for storing configuration files.
  - root—Root partition does not include configuration files.

Click **Snapshot** to begin.

Alternatively, you can use the request system snapshot command in the J-Web CLI terminal to take a snapshot of the routing platform. For information about installing boot devices, see the Getting Started Guide for your J-series router.

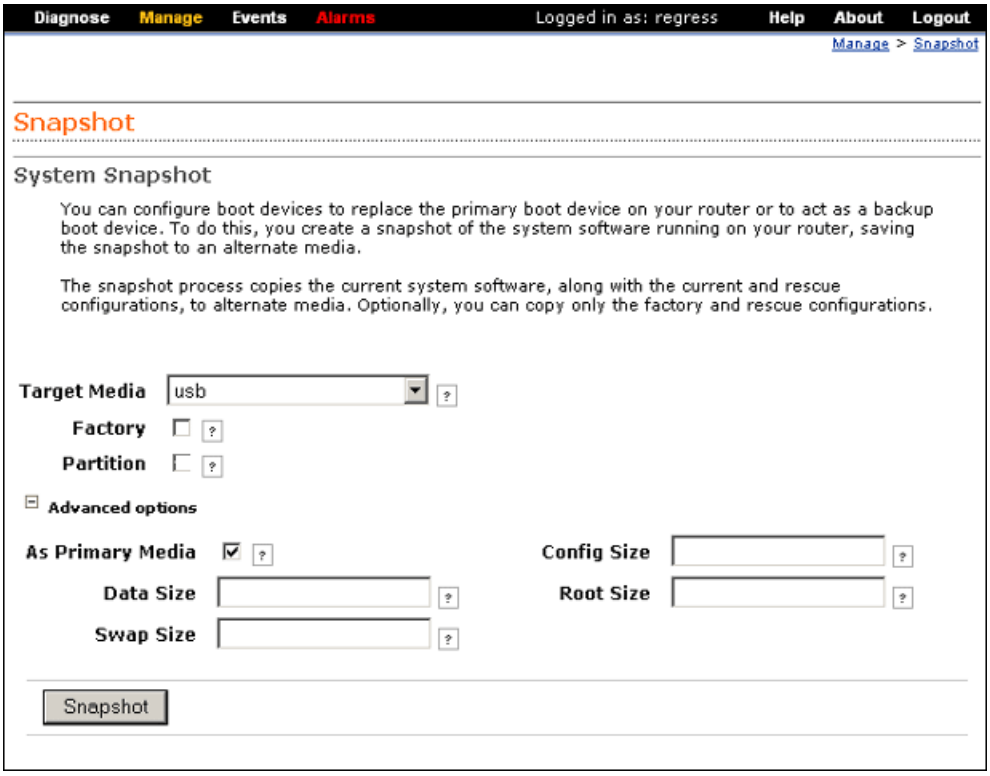
Sample Task—Manage Snapshots

Figure 31 on page 91 shows a Manage > Snapshot page that allows you to back up the currently running and active file system on a standby storage device that is not running. In this example, you are taking the snapshot to replace the current primary boot device on the routing platform. A compact flash is connected to the USB port on the J-series routing platform with a USB adapter.

To take the snapshot:

1. Select **Diagnose > Snapshot** from the task bar.
2. Next to Advanced options, click the expand icon (see Figure 31 on page 91).
3. Select **usb** from the Target Media list to specify the storage device to copy the snapshot to.
4. Next to As Primary Media, select the check box to create a storage medium to be used in the internal compact flash slot only.
5. Click **Snapshot**.

Figure 31: Manage Snapshots Page



Chapter 7

Events Tasks

The Events task on the J-Web interface enables you to filter and view system log messages that record events occurring on your routing platform.

This chapter contains the following topics. For more information about system log messages, see the *JUNOS System Log Messages Reference*.

Using View Events

Figure 32 on page 94 shows the View Events page. This page provides an easy method to view the events recorded in the system log (also known as system log messages). By default, the View Events page displays a summary of the most recent 25 events, with severity levels highlighted in different colors.

