

About This Reference

This chapter provides a high-level overview of the *JUNOS 6.3 Internet Software Protocols, Class of Service, Chassis, and Management Command Reference*:

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Objectives

This manual provides descriptions of the JUNOS Internet software commands that you use to monitor and troubleshoot most aspects of the router. (For additional commands, see the *JUNOS Internet Software Network and Services Interfaces Command Reference*.)

This manual documents Release 6.3 of the JUNOS Internet software. To obtain additional information about the JUNOS software—either corrections to information in this manual or information that might have been omitted from this manual—refer to the software release notes.

To obtain the most current version of this manual and the most current version of the software release notes, refer to the product documentation page on the Juniper Networks Web site, which is located at <http://www.juniper.net/>.

To order printed copies of this manual or to order a documentation CD-ROM, which contains this manual, please contact your sales representative.

Audience

This manual is designed for network administrators who are monitoring a Juniper Networks M-series or T-series routing platform.

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

This manual is divided into the following parts. Each describes a major functional area of the JUNOS software. The individual chapters within a part describe the software commands of that functional area.

Part 1, “Command-Line Routing and Troubleshooting Overview,” provides an overview of this manual, describes the user command-line interface (CLI), and provides basic strategies for monitoring and troubleshooting the router.

Part 2, “System Management,” describes the CLI commands used to manage the router and chassis.

Part 3, “Policy Framework,” describes the CLI commands used to manage firewall filters and routing policy.

Part 4, “Class of Service,” describes the CLI commands used to manage class of service (CoS).

Part 5, “Protocols,” describes the CLI commands used to manage the JUNOS software routing policy, unicast routing protocols, and multicast protocols.

Part 6, “MPLS Applications,” describes the CLI commands used to manage traffic engineering.

This manual also contains a complete index and an index of commands. For a list and description of glossary terms, see the *JUNOS Internet Software Comprehensive Index and Glossary*.

Chapter Organization

Most chapters in this manual consist of a brief description of a specific software component followed by the commands that you use for monitoring and troubleshooting that component. A table at the beginning of the chapter lists commands available for monitoring and troubleshooting the software components. Then, the commands are explained alphabetically.

The commands in this manual typically contain the following information:

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

Description—Describes the function of the command.

Options—Describes the command’s options, if there are any. For options with numeric values, the allowed range and default value, if any, are listed. For multiple options, if one option is the default, that fact is stated.

Required privilege level—Indicates the permissions that the user must have to view the command. For an explanation of the permissions, see the *JUNOS Internet Software System Basics Configuration Guide*.

See also—Indicates other commands or statements that might provide related or similar functionality.

Output fields—Describes each possible output field for the command, including ranges and default values. These fields are first listed alphabetically, then listed in the order in which they appear in more detail.

Sample output—Displays typical sample output for the standard, brief, summary, terse, detail, and extensive options of a command (when applicable).

Using the Indexes

This manual contains two indexes: a complete index, which contains all index entries, and an index that contains only commands.

Documentation Conventions

General Conventions

This manual uses the following text conventions:

Statements, commands, filenames, directory names, IP addresses, and configuration hierarchy levels are shown in a sans serif font. In the following example, *stub* is a statement name and [edit protocols ospf area *area-id*] is a configuration hierarchy level:

To configure a stub area, include the stub statement at the [edit protocols ospf area *area-id*] hierarchy level:

In examples, text that you type literally is shown in bold. In the following example, you type the word *show*:

```
[edit protocols ospf area area-id]
cli# show
stub <default-metric metric>
```

Examples of command output are generally shown in a fixed-width font to preserve the column alignment. For example:

```
> show interfaces terse
Interface   Admin Link Proto Local           Remote
at-1/3/0    up   up
at-1/3/0.0  up   up   inet 1.0.0.1     --> 1.0.0.2
                                     iso
fxp0        up   up
fxp0.0      up   up   inet 192.168.5.59/24
```

Conventions for Software Commands and Statements

When describing the JUNOS software, this manual uses the following type and presentation conventions:

Statement or command names that you type literally are shown nonitalicized. In the following example, the statement name is *area*:

