

# About This Manual

This chapter provides a high-level overview of the *JUNOS Internet Software for M-series and T-series Routing Platforms Hardware Network Operations Guide*:

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## Objectives

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This manual provides operational information helpful in monitoring Juniper Networks M-series and T-series router components and isolating potential problems. This manual is not directly related to any particular release of the JUNOS Internet 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/>.

## Audience

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This manual is designed for Network Operations Center (NOC) personnel who monitor a Juniper Networks router.

It assumes that you have a broad understanding of networks in general, the Internet in particular, networking principles, and network configuration. This manual assumes that you are familiar with one or more of the following Internet routing protocols: Border Gateway Protocol (BGP), Routing Information Protocol (RIP), Intermediate System-to-Intermediate System (IS-IS), Open Shortest Path First (OSPF), Internet Control Message Protocol (ICMP) router discovery, Internet Group Management Protocol (IGMP), Distance Vector Multicast Routing Protocol (DVMRP), Protocol-Independent Multicast (PIM), Multiprotocol Label Switching (MPLS), Resource Reservation Protocol (RSVP), and Simple Network Management Protocol (SNMP).

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.

## Document Organization

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This manual is divided into several parts. Each part describes the most common tasks for monitoring a particular interface, and the individual chapters within a part describe one or more step-by-step procedures for each task.

This manual also contains a complete index.

## Chapter Organization

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Most chapters in this manual consist of a checklist at the beginning of the chapter listing the tasks and commands for monitoring the component. The tasks and commands are then explained in step-by-step procedures.

Each step-by-step procedure consists of some or all of the following parts:

**Purpose**—Describes what is affected if this task is not performed or what is accomplished with this task.

**What Is...** —Describes a component (usually hardware).

**Step(s) To Take**—Lists the steps in the task.

**Action**—Describes an action to perform in order to complete the step.

**Sample Output**—Presents sample output relevant to the procedure.

**What It Means**—Describes or summarizes what is presented in the sample output.

**Symptom/Indications**—Describes a problem with the software or hardware.

**See Also**—Lists other topics related to this task.

Alternative Actions—Describes other commands or ways of doing the task.

Syntax—Describes the full syntax of the command or configuration statement. For an explanation of how to read the syntax statements, see “Documentation Conventions” on page xxix.

## Documentation Conventions

Table 1 defines notice icons used in this guide.

**Table 1: Notice Icons**



Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.

Table 2 defines the text and syntax conventions used in this guide.

**Table 2: Text and Syntax Conventions**

Convention	Element	Example
<b>Bold sans serif typeface</b>	Represents text that you type.	To enter configuration mode, type the configure command:  user@host> <b>configure</b>
Fixed-width typeface	Represents output on the terminal screen.	user@host> <b>show chassis alarms</b> No alarms currently active
<i>Italic typeface</i>	Introduces important new terms.  Identifies book names.  Identifies RFC and Internet draft titles.	A policy <i>term</i> is a named structure that defines match conditions and actions.  <i>JUNOS System Basics Configuration Guide</i>  RFC 1997, <i>BGP Communities Atribute</i>
<i>Italic sans serif typeface</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# <b>set system domain-name</b> <i>domain-name</i>
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 <i>area-id</i> ] hierarchy level.  The console port is labeled CONSOLE.
< > (angle brackets)	Enclose optional keywords or variables.	stub <default-metric <i>metric</i> >;
(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 ( <i>string1</i>   <i>string2</i>   <i>string3</i> )
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp {           # Required for dynamic MPLS only

Convention	Element	Example
[ ] (square brackets)	Enclose a variable for which you can substitute one or more values.	community name members [ <i>community-ids</i> ]
Indentation 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.	
<b>J-Web GUI Conventions</b>		
<b>Bold typeface</b>	Represents J-Web graphical user interface (GUI) items you click or select.	In the Logical Interfaces box, select <b>All Interfaces</b> . To cancel the configuration, click <b>Cancel</b> .
> (bold right angle bracket)	Separates levels in a hierarchy of J-Web selections.	In the configuration editor hierarchy, select <b>Protocols&gt; Ospf</b> .

## Related Juniper Networks Documentation

Table 3 lists the software and hardware guides and release notes for Juniper Networks J-series, M-series, and T-series routing platforms and describes the contents of each document. Table 4 lists the books included in the *Network Operations Guide* series.

**Table 3: Juniper Networks Technical Documentation**

Document	Description
<b>JUNOS Internet Software for J-series, M-series, and T-series Routing Platforms Configuration Guides</b>	
<i>Feature Guide</i>	Provides a detailed explanation and configuration examples for several of the most complex features in the JUNOS software.
<i>JUNOS-FIPS Configuration Guide</i>	(M-series and T-series routing platforms only) Provides an overview of JUNOS-FIPS 140-2 concepts and describes how to install and configure the JUNOS-FIPS software. Describes FIPS-related commands and how to configure, authorize, and zeroize the AS II FIPS PIC.
<i>MPLS Applications</i>	Provides an overview of traffic engineering concepts and describes how to configure traffic engineering protocols.
<i>Multicast Protocols</i>	Provides an overview of multicast concepts and describes how to configure multicast routing protocols.
<i>Network Interfaces and Class of Service</i>	Provides an overview of the network interface and class-of-service functions of the JUNOS software and describes how to configure the network interfaces on the routing platform.
<i>Network Management</i>	Provides an overview of network management concepts and describes how to configure various network management features, such as SNMP and accounting options.
<i>Policy Framework</i>	Provides an overview of policy concepts and describes how to configure routing policy, firewall filters, forwarding options, and cflowd.
<i>Routing Protocols</i>	Provides an overview of routing concepts and describes how to configure routing, routing instances, and unicast routing protocols.