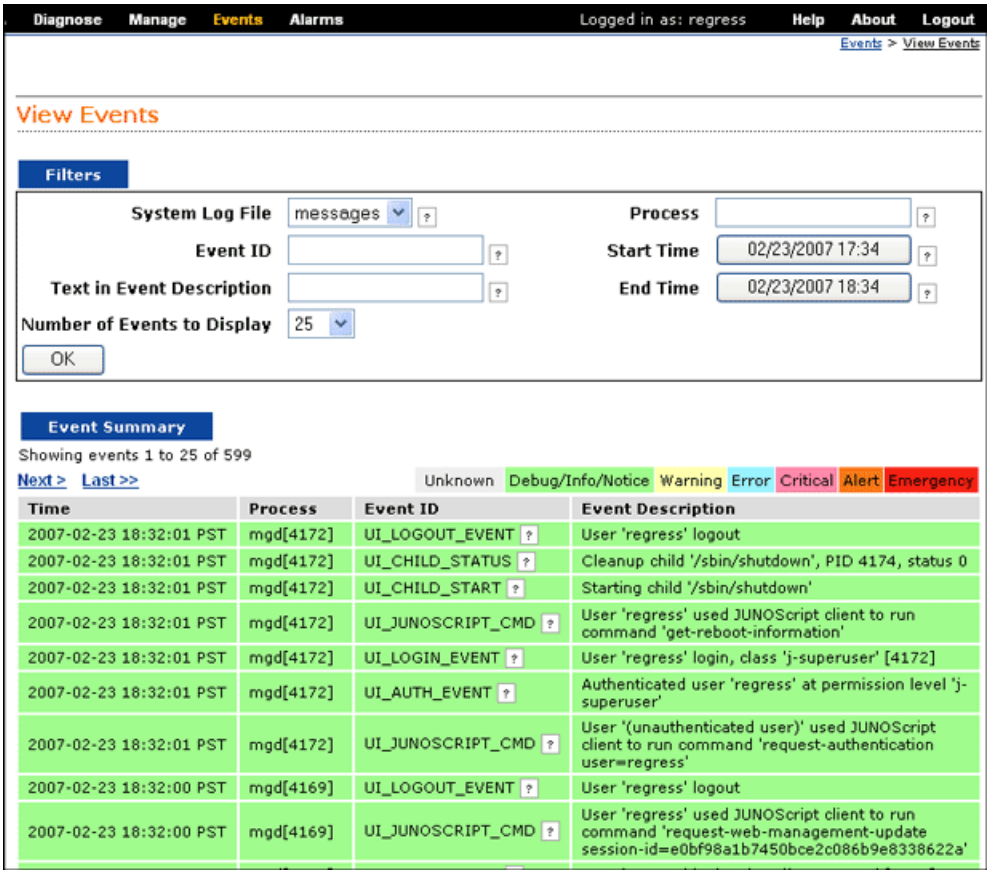
The events summary includes information about the time the event occurred, the name of the process that generated the message, the event ID, and a short description of the event. You can move the cursor over the question mark (**?**) next to an event ID to display a useful description of the event.

You can select the number of events to be displayed on the screen at a time. You can also filter events by system log filename, event ID, text from the event description, name of the process that generated the event, or time period, to display only the events you want.

Alternatively, enter the following command in the J-Web CLI terminal to display the list of messages and a brief description of each message. For more information about the CLI terminal, see "Using the CLI Terminal" on page 77.

```
user@host> help syslog ?
```

Figure 32: J-Web View Events Page



Viewing Events

The View Events page displays system log messages that record events occurring on the routing platform. Events recorded include those of the following types:

- Routine operations, such as creation of an Open Shortest Path First (OSPF) protocol adjacency or a user login into the configuration database
- Failure and error conditions, such as failure to access a configuration file or unexpected closure of a connection to a child or peer process
- Emergency or critical conditions, such as routing platform power-off due to excessive temperature

For more information about system log messages, see the *JUNOS System Log Messages Reference*.

Understanding Severity Levels

On the View Events page, the severity level of a message is indicated by different colors. The severity level indicates how seriously the triggering event affects routing platform functions.