You configure all these routers by including the following area statement at the [edit protocols ospf] hierarchy level:

Options, which are variable terms for which you substitute appropriate values, are shown in italics. In the following example, *area-id* is an option. When you type the area statement, you substitute a value for *area-id*.

```
area area-id;
```

Optional portions of a command or statement are enclosed in angle brackets. In the following example, the “default-metric *metric*” portion of the statement is optional:

```
stub <default-metric metric>;
```

For text strings separated by a pipe (|), you must specify either *string1* or *string2*, but you cannot specify both or neither of them. Parentheses are sometimes used to group the strings.

```
string1 | string2
(string1 | string2)
```

In the following example, you must specify either broadcast or multicast, but you cannot specify both:

```
broadcast | multicast
```

For some statements, you can specify a set of values. The set must be enclosed in square brackets. For example:

```
community name members [ community-ids ]
```

The configuration examples in this manual are generally formatted in the way that they appear when you issue a show command. This format includes braces ({}) and semicolons. When you type configuration statements in the CLI, you do not type the braces and semicolons. However, when you type configuration statements in an ASCII file, you must include the braces and semicolons.

For example:

```
[edit]
cli# set routing-options static route default nexthop address retain
[edit]
cli# show
routing-options {
  static {
    route default {
      nexthop address;
      retain;
    }
  }
}
```

Comments in the configuration examples are shown either preceding the lines that the comments apply to, or more often, they appear on the same line. When comments appear on the same line, they are preceded by a pound sign (#) to indicate where the comment starts. In an actual configuration, comments can only precede a line; they cannot be on the same line as a configuration statement. For example:

```
protocols {
  mpls {
    interface (interface-name | all);# Required to enable MPLS on the
interface
  }
  rsvp { # Required for dynamic MPLS only
    interface interface-name;
  }
}
```

The general syntax descriptions provide no indication of the number of times you can specify a statement, option, or keyword. This information is provided in the text of the statement summary.

List of Technical Publications

Table 1 lists the software and hardware books for Juniper Networks routing platforms and describes the contents of each book.

Table 1: Juniper Networks Technical Documentation

Book	Description
JUNOS Internet Software Configuration Guides	
<i>Feature Guide</i>	Provides a detailed explanation and configuration examples for several of the most complex features in the JUNOS software.
<i>System Basics</i>	Provides an overview of the JUNOS software and describes how to install and upgrade the software. This manual also describes how to configure system management functions and how to configure the chassis, including user accounts, passwords, and redundancy.
<i>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.
<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>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.

Book	Description
JUNOS Internet Software References	
<i>Network and Services Interfaces Command Reference</i>	Describes the JUNOS Internet software operational mode commands you use to monitor and troubleshoot network and services interfaces on Juniper Networks M-series and T-series routing platforms.
<i>Protocols, Class of Service, Chassis, and Management Command Reference</i>	Describes the JUNOS Internet software operational mode commands you use to monitor and troubleshoot most aspects of Juniper Networks 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.
JUNOScript API Documentation	
<i>JUNOScript API Guide</i>	Describes how to use the JUNOScript API to monitor and configure Juniper Networks routing platforms.
<i>JUNOScript API Reference</i>	Provides a reference page for each tag in the JUNOScript API.
JUNOS Internet Software Comprehensive Index and Glossary	
<i>Comprehensive Index and Glossary</i>	Provides a complete index of all JUNOS Internet software books and the <i>JUNOScript API Guide</i> . Also provides a comprehensive glossary.
Hardware Documentation	
<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.
JUNOScope Software	
<i>JUNOScope Software 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.
Release Notes	
<i>JUNOS Internet Software 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.

Documentation Feedback

We are always interested in hearing from our customers. Please let us know what you like and do not like about the Juniper Networks documentation, and let us know of any suggestions you have for improving the documentation. Also, let us know if you find any mistakes in the documentation. Send your feedback to techpubs-comments@juniper.net.

How to Request Support

For technical support, contact Juniper Networks at support@juniper.net, or at 1-888-314-JTAC (within the United States) or 408-745-9500 (from outside the United States).