Document	Description
<i>Services Interfaces</i>	Provides an overview of the services interfaces functions of the JUNOS software and describes how to configure the services interfaces on the routing platform.
<i>System Basics</i>	Provides an overview of the JUNOS software and describes how to install and upgrade the software. This guide also describes how to configure system management functions and how to configure the chassis, including user accounts, passwords, and redundancy.
<i>VPNs</i>	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.
<b>JUNOS References</b>	
<i>Network and Services Interfaces Command Reference</i>	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot network and services interfaces on Juniper Networks J-series, M-series, and T-series routing platforms.
<i>Protocols, Class of Service, and System Basics Command Reference</i>	Describes the JUNOS software operational mode commands you use to monitor and troubleshoot most aspects of Juniper Networks J-series, M-series, and T-series routing platforms.
<i>System Log Messages Reference</i>	Describes how to access and interpret system log messages generated by JUNOS software modules and provides a reference page for each message.
<b>JUNOScript API Documentation</b>	
<i>JUNOScript API Guide</i>	Describes how to use the JUNOScript application programming interface (API) to monitor and configure Juniper Networks routing platforms.
<i>JUNOScript API Configuration Reference</i>	Provides a reference page for the configuration tags in the JUNOScript API.
<i>JUNOScript API Operational Reference</i>	Provides a reference page for the operational tags in the JUNOScript API.
<b>JUNOS Comprehensive Index and Glossary</b>	
<i>Comprehensive Index and Glossary</i>	Provides a complete index of all JUNOS software books and the <i>JUNOScript API Guide</i> . Also provides a comprehensive glossary.
<b>JUNOScope Documentation</b>	
<i>JUNOScope Software User Guide</i>	Describes the JUNOScope software graphical user interface (GUI), how to install and administer the software, and how to use the software to manage routing platform configuration files and monitor routing platform operations.
<b>J-series Services Router Documentation</b>	
<i>J-series Services Router Getting Started Guide</i>	Provides an overview, basic instructions, and specifications for J-series Services Routers. The guide explains how to prepare your site for installation, unpack and install the router and its components, install licenses, and establish basic connectivity.
<i>J-series Services Router Configuration Guide</i>	Explains how to configure the interfaces on J-series Services Routers for basic IP routing with standard routing protocols. The guide also shows how to configure virtual private networks (VPNs), configure and manage multicast networks, and apply routing techniques such as policies, firewall filters, IP Security (IPSec) tunnels, and service classification for safer, more efficient routing.
<i>J-series Services Router Administration Guide</i>	Shows how to manage users and operations, monitor network performance, upgrade software, and diagnose common problems on J-series Services Routers.
<b>M-series and T-series Hardware Documentation</b>	
<i>Hardware Guide</i>	Describes how to install, maintain, and troubleshoot routing platforms and components. Each platform has its own hardware guide.
<i>PIC Guide</i>	Describes the routing platform Physical Interface Cards (PICs). Each platform has its own PIC guide.

Document	Description
<b>Release Notes</b>	
<i>JUNOS Release Notes</i>	Summarize new features and known problems for a particular software release, provide corrections and updates to published JUNOS and JUNOScript manuals, provide information that might have been omitted from the manuals, and describe upgrade and downgrade procedures.
<i>Hardware Release Notes</i>	Describe the available documentation for the routing platform and the supported PICs, and summarize known problems with the hardware and accompanying software. Each platform has its own release notes.
<i>JUNOScope Software Release Notes</i>	Contain corrections and updates to the published JUNOScope manual, provide information that might have been omitted from the manual, and describe upgrade and downgrade procedures.
<i>J-series Services Router Release Notes</i>	Briefly describe the J-series Services Router features, identify known hardware problems, and provide upgrade and downgrade instructions.

**Table 4: JUNOS Internet Software Network Operations Guides**

Book	Description
<b>JUNOS Internet Software for M-series and T-series Routing Platforms Network Operations Guides</b>	
<i>Baseline</i>	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.
<i>Interfaces</i>	Describes tasks for monitoring interfaces. Tasks include using loopback testing and locating alarms.
<i>MPLS</i>	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 routers in the network, and using the layered MPLS troubleshooting model to investigate problems with an MPLS network.
<i>Hardware</i>	Describes tasks for monitoring M-series and T-series routing platforms.

## Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. Send your comments to [techpubs-comments@juniper.net](mailto:techpubs-comments@juniper.net), or fill out the documentation feedback form at <http://www.juniper.net/techpubs/docbug/docbugreport.html>. If you are using e-mail, be sure to include the following information with your comments:

Document name

Document part number

Page number

Software release version

## Requesting Support

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For technical support, open a support case using the Case Manager link at <http://www.juniper.net/support/> or call 1-888-314-JTAC (within the United States) or 1-408-745-9500 (outside the United States).