Table 38 on page 95 lists the system log severity levels, the corresponding colors and a description of what the severity level indicates.

Table 38: Severity Levels

Color	Severity Level (from Highest to Lowest Severity)	Description
Red	emergency	System panic or other conditions that cause the routing platform to stop functioning.
Orange	alert	Conditions that must be corrected immediately, such as a corrupted system database.
Pink	critical	Critical conditions, such as hard drive errors.
Blue	error	Standard error conditions that generally have less serious consequences than errors in the emergency, alert, and critical levels.
Yellow	warning	Conditions that warrant monitoring.
Green	notice	Conditions that are not error conditions but are of interest or might warrant special handling.
	info	Informational messages. This is the default.
	debug	Software debugging messages.
Gray	unknown	No severity level is specified.

Using Filters

On the View Events page, you can use filters to display relevant events. Table 39 on page 96 lists the different filters, their functions, and the associated actions. You can apply any or a combination of the described filters to view the messages that you want to view. After specifying the filter or filters you want, click **OK** to display the filtered events.

Table 39: Summary of Event Filters

Event Filter	Function	Your Action
System Log File	Specifies the name of a system log file for which you want to display the recorded events. The list includes the names of all the system log files that you configure. By default, a log file, messages, is included in the /var/log/ directory. For information about how to configure system log files, see the *JUNOS System Log Messages Reference*.	To specify events recorded in a particular file, select the system log filename from the list—for example, **messages**.
Event ID	Specifies the event ID for which you want to display the messages. If you type part of the ID, the system completes the remaining ID automatically. An event ID, also known as a system log message code, uniquely identifies a system log message. It begins with a prefix that indicates the generating software process or library.	To specify events with a specific ID, type its partial or complete ID—for example, TFTPD_AF_ERR.
Text in Event Description	Specifies text from the description of events that you want to display. You can use a regular expression to match text from the event description. **NOTE:** The regular expression matching is case sensitive. For more information about using regular expressions, see "Using Regular Expressions" on page 97.	To specify events with a specific description, type a text string from the description. You can include a regular expression. For example, type ^Initial* to display all messages with lines beginning with the term *Initial*.
Process	Specifies the name of the process generating the events you want to display. To view all the processes running on your system, enter the CLI command show system processes in the J-Web CLI terminal. For more information about processes, see the *JUNOS Software Installation and Upgrade Guide*.	To specify events generated by a process, type the name of the process. For example, type mgd to list all messages generated by the management process.

Table 39: Summary of Event Filters *(continued)*

Event Filter	Function	Your Action
Start Time End Time	Specifies the time period in which the events you want displayed are generated. A calendar allows you to select the year, month, day, and time. It also allows you to select the local time. By default, the messages generated in the last one hour are displayed. End Time shows the current time and Start Time shows the time one hour before end time.	To specify the time period: ■ Click the button next to **Start Time** and select the year, month, date, and time—for example, **02/10/2006 11:32**. ■ Click the button next to **End Time** and select the year, month, date, and time—for example, **02/10/2006 3:32**. To select the current time as the start time, select **Local Time**.

Using Regular Expressions

On the View Events page, you can filter the events displayed by the text in the event description. In the Text in Event Description box, you can use regular expressions to filter and display a set of messages for viewing. JUNOS supports POSIX Standard 1003.2 for extended (modern) UNIX regular expressions.

Table 40 on page 97 specifies some of the commonly used regular expression operators and the terms matched by them. A term can match either a single alphanumeric character or a set of characters enclosed in square brackets, parentheses, or braces.

NOTE: On the View Events page, the regular expression matching is case-sensitive.

Table 40: Common Regular Expression Operators and the Terms They Match

Regular Expression Operator	Matching Terms
. (period)	One instance of any character except the space. For example, .in matches messages with *win* or *windows*.
* (asterisk)	Zero or more instances of the immediately preceding term. For example, tre* matches messages with *tree*, *tread* or *trough*.
+ (plus sign)	One or more instances of the immediately preceding term. For example, tre+ matches messages with *tree* or *tread* but not *trough*.
? (question mark)	Zero or one instance of the immediately preceding term. For example, colou?r matches messages with or *color* or *colour*.

