

## About This Manual

This chapter provides a high-level overview of the *JUNOS Internet Software Feature Guide* :

Objectives on page xvii

Audience on page xviii

Document Organization on page xviii

Using the Index on page xix

Documentation Conventions on page xix

List of Technical Publications on page xxi

Documentation Feedback on page xxiii

How to Request Support on page xxiii

## Objectives

Several Juniper Networks customers requested a new series of guides to supplement the current documentation set. While the JUNOS Internet software configuration guides thoroughly describe individual topics (such as interface configuration or routing), they might not properly address complex features that span several of the individual configuration guides (such as multicast VPNs or interinstance route sharing).

As a result, the *JUNOS Internet Software Feature Guide* series is designed to explore the more complicated software features available in Juniper Networks routing platforms. The Feature Guide combines all the relevant configuration statements and operational mode commands in one place, precluding the need for users to search multiple manuals for solutions to technical problems.

The general outline for each Feature Guide chapter is as follows:

Overview—Introduces the feature topic to the user.

System Requirements—Lists the equipment and software needed to implement a feature.

Terms and Acronyms—Explains the terminology used with each feature example.

Feature Implementation—Discusses the background needed to understand how to implement the feature.

Configuring the feature—Shows the steps that are needed to configure a feature.

Example—Gives an actual configuration example, along with verification commands and output.

For More Information—Provides additional resources and information for further understanding of the feature.

This manual documents Release 6.0 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 configuring and monitoring a Juniper Networks M-series or T-series 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).

## Document Organization

This manual is divided into several chapters. The individual chapters describe the software commands and operational mode commands related to a particular software feature. The chapters also provide references for additional information on each feature topic.

This manual contains the following parts and chapters:

Preface, “About This Manual” (this chapter), provides a brief description of the contents and organization of this manual and describes how to contact customer support.

Chapter 1, “Channelized QPP Interfaces”

Chapter 2, “Flow Monitoring”

Chapter 3, “GMPLS”

Chapter 4, “Graceful Restart”

- Chapter 5, “Connecting IPv6 Islands with IPv4 MPLS”
- Chapter 6, “Layer 2 Circuits”
- Chapter 7, “Logical Routers”
- Chapter 8, “Multicast over Layer 3 VPNs”
- Chapter 9, “Multiple Instances for Label Distribution Protocol”
- Chapter 10, “MPLS LSP Link Protection and Node-Link Protection”
- Chapter 11, “OSPF Version 3 for IPv6”
- Chapter 12, “Simplified Interinstance Route Sharing”
- Chapter 13, “Source Class Usage”
- Chapter 14, “Translational Cross-Connect and Layer 2.5 VPNs”
- Chapter 15, “Virtual Private LAN Service”

This manual also contains a table of contents, a list of tables, a list of figures, a glossary, and a complete index.

## Using the Index

This manual contains a complete index, where bold page numbers point to pages in the statement summary chapters. The index entry for each configuration statement always contains at least two entries. The first, with a bold page number on the same line as the statement name, references the statement summary section. The second entry, “usage guidelines,” references the section in a configuration guidelines chapter that describes how to use the statement.

## 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 configuration 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 on page xxii lists the software and hardware books for Juniper Networks routers and describes the contents of each book.

Table 1: Juniper Networks Technical Documentation

| Book  | Description   |
|---|---|
| <b>JUNOS Internet Software 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>Getting Started</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</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 router.   |
| <i>Network Management</i>   | Provides an overview of network management concepts and describes how to configure various network management features, such as SNMP, accounting options, and cflowd.   |
| <i>Policy Framework</i>   | Provides an overview of policy concepts and describes how to configure routing policy, firewall filters, and forwarding options.  |
| <i>Routing and 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 router.   |
| <i>VPNs</i>   | Provides an overview of Layer 2 and Layer 3 Virtual Private Networks (VPNs), describes how to configure VPNs, and provides configuration examples.  |
| <b>JUNOS Internet Software References</b>   |   |
| <i>Operational Mode Command Reference: Interfaces</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 routers.  |
| <i>Operational Mode Command Reference: Protocols, Class of Service, Chassis, and Management</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 routers.   |
| <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 API to monitor and configure Juniper Networks routers.  |
| <i>JUNOScript API Reference</i>   | Provides a reference page for each tag in the JUNOScript API.   |
| <b>JUNOS Internet Software Comprehensive Index</b>  |   |
| <i>Comprehensive Index</i>  | Provides a complete index of all JUNOS Internet software books and the <i>JUNOScript API Guide</i> .  |
| <b>Hardware Documentation</b>   |   |
| <i>Hardware Guide</i>   | Describes how to install, maintain, and troubleshoot routers and router components. Each platform has its own hardware guide.   |
| <i>PIC Guide</i>  | Describes the router Physical Interface Cards (PICs). Each router platform has its own PIC guide.   |

| Book   | Description   |
|--|---|
| <b>Release Notes</b>                         |   |
| <i>JUNOS Internet Software Release Notes</i> | Provide a summary of new features for a particular software release. Software release notes also contain 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 router platform and summarize known problems with the hardware and accompanying software. Each platform has its own release notes.   |
| <b>JUNOScope Software</b>                    |   |
| <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 router configuration files and monitor router operations.  |

## 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](mailto:techpubs-comments@juniper.net).

## How to Request Support

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