Table 40: Common Regular Expression Operators and the Terms They Match *(continued)*

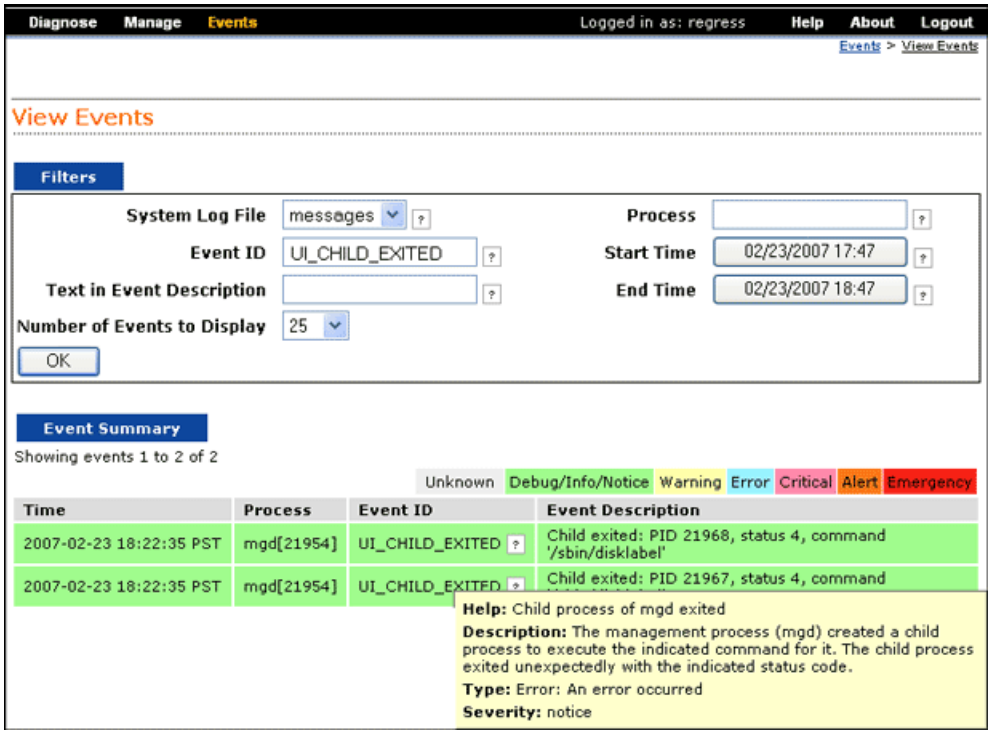
Regular Expression Operator	Matching Terms
| (pipe)	One of the terms that appear on either side of the pipe operator. For example, gre|ay matches messages with either *grey* or *gray*.
! (exclamation point)	Any string except the one specified by the expression, when the exclamation point appears at the start of the expression. Use of the exclamation point is specific to JUNOS.
^ (caret)	The start of a line, when the caret appears outside square brackets. For example, ^T matches messages with *This line* and not with *On this line*.
$ (dollar sign)	Strings at the end of a line. For example, :$ matches messages with *the following:* and not with *2:00*.
[] (paired square brackets)	One instance of one of the enclosed alphanumeric characters. To indicate a range of characters, use a hyphen (-) to separate the beginning and ending characters of the range. For example, [0-9] matches messages with any number.
() (paired parentheses)	One instance of the evaluated value of the enclosed term. Parentheses are used to indicate the order of evaluation in the regular expression. For example, dev(/|ice) matches messages with *dev/* or *device*.

Sample Task—Filtering and Viewing Events

Figure 33 on page 99 shows the View Events page displaying filtered events. In this example, you are typing UI_CHILD_EXITED in the Event ID box and clicking **OK**. The Event Summary displays messages with the UI_CHILD_EXITED event ID only. You can view the following information about the events:

- Messages displayed are green. The green color and context-sensitive help indicate that the message severity level is notice and the event type is error. This information means that the condition causing the message is an error or failure and might require corrective action.
- The events were generated by the management process (mgd).
- The Event Description column displays a brief description of the event, and the help description provides information about the cause of the event.

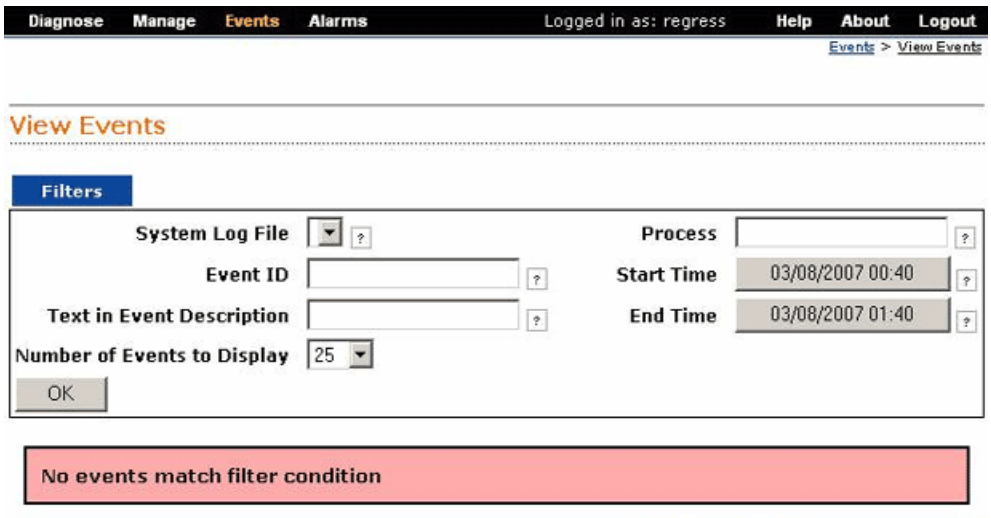
Figure 33: J-Web View Events Page



Troubleshooting Events

Problem—My View Events page does not display any events. (See Figure 34 on page 99.)

Figure 34: View Events Page Displaying Error

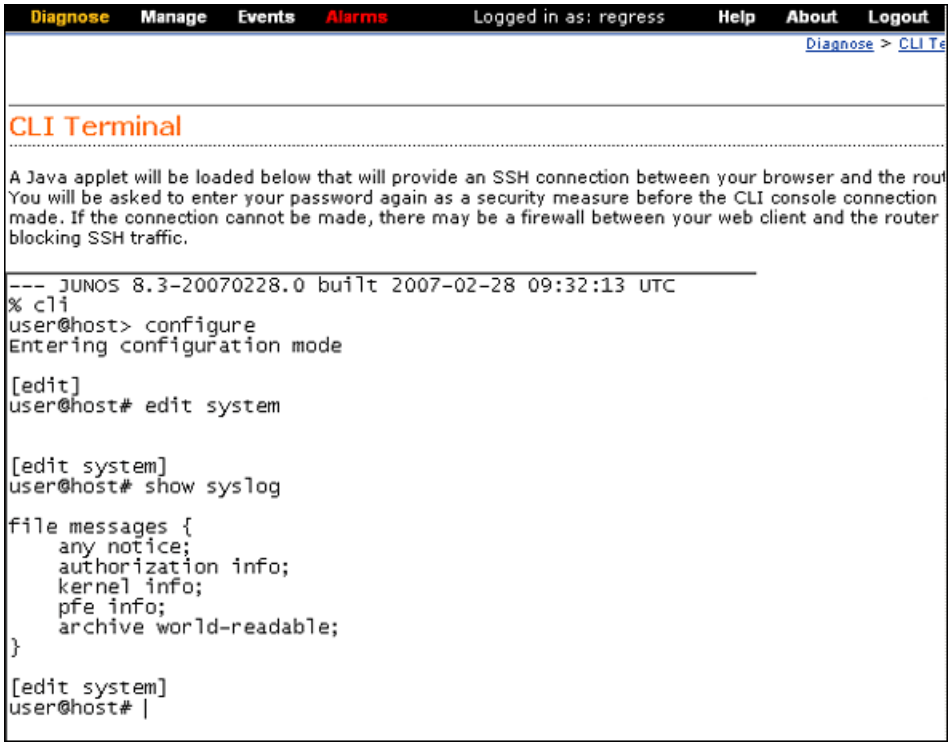


Solution—Typically, events are not displayed when logging of messages is not enabled. You can enable system log messages at a number of different levels using the J-Web configuration editor or the CLI terminal. The choice of level depends on how specific you want the event logging to be and what options you want to include. For details on the configuration options, see the *JUNOS System Basics Configuration Guide* (system level) or the *JUNOS Services Interfaces Configuration Guide* (all other levels).

To enable system log messages with the J-Web configuration editor:

1. Navigate to **Configuration > View and Edit > Edit Configuration**.
2. Next to System, click **Configure** or **Edit** to navigate to the system level in the configuration hierarchy.
3. Next to Syslog, click **Configure** or **Edit** to navigate to the system log level in the configuration hierarchy.
4. Next to File, click **Add new entry** to create a log file.
5. In the File name box, type messages to name the log file.
6. Next to Contents, click **Add new entry** to select a facility that you want to configure—for example, authorization, change-log, conflict-log, or user.
7. In the Facility list, select **authorization** to configure the authorization facility.
8. In the Level list, select **info** to set the severity level to informational messages.
9. Repeat Steps 4 and 5 to configure different facilities and their levels.
10. To verify the configuration, at the CLI terminal, enter the show syslog command in configuration mode. (See Figure 35 on page 101.)

Figure 35: Verifying System Log Messages Configuration



Chapter 8

Alarms Tasks (J-series Routing Platforms Only)

On J-series routing platforms only, you can monitor active alarms on the J-Web interface. The View Alarms page displays the number of alarms currently active, the time at which the alarm began, the severity level, and an alarm description. Alternatively you can use the CLI to view alarms on all routing platforms.

This chapter contains the following topics:

Using Alarms

On J-series routing platforms, the View Alarms page alerts you about conditions that might prevent the routing platform from operating normally. The page displays information about active alarms, the severity of the alarms, and a brief description for each active alarm. An alarm indicates that you are running the routing platform in a manner that is not recommended. When you see an alarm, you must check its cause and remedy it.

Alternatively, you can display alarm information by entering the following commands at the J-Web CLI terminal:

- show chassis alarms
- show system alarms

For more information, see "Using the CLI Terminal" on page 77. For more information about the commands, see the *JUNOS System Basics and Services Command Reference*.

Active Alarms Information

The View Alarms page displays the following types of alarms. You can set the conditions that trigger alarms on an interface. Chassis and system alarm conditions are preset.

- Interface alarms—Indicate a problem in the state of the physical links on a fixed or installed Physical Interface Module (PIM), such as a link failure or a missing signal. To enable interface alarms, you must configure them.

- Chassis alarms—Indicate a failure on the routing platform or one of its component, such as a power supply failure, excessive component temperature, or media failure. Chassis alarms are preset and cannot be modified.
- System alarms—Indicate a missing rescue configuration or software license, where valid. System alarms are preset and cannot be modified.

If the J-series routing platform has active alarms and you have not displayed the View Alarms page, *Alarms* in the taskbar appears in red. After you view the alarms, *Alarms* returns to white. If new alarms become active, *Alarms* is red until you again display the View Alarms page.

Alarm Severity

Alarms displayed on the View Alarms page can have the following two severity levels:

- Major (red)—Indicates a critical situation on the routing platform that has resulted from one of the following conditions. A red alarm condition requires immediate action.
  - One or more hardware components have failed.
  - One or more hardware components have exceeded temperature thresholds.
  - An alarm condition configured on an interface has triggered a critical warning.
- Minor (yellow)—Indicates a noncritical condition on the routing platform that, if left unchecked, might cause an interruption in service or degradation in performance. A yellow alarm condition requires monitoring or maintenance.

  A missing rescue configuration or software license generates a yellow system alarm.

Displaying Alarm Descriptions

All active alarms are displayed as links on the View Alarms page. Clicking the link opens a page with detailed description of the alarm. This description provides more information about the probable cause or solution for the condition that caused the alarm (see “Sample Task—Viewing Alarms” on page 104). The description also provides the date and time when the failure was detected. Note the date and time of an alarm so that you can correlate it with error messages on the View Events page or in the messages system log file.

Sample Task—Viewing Alarms

Figure 36 on page 105 shows the View Alarms page displaying two system alarms that are currently active. The Yes under New? indicates that the DLSw license alarm is new and has not been viewed. The No indicates that the rescue configuration alarm has already been viewed. The yellow color indicates that both alarms are noncritical. You can also see the time at which the system received each alarm. Click the alarm link under Subject to display a detailed alarm message.

Figure 36: View Alarms Page

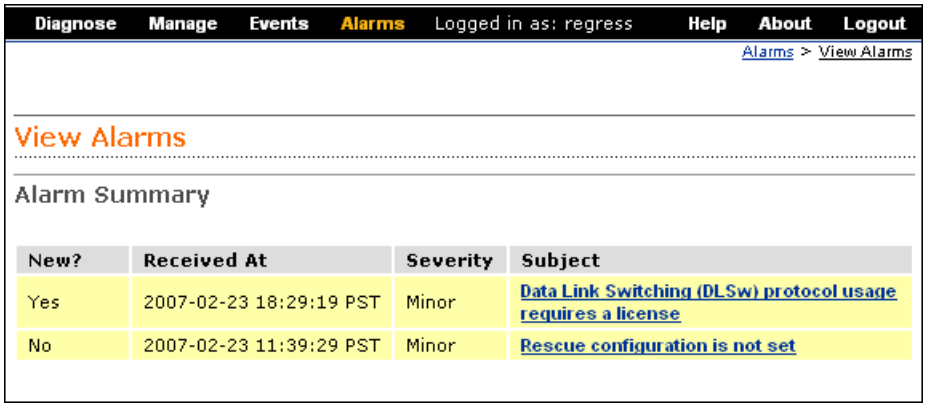
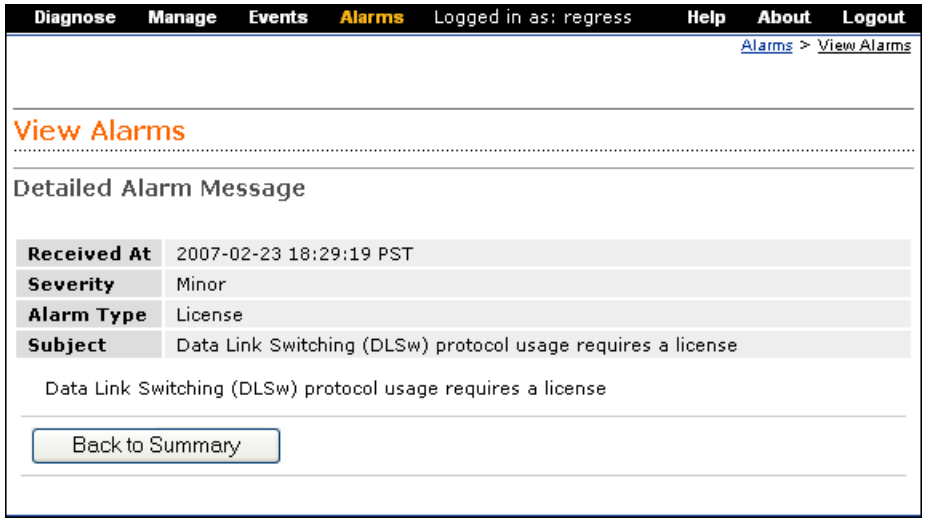


Figure 37 on page 105 shows details about the DLSw license alarm.

Figure 37: Detailed Alarm Message Page



Part 3
Index

Index

D

E

F

G

H

I

J

L

M

N

O

P

Q

R

S

T

U

V

W

Y